



NET ZERO CITIES

EU MISSION PLATFORM | CLIMATE NEUTRAL AND SMART CITIES

Climate City Contract

2030 Climate Neutrality Action Plan Cork City



Comhairle Cathrach Chorcaí
Cork City Council

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Abbreviations and acronyms

The list of abbreviations and acronyms **identifies the abbreviations** (a shortened form of a word used in place of the full word) **and acronyms** (a word formed from the first letters of each of the words in a phrase or name) used in the CCC Action Plan.

Abbreviations & acronyms	Definition
AFOLU	Agriculture, Forestry and Other Land Use
AHB	Approved Housing Bodies
BAU	Business as usual
BEC	Better Energy Communities
BEE	Built Environment & Energy
BEI	Baseline Emissions Inventory
BER	Building Energy Rating
BIM	Building Information Modelling
CAC	Climate Action Committee
CAP	Cork City Climate Action Plan 2024-2029
CARO	Climate Action Regional Office
CBA	Cork Business Association
CCAC	Climate Change Advisory Council
CCC	Climate City Contract
CCMA	County and City Management Association
CCS	Carbon Capture and Storage
CDP	City Development Plan 2022-2028
CDP / ICLEI	Carbon Disclosure Project / ICLEI
CETB	Cork Education and Training Board
CIF	Construction Industry Federation
CMATS	Cork Metropolitan Area Transport Plan
CNAP	Climate Neutrality Action Plan
CP	Communities and Partnerships
COM	Covenant of Mayors
CRU	Commission for the Regulation of Utilities
DECC	Department of Environment Climate and Communications
DHLGH	Department of Housing, Local Government and Heritage
DOH	Department of Health
DOT	Department of Transport
EIB	European Investment Bank
EMP	Energy Master Plan
EOI	Expression of Interest
EPA	Environmental Protection Agency
ESB	Electricity Supplies Board

Abbreviations & acronyms	Definition
ETS	Emissions Trading Scheme
EU	European Union
EV	Electric Vehicle
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GL	Governance and Leadership
GNI	Gas Networks Ireland
GPP	Green Public Procurement
HSE	Health Services Executive
IBEC	Irish Business and Employers Confederation
ICC	Intelligent Cities Challenge
ICLEI	Local Governments for Sustainability Network
IGBC	Irish Green Building Council
IPCC	Intergovernmental Panel on Climate Change
IPPU	Industrial Processes and Product Use
LACAP	Local Authority Climate Action Plan
LAWPRO	Local Authority Waters Programme
LDA	Land Development Agency
LECP	Local Economic and Community Plan
LGMA	Local Government Management Agency
LRD	Large Scale Residential Development
LULUCF	Land Use, Land-use Change and Forestry
MTU	Munster Technological University
NASC	Nasc, the Migrant and Refugee Rights Centre
NCAP	National Climate Action Plan
NERM	Natural Environment & Resource Management
NTA	National Transport Authority
NZC	Net Zero Cities
NZEB	Near Zero Energy Buildings
NZEV	Near-Zero Emission Vehicles
OPW	Office of Public Works
PMDS	Performance Management Development System
PPN	Public Participation Network
RAPID	Revitalising Areas through Planning Investment and Development
RE	Residual Emissions
RES	Renewable Energy Sources
RSES	Regional Spatial and Economic Strategy
SA	Small Area
SEAI	Sustainable Energy Authority of Ireland
SEC	Sustainable Energy Communities
SHD	Strategic Housing Development

Abbreviations & acronyms	Definition
SHEP	Social and Health Education Project
S/SWHG	South/Southwest Hospital Group
TII	Transport Infrastructure Ireland
TM	Transport and Mobility
TMF	Transport and Mobility Forum
UCC	University College Cork
UNESCO	United Nations Educational, Scientific and Cultural Organization
WAM	With additional measures
WERLA	Waste Enforcement Regional Lead Authorities
WHO	World Health Organisation

List of annexes

[Cork City Climate Action Plan](#)

[Climate Action Plan Baseline Emissions Inventory](#)

[Climate Action Plan Climate Change Risk Assessment](#)

[Climate Action Plan Residential Survey](#)

[Climate Action Plan Climate Conversations](#)

[Climate Action Plan Young Social Innovators Climate Workshop](#)

[Climate Action Plan Chief Executives Report](#)

[Climate Action Plan Evidence and Engagement Summary Report](#)

[Climate Action Plan Baseline Emissions Survey Methodology](#)

Summary

Climate action is at the heart of an ambitious vision for the future of Cork. The National Development Plan envisages Cork as the fastest growing city in Ireland up to 2040. The city is benefitting from rapidly growing FDI and significant public sector investment. At the same time, Cork is particularly vulnerable to the extreme impacts of climate change. Flooding has been a recurrent theme in our city's history. While our resilience is growing, we have firsthand experience of climate induced hazards and the multi-dimensional costs incurred.

Cork City Council's **vision:** Cork City is transforming into a climate neutral and resilient city. We are rapidly becoming a fairer, healthier, more economically vibrant, and more sustainable place to live, work and do business.

Cork City has established three inter-linked goals for 2030:

- 1. Achieve net-zero GHG emissions in line with the EU's Climate -Neutral and Smart Cities Mission's objective, which we consider a minimum of an 80% emissions reduction over 2018 baseline levels.**
- 2. Protect and enhance our natural and built environment for future generations, and**
- 3. Establish best-practice governance to lead the city into a sustainable and prosperous future.**

The outcome of our work in 2023 was the [Cork City Climate Action Plan 2024-2029 \(CAP\)](#) and [annex of actions](#) which was adopted by the City Council in February 2024. It describes the city-level actions to achieve the National Climate Ambition, set out in the [Climate Action and Low Carbon Development \(Amendment\) Act, 2021](#), of a 51% reduction of GHG emissions by 2030. Our approach is to integrate actions that help the city to mitigate emissions and adapt to climate change.

The Cork City CAP is incorporated into our Cork City 2030 CNAP providing measures to achieve 51% of emissions reduction in the city by 2030. The CCC builds on this foundation to achieve the more ambitious net zero city goal. Our CAP establishes enabling conditions for action in key sectors and redoubles our commitment to accelerate implementation in those sectors. The CCC extends the impact of the CAP by identifying gaps and addressing some of the more challenging policy areas needed to achieve net-zero.

The CCC has identified five priority themes and their specific objectives:

Governance & Leadership

- Our community will work together through an inclusive and accountable governance structure to achieve a fair climate transition that leaves no one behind.
- A governance structure that engages people living and working in the city and supports them in gaining knowledge and acting, individually and collectively, in ways that protect and enhance our climate and environment.

Communities & Partnership

- Climate action will be mainstreamed in all areas of community development, including for youth, gender, poverty and social inclusion, integration, health, arts, and travel, among others.
- The diverse community groups in Cork City will play a significant role in climate action, achieving a fair and inclusive transition.
- The City Council and other institutions will facilitate individuals and community groups to act.

Built Environment & Energy

- Institutions and building owners in Cork City will work together to accelerate retrofitting and the installation of renewable energy systems.
- Innovation will be de-risked for building owners and effectively tested in the city and, where successful, will be rapidly scaled up.
- The expansion zones and regeneration areas are flagship, climate-positive development projects that integrate our policies and good practices set out in the City Development Plan, the Green and Blue Infrastructure Strategy, and the Trees Strategy, among others.

Transport & Mobility

- People living and working in Cork City will avail of an excellent sustainable public transport system and accessible, safe active-travel routes, using a car as a last resort.
- Provision of multi-modal sustainable transport options for everyone.
- Reduced car ownership and significantly reduced car use in the city.

Natural Environment & Resource Management

- Green space will be easily accessible on foot by all residents.
- The potential for carbon sequestration, nature and biodiversity gain, and climate-risk mitigation through green and blue infrastructure will be maximised in every new development and established neighbourhood.
- The city will adopt the reduce-reuse-recycle principle of a circular economy.

The relationship between the Cork City CAP 2024 – 2029 and the CCC can be clearly seen in figure 1 below;

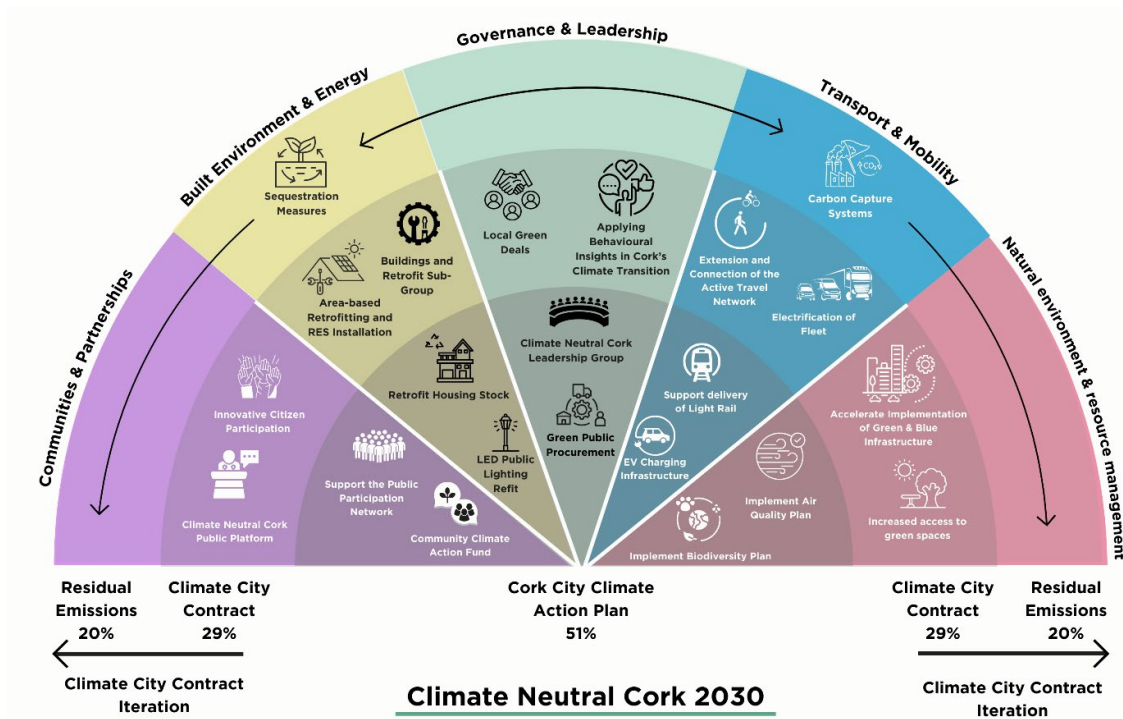


Figure 1: Relationship between the Cork City CAP and CCC

Cork's CCC is a **principled plan**. It builds on the 2019 [Climate Action Charter](#). While this plan supersedes some of the specific clauses of the Charter, its commitment to a participatory approach that includes residents' voices, strong partnerships including with business and academia, and the mainstreaming of climate action in all our work, such as planning and regulation, and effective monitoring and evaluation, remain highly relevant.

Our principles are:

- **Cork City residents support climate action.** Our proposals will be bold and ambitious. Business as usual will not be enough. We will ensure citizens are at the heart of decision-making throughout the transition.
- We will take risks through **innovation** and **learn from our mistakes**.
- **Our transition to net zero will be fair.** It will help the most vulnerable groups in the city so that climate action does not push them further behind.
- We will seek out **creative and high-impact partnerships** with our community organisations, businesses, and academic institutions, among others, to drive and accelerate progress.

These principles are established in the Cork City CAP 2024-2029, adopted by the City Council in February 2024. Stakeholders' willingness to engage and our shared principles will be applied consistently throughout the implementation of the CCC.

Introduction

The introduction outlines the local geographic and policy context in which the city's 2030 Climate Neutrality Action Plan (CNAP) is being developed and describes the gap it addresses in broad terms. It includes:

- The administrative territories included in the city's 2030 climate neutrality target. Where applicable, any districts or emission sources within these administrative boundaries that are excluded from the target of climate neutrality by 2030¹. Table I-1.1 summarizes this narrative in a snapshot.
- Key data on the administrative and political organisation of the city, its demographic and socio-economic characteristics, and climate-relevant sectors.
- A clear description of the relationship of this CCC Action Plan with existing climate policies and strategies (further detailed in Module A-2), and how it builds on them to address the gap (if any) to climate neutrality.
- Background information on the work process of developing the city's CCC Action Plan, highlighting its connection with the other Climate City Contract components (2030 Climate Neutrality Commitments and 2030 Climate Neutrality Investment Plan).
- A description of future steps planned timeline and milestones for future iterations for the continuous development of the CCC Action Plan.

¹ By default, the participating city would commit the whole city or entity to become climate-neutral. However, where duly justified, the city may propose to exclude one or more district(s) or sources of emissions from the 2030 deadline, but in this case should commit to a strategy of climate neutrality for these districts as soon as possible, and of course no later than 2050. In this context, districts will be considered as neighbourhoods or zones of special interest of a city administered or governed by some type of "district council".

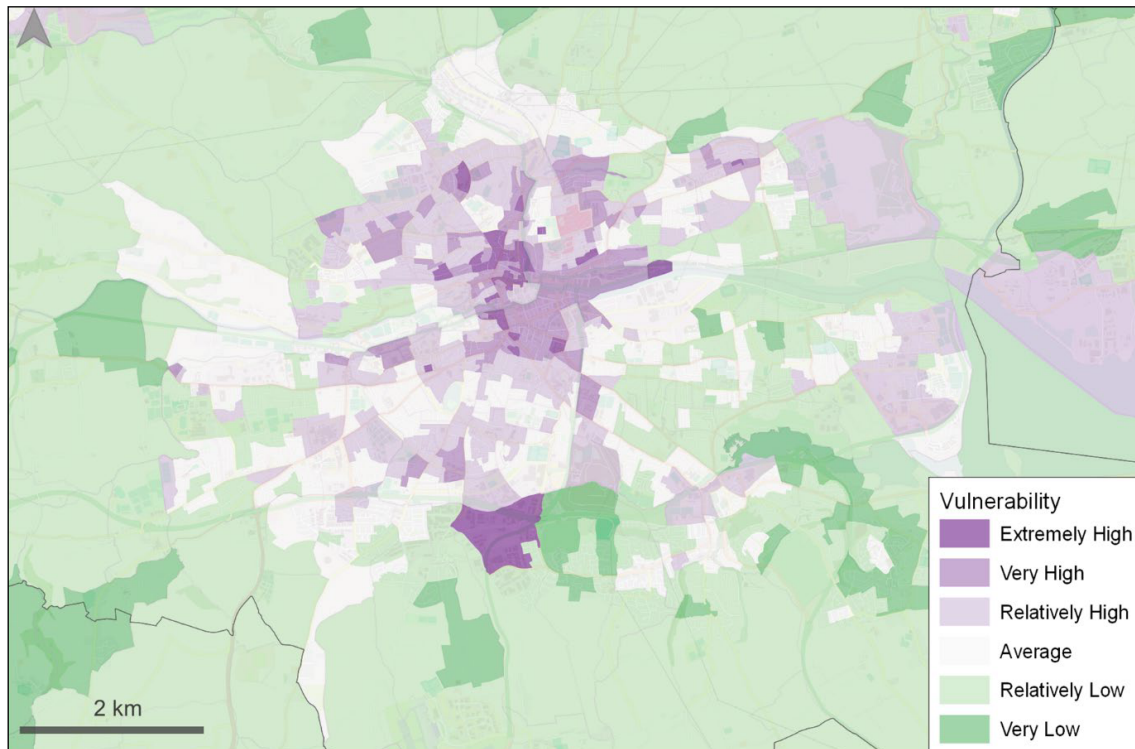


Figure 3: UCC REACHOUT Climate Vulnerability Index

Alignment:

Climate Action in Ireland is driven and informed by the [Climate Action and Low Carbon Development \(Amendment\) Act of 2021](#). The act established the National Climate Ambition to transition to a climate resilient, biodiversity rich, environmentally sustainable and climate neutral economy no later than 2050. The act establishes [sectoral emissions ceilings](#), [carbon budgets](#), annual [climate action plans](#), a [long-term emissions reduction strategy](#) and a [national adaptation framework](#) as the tools to achieve the national ambition. An interim target of a 51% emissions reduction over a 2018 baseline was established by the act, in line with EU Climate Law and the IPCC's 1.5°C pathway. The independent CCAC, a statutory body established to review progress on implementation of the act and its instruments, reported in its annual report for 2023 that “at the current rate of policy implementation, Ireland will not meet the targets set in the first and second carbon budget periods unless urgent action is taken immediately and emissions begin to fall much more rapidly”.

In February 2024 the [Cork City CAP 2024-2029](#) (CAP) was formally adopted by the City Council. In 2021 the National CAP required all Local Authorities to prepare a local-level 5-year CAP, including both mitigation and adaptation measures, and to develop a decarbonisation zone to test mitigation and other measures. The CAP brings together new and existing policy actions from across the City Council's functional areas, and The Cork City CAP, the first in the city's history, has three goals:

1. To achieve **net-zero GHG emissions** as soon as possible, in line with the EU's Climate-Neutral and Smart Cities Mission's objective, by identifying and testing approaches to acceleration in all five thematic areas.

2. Protect and enhance our **natural and built environment** for future generations.
3. Establish **best-practice governance** to lead the city into a sustainable and prosperous future.

The CAP groups 129 actions into five themes, which constitute our strategic priorities: governance and leadership; communities and partnerships; the built environment and energy; transport and mobility; and the natural environment and resource management. Implementation will be undertaken while observing four core principles:

- **Cork City residents support climate action.** Our proposals will be bold and ambitious. Business as usual will not be enough.
- We will take risks through **innovation** and **learn from our mistakes**.
- **Our transition to net zero will be fair.** It will help the most vulnerable groups in the city so that climate action does not push them further behind.
- We will seek out **creative and high-impact partnerships** with our community organisations, businesses, and academic institutions, among others, to drive and accelerate progress.

Cork City joined the Climate Neutral and Smart Cities Mission in 2022 to signal its ambition to achieve net zero emissions as quickly as possible, and to avail of the significant learning opportunities associated with participation in the Mission. Cork City also joined the EU Missions on Adaptation to Climate Change and to Restore our Oceans and Waters, around the same time.

The Cork Climate City Contract (CCC) builds on the foundation of the CAP and extends its ambition to the achievement of net-zero GHG emissions by 2030 target. The CCC identifies sectors and activities where the need for decarbonisation exists, but where the city has not yet fully specified its implementation strategy and expected emissions reduction impact. Future iterations of the CCC will specify both. The relationship between the Cork City CAP and the CCC is shown below in Figure 1.

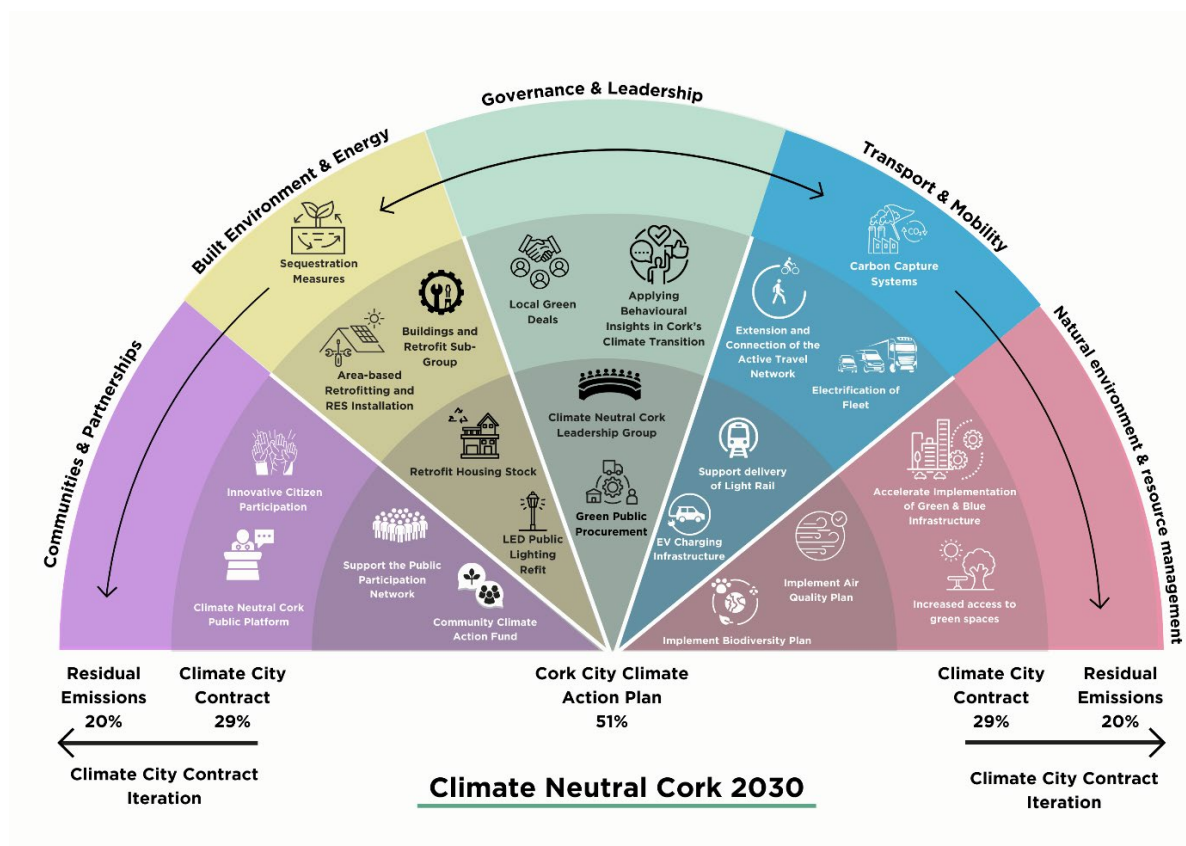


Figure 1: Relationship between the Cork City CAP and CCC

Cork City Council's vision is that "Cork City is transforming into a climate neutral and resilient city. We are rapidly becoming a fairer, healthier, more economically vibrant, and more sustainable place to live, work and do business". Our elected representatives are committed to the achievement of this vision. The City's first CAP was unanimously adopted on February 12th, 2024. The city is home to a diverse array of stakeholders in business, the public sector, academia, and community organisations all forging towards a more sustainable and climate neutral future, and with strong support from the public, who are demanding that action is taken. **We are working together to achieve climate neutrality as soon as possible. Our target is to achieve a minimum of an 80% emissions reduction over 2018 baseline levels by 2030.** This target is consistent with, but more specific, than our EOI.

There are two specific exclusions from this plan. Flights from Cork City Airport and navigation of ships entering and leaving the Port of Cork, both of which currently sit within the city boundary, are excluded from the calculations in Cork City's Baseline Emissions Inventory (BEI). There is no currently available methodology for calculating these emissions on a small area basis. It is noted that Cork International Airport is implementing a [sustainability strategy](#) to achieve net zero emissions in the operation of its terminal and campus well in advance of 2050. Flight emissions are included in the EU Emissions Trading Scheme (ETS) and are governed, in Ireland, by the [Environmental Protection Authority](#). The Port of Cork is in the process of implementing [its masterplan for 2050](#). This plan will see the movement of its operations out of the Cork City boundary to the Lower Harbour area. The City Quays Facility will have moved by 2028 and the Tivoli Docks will move between 2030 and 2040. We intend to address port related emissions in future iterations of the CCC.

Cork City has been implementing both public and private measures to reduce emissions prior to joining the Cities Mission or the adoption of our first CAP. In the privately-owned housing sector, for example, [the Sustainable Energy Authority of Ireland \(SEAI\) report](#) that as of 29/02/2024 nearly 10% of stock (5,234 of 57,438 buildings) has undertaken retrofitting work and received €19,880,540 of public incentives to act. As a result, the Sustainable Energy Authority of Ireland (SEAI) estimates that 14.82% of private homes meet the Building Energy Rating (BER) of B2 or above (<100 kWh/m²/year), which SEAI consider the cost-optimal standard for retrofitting. Cork City Council owns approximately 11500 social housing units in the city. The City Council retrofitting programme has, so far, completed 900 units to a BER B2 standard, and plans to complete 2750 units by 2030, approximately 25% of the publicly owned housing stock, notwithstanding systemic constraints on contractor availability and capacity. The Irish Government has committed to retrofit all social housing by 2050. Cork City Council has also constructed 66 km of cycle infrastructure in the city and achieved the National Transport Authority's (NTA) Active Travel Mark. We achieved a 44% reduction in gas use and a 50% reduction in electricity use due to energy efficiency upgrades at Bishopstown Leisure Centre in 2022, one of the City Council's biggest energy users.

Cork City has developed and utilised a work process that mirrors elements of the Net Zero Cities (NZC) Climate Transition Map. The process has been instrumental in the development of the Cork City CAP 2024-2029, as follows:

Building a strong mandate: (C & C Checklist 8)

- In 2019 Cork City Council unanimously adopted a resolution declaring a climate and biodiversity emergency in the city and the establishment of a cross-party Climate Action Committee (CAC) to scrutinise city-level climate policy. The Committee has met monthly since 2019, demonstrating a strong and quite unified commitment to transition among elected members.

In 2023 Cork City Council undertook a [household survey of behaviours and attitudes to climate change](#) in the city. 509 face-to-face interviews took place across a representative sample of the city's population. The survey found that 86% of respondents supported the statement that Cork City must transform into a more sustainable place to live and work that is climate neutral and resilient. This is consistent with findings from the national level [Climate Change in the Irish Mind](#) wave 2 study of 2024.

The city's first CAP was opened to public consultation in November 2023. 72 submissions were made, of which 71 were positive in support of the plan, and with many urging faster and more ambitious action.

Taken together, these measures provide evidence of a strong mandate for change in Cork City. This is also reflected by the diverse and committed participation in the Climate Neutral Cork Leadership Group, the governance mechanism established to design and deliver our net zero ambition. There is a strong consensus that, based on the evidence below, our strategic objectives are the right ones.

The Climate Neutral Cork Leadership Group is made up of representatives of a wide variety of engaged stakeholders that have a shared interest in building a thriving, sustainable, and resilient city.

Apart from Cork City Council the following organisations are included:

- [Munster Technological University](#)
- [University College Cork](#)
- [Cork Business Association](#)
- [Cork Chamber of Commerce](#)
- [Health Service Executive](#)
- [Construction Federation Ireland](#)
- [Irish Employers and Business Confederation](#)
- [Bus Éireann](#)
- [An Garda Síochána](#)
- [Cork Public Participation Network](#)
- [Iarnród Éireann](#)
- [Cork Education and Training Board](#)

Understanding the system:

The CAP was built on a robust evidence base that included a [baseline emissions inventory](#) (BEI), and a [climate change risk assessment](#). It is important to note that our BEI shows a significant increase in emissions over the figures stated in our initial expression of interest (+239 kt CO₂ eq, for the following reasons:

- In 2019 the [Cork City Council boundary was extended](#) to five times its 2011 size and to incorporate approximately 85,000 additional people.
- EOI was based on 2011 data, BEI on 2018 data, but incorporating the extended city boundary.
- The methodology used in 2018 had evolved and incorporated public services, agriculture, LULUCF, and fishing, and waste handling and treatment sectors.

Using 2018 baseline data the emissions inventory found that Cork City emitted a total of 987 kt CO₂ eq. The most significant sectors were household emissions, 34% of the total (332 kt CO₂ eq), road transport at 29% of the total (290 kt CO₂ eq), and commercial or industrial buildings at 22% of the total emissions (216 kt CO₂ eq). Public services, which the City Council's assets, development activities and operations are a part, contributed 7% of emissions, or 65 kt CO₂ eq. Cork's GHG emissions are overwhelmingly from the private assets and activities of citizens and private sector entities of all kinds. Per capita emissions were assessed to be approximately 4.7 tonnes CO₂ eq relative to the national average, in 2018, of 14.4 tonnes CO₂ eq per capita. This is largely attributable to the limited

agricultural and industrial emissions within the city boundary. The city population in 2018 was approximately 210,000.

Emissions Breakdown by Sector for Cork City

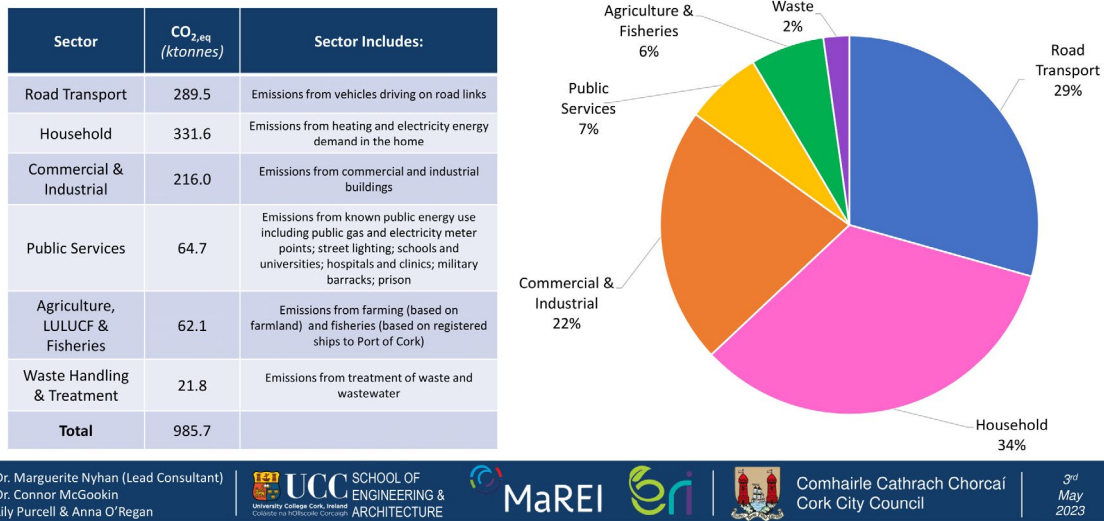


Figure 4: Cork City Baseline Emissions Inventory, Sectoral Emissions; UCC, 2023

The Climate change risk assessment projected, out to 2050, increased frequency and intensity of all types of flood risk (pluvial, fluvial and tidal), heatwaves and droughts. These hazards were expected to cause increased loss and damage to the city's finances, heritage, society, and reputation, among other assessed factors. The Cork City climate change risk assessment does not evaluate risk relative to assessed vulnerability, but we expect to integrate risk and vulnerability assessment in future iterations. Our partners at University College Cork have developed a socio-economic vulnerability index utilising 2022 census data under the EU funded REACHOUT project to assist with this.

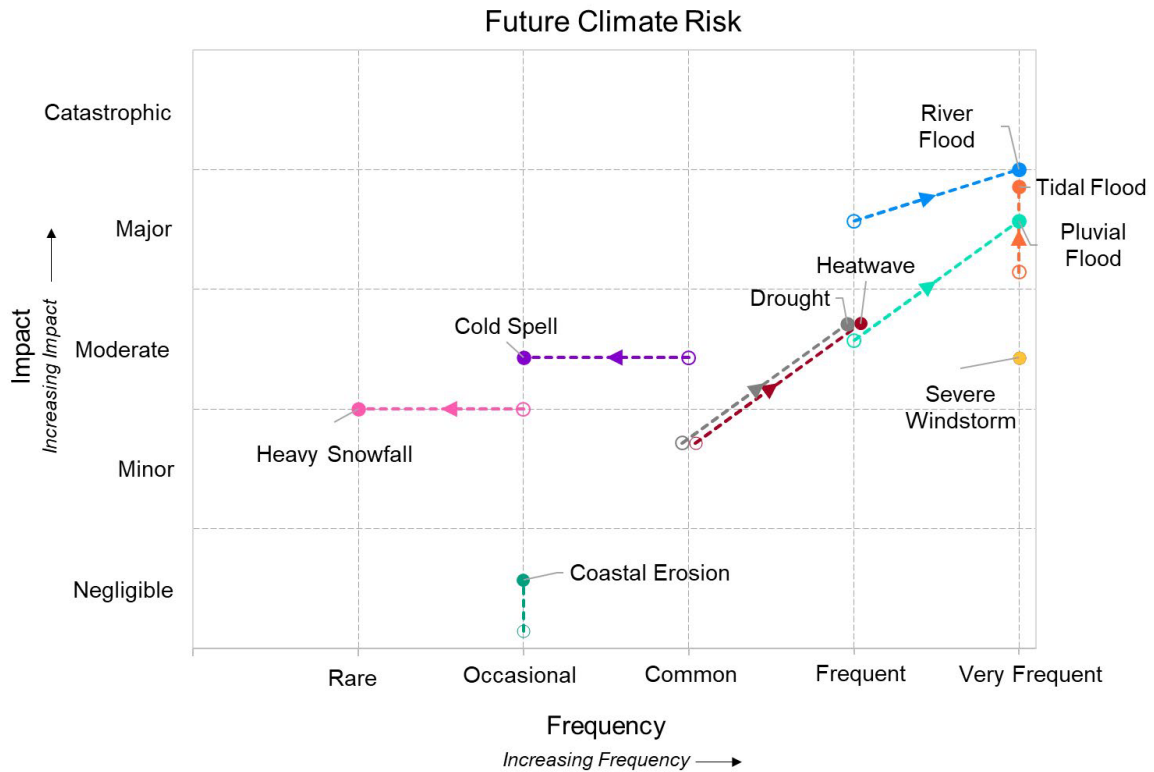


Figure 5: Cork City Climate Change Risk Assessment Future Climate Risk; KPMG 2023

Future Impacts

Taking into account the changes in exposure and vulnerability, the future change in impacts for each of the ten hazards was assessed, the potential future changes in impact are outlined below with the change in impact shown in bold

Hazard	Assets		Health and Wellbeing		Environment		Social		Cultural Heritage		Financial		Reputational	
	Current	Future (2050)	Current	Future (2050)	Current	Future (2050)	Current	Future (2050)	Current	Future (2050)	Current	Future (2050)	Current	Future (2050)
Heatwave	Minor	Moderate	Minor	Moderate	Negligible	Minor	Minor	Moderate	Negligible	Minor	Minor	Moderate	Minor	Moderate
Drought	Negligible	Minor	Minor	Moderate	Minor	Moderate	Minor	Moderate	Minor	Moderate	Negligible	Minor	Minor	Moderate
Cold Spell	Moderate	Moderate	Moderate	Moderate	Negligible	Negligible	Moderate	Moderate	Minor	Minor	Moderate	Moderate	Minor	Minor
Heavy Snowfall	Minor	Minor	Minor	Minor	Minor	Minor	Moderate	Moderate	Negligible	Negligible	Minor	Minor	Minor	Minor
Severe Windstorm	Moderate	Moderate	Minor	Minor	Minor	Minor	Moderate	Moderate	Minor	Minor	Moderate	Moderate	Minor	Minor
Tidal Flood	Major	Major	Moderate	Major	Minor	Moderate	Moderate	Major	Moderate	Major	Major	Major	Moderate	Major
Coastal Erosion	None	Negligible	None	None	Negligible	Minor	None	None	None	None	None	Negligible	None	None
Pluvial Flood	Moderate	Major	Moderate	Major	Minor	Moderate	Minor	Moderate	Minor	Moderate	Moderate	Major	Moderate	Major
River Flood	Major	Major	Moderate	Major	Moderate	Major	Major	Major	Moderate	Major	Major	Major	Major	Major

Figure 6: Cork City Climate Change Risk Assessment, Future Impacts; KPMG, 2023

Co-create a portfolio: (C & C Checklist 9)

Extensive consultation through a series of [Climate Conversations](#), with over 1000 individuals representing stakeholders from the business community, elected representatives, public sector institutions, the community development sector, children and [young people](#) were held in May and June 2023. A [summary](#) for ease of access to information was also published. The Cork City CAP sets out the steps to take at the local level that will achieve, and in our case exceed, the national climate ambition by 2030. Contributions to the climate conversations helped to shape the Cork City CAP, in tone, in ambition and in the principles that underpinned it, including the mandate to act, the centrality of climate justice, the risk appetite necessary to innovate and take risks, and the demand for new, deeper and higher impact partnerships across the city.

Following the publication of the first CAP in November, the public were consulted again. 72 submissions that led to the inclusion of 10 new actions and amendments to 7 other actions. Overall, the submissions made during public consultation were strongly supportive of climate action and the goals set out, with most submissions making the case to increase ambition. The Cork City CAP was adopted by the full City Council on February 12th 2024, and given its public launch on March 22nd 2024.

Cork City Council will repeat the climate conversations with citizens and stakeholder groups throughout the city when preparing bi-annual updates to the plan. Furthermore, we are mainstreaming the climate action discourse in established mechanisms, including the apparatus developed as part of the City's designation as a UNESCO Learning City and as a WHO Healthy City, among others (see section C below). We have committed, within our plan, to investigate and test novel forms of engagement with citizens, for example through citizen juries and participatory budgeting, to increase citizen participation in decision-making for climate action, which will help to further strengthen the mandate for change. We are still investigating which options might work best for Cork and so are not ready to define structures, scale, budgets or other operational aspects of these engagement processes. This will be clarified in the second iteration of the CCC in 2026.

Cork City Council is now working with partners and stakeholders across the city to secure Commitments to the Net Zero Transition. We have already secured commitments to the CCC from most members of our Climate Neutral Cork Leadership Group and from the Department of Environment and Climate Change at the central government level. We are developing commitments with the business community, academic institutions, public sector institutions and community-based organisations. As a participant in the Intelligent Cities Challenge 2.0 (ICC), we are utilising the ICC format for local green deals to document commitments to the Mission objectives and as a means to bundle bankable projects led by different stakeholders into investment-ready portfolios.

Cork City Council has put in place an inclusive governance mechanism to contribute to and support the citywide transition that will work alongside the well-established internal management structures that have been put in place over the past five years, shown in Figure 7 below. The Structure provides for a city-wide Climate Neutral Cork Leadership Group comprising experts and leaders from a wide-range of entities in the city – academia, business, public sector and community. The Climate Neutral Cork Leadership Group is chaired by the Chief Executive, Cork City Council. Its role is threefold – to harness their organisations to the movement for net zero transition in the city, to amplify the work being planned and delivered, to review progress towards net zero and

to suggest ways to accelerate progress. The City's elected representatives, who are members of the City Council's CAC, review net zero policy and actions, provide input into policy implementation, and help to mobilise and inform their communities of progress and challenges.

In Ireland multi-level governance is critical. The Irish governance model is more centralised than in many other EU member states, so Local Authorities must work closely with central government departments to develop and test innovative new ways of working. Currently, central government largely determine [how resources are invested](#). In 2018, for example, only around 9% of total government expenditure was made by Local Authorities, one of the lowest levels in Europe. The Irish Government committed, in the [National Climate Action Plan 2023](#), to support the two Irish Mission Cities, Cork and Dublin, through the establishment of a National Mirror Group comprising multiple departments to coordinate support for the cities.

4.3.5. The Department of the Environment, Climate and Communications will coordinate engagement across Departments to bring together an interdepartmental group to oversee the Cities Mission and to ensure that the necessary support is provided to the participating cities – Dublin and Cork.

Supporting city level innovation through enhanced policy coherence and financial support for new approaches will be critical to the success of the mission in Cork City.

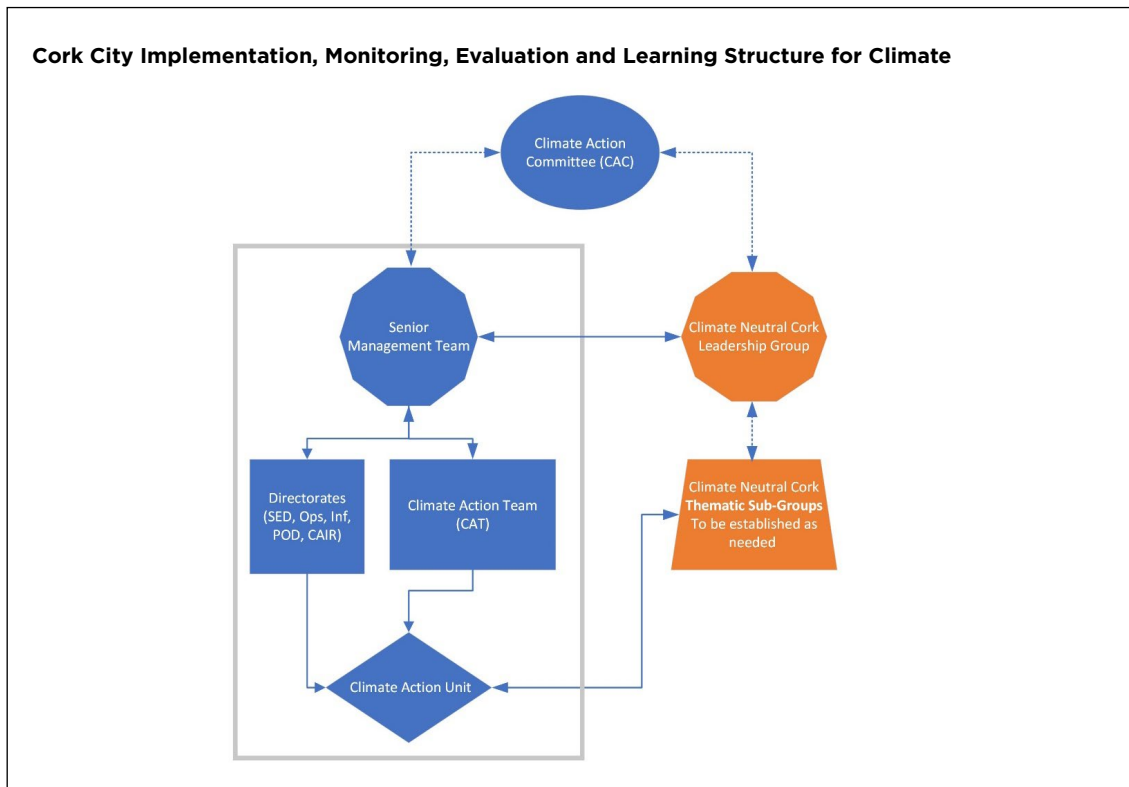


Figure 7: Implementation, Monitoring, Evaluation and Learning Structure



We are planning to start a public platform, provisionally named Climate Neutral Cork, which will provide information services and knowledge exchange of the city's climate actions to the public and to engaged stakeholders. The platform is envisaged as a website that will also organise real-world events to provide opportunities to network and collaborate, recognise progress and learn from experience. The platform will provide the means for the whole community to be informed, to make their voices heard, and to co-create initiatives of different kinds to accelerate progress. The implementation model is still to be determined. We expect to launch the platform in 2025.

Cork City is starting out on its journey towards net zero.

It is our intention to make rapid progress on decarbonisation and to achieve net zero by 2030. We have many projects in development or being implemented today, and many more opportunities to explore and implement. The first iteration of our CCC builds on our CAP and states what we already have planned or ongoing. It identifies the main sectors where decarbonisation at scale is essential, but where we currently lack data, specific plans and capacity to implement all needed measures. In future iterations of the plan, we will progressively specify the actions, costs and implementation strategies to address them. We will update this plan in 2026, and every two years from then on, with substantive input from the Climate Neutral Cork Leadership Group and its sub-groups. The CAC of the City Council will maintain its oversight and contribution. The revised plans will be developed in a coordinated manner through standing membership of the internal Climate Action Team, with support from the City Council's Climate Action Unit.

Table I-1.1 (C & C Checklist 12) sets out the emissions sectors included in our plan, and the exclusions. These are for scope 1 and 2 emissions, which are taken together rather than differentiated. Our calculation incorporated the rapid projected population growth expected in Cork. As the fastest growing city / region in Ireland, the National Planning Framework projects our population to be 353,583 by 2040. For planning purposes, our CDP projects 2031 population to reach 286,178. For the purposes of the CCC we are expecting our population to be 280,000 in 2030. We have incorporated this population growth into the sectoral emissions on a business-as-usual basis for 2030 and calculate both the per capita and gross emissions reductions in each sector from there.

Table I-1.1 2030 Emissions Reduction Target by sector and per capita

Sector	Included	Excluded	t CO ₂ eq	Per Capita (n=280,000 2030 pop) t CO ₂ eq
Stationary energy (household)	Average energy consumption for residential buildings (4 categories - detached, semi-detached / end terrace, mid-terrace, apartment), Space heating, water heating, electrical appliances, cooking and lighting		128,219	0.46
Stationary energy (commercial and industrial)	All emissions from commercial services including retail, hospitality, offices and industry. Main sources of energy demand are considered heating and electricity.		83,520	0.30
Transport	Private car travel, road freight, public service vehicles, and other vehicles.	International aviation and shipping	111,940	0.40
Waste / wastewater	Biological treatment (landfill, composting etc) and incineration of waste, wastewater treatment. Considered CO ₂ , CH ₄ , N ₂ O - CH ₄ was overwhelmingly the main type of GHG (96.4%)		8,429	0.03
Public Sector	All public services including Local Authority buildings, street lighting, universities, schools, military buildings, prisons, health buildings and hospitals		25,017	0.09
Agriculture, Land Use, Land Use Change, Forestry, and Fishing	All energy and non-energy emissions in ALULUCF	Emissions resulting from food consumption	24,012	0.09
Total emissions			381,137	1.36

Geographical Boundary	Same as the city boundary	Smaller than city administrative boundary	Larger than city administrative boundary
Tick correct option	X		
Specify excluded/ additional areas	The City Council boundary (C & C Checklist 11) is the same as the BEI coverage area and is shown in the map at Figure 8. Small adjustments were needed to align a small number of small areas used for the spatial analysis with some scales used in different emissions domains. Details are spelled out in the BEI methodology.		

Map

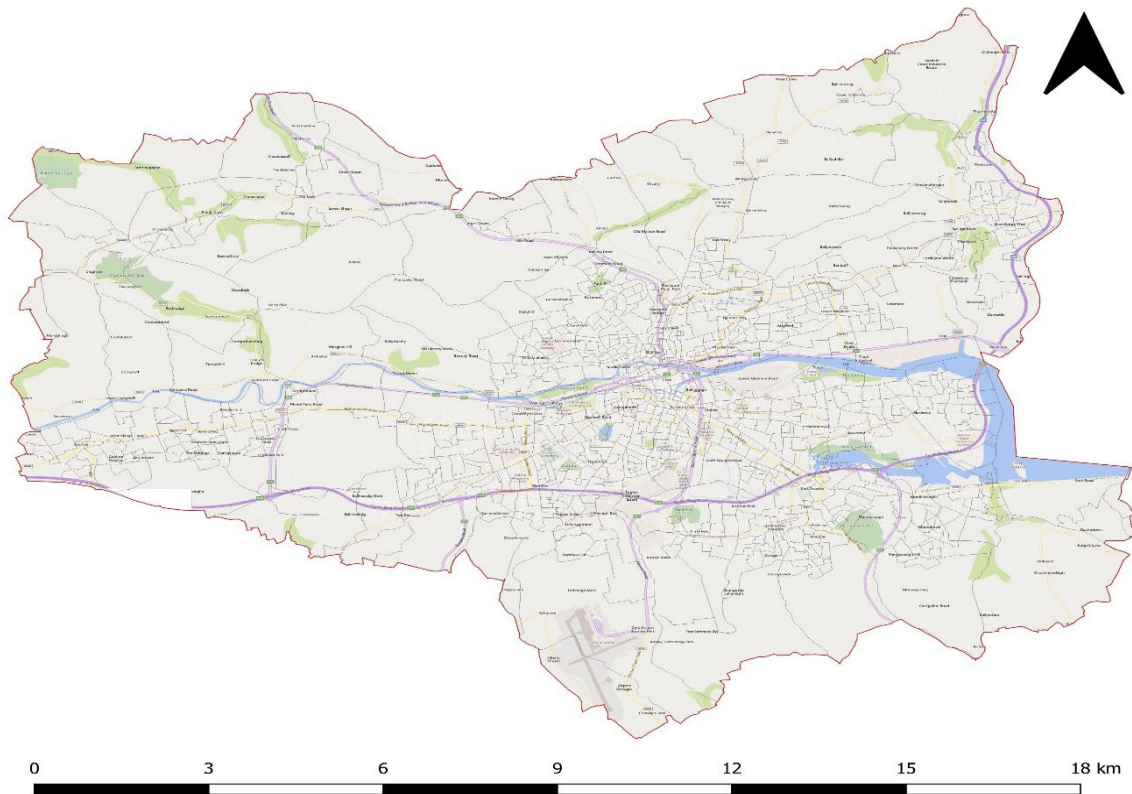


Figure 8: Cork City Council administrative area with 843 Small Areas shown within its boundary

Part

A

Current State of Climate Action

Part A “Current State of Climate Action” describes the point of departure of the city towards climate neutrality, including commitments and strategies of key local businesses, and informs the subsequent modules and the outlined pathways to accelerated climate action.

1.1

Module A-1

Greenhouse Gas Emissions Baseline Inventory

Module A-1 “Greenhouse Gas Emissions Baseline Inventory” details and describes the latest GHG inventory, where available from 2018 or more recent, referring to a clearly stated geographic boundary. The aim of this section is to establish the emission baseline and to establish the emissions gap to 2030 climate neutrality according to the inventory specifications defined in the Cities Mission’s [Info Kit for Cities](#)² and the process outlined in the CCC Action Plan Guidance and Explanations. It includes:

- Definition of geographic boundary of the GHG inventory and, if applicable, excluded areas, sectors, scopes, sources, gases.
- An explanation of any (current) mismatch between the boundary of the GHG inventory and the climate-neutrality target, including actions planned to address the mismatch.
- Key data and visualisation of the latest GHG inventory (ideally not older than 2018), according to the coverage (source sectors, scopes, and gases) specified in the Mission’s “Info Kit for Cities” to establish the emission baseline. If additional inventories are used in the CNAP, the same information should be provided for all inventories.
- Descriptive assessment of current GHG inventory, including a description of the current state of each emitting sector.
- Where a BAU scenario is used as baseline, a description of methodology and assumptions (for instance, which sectors/sources/gases are actually modelled; locally specific input variables vs. national or default data, etc.).

² European Commission, 2021, *Info Kit for Cities*, European Commission. Further guidance is available also in: NZC, 2023, *Guidance on target setting and emissions inventories for the Climate-neutral and Smart Cities Mission*, NetZeroCities <https://netzerocities.app/resource-3814>

GhG Emissions Baseline inventory

In Ireland, the government established a statutory requirement for all Local Authorities to produce local level Climate Action Plans to be adopted by February 2024. General [guidance](#) was provided by the government for Local Authorities to follow. Specific guidance to produce the [Baseline Emissions Inventory \(BEI\)](#) as part of the evidence base for their CAP was also provided. The guidance proposed both top-down and bottom-up approaches, with spatial analysis incorporated as and where possible. In Cork, we opted for a “Tier 3 Bottom-up Spatially-led” approach.

This involved:

- Gathering and processing relevant data on homes, vehicles, and businesses, etc. in each Small Area (SA) in Cork City
- Calculating energy demand in each SA for the following sectors: household; commercial and industry; public services; and agriculture & fishing.
- Determining fuel shares in the following sectors: household; commercial and industry; public services; and agriculture & fishing.
- Gathering data on electricity and gas use for Local Authority buildings and public lighting.
- Mapping road transport emissions based on the National Transport Authority Eneval model.
- Proportioning non-energy emissions in agriculture and LULUCF emissions based on agricultural areas.
- Computing and mapping the GHG emissions in each small area for the following sectors: household; transport; commercial services & industry; public services; agriculture, land use & fishing; and waste handling and treatment.

Cork City’s emissions are presented in absolute terms using kt CO₂ eq.

Cork City is a member of both the Covenant of Mayors (COM) and ICLEI. The COM Europe Methodology was used for the BEI cited in Cork City’s EOI using 2011 data. We have not reported either through the COM mechanism or the Carbon Disclosure Project / ICLEI mechanism. It is our intention to use the CDP / ICLEI reporting mechanism from 2026. Cork City has uploaded the 2023 BEI, based on 2018 data, with its CCC.

The BEI is intended to be regularly updated and to evolve as new techniques and data sets become available. Cork City Council had no capacity or experience to produce the BEI in house. We partnered with the [Nyhan Future Sustainability Research Group](#) at University College Cork to adapt the government guidance to best meet the needs of Cork City.

The Cork City Council boundary, shown in Figure 8, is the same as that covered by the BEI, including the territory incorporated into the city by the [2019 boundary extension](#). The total area covered by the City Council is 187 km². The area comprises 856 Small Areas (SA), which typically contain between 80 and 120 dwellings and are used for the compilation of census statistics. When the City Council boundary was extended some SA were both within and outside the new boundary. Where a SA had less than 10% of its area within the city boundary, it was omitted. 13 SA were consequently removed to give a revised total of 843 SA within the city boundary. Some data for SA that crossed the new boundary were proportioned on a % share of SA size within the boundary. This assumes that data is uniform across the area, which is unlikely to be the case in reality.

The Local Authority Climate Action Plan (LACAP) guidance from government did not require disaggregation of findings into scope 1, 2, or 3 categories. A data collection mechanism for scope 1, 2 or 3 emissions at the city level does not exist yet. This analysis will be done, to the extent that available data allows, in future iterations of the BEI. For this first iteration of the CCC we assume that all emissions are scope 1 and 2. We do not have data to estimate:

- Emissions from outside the city boundary (scope 2) due to the use of grid-supplied energy within the city boundary. For buildings our baseline methodology measures estimated actual consumption.
- Emissions from outside the city boundary (scope 2) due to the use of grid-supplied electricity used to charge electric vehicles.
- Emissions from the 519,033 tonnes waste collected within the city boundary in 2022 (latest available figures) but managed / sent to landfill outside the city boundary (scope 3).
- There is very little industrial activity within the Cork City boundary. Emissions in the commercial / industrial sector are dominated by space heating and electricity consumption for services provision. IPPU emissions are, consequently, not included in our baseline emissions inventory.

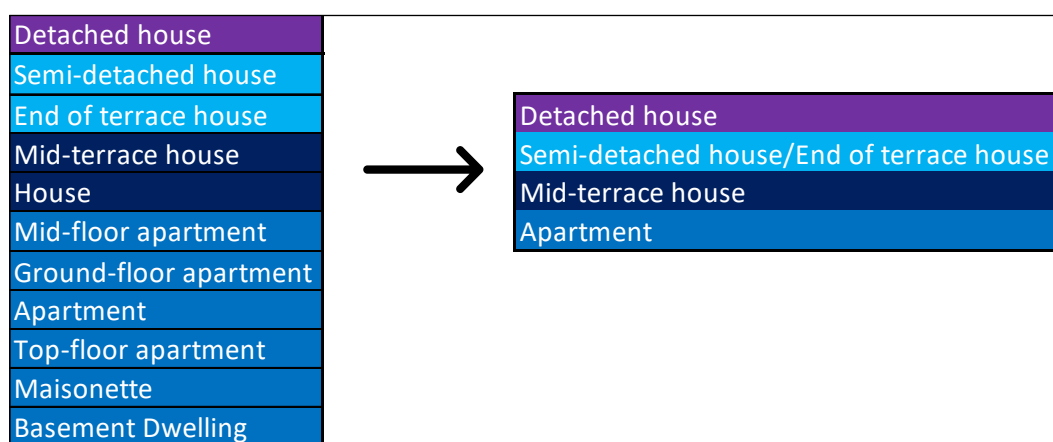
Conversion factors taken from SEAI's Energy in Ireland Report 2019 were applied to compute emissions from energy demand. The solid fuel factor is based on a 50/50 split between peat and coal.

Fuel	Natural Gas	Kerosene	LPG	Electricity	Solid Fuel	Diesel
ktCO ₂ /GWh	0.205	0.257	0.229	0.375	0.348	0.264

Assumptions and Limitations of the Sectoral Analysis in Cork City's BEI:

Residential Buildings:

- BER database used to build a housing stock profile of energy demand and fuel share by different end uses, 51% of houses in Cork City have a BER [7].
- The classification of housing types in the Census and BER database are different.
- The 11 dwelling types in the BER dataset were combined into 4 housing categories: detached, semi-detached, mid-terrace and apartment as below.



- Similarly, the 15 BER ratings, from A1 to G, were combined into 7 BER ratings, e.g. A1 and A2 were combined to just A.
- Some SAs had no BERs, and there was a large share with less than 10% of coverage.
- It is well known that the BER is a bad proxy for actual energy demand. The below correction factors (from Figure 27 in [18]) were used to adjust the kWh/m2 values for space and secondary heating.

A	B	C	D	E	F	G
84%	79%	66%	60%	57%	53%	47%

Commercial and Industrial Buildings:

- The Valuation Office provided total floor area by different business types in Cork City, but this was not available at the small area level and omitted hospitality buildings (hotels, B&Bs, bars, restaurants and Cafes).
- Floor area by business type was estimated using OpenStreetMap data [12], but there were issues with how some buildings were classified. The 62,864 buildings had to be manually verified to correct those that had been wrongly classified or had no classification. This was a very time intensive process. The vast majority were residential, with 2,611 commercial and industry buildings following several reviews of the data.

- OpenStreetMap data provides building footprint rather than total floor area, i.e. it doesn't include the extra floor area associated with two or three stories. Based on the average number of stories in within SEAI's 'Extensive survey of the commercial buildings stock in the Republic of Ireland' [19], a floor area ratio (ratio of floor area to building footprint) of 1.58 was determined.

Stories	1	2	3	4	5	6
No. of buildings	877	449	125	38	5	7

- The non-domestic BER release from CSO gives fuel source in main space heating within each county. However, this data is incomplete. In 2018, only 491 (19%) commercial and industry buildings had a BER out of 2,611 identified [11].
- There are no Irish energy benchmarks, so UK CIBSE guidelines were used [10].

Transport:

- In using the NTA model, only road transport was considered, which thus omitted aviation, rail and navigation. There is a lack of clear methodology for attributing the GHG emissions of these sectors on such a small scale. For example, many people may travel from outside Cork City to take international flights from Cork airport.
- The breakdown of diesel and petrol within the vehicle categories was not available from the Eneval data, only the total emissions on each road.
- Travel outside the county was not included. For example, if someone drove from Cork City to Waterford, once they cross the border their driving would no longer be within the study area. In contrast, a Tier 2 approach based on the km travelled by cars registered to Cork City would result in a higher estimate for total emissions.

Public sector:

- Buildings that didn't have metred data available (e.g. hospitals, schools) had the same issues as commercial & industry above.
- Floor area for the main hospital buildings was assumed to be 4 stories based on a site assessment of the Cork University Hospital and Mercy Hospital buildings.
- Public lighting data was incomplete, 80% of metred connections had zero values and 9.2 GWh out of 9.45 GWh of the electricity demand is currently unmetred. The unmetred value was evenly spread over the connections with zero values. However, there is likely differences across the city in the level of lighting and thus electricity demand.

Agriculture, Land Use & Fishing:

- Livestock and land use emissions portioned based on farm area, which doesn't capture the type of activity within the study area.
- Emissions calculated based on production rather than consumption. This means that the GHG footprint of food consumed (in shops, restaurants or bars) is not included, but rather the very small amount of food produced within the city boundary. The vast majority of food and drinks consumed likely come from outside the study area.

A-1.1: Final GHG emissions by source sectors		
Base year	2018	
Unit	kt CO ₂ eq	%
Stationary Energy: Residential Buildings	332 (4.2 tonnes CO ₂ eq per dwelling)	34
Electricity / natural gas / solid fuel	1174 GWh (14,883 kWh per dwelling)	
Stationary energy: Commercial and Industrial Buildings	216 (211.4 commercial, 4.6 industrial)	22
Electricity / natural gas		
Transport	289.5	29
Petrol / Diesel		
Waste	21.8	2
(Fuel type/ energy used)		
Public Sector	64.7 (including Local Authority buildings, street lighting, universities, schools, health facilities and other)	7
Natural gas / electricity	237.5 GWh	
Agricultural, Forestry, Land Use and Fisheries (AFOLU)	62.1	6
(Fuel type/ energy used)		

A-1.2: Emission factors applied (C & C Checklist 13)

Total primary energy requirement can be calculated by applying primary energy (PE) conversion factors, which vary by fuel type, to total final consumption values. The table below shows the latest PE factors. Historic factors can be found in the SEAI conversion and emission factors spreadsheet. With the exception of the PE factor for electricity, all of the factors provided by SEAI are default values, which provide an approximation of primary energy requirement for each fuel. The PE factor for electricity is calculated based on the primary energy inputs to electrical power generation during the year.

Electricity Generation:

Primary energy input per unit of electricity generated, before subtracting own use of electricity in power plants, and transmission & distribution losses. Electricity imports are not included in the calculation of this factor.

Primary Energy Value 2018 - 1.751
Emission Factor - 344.5

Electricity Consumption:

Primary energy input per unit of available final energy consumption. Electricity imports are not included in the calculation of this factor.

Primary Energy Value 2018 - 1.940
Emission Factor 2018 - 387.3

For calculation in t or MWh of primary energy

The Methodology used to compile the figures below is from a national report known as [Ireland's Final Greenhouse Gas Emissions](#). This report is compiled by the Environmental Protection Agency. In previous Inventory reports GWPs from the 4th IPCC assessment report (AR4) were used. Ireland's National emissions reduction objective, carbon budgets and European target under the European Sharing Regulation are all now estimated on an AR5 basis, and this change simplifies the assessment of progress towards these targets. GWPs allow methane, nitrous oxide and other greenhouse gases to be expressed in CO2 equivalent terms based (for Inventory reporting) on a 100-year time horizon. The SEAI also provides common [Conversions Factors](#) for use in Ireland.

Primary energy/ energy source

Primary Energy/ Energy Source	Carbon Dioxide (CO2)	Methane (CH4)	Nitrous Oxide (N2O)	F-gases (hydrofluorocarbons and perfluorocarbons)	Sulphur hexafluoride (SF6)	Nitrogen trifluoride (NF3)
387.3 gCO2/ kWh	1	28	265	HFCs 4-12,400	23500	16100

Utilising the small area analysis it is possible to present emissions in total and by sector on a geographical basis, as follows:

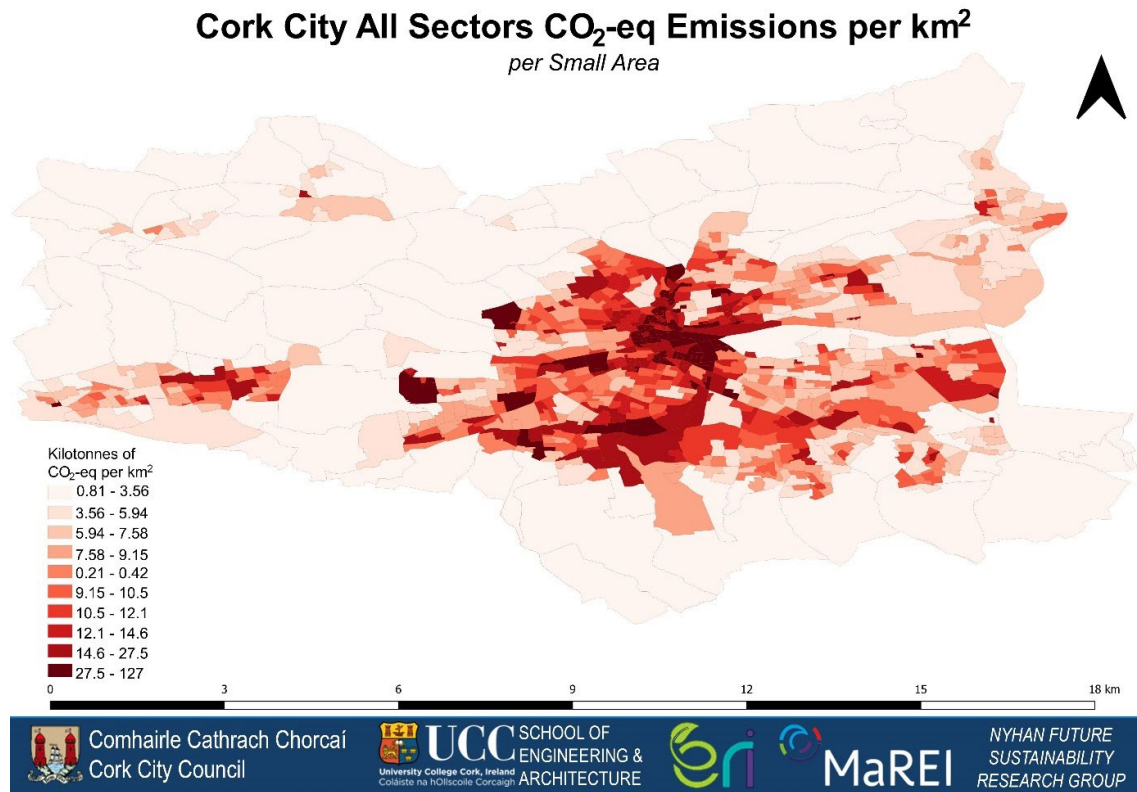


Figure 9: All Sector Emissions per km sq

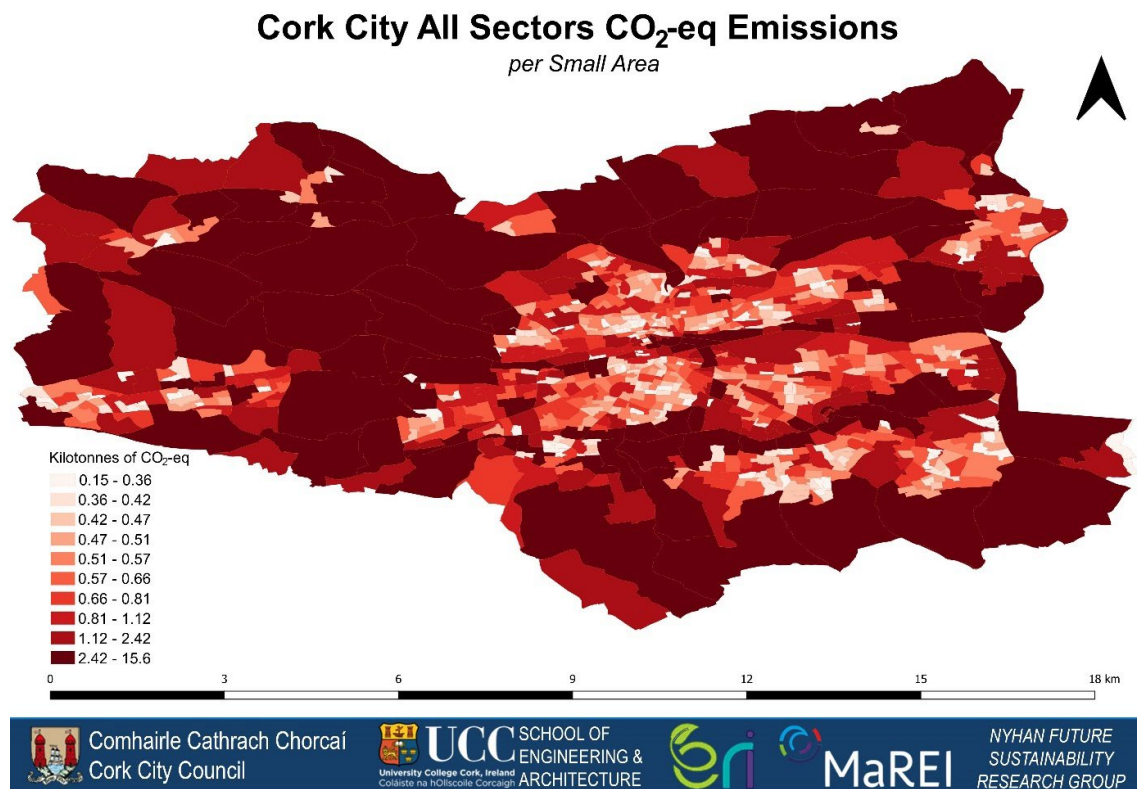


Figure 10: All Sectors Emissions

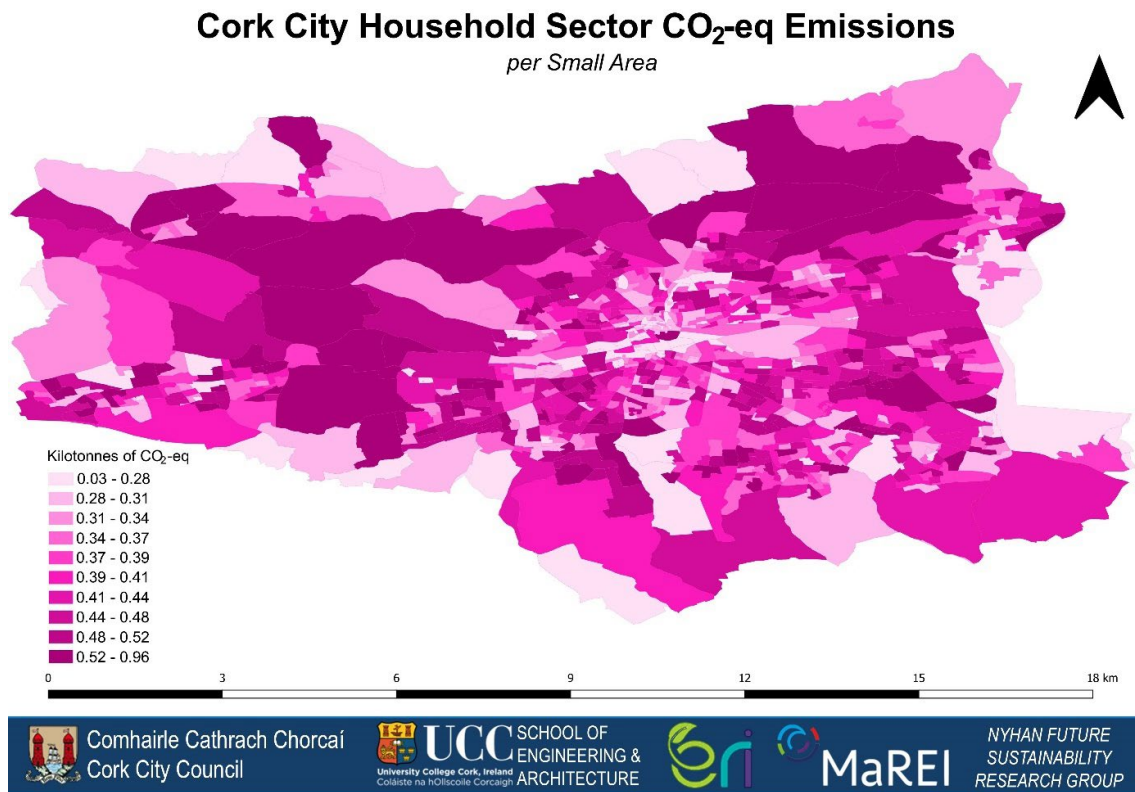


Figure 11: Domestic Buildings Emissions

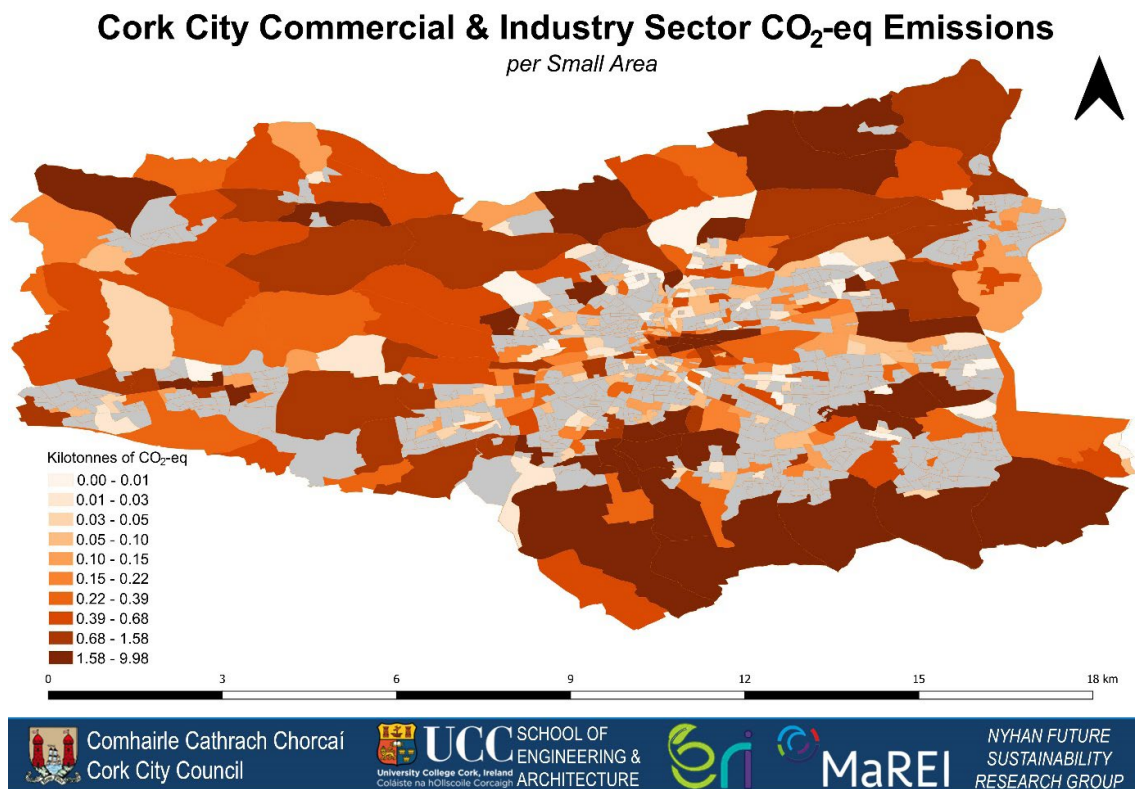


Figure 12: Commercial and Industrial Buildings Emissions

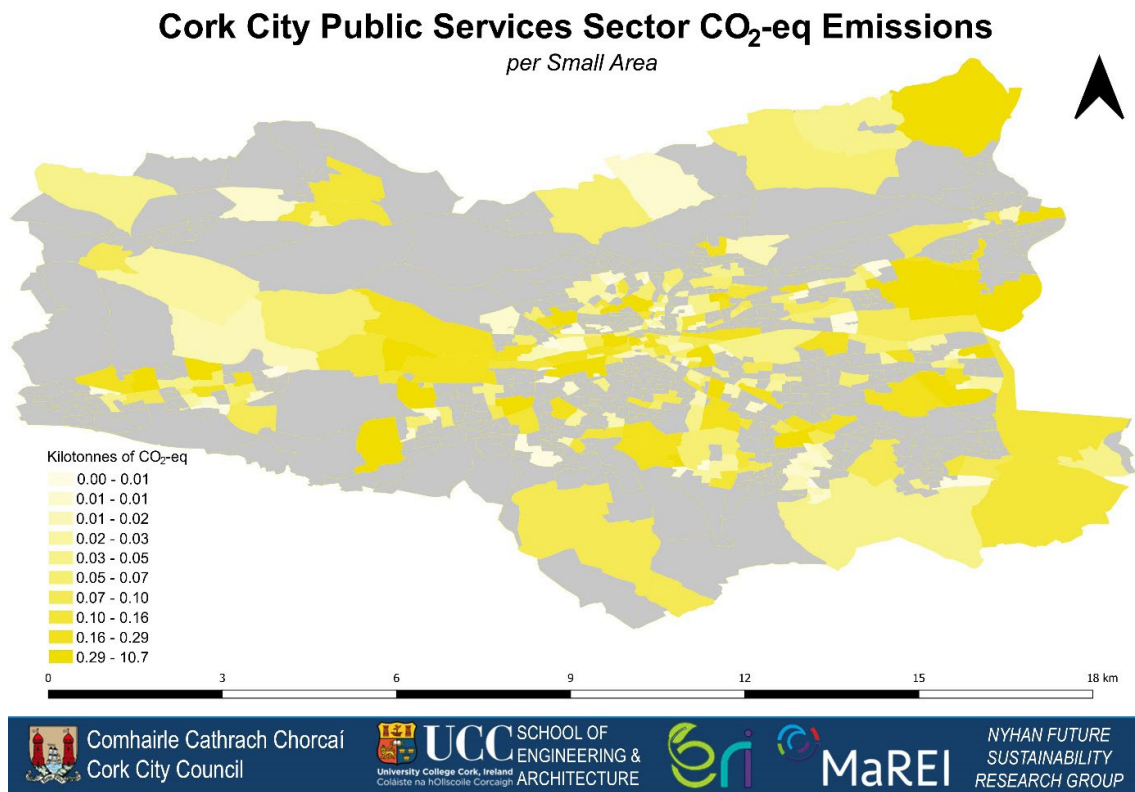


Figure 13: Public Sector Emissions

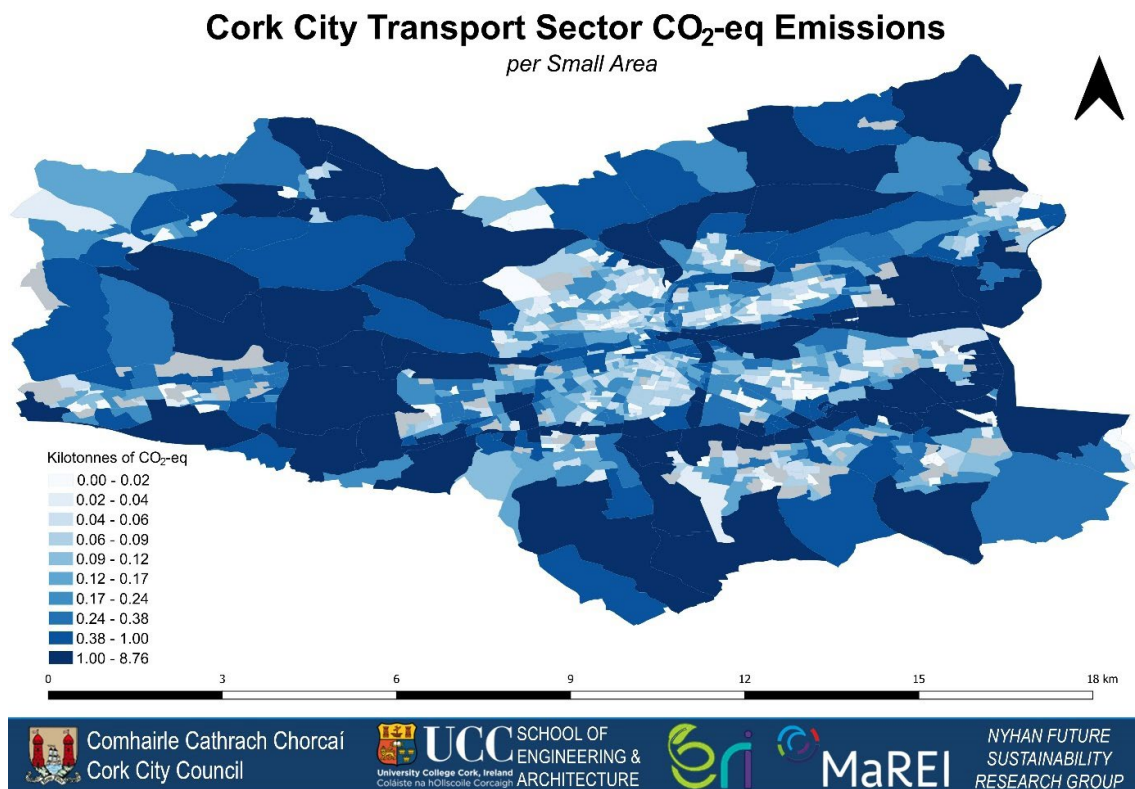


Figure 14: Transport Emissions

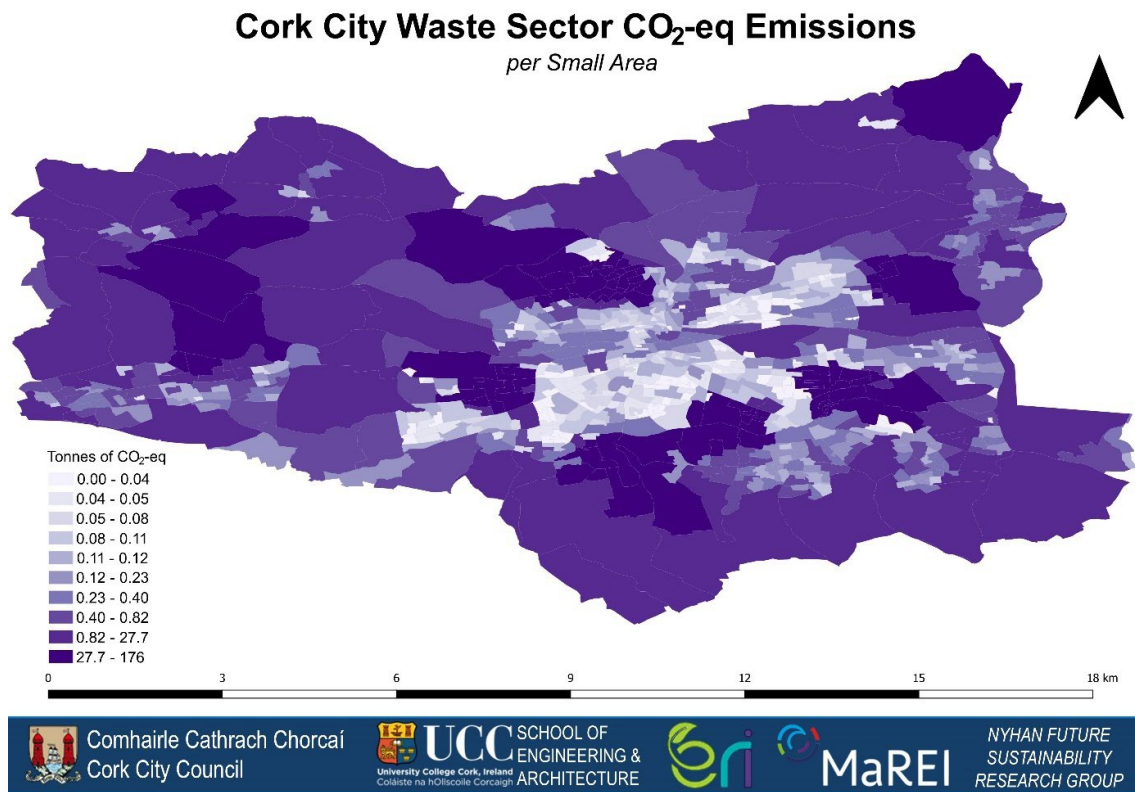


Figure 15: Waste Emissions

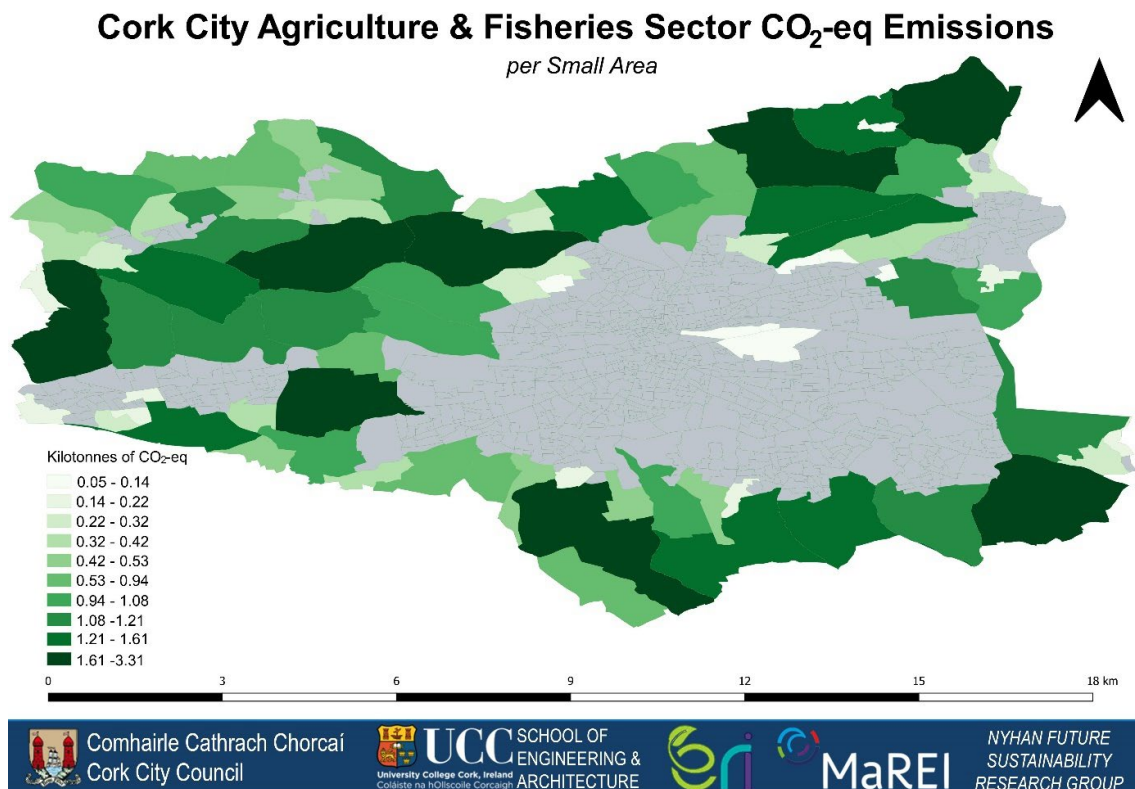


Figure 16: AFOLU Emissions

Updating of emissions data in Cork City is currently dependent on the availability of national data sets. These are updated by central government institutions on their own timetables. Comprehensive updating of the city level baseline is, therefore, not currently possible on an annualised basis. A mechanism for city-level emissions monitoring will be developed in future iterations of the CCC. In the meantime, components of the baseline will be updated when data becomes available.

The current baseline does not consistently measure and report energy consumption across all sectors and does not distinguish between scopes 1, 2 and 3 emissions. Further, Local Authorities do not have a comprehensive and nationally validated methodology for measuring the mitigation impact of policy measures in different sectors, or for estimating the GHG sequestration capacity of the natural environment within the city boundary. Cork City Council is working with the DECC to develop a nationally applicable baseline methodology for GHG inventories at the local level. These gaps will be addressed in the second iteration of the CCC, due in 2026.

The implications of the baseline inventory on impact pathways for Cork City are quite clear. 85% of emissions come from three sectors – domestic buildings, road transportation, and commercial buildings. The CCC will prioritise actions in these sectors. While public sector emissions within the city amount to only 7% of the total, the leadership role that public bodies have is clear and will be reflected in the CCC, both in terms of actions to rapidly decarbonise public assets and services, and the policy measures, influencing and advocacy that the City Council, and others can take. As discussed, in section 1 above, the support and facilitation of the national government is critical to enable Local Authorities both the flexibility and financial support to innovate and overcome systemic barriers to change. The National Mirror Group will play a significant part in the achievement of our accelerated ambition to achieve Net Zero. The baseline inventory directly informs the strategic priorities of our Climate Neutrality Commitments.

A-1.3: Final energy use by source sectors				
Base year	2018			
Unit	GWh			
	Scope 1	Scope 2	Scope 3	Total
Residential Households				
Electricity		332.24		1174
Electricity (Heating)		606.07		
Fossil Fuels (Heating)	235.69			
Transport				
Data not available				
Waste				
Data not available				
Commercial Buildings				
Electricity		184		650
Electricity (Heating)		298		
Oil (Heating)	14			
Gas (Heating)	154			
Industrial Buildings				
Electricity		7		28
Gas	21			
Agricultural, Forestry and Land Use (AFOLU)				
Data not available				
Public Services				
Gas	142.1			237.5
Electricity		95.4		

1.2

Module A-2

Current Policies and Strategies Assessment

Module A-2 “Current Policies and Strategies” lists and assesses existing policies, strategies, initiatives, or regulation from local, regional, and national level, relevant to the city’s climate neutrality transition. This assessment contributes to identifying the gap (if any) between the emissions reduction due to existing initiatives and the city’s 2030 climate neutrality target. Filling this gap by identifying additional actions and levers to achieve the city’s emission reduction target is the focus of this Action Plan. The assessment of current policies and strategies offers hence a starting point for exploring the impact pathways (See Part C). The module includes:

- Comprehensive list of local relevant policies, strategies, concepts, as well as of regional and national legislation that impact local climate action.
- Descriptive assessment of the current climate-relevant policy context, summarising the objectives and implementation concepts, addressing e.g., spatial planning, energy, local economy, circular/bioeconomy, waste, transport, housing, urban greening/nature-based solutions).
- Quantification of the emissions gap (i.e., emissions reduction target minus reductions already addressed through existing climate action plans).

A-2.1: Description & assessment of policies (C & C Checklist 14)

A wide range of complementary sectoral plans and policies support climate action in Ireland and are generated at the national and regional levels and at the local authority level. These plans and policies frame the overall approach to climate action, whether for mitigation or adaptation purposes. Effective multi-level governance of climate action is critical in Ireland, where [policy making and planning](#) are [more centralised](#) than in other member states. [By way of comparison](#), many Local Authorities in other OECD countries have responsibility for a much broader range of services. It ranks Ireland lowest of the twenty-seven EU member states in respect of the level of decentralisation. Overall, the state set a target, in the National Climate Ambition, of a 51% emissions reduction by 2030 in all policy areas. Most of the policies and strategies explicitly highlight the associated emissions domains, and some target quantified emissions reductions at the national or regional level, whereas city level plans and strategies do not, at this time, quantify specific emissions reduction targets. Where this is absent is most often a result of the timing of publication, that is the policy was published before the National Climate Ambition was enacted in 2021. The most important national, regional and local policies, strategies and plans that shape climate action in Cork City include:

Continued →

A-2.1 List of relevant policies, strategies and regulations			
Info	Description	Relevance	Need for Action
Type: Policy Level: European Title: European Green Deal	<p>The European Commission has adopted the European Green Deal to make the EU's climate, energy, transport, and taxation policies to create a carbon neutral Union by 2050.</p>	<p>The European Green Deal is a set of policy initiatives with the aim of making the European Union climate neutral by 2050. Initiatives under this policy include the the Fit for 55 packages.</p>	<p>Overarching European policy to reach climate neutrality by 2050. Ireland has opted into this objective which is highlighted via the Climate and Low Carbon Development Acts.</p>
Type: Regulation Level: European Title: EU Directive on Energy Efficiency	<p>The Energy Efficiency Directive lays down energy efficiency targets at the EU and national level, the national energy saving obligation and measures and obligations to promote energy efficiency.</p>	<p>These requirements encourage investments to be directed to improving energy efficiency and, for example, energy-efficient construction.</p>	<p>The target to reduce energy consumption by 32.5% in the EU will be tightened significantly to 36-39% and the target will become binding.</p>
Type: Strategy Level: National Title: Project Ireland 2040	<p>Ireland's long-term overarching strategy to make Ireland a better country for all and to build a more resilient and sustainable future, incorporating the National Planning Framework and the National Development Plan 2021-2030. Project Ireland takes into consideration the enactment of the Climate Action and Low Carbon Development (Amendment) Act 2021 which sets out a legislative requirement to achieve a climate resilient, biodiversity rich and carbon neutral economy in Ireland by no later than the end of 2050. This is accompanied by a further legislative commitment to reduce total greenhouse gas emissions by 51 per cent by 2030.</p>	<p>Project Ireland 2040 sets high-level strategy for the co-ordination of a range of national, regional, and local policies and activities, planning and investment, and in directing climate change mitigation and adaptation actions for delivery through both the public and private sectors.</p>	<p>Alignment with Project Ireland 2040 is important to justify funding for new projects. Its impact is significant for strategically important sectors including housing, transport and renewable energy infrastructure, among others.</p>

Continued →

A-2.1 List of relevant policies, strategies and regulations			
Info	Description	Relevance	Need for Action
Type: Budget Level: National Title: Carbon Budgets	<p>The Climate Action and Low Carbon Development Amendment Act 2021 established sectoral emissions ceilings for most, but not all, critical sectors, in national, 5-year, carbon budgets. These set out limits to the total amount of emissions measured in tonnes of CO₂ equivalent that can be emitted by the country within the time frame. If the budget limits in any period are not achieved, any deficit must be made up in the next period.</p>	<p>The CCAC 2023 Annual Review has warned that Ireland will not meet its first (2021-2025) and second (2026-2030) emissions budgets. Staying within carbon budgets is essential to remain on track to meeting national and international policy goals.</p>	<p>While cities are not explicitly incorporated into the carbon budgets the sectors of greatest significance to their economic and social viability are. There is a strong motivation to adopt measures at the local level that enhance our national capacity to meet our carbon budgets. Carbon budgets at the city level may be adopted as control measures in future.</p>
Type: Plan Level: National Title: National Biodiversity Action Plan 2023-2030	<p>Plans for a “whole of government, whole of society” approach to the governance and conservation of biodiversity. The aim is to ensure that every citizen, community, business, local authority, semi-state and state agency has an awareness of biodiversity and its importance, and of the implications of its loss, while also understanding how they can act to address the biodiversity emergency as part of a renewed national effort to “act for nature”. The National Biodiversity Action Plan takes into consideration the enactment of the Climate Action and Low Carbon Development (Amendment) Act 2021 which sets out a legislative requirement to achieve a climate resilient, biodiversity rich and carbon neutral economy in Ireland by no later than the end of 2050</p>	<p>Requires Local Authorities to address the related biodiversity emergency in its climate action.</p>	<p>Requirement to ensure the impact of climate actions, and other policy measures, on biodiversity to ensure, at worst, no net loss from development, at best, integrated restoration of biodiversity.</p>

Continued →

A-2.1 List of relevant policies, strategies and regulations			
Info	Description	Relevance	Need for Action
Type: Strategy Level: National Title: National Sustainable Mobility Policy	<p>The policy sets out a strategic framework to 2030 for active travel (walking and cycling) and public transport journeys to help Ireland meet its climate obligations, actions to improve and expand sustainable mobility options across the country, demand management and behavioural change measures to manage daily travel demand more efficiently and to reduce the journeys taken by private car. The policy states that the transport sector constitutes 18% of total national GHG emissions come from the transport domain, and that 94% of those emissions are from road transport. In line with the National Climate Ambition, the policy targets a 51% reduction of transport emissions by 2030.</p>	<p>The policy sets a target of delivering at least 500,000 additional daily active travel and public transport journeys, and a 10% reduction in kilometres driven by fossil-fuelled cars, by 2030. The Climate Action Plan 2023 updated these targets to a 50% increase in daily active travel journeys, a 130% increase in daily public transport journeys, and a 20% reduction in total vehicle kilometres travelled by 2030</p>	<p>Policy basis for additional measures to incentivise sustainable and active travel over increased private car use.</p>
Type: Strategy Level: National Title: Moving Together: A strategic Approach to the Improved Efficiency of the Transport System in Ireland (DRAFT)	<p>A strategy to put people rather than cars at the centre of Ireland's future transport system. It aims to not only reduce transport-related carbon missions, but to address more immediate issues of congestion, road safety and air quality, prioritising sustainable mobility options.</p>	<p>Provides for supply side measures to accelerate the transition to electric vehicles, use of biofuels, and modal shift through enhanced active and public transport infrastructure. Provides for other measures to address the social, economic and environmental costs of transportation.</p>	<p>The strategy provides an overarching framework for the development and delivery of potential demand management measures that can effect a transformational change in travel behaviour and that Local Authorities can test and take to scale.</p>

Continued →

A-2.1 List of relevant policies, strategies and regulations			
Info	Description	Relevance	Need for Action
Type: Strategy Level: National Title: Ireland's Long-term Strategy on Greenhouse Gas Emission Reduction	Sets out potential pathway to climate neutrality based on core measures including the development of a renewable energy generation, distribution and storage system, more efficient agricultural development, electrification of transport and other sectors, restoration of carbon sinks e.g. peat land and forest, fuel substitution and demand management. It summarises further measures, which are not yet technically or economically feasible, including the deployment of zero-emission gas e.g. hydrogen, carbon capture and storage, and radical demand reduction e.g. in aviation and construction. It combines sector-specific targets with the technology pathways for achieving them.	Provides clarity on the sectoral adjustments that will be needed to achieve climate neutrality by 2050. It includes medium to long term measures that cities can and must consider applying locally.	Offers long-term policy options that are considered feasible and low-regret in the medium term, and signposts potential frontier technology solutions that will be needed long-term.
Type: Plan Level: National Title: Waste Action Plan for a Circular Economy	Ireland's new roadmap embeds climate action in waste planning and management. It shifts focus away from waste disposal and looks instead to how to preserve resources by creating a circular economy.	The Waste Action Plan centres on meeting EU based Recycling and Waste targets across a broad range of sectors for 2025 and 2030 respectively. The plan also furthers the objectives of the Low Carbon Development (Amendment) Act 2021.	Action to reduce emissions from the over 500,000 metric tonnes of waste generated annually in Cork City is required. This plan sets out the roadmap as to how this can be achieved.

Continued →

A-2.1 List of relevant policies, strategies and regulations			
Info	Description	Relevance	Need for Action
Type: Strategy Level: National Title: Energy Security in Ireland to 2030	<p>Ireland's strategy to ensure energy security in Ireland for this decade, while ensuring a sustainable transition to a carbon neutral energy system by 2050.</p>	<p>The national Climate Action Plan 2023 details sectoral emissions ceilings in each sector, including a reduction in electricity emissions by 75% or to 3 MtCO₂eq. per annum by 2030 (on 2018 baseline). The Climate Action Plan 2023 increased the ambition in renewables by setting a target to reach 80% electricity generation using renewables by 2030</p>	<p>Largely decarbonised grid by 2030 will be essential to make the achievement of Cork City's climate neutrality goal possible.</p>
Type: Strategy Level: National Title: ESB Strategy 2040: Driven to Make a Difference	<p>ESB is Ireland's main electricity utility spanning generation, transmission and distribution. Its strategy to provide an electricity system that can support the achievement of net zero by 2040 is a critical path to the country's climate ambition.</p>	<p>ESB's strategy has three key objectives – to generate decarbonised electricity through renewables, resilient infrastructure to deliver energy to where it is needed, and to empower customers to live more efficiently and sustainably.</p>	<p>ESB is a key stakeholder in the achievement of our net zero goal. We work closely with ESB to develop and deliver plans to develop the resilient infrastructure needed in the city to decarbonise buildings and transportation.</p>

Continued →

A-2.1 List of relevant policies, strategies and regulations			
Info	Description	Relevance	Need for Action
<p>Type: Plan</p> <p>Level: National</p> <p>Title: National Plan for Non-Domestic Building Retrofit and National Retrofit Plan</p>	<p>A roadmap for Ireland to decarbonise Ireland's non-domestic building stock, and 500,000 domestic buildings through fabric upgrade and renewable heat, among other interventions.</p>	<p>The National Retrofit Plan sets out how the Government will deliver on the Climate Action Plan targets of retrofitting the equivalent of 500,000 homes to a BER of B2/cost-optimal and installing 400,000 heat pumps in existing homes to replace older, less efficient heating systems by the end of 2030.</p> <p>Targets for Public sector retrofitting for 2030 include:</p> <ul style="list-style-type: none"> • 51% absolute carbon emission reduction, including direct emissions associated with thermal energy • 50% improvement in energy efficiency • Zero installation of fossil fuel heating systems after 2023 • 100% of public sector buildings (around 12,500) must achieve a BER B2 or higher <p>Targets for Commercial sector retrofitting for 2030 include:</p> <ul style="list-style-type: none"> • 30% of commercial buildings to achieve a BER of B2 or higher • 40% emissions reductions in large industry • 50,000 commercial buildings to install renewable heating 	<p>Acceleration and achievement of the national non-domestic and domestic retrofit plan are essential to make the achievement of Cork City's climate neutrality goal possible.</p>

Continued →

A-2.1 List of relevant policies, strategies and regulations			
Info	Description	Relevance	Need for Action
Type: Plan Level: National Title: National Recovery and Resilience Plan	<p>Ireland's plan for recovery from the public health economic, and social crisis caused by the Covid-19 pandemic. The plan is funded from the Recovery and Resilience Facility of the NextGenerationEU package.</p>	<p>The plan introduces investments worth €518 million to advance the green transition, through residential and public sector retrofit, river basin management, and public transport investment, among others. It further progressed the passage of the Climate Action and Low Carbon Development (Amendment) Act 2021 and implemented base broadening carbon tax measures.</p>	<p>The National Recovery and Resilience Plan provided funding and policy direction for a range of climate relevant investments and planning initiatives, including the Cork City Local Economic and Community Plan 2024-2029.</p>
Type: Strategy Level: National Title: Green Public Procurement Strategy and Action Plan 2024-2027	<p>The new Green Public Procurement Strategy and Action Plan aims to play a key role in driving the implementation of green and circular procurement practices across the public sector including the local authority sector.</p>	<p>The Government of Ireland's annual public sector purchasing accounts for 10% to 12% of Ireland's GDP, a large part of economic activity and demand. This provides Ireland's public sector with significant influence to stimulate the provision of more resource-efficient, less polluting goods, services and works within the marketplace. Green Public Procurement is recognised internationally as an effective means for public administrations to manage the balance between cost effectiveness and sustainable development.</p>	<p>Maximise reduction of emissions through the introduction of Green Public Procurement across the public sector with the co-benefit of creating GPP awareness across the 400,000 public sector workers in the state.</p>

Continued →

A-2.1 List of relevant policies, strategies and regulations			
Info	Description	Relevance	Need for Action
<p>Type: Strategy</p> <p>Level: Regional</p> <p>Title: Regional Spatial and Economic Strategy</p>	<p>Balances local authority development planning across the region and ensures compliance and alignment with national planning policy.</p>	<p>The 2030 EU Climate and Energy Framework sets specific targets for the year 2030 of at least 40% reduction in GHG emissions with at least 32% of all energy generated from renewable energy sources (Climate Action Plan Target for Ireland 70% by 2030) and at least 32.5% improvement in energy efficiency. The Climate Action Plan 2019 and other Government policy including the National Renewable Energy Action Plan (NREAP), the Offshore Renewable Energy Plan and the National Energy Efficiency Action Plan (NEEAP) have adopted the EU targets and set out a detailed approach within each area of energy generation and use.</p>	<p>Creates the link between local and national planning strategy. This is important to ensure that Cork City and the wider southern region benefit from a fair share of investment and do not lose out to the Dublin region.</p>

Continued →

A-2.1 List of relevant policies, strategies and regulations			
Info	Description	Relevance	Need for Action
Type: Strategy Level: Regional Title: Cork Metropolitan Area Transport Strategy (CMATS)	Sets out ambitious plans for enhancement of the bus network, optimisation of suburban rail, reduction of car use, a proposed new light rail system, and the promotion of walking and cycling, that will better link Cork City with its hinterland.	CMATS targets a 46,000 tonnes pa reduction in vehicular emissions. Some of the key objectives relevant to CMATS include: <ul style="list-style-type: none"> • Successful execution of the NPF designed to promote compact, connected and sustainable living; • Make growth less transport intensive by closer alignment between land use and transport planning, flexible working habits and modal shift to public transport; • Expansion of walking, cycling and public transport to promote modal shift; • Accelerating steps to decarbonise the public transport fleet; • Giving Local Authorities more discretion in designating low emission zones; and • Developing a strategy for the heavy freight sector 	Implementation of CMATS will deliver a significant reduction in transport emissions annually. Cork City cannot achieve its climate neutrality goal without full implementation.
Type: Plan Level: Regional Title: Cork Energy Master Plan	The Energy Master Plan is the first ever analysis of Cork City & County energy use and it provides a thorough Baseline Energy Analysis and a Register of Opportunities – a range of ways that Cork's energy situation could be made more sustainable and climate-friendly.	The Energy Master Plan was prepared with the input of a range of stakeholders from across Cork, and beyond as part of the Sustainable Energy Authority of Ireland's (SEAI) Sustainable Energy Communities (SEC) Network, has entered into a three-year Partnership Agreement with SEAI. The objectives of the SEC program are to: <ul style="list-style-type: none"> • Increase energy efficiency • Use renewable energy • Develop decentralised energy supplies 	The EMP identifies ways in which Cork's energy demand could be reduced by 35% by 2030 and how the contribution of renewable energy to meet that demand could increase to 53% over the same period.

Continued →

A-2.1 List of relevant policies, strategies and regulations			
Info	Description	Relevance	Need for Action
Type: Plan Level: Local Title: Cork City Development Plan 2022 – 2028	<p>The Cork City Development Plan 2022-2028 sets out how the city will grow and develop over the next six years, while complementing a longer 2040 vision. With a population of approximately 222,000, Cork is an emerging international city of scale and a national driver of economic and urban growth. Project Ireland 2040 designates the city for significant additional growth over the next 20 years, supported by large scale investment. The CDP sets out objectives for compact growth and climate-positive development that will facilitate population growth projected to reach 350,000 by 2040.</p>	<p>To support and where possible surpass the implementation of international policy and national legislation, policy, sectoral adaptation strategies and guidance on climate change in Cork City including the commitment within the Climate Action and Low Carbon Development (Amendment) Bill 2021 to secure a 51% reduction in carbon emissions by 2030 and to net zero by 2050.</p>	<p>Necessity to invest in gateway measures – transport and energy infrastructure, to enable achievement of compact growth ambitions, realisation of land use objectives that facilitate low-carbon development.</p>
Type: Plan Level: Local Title: Cork City CAP 2024-2029	<p>In 2021 the National CAP required all Local Authorities to prepare a local-level 5-year CAP, including both mitigation and adaptation measures, and to develop a decarbonisation zone to test mitigation and other measures. The CAP brings together new and existing policy actions from across the City Council's functional areas and establishes the governance architecture for the City's ambition for net zero as part of the Mission for climate neutral and smart cities.</p>	<p>The Cork City CAP groups essential climate actions in 5 themes – governance and leadership, community and partnership, the built environment and energy, transport and mobility, and the natural environment and resource management. These themes are the basis of the CCC.</p>	<p>The Cork City CAP is a fundamental building block of the CCC. It is expected to deliver a 51% reduction in GHG emissions over the 2018 baseline.</p>

Continued →

A-2.1 List of relevant policies, strategies and regulations			
Info	Description	Relevance	Need for Action
Type: Plan Level: Local Title: Cork City Local Economic and Community Plan 2024-2029	<p>The Local Economic and Community Plan is a statutory instrument that aims to improve the quality of life for all those who live, work, study in or visit the city. It has a special focus on those who have not been able to thrive in the city and those who have a high need of the services and supports available across the city.</p>	<p>This plan sets out the pathways and delivery mechanisms to assist the most vulnerable parts of the community through diverse services and opportunities that focus on socio-economic needs. It targets health and well-being, inclusion and equality, learning and culture, economic and enterprise development, safe, accessible and resilient neighbourhoods, sustainability and climate action.</p>	<p>For the first time the LECAP sets out explicit objectives on sustainability and climate action. As such it is an important part of our just transition. It closely aligned with the Cork City CAP 2024-2029, and helps mainstream climate action within the programmes, services and delivery mechanisms that support our most vulnerable communities.</p>
Type: Plan Level: Local Title: Cork City Heritage and Biodiversity Action Plan	<p>This whole of Council five-year action plan and includes projects on Archaeology, Built Heritage Cultural and Natural Heritage and sets out a series of realistic and practical actions to protect, conserve, restore and manage our Heritage. The aim of Heritage and Biodiversity Plan is to protect, enhance, promote and restore the heritage and biodiversity of Cork City and to place the care of our heritage at the heart of the community</p>	<p>The Cork City Heritage and Biodiversity Plan Action Plan has a focus on the built environment and protecting biodiversity across the local authority detailing 73 actions across 4 themes.</p>	<p>Requirement to ensure the impact of climate actions, and other policy measures, on biodiversity to ensure, at worst, no net loss from development, at best, integrated restoration of biodiversity.</p>

Continued →

A-2.1 List of relevant policies, strategies and regulations			
Info	Description	Relevance	Need for Action
Type: Strategy Level: Local Title: Cork City Green and Blue Infrastructure Strategy	<p>Green and blue infrastructure is and will continue to represent a key asset in mitigating climate change and impacts on the environment (addressing the causes) and supporting adaptation (addressing the effects and future-proofing the city to better cope with climate change).</p>	<p>Tree planting performs a role in carbon sequestration whilst providing opportunities slow storm water flows, absorb water and provide urban shading which can offset solar gain and micro-climate impacts, particularly in urban environments. Wetlands also sequester carbon, store water and slow the flows of storm water, help improve water quality and provide habitat for biodiversity. Agriculture is the primary land-use in the hinterland and through sensitive management grassland has the potential to sequester carbon and facilitate biodiversity through provision of suitable habitats and corridors.</p>	<p>Maximise reduction of residual emissions, better prepare the city for extremes of weather.</p>
Type: Strategy Level: Local Title: Cork City Council Air Quality Strategy 2021-2026	<p>This whole of Council five-year strategy outlines the actions that the Council will take to reduce the concentrations of air pollutants in the city area; thereby positively impacting on the quality of life of residents and visitors.</p>	<p>Sources of air pollution emissions occur across all sectors of the economy. Many of these pollutants are also sources of greenhouse gas emissions. As a result; actions taken to address air pollution and climate change can have a mutually reinforcing effect. In addition, recent scientific assessments have highlighted the links between certain air pollutants known as Short Lived Climate Pollutants (SLCPs) that also have a warming effect on the climate.</p>	<p>This Air Quality Strategy for Cork City outlines the actions that Cork City Council will undertake between 2021 and 2026 to reduce the concentrations of air pollutants in the city area; thereby positively impacting on the health and quality of life of residents and visitors and promoting climate action.</p>

Continued →

Most if not all of the policies, strategies and plans listed in table A-2.1 above are designed to reduce emissions by 51% over the 1990 national baseline, in compliance with the EU Climate Law 2021. At the national level, 5 year carbon budgets that specify sectoral emissions ceilings have been instituted. Ireland is unlikely to meet the first carbon budget limits and is at risk of meeting the second budget too. The CCAC recommendations to government in its 2023 Annual Review include measures to enable Local Authorities, and others, to contribute more effectively to the necessary solutions, not least by ensuring that barriers to policy implementation are removed by ensuring adequate funding and planning reform is undertaken at scale and speed.

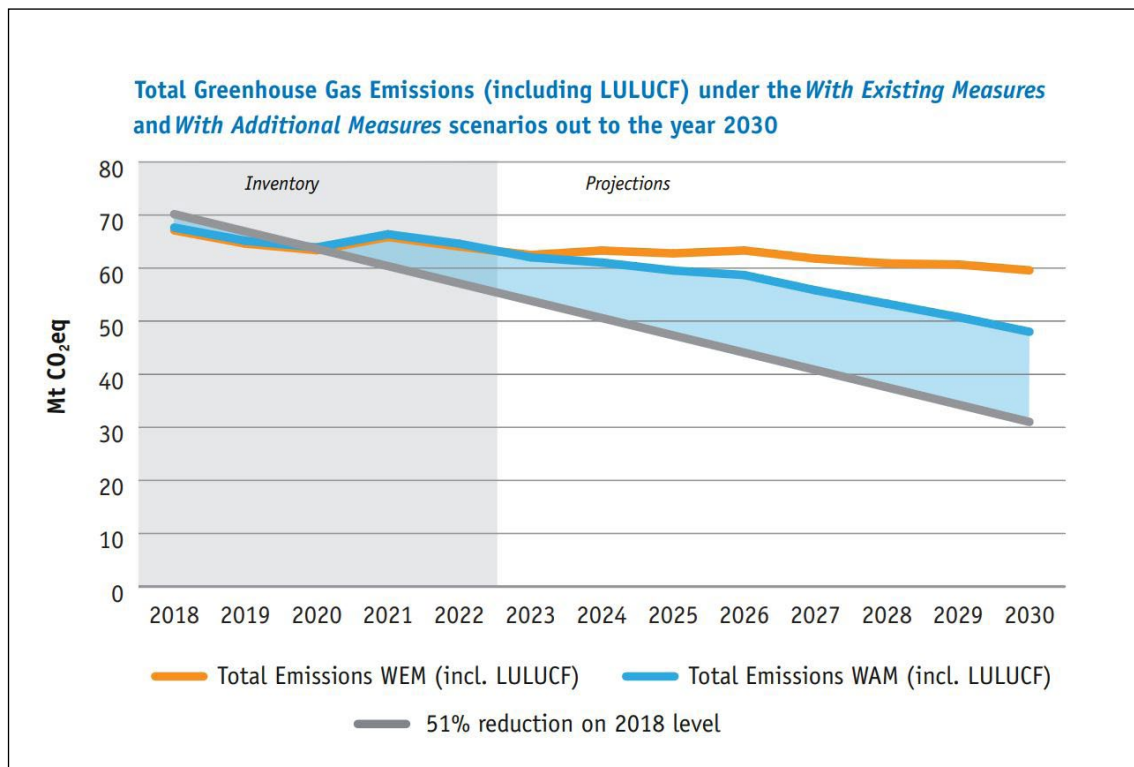


Figure 17: (Source: [Indicators / targets | Environmental Protection Agency \(epa.ie\)](#))

The CCAC Annual Review 2023 states that With Additional Measures (WAM) projections show credible evidence of achievement of a 33% emissions reduction over a 2018 baseline. However, Figure 17, uses EPA analysis to demonstrate that a significant gap exists to reach the level of ambition set out in the National Climate Action Plan (NCAP) ambition for 2030. This highlights the need for Cork City, and others, to increase local level ambition in order to meet our more ambitious goal. Based on the analysis presented in Figure 17, it is clear that at the national level policies and plans must evolve to allow for steeper emissions reductions in future.

The action portfolio in section B-2 does include actions governed by or instigated by these policies, strategies and plans. They are most concisely drawn together under the Cork City CAP and are expected to deliver at least a 51% reduction in emissions within the city boundary by 2030. However, there is no duplication of actions included in the Cork City CAP. Section B-2 goes on to set out additional measures to achieve the 80%

reduction we are targeting in this CCC. The remaining 20% of residual emissions in this action plan represent the hardest-to-decarbonise challenges in the city, falling as they do beyond the scope of the City Council. They include, but are not limited to, fossil fuel dependent base-load generation in the national grid which will account for at least 25% of generated electricity by 2030, buildings that are hard technically and economically to decarbonise, especially heritage buildings, and the side effects of rapid population growth. Cork City's population in 2018 was approximately 210,000. This is projected to rise to approximately 280,000 by 2030, and to 350,000 by 2040. In a Business as Usual (BAU) scenario, Cork City's total emissions are estimated to be 1,314,267 tonnes by 2030 with a population of 280,000 people. Our BEI estimated per capita emissions to be 4.7 tonnes CO₂ eq in 2018. Assuming a population of 280,000 by 2030, our per capita emissions in the key sectors measured must be around 0.95 tonnes CO₂ eq, a reduction of 80% per capita over 5 years if we are to ensure that the additional population does not make our targets unachievable. Our BAU scenario includes the policies, strategies and plans set out, but avoids double counting. The gap to target by 2030 is estimated at 515,071 tonnes CO₂ eq, which is 39% of population adjusted emissions. This will be the focus of actions described below. We estimate residual emissions at 20% or 197,140 tonnes CO₂ eq. They are the result of potential resistance to change among citizens, the scale of the financial barrier to retrofitting building, the lack of effective national policy control on emissions from the agriculture sector in Ireland, the relatively low sequestration capacity within the Cork City boundary, and the current absence of district heating and cooling, and carbon capture and storage within the city boundary.

Table A-2.3 (C & C Checklist 10)

	(1) Baseline emissions		(2) Emissions Reduction Target 2030		(3) Emission reduction through other Action Plans		(4) Emissions Gap		(5) Emissions reduction through the CCC Action Plan to address the Gap (C & C Checklist 15)		(6) Residual emissions (C & C Checklist 16)	
	1) Baseline emissions (ideally not older than 2018) - referring to the inventory used for target setting with baseline population of 210,000, per capita emissions of 4.7 t CO ₂ eq	1A) Business as Usual Scenario for 2030 based on projected population of 280,000, per capita emissions of 4.7 t CO ₂ eq (1/210,000) x 280,000	The emissions reduction target for 2030 ideally achieves a minimum 80% reduction from the baseline, as reported in Section 2 of the Commitments document of the CCC. The overall target should be absolute or net-zero (i.e. including the compensation of any residual emissions). 1A x 80%		These are the emissions reductions that would be achieved through existing policies, and plans, outlined in Section A-2.1. Those actions are by definition not part of the action portfolio in section B. If they are fully or partially incorporated in module B-2, their associated reduction potential should be referenced in column (5) and not be included here. WARNING if the baseline is a BAU scenario: If the BAU modelling includes any of these existing measures, please also do not include the associated emissions reduction in this column as otherwise it would be double counted. 1A x 51%		(4)=(3)-(2) Or 1A x 29%		This column is used to present the already quantified emission reduction associated with the action portfolios outlined in module B-2. Ideally, this equals the gap. If there is a difference between the reduction potential of the actions specified in module B-2 (for instance because their reduction potential has not been fully estimated or because additional measures will be identified in future iterations), the CCC AP should be explicit about this difference and explain how the difference will be closed. In principle, as long as the difference has not been addressed, it would be considered as part of the residual emissions. The absolute value is shown as a % of total 2030, population adjusted emissions in a BAU scenario (1A)		(6) = (1A) - (2) To reflect projected population in 2030	
	(absolute) kt CO ₂ eq		(absolute)	(%)	(absolute)	(%)	(absolute)	(%)	(absolute)	(%)	(absolute)	(%)
Domestic Buildings	331,600	442,133	353,707	80%	225,488	51%	128,219	29%	128,219	29%	88,427	20%
Commercial Services & Industrial Buildings	216,000	288,000	230,400	80%	146,880	51%	83,520	29%	83,520	29%	57,600	20%
Transport	289,500	386,000	308,800	80%	196,860	51%	111,940	29%	111,940	29%	77,200	20%
Public Sector	64,700	86,267	69,013	80%	43,996	51%	25,017	29%	25,017	29%	17,253	20%
Waste	21,800	29,067	23,253	80%	14,824	51%	8,429	29%	8,429	29%	5,813	20%
Agricultural, Forestry and Land Use (AFOLU)	62,100	82,800	66,240	80%	42,228	51%	24,012	29%	24,012	29%	16,560	20%
Total	985,701	1,314,267	1,051,413	80%	670,276	51%	381,137	29%	381,137	29%	262,853	20%

The emissions targets and gaps in table A-2.3 reflect some of the major barriers faced in Cork for measuring vi and prioritising action currently. There is no mechanism in place to systematically account for the emissions mitigation effect of different actions. Consequently, we have assumed, for the first iteration of the CCC, a linear progression in emissions reduction in all sectors. We understand that in reality there will be some variation in progress across different sectors that we can map more effectively when we have an accounting system in place. Across all sectors we have a good sense of measures that will be needed to achieve the 80% target, but we plan to develop a mechanism to describe their relative impact, cost or delivery mechanism in detail in the next iteration in 2026. These questions will be addressed in future iterations through co-creation with the relevant national and local stakeholders.

Our emissions reduction actions across both the CAP 2024-2029 and the CCC can be seen in the diagram below.

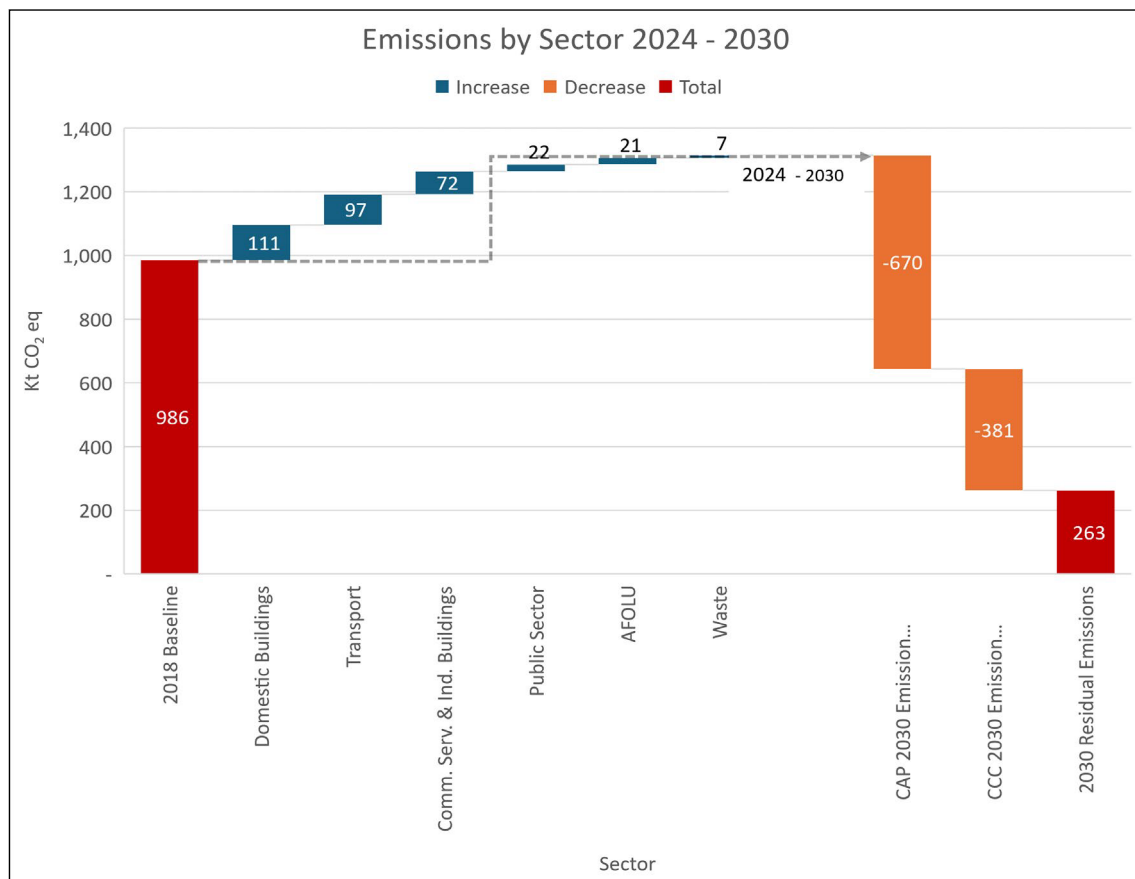


Figure 18: Emissions reduction actions through CAP 2024-2029 and the CCC

A visualisation of the city's emissions gap and residual emissions highlighted in Table 2.3 above.

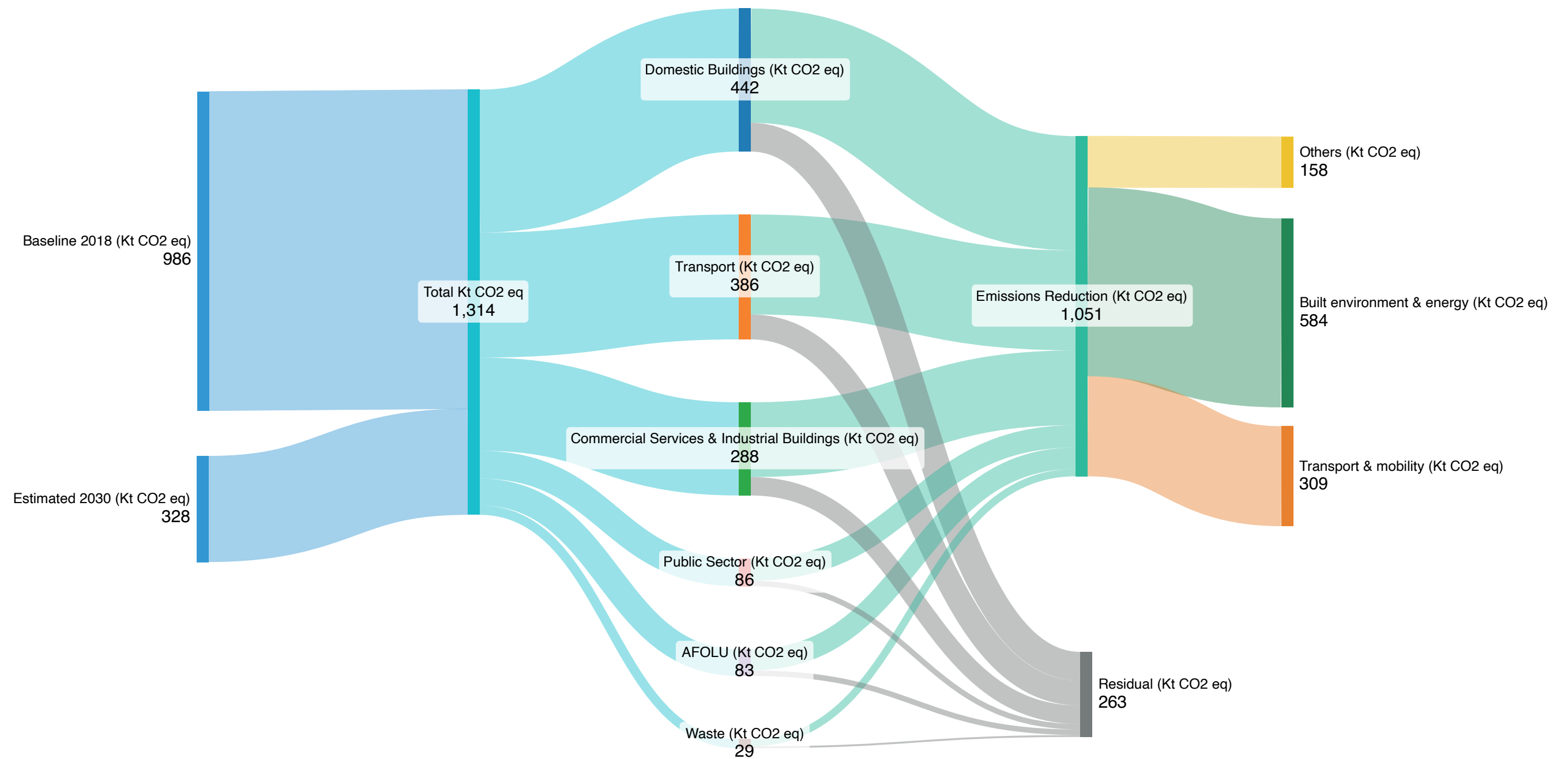


Figure 19: Emissions Gap Visualisation

1.3

Module A-3

Systemic Barriers and Opportunities to 2030 Climate Neutrality

This module aims to document the conclusions of a systems and stakeholder mapping aimed at identifying systemic barriers and opportunities. In conjunction with the GHG inventory and the policy baseline analysis in the previous two modules of Part A, the analysis reported here serves as a basis for designing actions that address these barriers or exploit the underutilised opportunities in Part C. The results of this analysis as provided here include:

- A description of the main systems related to the city's GHG emission domains, e.g., technological/infrastructural, institutional/ regulatory, organisational, financial, political, social and behavioural systems.
- A description of barriers and opportunities for each of the systems above. This includes gaps (infrastructural/ technological, institutional/ regulatory, organisational, political, financial, behavioural or social) as well as an evaluation of unexploited resources (e.g., renewable energy sources, digital technologies, etc) or circumstances.
- A map of stakeholders involved for each of the systems above. This includes relevant actors per systemic element at different levels of governance throughout the whole policy cycle, such as local, regional, national, and EU/supranational administrative bodies and agencies, civil society, non-governmental organisations (NGOs), academia, community-based organisations, social movements, steering groups, private sector actors etc.

A-3.1: Description of urban systems, systemic barriers, and opportunities (C & C Checklist 14) (C & C Checklist 17)

Cork City Council faces several critical barriers to achieving its climate neutrality ambition by 2030. All the levers of change identified in the Mission methodology must be applied to overcome them. The main barriers to local authority action at the city level are:

Government funding and mobilising private resources

Ireland has the most centralised decision-making on funding in Europe. The [OECD analysis](#) for 2022, shown in figure 20, highlights that less than 10% of overall funding is allocated at the local level. Funding decisions for major infrastructure, public incentives for climate-positive policy actions, local authority staffing and other categories of expenditure, limit the capacity of the local authority to support locally-designed policy initiatives. The National Mirror Group, established by DECC in May 2024, is consequently of great importance as a support structure for Mission Cities in Ireland. We are reliant on the centre to support local climate action by addressing pain points where policy coherence at the national level may be inadequate, and to make funding available to accelerate existing climate actions, such as the National Retrofit Plan, and to fund and scale up innovations.

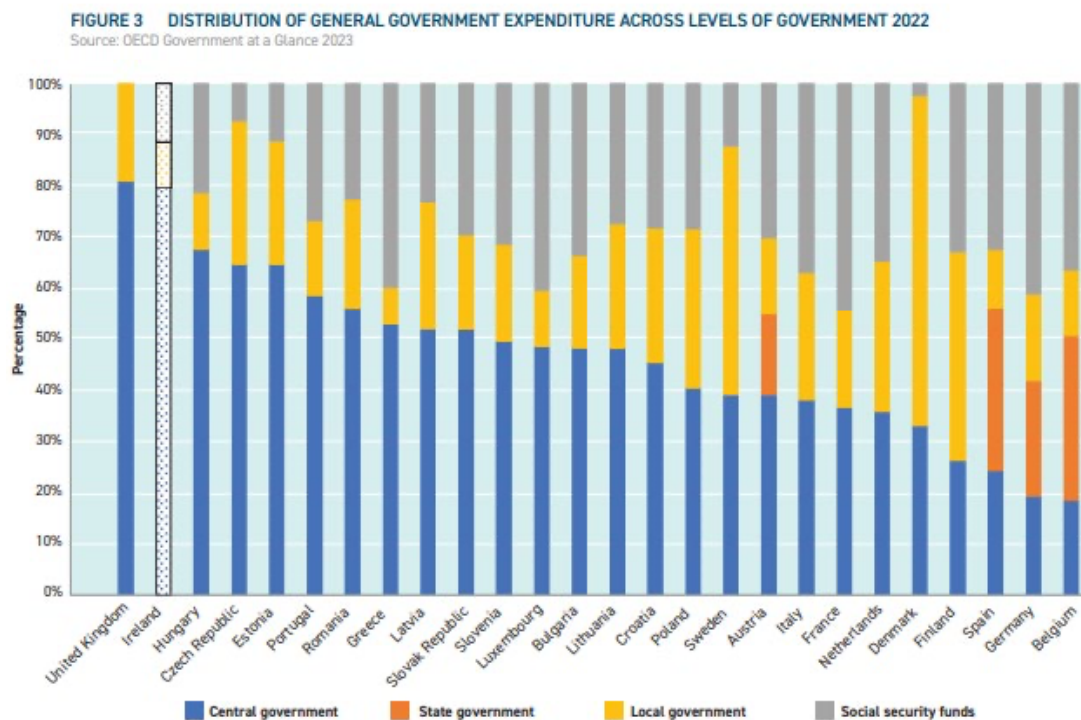


Figure 20: Distribution of General Government Funding in Europe 2022

Public money will not be enough to provide all of the investment needed to achieve the transition. Cork City is already an attractive destination for Foreign Direct Investment (FDI), being ranked [first in Europe for FDI strategy](#), 2nd among small cities for economic potential, and third in Europe for business friendliness. The city's success is underpinned by its effective collaboration with national institutions including Enterprise Ireland, and the work of its two major universities. As a result, hundreds of international companies of companies have established headquarters or operations in the city and county, with many leading on low-carbon technology, services and manufacturing. Nationally, Ireland aims to become a [global centre for sustainable finance](#). With these promising conditions Cork City Council can develop capacity and appetite, leveraging public finance to mobilise private capital, through its own account and in support of private investment, to help regenerate our building stock, energy generation and distribution systems, public infrastructure and transport systems quickly and cost effectively.

Continued →

Under the terms of the [Local Government Act 2001](#) Local Authorities may borrow funds only with the explicit sanction of the relevant government minister.

Related Opportunity

The climate crisis and the reallocation of further responsibilities to combat this to the local government system has allowed new thinking beyond traditional funding mechanisms. The crisis has empowered local government to fund action through new streams of revenue including the new Infrastructure, Climate and Nature Fund, the Climate Action Fund as well as to have the ambition to access novel funding mechanisms such as the European Investment Bank (EIB).

Regulatory responsibility for key sectors

In Ireland responsibility for the delivery of legally-binding targets, including the sectoral emissions ceilings, is the responsibility of the central government and its respective departments. The CCAC is a statutory body that advises on the setting of carbon budgets, monitors and reports back on performance at the national level. The EPA regulates emissions from industrial sectors. Local Authorities in Ireland are required by law to produce local climate action plans to set out how national policy will be implemented at the local level but is not endowed with financial or regulatory tools to ensure that delivery happens. Instead, outside the direct control of its own assets, Local Authorities rely on their convening power and ability to advocate for sustainability and influence public attitudes and behaviour, through partnerships and communications.

Further, responsibility for the commissioning, design, build, financing and operation of key infrastructure needed to achieve climate neutrality lies, predominantly, with national institutions. These include transportation infrastructure controlled by the National Transportation Authority, water distribution and treatment by Uisce Éireann, electricity generation and distribution by ESB and Eirgrid, flood risk management infrastructure and some public buildings (such as police stations) by the Office of Public Works. The local authority can advise and, to some extent, influence the plans and works undertaken by these institutions, but it does not have authority over their planning or investment decision-making.

Related Opportunity

Complex solutions require innovative schemes, not fragmented policies. One of the traits of the system of multi-level governance in the Irish state is the limited level of functions and self-funding avenues delegated to the local government system. Irish local government relies on funding and the power of central government departments to complete innovative projects. The Mission has the advantage of providing Cork City with access to a national Mirror Group of government departments such as DECC and DHPLG which allows for new opportunities in creating partnerships, progressing new funding avenues and solving challenges and blockages in the legislative sphere. Cork should use the soft power that this opportunity for dialogue will allow which is rarely afforded a local government unit. The Council should also make full use of its links to the CCMA to access regional and national political and administrative actors.

Planning and land use management

Land Use Planning and Management is a democratic local authority function that is critical for the achievement of the 2030 climate neutrality ambition. Through the Cork City Development Plan 2022-2028, Cork City Council has the ability to introduce climate-positive land use measures at the local level. For example, in line with the recent EU Nature Restoration Law, Cork City is currently exploring the introduction of urban greening factors to drive the protection and restoration of biodiversity. However, the national legislative framework to support such climate-positive local planning measures is often lacking, allowing environmentally damaging actions to sometimes be permitted. This includes inadequate environmental or planning legislation around tree felling, drainage and the removal and changes to ground cover and hedgerows in local environmentally sensitive areas. These legislative gaps, alongside capacity and resourcing constraints, also weaken the use of effective enforcement regulations. These asymmetries between local and national policy, implementation and capacity can be exploited at a local level, to the detriment of our climate goal and targets or aspirations for biodiversity recovery.

Continued →

Related Opportunity

The improved collaboration between stakeholders, including building owners, developers, architects, engineers, policymakers, and financiers, which could be mediated by the representatives of the Net Zero City Coalition. Cork City Council up to this point has passed a significant number of local plans and strategies promoting positive climate action highlighting the local authority's advocacy powers in this policy area. Development plan policies and objectives are powerful tools to support the achievement of the Missions. Cork City Development Plan strategic objectives were aligned with the UN SDGs, and each were created with climate action in mind. Cork City Council is committed to the development of a sustainable, resilient and liveable compact city based on climate adaptation and transport-oriented placemaking. Other Council policies and strategies in the area of climate, biodiversity, air quality and EV have also been drafted or adopted by Cork City Council.

Information

Cork City Council does not have an established methodology for measuring the GHG emissions reduction impact of its climate actions outside of energy consumption in its own buildings and vehicle fleet. No mechanism has yet been established to measure the impact of different climate actions taken by stakeholders across the city. The City Council does not utilise green budgeting to measure the GHG emissions related to its capital or recurrent expenditure. Consequently, policy making, planning and decision-making is not adequately informed by data on the mitigation effect of any particular proposal.

Related Opportunity

The climate crisis has led to a greater awareness of the effects public investment on the environment which has led to changes to the public spending code. We are awaiting a national Green Public Procurement policy to come into effect in the short term. Greater mobilisation to promote and implement positive climate action has led to opportunity to collaborate further with third Level Institutions including the Environmental Research Institute of UCC for instance. This collaboration will allow for the local authority to gain access to key skills particularly in the area of behavioural change which will help to secure citywide buy in to our mission targets.

Organisational Capacity

Cork City Council's structure, capacity and culture must adapt to the climate transition leadership role it has at the city level. Effectively tackling climate change presents a complex, multi-sector, multi-stakeholder, multi-level challenge to organisations designed to deliver and operate discrete systems for transport and housing among others. Importantly, human resources capacities are not optimally aligned with the hard and soft skill requirements of the climate transitions. The business processes and information technology systems of the City Council can inhibit cross-sector information sharing and collaboration, reinforcing organisational silos. The Cork City Council's forthcoming People and Learning & Development Strategies will make a significant contribution to developing organisational capacity and culture to build a workforce fit for the future, but the organisation must also embed these ambitious changes in structure, systems and processes, to be effective.

Related Opportunity

The LACAP has afforded the organisation an opportunity to create greater capacity through the embedding of climate awareness through the Personal Management Development System (PMDS) and through the internal climate champion programme.

Collaborative Ecosystem

The City Council has long-established partnerships and collaborations of different kinds with business, communities, academia and central government, among others. Recognising the scale and complexity of the climate crisis, it is clear that no single stakeholder has the knowledge, capacity, resources or mandate to comprehensively address its impacts. Systems of collaboration must evolve to more effectively harmonise and deploy the diverse capacity of the widest possible stakeholder ecosystem to achieve a shared vision of climate neutrality in the city. The City Council is one stakeholder among many, not just the buyer of services. It must adapt to a role that helps all stakeholders to:

Continued →

Envision the climate neutral and resilient future for the city, by forging a common goal, bringing people and organisations together, and emphasising the co-benefits of climate action ;
Empowers the different members of the ecosystem through information sharing, enabling equity and opportunities to participate, and creation of a common narrative, and
Enables **execution** by demonstrating collaboration and flexibility, spurring innovation, activating the market and mobilising green finance.

Influencing citizen demand and behaviour

The EPA's [Climate Change in the Irish Mind](#) study shows that 95% of Irish people think climate change is happening and that 85% of people say that business, local government, politicians, national government, and citizens should be doing more to address climate change. These levels of support for climate action are confirmed through city level research. However, adoption of climate positive behaviour is much lower, with only 37% of respondents indicating they would eat less meat as a climate action or 41% saying they would punish companies who do not do enough on climate change through their consumption choices. The SEAI's National Retrofit Plan provides incentives to achieve the upgrade of 500,000 buildings by 2030. Demand and delivery capacity for retrofitting are growing, but Ireland is still off track on its ambition in this area. The SEAI's efforts to influence demand through financial supports, low-hassle delivery through one-stop-shops and the contagion effect of change, among other positive factors to influence behaviour, are though beginning to make a difference. Cork City Council has no embedded capacity to introduce insights from behavioural science into its policy development in all sectors, its communication, and its service design and delivery. Finding ways to more effectively influence citizen demand and behaviour, whether for retrofitting, personal consumption and waste, or transport choices, is a critical need to accelerate the decarbonisation of our city.

Related Opportunity

The creation of climate positive communication highlighting co-benefits, and economic benefits of climate investment while also developing strategies that provide for a Just Transition will enable greater buy in from a range of stakeholders.

Learning by Doing

Cork City Council is committed to grounding our future actions in a manner where designing, testing and redesigning is encouraged to fulfil our vision of a Climate Neutral Cork. Internally the biennial review and iteration of the Climate City Contract and the annual review of our LACAP will allow organic growth of both documents as new policies, partnerships, funding and technologies are realised locally and nationally. The Council will also ensure public engagement in this process through the commissioning of a household survey to examine public sentiment quantitatively and climate conversation sessions to examine sentiment qualitatively. Public engagement through new innovative means such as a Citizens Council will allow for us to see what has worked, what has not worked and what needs to be done differently. The BEI will also be updated regularly to highlight progress on reducing climate emissions and interrogating the various scope emissions detailed in the Mission info kit. Through our internal and external decision-making bodies in the Climate Action Team and Climate Neutral Cork Leadership Group we will thoroughly interrogate action and result through after action reviews.

A-3.2: Systems & stakeholder mapping			
System	Stakeholders and Networks	Influence on the city's climate neutrality ambition	Interest in the city's climate neutrality ambition
Health and Education	Health Services Executive (HSE) *	The HSE has responsibility for delivery of health services at tertiary, secondary and primary levels, community and public health and mental health services.	High Health related institutions in the city own and operate significant campuses and are large-scale consumers of stationary energy. They are all working to decarbonise their operations. HSE have their own high-ambition climate action strategy .
	Dept. Of Health (DoH)	DoH sets health policy nationally.	High Creation of policy with the aim of increasing the pace of decarbonisation within health-related institutions in the city
	Cork Healthy Cities	Cork Health Cities collaborates with a wide range of projects, academic and civil society partners to develop networks and initiatives to build health and resilience, including by addressing climate positive issues such as healthy and locally produced sustainable food production, community gardens, green space and active travel.	High There is a clear expectation that climate change will cause health impacts, especially for the most vulnerable which will add cost to the health system. At the same time there is a clear benefit to health as a co-benefit to climate action, for example through active travel or plant-based diets. Health institutions and civil society promote climate action on this basis.
	Cork Food Policy Council	Group working towards the development of a sustainable and resilient citywide food policy which is supported by the	High Supporting food production that protects nature; reduces food miles, packaging and waste; and increases composting and recycling. Maximising the use of greenspace and brownfield sites in and around the city to produce food for local people.

Continued →

A-3.2: Systems & stakeholder mapping			
System	Stakeholders and Networks	Influence on the city's climate neutrality ambition	Interest in the city's climate neutrality ambition
Health and Education	Green Spaces for Health	Green Spaces for Health is a city-wide, community led initiative. The Initiative maintain existing green spaces and seek out new greening opportunities.	High Facilitates the transfer of knowledge between community groups on green projects focusing on sustainable practices.
	Social and Health Education Project	SHEP is a Community Education and Development Organisation based in Cork. Our main areas of work are; Training and Development,	High Educational institutions own and operate significant campuses and are large-scale consumers of stationary energy. They are all working to decarbonise their operations.
	South/Southwest Hospital Group * **	The South / Southwest Hospital Group (S/SWHG) is a Hospital Group in Ireland consisting of nine individual hospitals which provide primary, secondary, and tertiary medical care within Munster.	High Health related institutions in the city own and operate significant campuses and are large-scale consumers of stationary energy. They are all working to decarbonise their operations.
	University College Cork (UCC) *	UCC is a third level institution that is key to the promotion of Climate Action throughout the city through a multitude of projects including the Green Campus Initiative and development of sustainable skills qualifications.	High Educational institutions own and operate significant campuses and are large-scale consumers of stationary energy. They are all working to decarbonise their operations. Educational institutions will also be important in the transfer of knowledge and promotion of innovative projects and technologies to combat emissions. Aiding the development of the Smart City. UCC have a high-ambition climate action plan .

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A-3.2: Systems & stakeholder mapping			
System	Stakeholders and Networks	Influence on the city's climate neutrality ambition	Interest in the city's climate neutrality ambition
Health and Education	Cork Education and Training Board (CETB) *	CETB provides, supports and co-ordinates education, training and youth services in Cork. Through the CETB services, there is a pathway for every learner. CETB promote Climate Action across a number of initiatives including Green Skills micro qualifications.	High Educational institutions own and operate significant campuses and are large-scale consumers of stationary energy. They are all working to decarbonise their operations. Educational institutions will also be important in the transfer of knowledge and promotion of innovative projects and technologies to combat emissions.
	Cork Smart Gateway	Cork Smart Gateway is an initiative funded by Cork City Council, Cork County Council and University College Cork. The Cork Smart Gateway is also further supported by a wider steering group consisting of The Tyndall National Institute, Nimbus Research Centre, Cork Chamber, Tech Industry Alliance and Energy Cork.	High Cork Smart Gateway is bringing together new collaborations to advance the sustainability and climate action through partnerships with the University.
	Munster Technological University (MTU) *	MTU is a third level institution that is key to the promotion of Climate Action throughout the city through a multitude of projects including the Environmental Research Institute.	High Educational institutions own and operate significant campuses and are large-scale consumers of stationary energy. They are all working to decarbonise their operations. Educational institutions will also be important in the transfer of knowledge and promotion of innovative projects and technologies to combat emissions. Aiding the development of the Smart City. MTU have their own high ambition climate action roadmap .

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A-3.2: Systems & stakeholder mapping			
System	Stakeholders and Networks	Influence on the city's climate neutrality ambition	Interest in the city's climate neutrality ambition
Built Environment and Energy	ESB	The ESB are responsible for the generation and distribution of energy in Ireland.	High Meeting their obligations to provide infrastructure for a decarbonised energy system supporting the integration of significantly increased levels of renewables and electrified heat and transport on the system.
	Eirgrid	EirGrid's primary purposes are the daily management of the Irish national grid, the operation of the wholesale power market, and the development of high voltage infrastructure to serve Ireland's economy.	High Meeting their obligations to provide renewable energy, and utilising the opportunity to upgrade infrastructure and introduce maintenance regimes that ensure the grid is future proofed.
	Gas Networks Ireland (GNI)	GNI are responsible for the ownership and operation of the Networks across the state.	High Meeting their obligations to provide renewable energy, and utilising the opportunity to upgrade infrastructure and introduce maintenance regimes that ensure the grid is future proofed.
	Commission for the Regulation of Utilities (CRU)	The CRU regulates utilities such as the energy and water sectors.	High Meeting their obligations to progress towards renewable electricity target of up to 80% and ensure a sustainable regulatory system.
	Dept. of Housing, Local Government and Heritage (DHLGH)	Department responsible for the Local Government System in Ireland and provision of capital funding for social and affordable housing while also holding the remit of Biodiversity.	High Essential in the retrofit of building stock and building regulation to ensure A2 rated housing construction which will provide for Nearly Zero Energy Buildings (NZEB). With 40% of Ireland's energy-related carbon emissions coming from buildings, these changes will help address climate change. The department also sets Biodiversity Policy.

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A-3.2: Systems & stakeholder mapping			
System	Stakeholders and Networks	Influence on the city's climate neutrality ambition	Interest in the city's climate neutrality ambition
Built Environment and Energy	SEAI	The SEAI is Ireland's national sustainable energy authority. The SEAI is integral in the rollout of the national retrofit scheme including, residential, commercial and public building stock.	High Acceleration and achievement of the national non-domestic and domestic retrofit plan are essential to make the achievement of Cork City's climate neutrality goal possible. SEAI also provide incentives for EV, commercial wind and other incentives for transition.
	Energy Cork **	Energy Cork is an industry-driven cluster pursuing coordinated actions to strengthen enterprise and employment within the energy sector in the Cork region	High Energy Cork is instrumental in the reduction of Emissions from the usage of Energy in the Cork Regions. The cluster has also published the Cork Energy Master Plan which seeks to reduce energy demand by 35% by 2030
	Irish Green Building Council (IGBC) **	The IGBC seeks to accelerate the transformation of the built environment to one that is sustainable through leadership, research, education, and providing policy input to national and local government.	High The IGBC's focus falls on the built sector, with a focus on energy efficient buildings and the increase in the number of buildings certified as energy efficient to promote a sustainable built environment
	Approved Housing Bodies (AHB) **	AHBs are independent, not-for-profit organisations. They provide affordable rented housing for people who cannot afford to pay private sector rents or buy their own homes. Some AHBs provide housing specifically for particular groups of people, such as older people or homeless people. AHBs are also known as housing associations.	High There are approximately 500 AHBs in Ireland with a stock of over 30,000 homes who work closely with Local Authorities. They are an important stakeholder in ensuring low emission housing stock is constructed to promote a sustainable and resilient built environment and communities.

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A-3.2: Systems & stakeholder mapping			
System	Stakeholders and Networks	Influence on the city's climate neutrality ambition	Interest in the city's climate neutrality ambition
Built Environment and Energy	Construction Industry Federation (CIF) * * *	The Construction Federation Ireland is the construction sector's representative body.	High Development of decarbonisation projects and awareness raising for the construction industry.
	Land Development Agency	The LDA is a commercial, state sponsored body that has been created to coordinate land within public control to provide affordable and social homes and build communities across Ireland	High As a body whose purpose is to maximise the supply of affordable and social homes on public land, the LDA will be important to ensure sustainable practices such as near net zero housing, compact growth and innovative resilient projects are progressed.
	Office of Public Works	The OPW is a government agency, which manages most of the Irish State's property portfolio, including hundreds of owned and rented Government offices and police properties, oversees National Monuments and directly manages some heritage properties, and is the lead State engineering agency, with a special focus on flood risk management	High The OPW is an essential agency for adaptation projects with a particular focus on Flood risk management and defences and providing a coordinated approach to Adaptation.
Transport and Mobility	National Transport Agency	The NTA is responsible for developing and implementing strategies to provide high quality, accessible, sustainable transport across Ireland. The NTA also leads the development of transport strategies in Cork.	High The NTA will be essential to the rollout of the Cork Metropolitan Area Transport Plan and the the implementation of Cork Bus Connects. These are the seminal strategies to provide for sustainable transport within Cork City. The NTA is also the primary funding body for sustainable transport infrastructure.

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A-3.2: Systems & stakeholder mapping			
System	Stakeholders and Networks	Influence on the city's climate neutrality ambition	Interest in the city's climate neutrality ambition
Transport and Mobility	Transport Infrastructure Ireland (TII)	The TII is a state agency dealing with road and public transport infrastructure.	High The TII provides and maintains infrastructure of national strategic influence across the state including roads and light rail.
	Department of Transport (DoT)	The DoT sets transport policy nationally.	High Creation of policy with the aim of increasing the pace of decarbonisation within transport institutions in the city
	Irish Rail *	Irish Rail is the national agency responsible for maintaining and operating the rail network across the state.	High Irish Rail is an important partner in providing sustainable transport to the city from commuter towns allowing for greater user choice. Irish Rail is also providing for a lower emission fleet.
	Bus Eireann *	Bus Eireann is the national bus operator.	High Bus Eireann is an important partner in providing sustainable transport within the city city and from commuter towns allowing for greater user choice. Bus Eireann is also providing for a lower emission fleet.
	Port of Cork Company	The Port of Cork Company is the commercial semi-state company responsible for the operation of the Port of Cork which is one of the three Ports of National Significance (Tier 1) in Ireland.	High The Port of Cork is an essential infrastructure node for the transport of green energy cargoes and transition fuels and the provision of future energy security. The Port of Cork will also place decarbonisation at the centre of future infrastructure development to respond to the national emissions targets.

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A-3.2: Systems & stakeholder mapping			
System	Stakeholders and Networks	Influence on the city's climate neutrality ambition	Interest in the city's climate neutrality ambition
Transport and Mobility	Cork International Airport	Cork International Airport provides the primary form of international travel to the Cork Region and is the second largest principal international airport in the state.	High Cork International Airport controls a large campus that is aiming to become carbon neutral by 2050 in conjunction with the national emissions target.
	Transport and Mobility Forum (TMF)	The TMF Cork is a community representative group of organisations who have a common interest in sustainable and active travel.	High The objectives of the TMF include providing a networking opportunity for stakeholders to coordinate sustainable and active travel projects, programmes and services. The TMF also seek to promote options for sustainable and active travel and support and promote sustainable and active travel events in Cork
Natural Environment and Resource Management	Waste Enforcement Regional Lead Authorities (WERLA)	Three WERLAs, covering the Connacht-Ulster, Eastern Midlands and Southern Regional, were established in 2015 with responsibility for co-ordinating the waste enforcement actions of Local Authorities.	High WERLAs are integral to promoting and enforcing more sustainable pattern of production and consumption, that retains the value of resources in our economy for as long as possible and that will to significantly reduce our greenhouse gas emissions. WERLAs coordinate priorities and common objectives for waste enforcement and ensuring consistency of enforcement of waste legislation while leaving Local Authority personnel as first responders on the ground.
	Waste Companies **	Companies holding a waste permit that manage waste manages services within a Local Authority.	High Development of efficient waste management systems and decarbonisation projects for waste infrastructure.

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A-3.2: Systems & stakeholder mapping			
System	Stakeholders and Networks	Influence on the city's climate neutrality ambition	Interest in the city's climate neutrality ambition
Natural Environment and Resource Management	EPA	The EPA is responsible for protecting and improving the environment as a valuable asset for the people of Ireland. The EPA's purpose is to protect, improve and restore our environment through regulation, scientific knowledge and working with others. It operates independently under the DECC	High The EPA's core roles include being an environmental regulator, a key source of trusted scientific evidence and knowledge, and a voice for the environment. Roles include Environmental research and monitoring which will be essential to the evaluation of the Climate City Contract.
	The Local Authority Waters Programme (LAWPRO)	The role of the LAWPRO as a national shared service working on behalf of all 31 Local Authorities in Ireland is to work to identify the issues affecting water quality nationwide.	High LAWPRO is responsible for the implementation of the EU Water Framework Directive through the coordination and development of River Basin Management Plans on behalf of the 31 Local Authorities in conjunction with the EPA.
	Uisce Éireann	Uisce Éireann is the state-owned water utility company in Ireland.	High Uisce Éireann is directed to provide water services in a sustainable manner that contributes to the protection of the environment, supports the Water Framework Directive and the management of residual waste.
	Heritage Council	The Heritage Council provides policy advice for government on heritage issues that include sustainability, landscape management, high nature value farming, forestry and climate change.	High The Heritage Council is responsible for the rollout and support of the Local Authority Biodiversity Officer programme. The Council also has a role in supporting the implementation of Local Authority Heritage and Biodiversity Plans.

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A-3.2: Systems & stakeholder mapping			
System	Stakeholders and Networks	Influence on the city's climate neutrality ambition	Interest in the city's climate neutrality ambition
Governance and Leadership	Cork City Council	Cork City Council is the Local Authority for the municipality of the city of Cork. Local Authorities in Ireland are responsible for the provision of public services and facilities such as housing, planning, roads, environmental protection, fire services, and maintaining the electoral register. Councils also play a significant part in supporting economic development and enterprise at a local level.	High Cork City Council is the Local Authority whose remit covers the boundary of the city of Cork. The Council is the lead partner in the Climate Neutral and Smart Cities Missions and is responsible for the creation of the Climate City Contract. The Council also promotes climate action through our own Local Authority Climate Action Plan, Air Quality Strategy and Heritage and Biodiversity Strategy to name but a few initiatives.
	Cork County Council	Cork County Council is the Local Authority for the County of Cork that surrounds the boundary of Cork City Council. The Local Authority is responsible for the same functions as Cork City Council for its area of remit.	High Cork County Council will be an important partner in the implementation of many of the actions that are detailed within the Climate City Contract. Plans and strategies including CMATS and the Water Time Directive will be conducted in partnership with Cork County Council
	Southern Regional Assembly	The Southern Regional Assembly is a regional tier of government that which incorporates three Strategic Planning Areas and ten Local Authorities.	High The Southern Regional Assembly is responsible for the publication of the Regional Spatial and Economic Strategy (RSES) on a 6 yearly period which must be accounted for in each Local Authority statutory development plan. The RSES calls for the acceleration of climate action, ensuring a clean and healthy environment and to promote sustainable transport and strategic green infrastructure.

Continued →

A-3.2: Systems & stakeholder mapping			
System	Stakeholders and Networks	Influence on the city's climate neutrality ambition	Interest in the city's climate neutrality ambition
Governance and Leadership	Atlantic Seaboard South Climate Action Regional Office	Climate Action Regional Offices (CARO) coordinate and support Local Authorities to lead transformative change and measurable climate action.	High CAROs have an important role in the rollout of training to Local Authority staff across the state as well as providing support around the implementation of the published LACAPS nationwide.
	DECC	DECC is the lead government department responsible for the protection of the climate and the development of Ireland's natural resources.	High DECC as the lead central government department responsible for the climate has a significant role in the reduction of emissions across the state. The department is responsible for the publication of annual national Climate Actions plans, the operation of the Climate Action Fund and coordinating an all of government response to the climate crisis.
	National Mirror Group **	The National Climate Action Plan 2023, seconded by the 2024 iteration, have called for creation of a Mirror group of government departments led by DECC as a national support structure to Cork City Council in the implementation of the Climate Neutral and Smart Cities Mission.	High The National Mirror Group will be an integral stakeholder to the Mission. Due to the structure of governance in Ireland it is necessary to have input and buy in to the Climate City Contract by national government through this envisaged national support structure. The aim of the Mirror Group is to provide coherent policy and practical support to the Mission cities.

Continued →

A-3.2: Systems & stakeholder mapping			
System	Stakeholders and Networks	Influence on the city's climate neutrality ambition	Interest in the city's climate neutrality ambition
Governance and Leadership	County and City Management Association (CCMA)/Local Government Management Agency (LGMA) **	The CCMA is the 'representative voice' of the local government management network. The CCMA acts as the conduit between local government and senior management of government departments. The LGMA is a state agency that provides a range of professional services to Local Authorities while also having a sectoral coordination role.	High The CCMA through the Climate Action, Transport, Circular Economy and Networks Committee is the sectoral local government management voice for climate action. The CCMA is also the conduit for local government central government. The LGMA provides for sectoral coordination on themes including climate action.
	European Commission	The European Commission is the executive supranational body of the European Union.	High The European Commission proposed a set of proposals to make the EU's climate, energy, transport and taxation policy fit for the accelerated reduction of GHGs. These were adopted by the Council of the European Union and the European Parliament to become law through the European Green Deal which provides the overarching, continent wide policy that supports the EU 100 Climate Neutral & Smart Cities Mission.
	ICLEI Europe	ICLEI Europe or The Local Governments for Sustainability is the world's leading network of local and regional government committed to sustainable development.	High Cork City Council has been a member of ICLEI Europe since 2017 and has provided a mechanism for joint action and peer learning to accelerate local sustainable development and enact tangible sustainable change.

Continued →

A-3.2: Systems & stakeholder mapping			
System	Stakeholders and Networks	Influence on the city's climate neutrality ambition	Interest in the city's climate neutrality ambition
Governance and Leadership	NetZeroCities	NetZeroCities is an initiative established as part of the Horizon 2020 programme to support the European Green Deal. NetZeroCities provide a one-stop-shop Platform, accessible to all cities, aggregating new and existing tools, resources and expertise.	High The NetZeroCities project has been designed to help cities overcome the current structural, institutional and cultural barriers they face in order to achieve climate neutrality by 2030. The project works as a service orientated platform which provides tailor made services to cities in their goal to achieve net zero.
Community & Partnerships	Cork Public Participation Network * **	A Public Participation Network (PPN) is a network that allows Local Authorities to connect with community groups around the country.	High The Cork PPN has over 200 community & voluntary, social inclusion and environmental groups who work together to give a stronger voice to their experience at Cork City Council level. Climate Action, Environment and Heritage is a key linkage group within the PPN and allows for the coordination of positive climate action at a community level.
	Cork Environmental Forum	The Environmental Forum's vision is for a sustainable world which prioritises environmental quality, protects and restores habitats and biodiversity, The Forum promotes stakeholder engagement; running public events, Plenary sessions, public consultations, being represented on various policy committees as well as bringing an environmental perspective through submissions on local, regional, national and EU policy.	High The Environmental Forum is the most well know community organisation in Cork that promotes positive climate action projects and awareness training. The Forum has previously interacted with the Council which had engaged Cork Environmental Forum to work with several communities across the city to draw up local Community Climate Action Plans and provide training and capacity building.

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A-3.2: Systems & stakeholder mapping			
System	Stakeholders and Networks	Influence on the city's climate neutrality ambition	Interest in the city's climate neutrality ambition
Community & Partnerships	Media: ** • Local Newspapers • Radio • TV	Influence the way that climate action issues are discussed locally.	High The local media has the ability to mobilise and focus the public on climate issues and will be an important stakeholder in raising awareness of sustainable actions.
	Business Associations:** • Cork Chamber of Commerce* • Cork Business Association* • Irish Business & Employers Confederation*	Business associations play a key role in advocating and promoting local enterprise and economic development. They can also be important in terms of climate action awareness raising and the leveraging of private capital.	High Business associations have the ability to coordinate sustainable economic development and quality employment while also attracting innovative private investment. They can also aid in Development of decarbonisation and awareness-raising projects for climate action
	Financial Institutions **	Financial Institutions such as National Irish banks and the EIB to name a few will be important in the leveraging of private investment.	High The finance that can be leveraged from such institutions can be integral to the progressions of decarbonisation projects and innovative action.

* Organisations represented on the Climate Neutral Cork Leadership Group.

** Network

In Cork City our stakeholder universe is shown in Figure 21, below. Local Green Deals are envisioned as a powerful tool to strengthen relationships and action-oriented partnerships between the Local Authority and external organisations. As a small city, the opportunities for informal interaction between institutions of all kinds are myriad and encouraged.

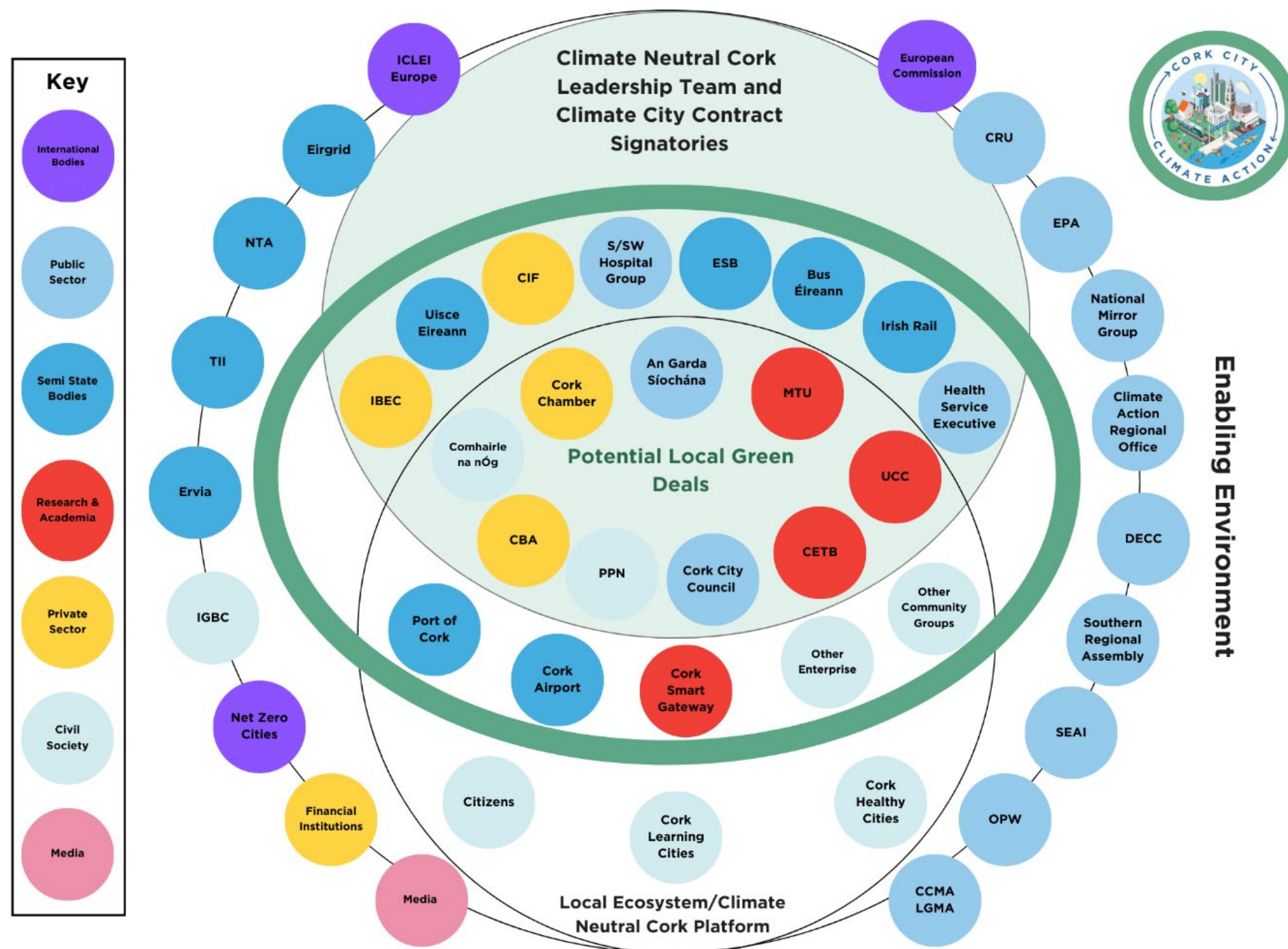


Figure 21: Cork City Stakeholder Universe

Figure 22 distributes key stakeholders according to the strategic priorities of the CCC.

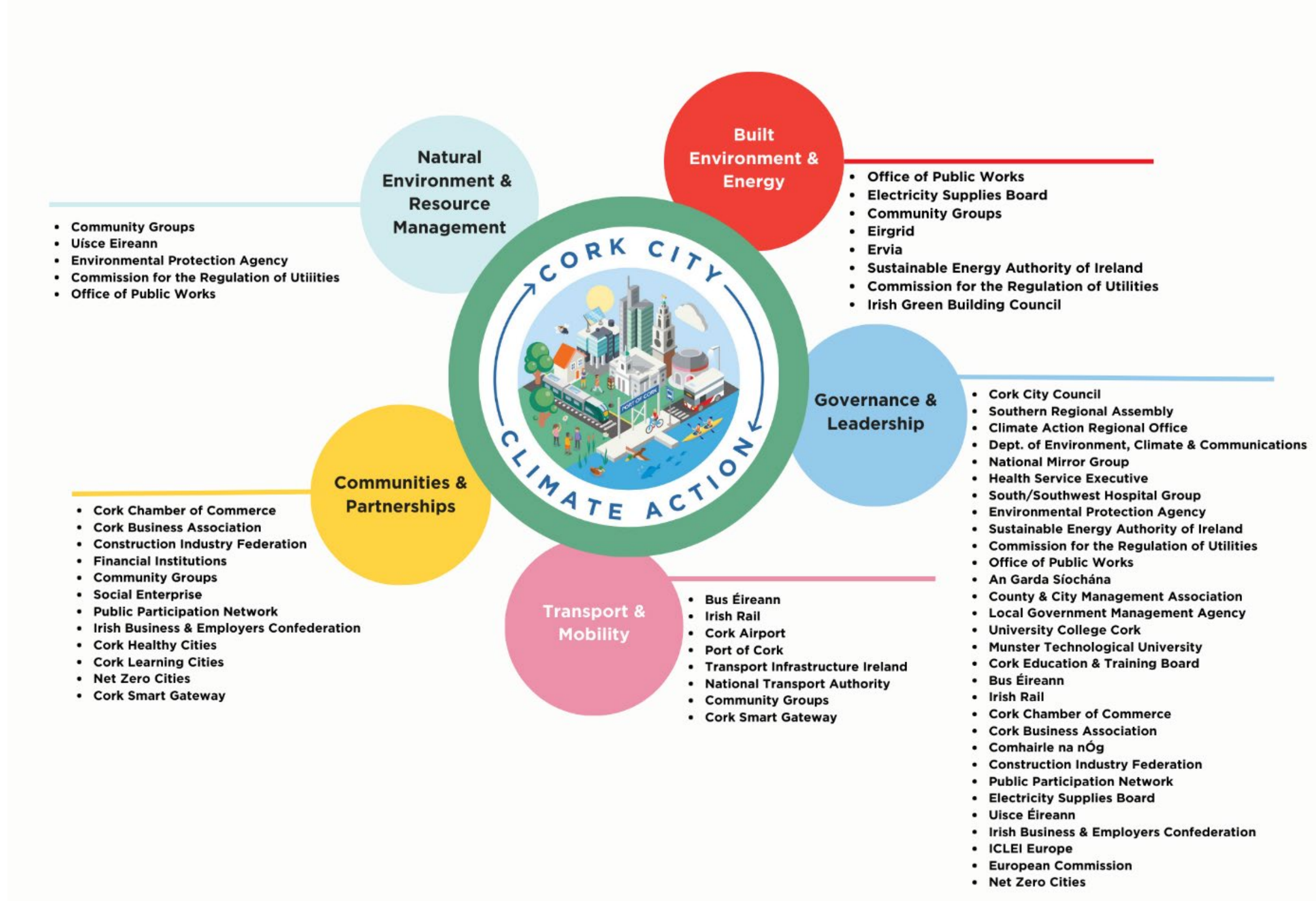


Figure 22: Cork City Stakeholder Universe aligned with Strategic Priorities of the CCC

The Stakeholder Universe mapping contains the following stakeholders:

Acronym	Stakeholder	Description
	An Garda Síochána	The police force in Ireland
	Bus Éireann	An Irish state-owned bus and coach operator
CARO	Climate Action Regional Authority	Coordinates and supports local government to lead transformative change and measurable climate action across our cities and counties
CBA	Cork Business Association	An engaged, connected and committed representative of the business community in Cork City
CCC	Cork City Council	The Local Authority for the city of Cork
CCMA	County & City Management Association	The County and City Management Association (CCMA) is the 'representative voice' of the local government management network.
CETB	Cork Education and Training Board	Provides a range of Further Education and Training services in Cork
CIF	Construction Industry Federation	The Irish construction industry's representative body
	Comhairle na nÓg	Child and youth councils in the thirty-one Local Authorities of Ireland, which give children and young people the opportunity to be involved in the development of local services and policies
	Cork Chamber	A Chamber of Commerce, delivering on a progressive, economic, social and sustainability agenda
	Cork Healthy Cities	Cork is a designated World Health Organisation Healthy City, with this designation is a requirement of the Local Authority to commit to health and a process and structure to achieve it
	Cork Learning Cities	Committed to developing Cork as a Learning City for all its citizens. Believe in giving access to and supporting all our citizens to assume any learning opportunities, at any stage, throughout their lives.
CRU	Commission for Regulation for Utilities	Ireland's independent energy regulator
	Cork Smart Gateway	Engage with smart technology providers, citizens, and researchers to solve the challenges faced by county and city living.
DECC	Department of the Environment, Climate and Communications	A department of the Government of Ireland that is responsible for the telecommunications and broadcasting sectors and regulates, protects, and develops the natural resources of Ireland
	EirGrid	EirGrid is the state-owned electric power transmission operator in Ireland
EPA	Environmental Protection Agency	Responsible for protecting and improving the environment as an asset for the people of Ireland
	European Commission	The European Commission is the primary executive arm of the European Union

Acronym	Stakeholder	Description
ESB	Electricity Supply Board	A state-owned electricity company in Ireland
	Ervia	A multi-utility company distributing pipeline natural gas and dark fibre services in Ireland
IBEC	Irish Business and Employers' Confederation	A business representative lobbying organisation and human resources provider in Ireland
ICLEI Europe	International Council for Local Environmental Initiatives Europe	A leading network of local and regional governments committed to sustainable development
IGBC	Irish Green Building Council	A non-profit organisation that works to accelerate the transformation of the built environment to one that is sustainable.
	Irish Rail	The operator of the National Railway Network of Ireland
LGMA	Local Government Management Association	Is a state agency that supports and advises' Local Authority on strategy, policy, and innovation
MTU	Munster Technological University	A public technological university located in Cork and Kerry
	National Mirror Group	Brings together representatives from all areas of civilised society, who give their independent advice on EU policies and legislation
NTA	National Transport Authority	NTA is responsible for developing and implementing strategies to provide high quality, accessible, sustainable transport across Ireland
	Net Zero Cities	A project that helps European cities to overcome barriers and achieve netzero emissions by 2030
PPN	Public Participation Network	A network that allows Local Authorities to connect with community groups around the country
	Southern Regional Assembly	The Southern Regional Assembly has a role in regional planning, implementing the Regional Spatial & Economic Strategy and managing EU programmes and funding in the Southern Region of Ireland
S/SW Hospital Group	South/Southwest Hospital Group	One of the hospital groups established by the Health Service Executive of Ireland
SEAI	Sustainable Energy Authority of Ireland	Ireland's national sustainable energy authority
TII	Transport Infrastructure Ireland	TII is a state agency that provides and operates sustainable transport infrastructure in Ireland
UCC	University College Cork	A public university in Cork
	Uisce Éireann	A state-owned water utility company in Ireland

Part

B

Pathways towards Climate Neutrality by 2030

Part B represents the core of the CCC Action Plan, shaped by Local Authorities, local businesses, and stakeholders, comprising of the most essential elements: scenarios, strategic objectives, impacts, action portfolios and indicators for monitoring, evaluation, and learning.

1.4

Module B-1

Climate Neutrality Scenarios and Impact Pathways

Module B-1 “Climate Neutrality Scenarios and Impact Pathways” lists and describes impact pathways, early and late outcomes and direct and indirect impacts (co-benefits) according to and adapted from the NetZeroCities Theory of Change and the CCC Action Plan Guidance – clustered by fields of action.

- List of impact pathways, selected from or inspired by the NetZeroCities Theory of Change, including early and late outcomes (strategic objectives) and levers of change structured along the fields of action.

The pathways below, in table B-1.1, build on the Cork City CAP 2024-2029, but avoid replication. They focus on the journey from 52% emissions reduction to our goal of an 80% reduction by 2030. The priority is clearly set on the highest emitting building / energy and transport sectors, but includes critical pathways for:

- Governance and leadership, necessary to build support for climate action and to encourage more climate positive behaviours.
- Communities and partnerships, necessary to improve climate literacy and build a sense of agency and readiness to act.
- Natural environment and resource management, necessary to increase the carbon sequestration capacity in the city.

Cork City is at a relatively **early stage in its journey towards net zero**. The mitigation and adaptation work that is ongoing in the city, whether implemented by the City Council, other public sector bodies, businesses and civil society, has not been coordinated in a single, overarching framework. This is the significant opportunity that being a Mission City offers. There are lots of gaps in our knowledge. The considered, collaborative co-creation of projects and programmes that is fundamental to the Mission concept has not yet been fully mainstreamed city wide, even though there is good evidence of stakeholder engagement and co-design at the project level. Indeed in publicly funded projects this engagement is a statutory requirement. Our next steps include the co-creation of bankable projects in key sectors, facilitated by the thematic sub-groups on buildings and retrofitting, and transportation, that are emerging from the Climate Neutral Cork Leadership Group.

The research and engagement processes that were undertaken in 2023 to design the Cork City CAP were the starting point of our structured stakeholder engagements for climate action. The Mission has caused us to establish and design governance structures that have enabled us to secure quite broad commitment to our net zero goal. **The co-creation work to specify in detail the projects that will deliver that goal is now starting.** Our planned approach, that will shape the second iteration of the CCC is set out in the individual action

outlines BEE/2/AC/A and TM/1/AC/A. Consequently our impact pathways and actions remain largely at a high level in this iteration. Delivery projects will be specified in much greater detail as we move towards the second iteration in 2026 and develop bankable projects, their budgets, timetables and expected impacts, in the meantime. We have many projects ongoing, for example in the retrofitting of social housing, the improvement of the bus network and related infrastructure, the development of low-carbon mass transit, the large-scale development of low-carbon housing on brownfield sites in the city, the mobilisation and financing of community climate action projects, and the scale up of our active travel infrastructure, among many others. At the current stage of implementation, though, it is too early to measure material impact on the city's emissions. The biggest progress made to date has been in the scale up of renewable energy generation and consumption nationally. Ireland's [electricity generation](#) emitted 8% less CO₂ in 2023 and provisional data suggests a 17% reduction in the first half of 2024. However, the foundations for decarbonisation in both transport and the built environment, in particular, are well established in policy and will have measurable impact at the city level by 2030. We plan to consolidate commitment to change through the use of Local Green Deals with stakeholder groups working together to deliver specific sectoral outcomes.

We will update the impact pathways shown below in Table B-1.1 for the second iteration of the CCC. Cork City does not yet have a mechanism in place to quantify the direct impact of emissions reduction measures, so direct impacts are assumed in line with table A-2.1 above. These will be refined, with the support of the Government of Ireland, in the coming two years. Similarly, we do not yet have a robust mechanism for quantifying and measuring the co-benefits of the climate actions we propose. This will also be developed for the second iteration of the CCC in 2026. We know, though, that there will be significant social, economic, health, and quality of life benefits associated with the actions herein. We have developed detailed impact estimates and costings at a sectoral rather than project level, using the most up-to-date publicly available information, set out in the Investment Plan. The detailed sectoral analyses are included as annexes to the Investment Plan, and are summarised within it.

The many early changes we expect to see as a result of action in the various impact pathways are set out below. We have summarised these more concisely in the Commitments Document as a summary set of starting points. Recognising, as stated above, that Cork City is at an early stage of its transition then the number of early changes is considered reasonable.

B-1.1: Impact Pathways					
Fields of Action	Systemic Levers	Early Changes (1-2 Years)	Late Outcomes (3-4 Years)	Direct Impacts (Emission reductions till 2030)	Indirect Impacts (Co-benefits) (C & C Checklist 19)
Built Environment & Energy (BEE)	Technology/Infrastructure (BEE/1)	<ul style="list-style-type: none"> Scale up of retrofitting services for domestic and commercial properties (BEE/1/EC/1), Upgrade of electricity distribution network and increased supply to meet growing demand (BEE/1/EC/2), Scale-up of appropriate solutions for older buildings (BEE/1/EC/3), Evaluate emissions impact of new building technology including off-site manufacture (BEE/1/EC/4). 	<ul style="list-style-type: none"> Reduction of GHG emissions from buildings (BEE/1/LO/1), and Increased electrification of heating systems (BEE/1/LO/2). 	In. 1. GHG from Stationery Energy (Domestic), In. 2. GHG from Stationery Energy (Commercial / Industrial / IPPU) In. 6. GHG from public sector. In. 7. GHG from Grid Supplied Energy,	In. 10. Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³), In. 12. Wellbeing of citizens (Likert Scale), In. 14. Citizen involvement in co-design / co-creation of climate actions (#) In. 16. Energy consumption per household (kWh), In. 18. Green jobs (#), In. 19. Public capital invested in climate action projects (€ million), In. 21. Brownfield use (% of km ²), In. 23. Citizen's awareness regarding sustainability and the environment (Likert Scale).
	Governance & Policy (BEE/2)	<ul style="list-style-type: none"> Adaptation of national and local policy for retrofitting, RES, district heating (BEE/2/EC/1), Establishment of cross-sectoral governance (BEE/2/EC/2), and Prioritise development in expansion zones (BEE/2/EC/3). 	<ul style="list-style-type: none"> Fully aligned policy, incentive and governance facilitates demand growth (BEE/2/LO/1). 		
	Social Innovation (BEE/3)	<ul style="list-style-type: none"> Implementation of area based and cooperative approaches to retrofitting and RES implementation (BEE/3/EC/1), and Promote sufficiency (BEE/3/EC/2). 	<ul style="list-style-type: none"> Acceleration of retrofitting and RES installations on buildings (BEE/3/LO/1), Widespread adoption of energy-saving behaviours (BEE/3/LO/2), and Reduction of GHG emissions from buildings (BEE/3/LO/3). 		
	Democracy/Participation (BEE/4)	<ul style="list-style-type: none"> Increasing numbers of Sustainable Energy Communities (SEC) and Better Energy Communities (BEC) established (BEE/4/EC/1), Decision support process established (BEE/4/EC/2), and Sharing success stories and peer-to-peer promotion of retrofitting and RES (BEE/4/EC/3). 	<ul style="list-style-type: none"> Acceleration of retrofitting and RES installations on buildings, contagion effect apparent (BEE/4/LO/1), and Reduction of GHG emissions from buildings (BEE/4/LO/2). 		
	Finance & Funding (BEE/5)	<ul style="list-style-type: none"> Reduce up-front cost for retrofitting and RES installation and Pilot and scale funding with zero-upfront cost to building owners (BEE/5/EC/1). 	<ul style="list-style-type: none"> Acceleration of retrofitting and RES installations on buildings (BEE/5/LO/1), Reduction of GHG emissions from buildings (BEE/5/LO/2), and Falling energy poverty (BEE/5/LO/3). 		
	Learning & Capabilities (BEE/6)	<ul style="list-style-type: none"> Increased knowledge about retrofitting and RES among building owners (BEE/6/EC/1), and Expanding qualified workforce (BEE/6/EC/2). 	<ul style="list-style-type: none"> Acceleration of retrofitting and RES installations on buildings (BEE/6/LO/1), and Reduction of GHG emissions from buildings (BEE/6/LO/2). 		

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B-1.1: Impact Pathways					
Fields of Action	Systemic Levers	Early Changes (1-2 Years)	Late Outcomes (3-4 Years)	Direct Impacts (Emission reductions till 2030)	Indirect Impacts (Co-benefits) (C & C Checklist 19)
Transport & Mobility (TM)	Technology/Infrastructure (TM/1)	<ul style="list-style-type: none"> Accelerating electrification of the private, commercial and public fleet (TM/1/EC/1), Implementation of EV charging strategy (TM/1/EC/2), Extension of the active travel infrastructure network (TM/1/EC/3), and Further reallocation of road space (TM/1/EC/4). 	<ul style="list-style-type: none"> Increased use of EV (TM/1/LO/1), Increased modal shift away from car use (TM/1/LO/2), Reduced number of car journeys especially for short journeys <5 km (TM/1/LO/3), Improved air quality (TM/1/LO/4), and Reduced noise pollution (TM/1/LO/5). 	In. 3. GHG from Transport, and In. 9. Negative emissions through natural sinks.	In. 10. Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³), In. 12. Wellbeing of citizens (Likert Scale), In. 11. Urban Heat Island Effect (oC UHImax), In. 14. Citizen involvement in co-design / co-creation of climate actions (#), In. 17. Modal share of active and public transport (%), In. 18. Green jobs (#), In. 19. Public capital invested in climate action projects (€ million), In. 22. % of tree canopy within the city (% of municipal area) In. 23. Citizen's awareness regarding sustainability and the environment (Likert Scale)
	Governance & Policy (TM/2)	<ul style="list-style-type: none"> Review and updating of EV incentives structures + unit price reductions to accelerate fleet electrification (TM/2/EC/1), Further extension of 30 kmh zones (TM/2/EC/2), Review of parking strategy (TM/2/EC/3), Enhanced permeability standards in urban design (TM/2/EC/4), and Increased pedestrianisation in the city and suburban centres (TM/2/EC/5). 	<ul style="list-style-type: none"> Reduced traffic accidents and injuries (TM/2/LO/1), Increased use of public transport (TM/2/LO/2), Reduced car use (TM/2/LO/3), and Increased modal shift away from car use (TM/2/LO/4). 		
	Social Innovation (TM/3)	<ul style="list-style-type: none"> Increasing availability of shared mobility (TM/3/EC/1), and Permit-based commercial vehicle access to the city (TM/3/EC/2). 	<ul style="list-style-type: none"> Commercial vehicle journeys are rationalised (TM/3/LO/1), and Car ownership reduced within the city boundary (TM/3/LO/2). 		
	Democracy/Participation (TM/4)	<ul style="list-style-type: none"> Promotion of ride sharing for commuters (TM/4/EC/1), and Smart travel plans for institutions (TM/4/EC/2), and Community engagement for car use demand reduction (TM/4/EC/3). 	<ul style="list-style-type: none"> Reduction in congestion from accessing schools (TM/4/LO/1), and Car occupancy increased (TM/4/LO/2). 		
	Finance & Funding (TM/5)	<ul style="list-style-type: none"> Additional financial support for new and used EV purchase (TM/5/EC/1), Trialling scrappage scheme for car to e-bike and active travel (TM/5/EC/2), and Review road use pricing in the city (TM/5/EC/3). 	<ul style="list-style-type: none"> Cost of car ownership rises (TM/5/LO/1), and Incentives to swap cars for other forms of more sustainable transport increase (TM/5/LO/2). 		
	Learning & Capabilities (TM/6)	<ul style="list-style-type: none"> Increased communication of co-benefits of modal shift (TM/6/EC/1), and Scale up of safe cycling education (TM/6/EC/2). 	<ul style="list-style-type: none"> Demand for and participation in active travel and public transport use grows (TM/6/LO/1). 		

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B-1.1: Impact Pathways					
Fields of Action	Systemic Levers	Early Changes (1-2 Years)	Late Outcomes (3-4 Years)	Direct Impacts (Emission reductions till 2030)	Indirect Impacts (Co-benefits) (C & C Checklist 19)
Natural Environment & Resource Management (NERM)	Technology/Infrastructure (NERM/1)	<ul style="list-style-type: none"> Increased rate of tree planting (NERM/1/EC/1), and Increased accessibility of green space city wide (NERM/1/EC/2). 	<ul style="list-style-type: none"> Increased CO2 sequestration withing the city (NERM/1/LO/1), Increased shading / cooling effect (NERM/1/LO/2), and Stable population growth in the city centre (NERM/1/LO/3). 	In. 4. GHG from Waste, In. 5. GHG from AFOLU, In. 8. Residual emissions permanently sequestered, traded or captured and stored, and In. 9. Negative emissions through natural sinks	In. 10. Improved Air Quality (PM2.5 µg/m3; PM10 # of days; NO2 µg/m3), In. 11. Urban Heat Island Effect (oC UHI _{max}), In. 12. Wellbeing of Citizens (Likert Scale), In. 13. Green Spaces (Ha/100,000) In. 14. Citizen involvement in co-design / co-creation of climate actions (#), In. 15. Funding for Social Innovation initiatives for climate neutrality (€), In. 18. Green jobs (#), and In. 19. Public capital invested in climate action projects (€ million), In. 20. Recycling rate of municipal waste (%), In. 22. % of tree canopy within the city (% of municipal area), In. 23. Citizen's awareness regarding sustainability and the environment (Likert Scale),
	Governance & Policy (NERM/2)	<ul style="list-style-type: none"> Enforcement of planning regulations in favour of nature and biodiversity (NERM/2/EC/1). 	<ul style="list-style-type: none"> No net loss of biodiversity / restoration of biodiversity integrated with developments (NERM/2/LO/1). 		
	Democracy/Participation (NERM/4)	<ul style="list-style-type: none"> Strengthening participation in the circular economy, recycling, repair and reuse (NERM/4/EC/1), and Public campaign to improve air quality (NERM/4/EC/2). 	<ul style="list-style-type: none"> Reduction in the quantity of waste generated in the city (NERM/4/LO/1). 		
	Finance & Funding (NERM/5)	<ul style="list-style-type: none"> Financial and material support for the greening of privately owned spaces in the city (NERM/5/EC/1). 	<ul style="list-style-type: none"> Increased renewable energy output (NERM/5/LO/1), local sequestration (NERM/5/LO/2), reduced runoff of rainwater (NERM/5/LO/3), and Increased biodiversity and habitats (NERM/5/LO/4). 		
	Learning & Capabilities (NERM/6)	<ul style="list-style-type: none"> Increased investment in learning and communication of the value of green space and biodiversity in the city (NERM/6/EC/1). 	<ul style="list-style-type: none"> Growing support for greening of the city (NERM/6/LO/1). 		

Continued →

B-1.1: Impact Pathways					
Fields of Action	Systemic Levers	Early Changes (1-2 Years)	Late Outcomes (3-4 Years)	Direct Impacts (Emission reductions till 2030)	Indirect Impacts (Co-benefits) (C & C Checklist 19)
Communities & Partnerships (CP)	Technology/Infrastructure (CP/1)			In. 1. GHG from Stationery Energy (Domestic), In. 2. GHG from Stationery Energy (Commercial / Industrial / IPPU), In. 3. GHG from Transport, In. 4. GHG from Waste, In. 5. GHG from AFOLU, In. 6. GHG from Public Sector, In. 8. Residual emissions permanently sequestered, and In. 9. Negative emissions through natural sinks.	In. 12. Wellbeing of citizens (Likert Scale), In. 14. Citizen involvement in co-design / co-creation of climate actions (#), In. 15. Funding for Social Innovation initiatives for climate neutrality (€), and In. 19. Public capital invested in climate action projects (€ million). In. 23. Citizen's awareness regarding sustainability and the environment (Likert Scale),
	Governance & Policy (CP/2)	<ul style="list-style-type: none"> Implement innovative participation measures investigated under Cork City CAP (CP/2/EC/1). 	<ul style="list-style-type: none"> Increased public acceptance / support for climate measures (CP/2/LO/1). 		
	Social Innovation (CP/3)	<ul style="list-style-type: none"> Community contracts between Llocal Aauthority and community groups for use and stewardship of public spaces for climate positive activity (CP/3/EC/1). 	<ul style="list-style-type: none"> Increased climate positive utilisation of redundant space in the city, improved urban environment and increased community activity in the public realm (CP/3/LO/1). 		
	Democracy/Participation (CP/4)	<ul style="list-style-type: none"> Public platform for climate action brings together different actors to share ideas, information and to develop partnerships (CP/4/EC/1), and Introduce the Climate Neutral Cork Conference (CP/4/EC/2). 	<ul style="list-style-type: none"> A social movement for climate action forms, accelerating action and increases demand for climate action (CP/4/LO/1). 		
	Finance & Funding (CP/5)	<ul style="list-style-type: none"> Sustained funding for climate actions implemented by community organisations growing over time (CP/5/EC/1). 	<ul style="list-style-type: none"> Increased awareness of climate change and growing individual commitment to action (CP/5/LO/1). 		
	Learning & Capabilities (CP/6)	<ul style="list-style-type: none"> Investment in climate literacy education (CP/6/EC/1). 	<ul style="list-style-type: none"> Increasing climate literacy among citizens (CP/6/LO/1). 		

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B-1.1: Impact Pathways					
Fields of Action	Systemic Levers	Early Changes (1-2 Years)	Late Outcomes (3-4 Years)	Direct Impacts (Emission reductions till 2030)	Indirect Impacts (Co-benefits) (C & C Checklist 19)
Governance & Leadership (GL)	Technology/Infrastructure (GL/1)	<ul style="list-style-type: none"> Public sector leadership through full decarbonisation of Llocal Aauthority and other public sector buildings (GL/1/EC/1). 	<ul style="list-style-type: none"> Reduced public sector emissions and contribution to contagion effect of retrofitting (GL/1/LO/1). 	In. 1. GHG from Stationery Energy (Domestic), In. 2. GHG from Stationery Energy (Commercial / Industrial / IPPU), In. 3. GHG from Transport, In. 4. GHG from Waste, In. 5. GHG from AFOLU, In. 6. GHG from public sector, In. 7. GHG from grid supplied energy, In. 8. Residual emissions permanently sequestered, and In. 9. Negative emissions through natural sinks.	In. 10. Improved Air Quality (PM2.5 µg/m3; PM10 # of days; NO2 µg/m3), In. 12. Wellbeing of citizens (Likert Scale), In. 14. Citizen involvement in co-design / co-creation of climate actions (#), In. 15. Funding for Social Innovation initiatives for climate neutrality (€), In. 19. Public capital invested in climate action projects (€ million), In. 21. Brownfield use (% of km²) In. 23. Citizen's awareness regarding sustainability and the environment (Likert Scale),
	Governance & Policy (GL/2)	<ul style="list-style-type: none"> Public sector decarbonisation encourages action from other actors (GL/2/EC/1). 	<ul style="list-style-type: none"> Increased visibility / opportunities for Cork City's technologists, enterprises, academic institutions and community organisations innovating climate solutions (GL/2/LO/1), and City council assets largely decarbonised (GL/2/LO/2). 		
	Social Innovation (GL/3)	<ul style="list-style-type: none"> Introduce insights from behavioural science into policy and service design and delivery, build capacity of the Llocal Aauthority to incorporate a behavioural science led approach (GL/3/EC/1). 	<ul style="list-style-type: none"> Specific changes to the choice architecture help to change climate-negative behaviours into positive ones (GL/3/LO/1). 		
	Democracy/Participation (GL/4)	<ul style="list-style-type: none"> Increase coordinated regional advocacy to central government on subsidiarity, funding and policy coherence (GL/4/EC/1), and Increased participation in Climate Neutral Cork Leadership Group, public platform (GL/4/EC/2). 	<ul style="list-style-type: none"> Increased capacity to deliver national climate ambition at the local level (GL/4/LO/1). 		
	Finance & Funding (GL/5)	<ul style="list-style-type: none"> Utilise information from green budgeting process to help crowd in additional resources for climate action (GL/5/EC/1). Bundling bankable projects from multiple stakeholders in Local Green Deals (GL/5/ED/2) 	<ul style="list-style-type: none"> Amount of funding for climate action in all five priority themes accelerates annually (€) (GL/5/LO/1). Cork City climate action projects in different sectors achieve increased investment (€) (GL/5/LO/2) 		
	Learning & Capabilities (GL/6)	<ul style="list-style-type: none"> Implementation of climate positive people strategy / learning and development strategy (GL/6/EC/1). 	<ul style="list-style-type: none"> Local Aauthority workforce fit for net zero (GL/6/LO/1). 		
Residual Emissions (C & C Checklist 16)	Technology and Infrastructure (RE/1)	<ul style="list-style-type: none"> Investigate Carbon Capture and Storage Technology (RE/1/EC/1). 	<ul style="list-style-type: none"> Pilot CCS installations introduced (RE/1/LO/1). 	In. 8. Residual emissions permanently sequestered In. 9. Negative emissions through natural sinks	In. 10. Improved Air Quality (PM2.5 µg/m3; PM10 # of days; NO2 µg/m3), In. 12. Wellbeing of citizens (Likert Scale)
	Governance and Policy (RE/2)	<ul style="list-style-type: none"> Investigate out-of-boundary sequestration (RE/2/EC/1). 	<ul style="list-style-type: none"> Agreement with stakeholders in County Cork to allocated sequestration capacity to emissions sourced in the city (RE/2/LO/1). 		
	Learning and Capabilities (RE/6)	<ul style="list-style-type: none"> Develop methodolgoy to measure qequestration within the city (RE/6/EC/1), and Promote ETS to qualifying enterprises (RE/6/EC/2). 	<ul style="list-style-type: none"> Sequestration rate established Increased ETS participation (RE/6/LO/1). 		

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B-1.2: Description of impact pathways (C & C Checklist 23)

Cork City utilises all six systemic levers across almost all of our priority areas of action. The levers will contribute to both a direct impact on GHG emissions and create indirect co-benefits, such as improvements to quality of life, economic growth, and air quality. Our iterative approach, learning by doing, will enable us to evolve implementation, investment choice as the prevailing conditions change. We will learn what works best and continuously adapt our approach accordingly.

The summary of levers applied in each emissions domain reflects the absolute importance of the built environment and energy, and transport and mobility domains in Cork City. These priority domains account for 85% of GHG in our city.

	Built environment & energy (including domestic and commercial / industrial buildings+ IPPU)	Transport & mobility	Natural environment & resource management (including waste)	Communities & partnerships	Governance & leadership	Residual Emissions
Technology / Infrastructure	5	4	2		1	1
Governance / Policy	2	3	1	1	1	1
Social Innovation	2	2		1	1	
Democracy / Participation	3	3	2	2	1	
Finance / Financing	2	3	1	1	2	
Learning / Capabilities	2	2	1	1	1	2
Total levers by domain	16	17	7	6	8	4
Total GHG reductions t CO₂ eq	211,739	111,940	32,441		25,017	

Figure 23: Summary of systemic levers applied in each emissions domain

Cork's biggest combined emissions domains are domestic and commercial / industrial buildings, inclusive of IPPU. Together these sectors account for 56% of total emissions in a BAU scenario for 2030. Transport and mobility accounts for a further 29%. All these sectoral actions are well supported in policy and planning at the city level, not least in the City Development Plan 2022-2028 and the Cork City CAP 2024-2029. Other local and national policy instruments also provide direction.

Domestic Energy Retrofit

The policy and strategy drivers for decarbonisation of domestic and commercial / industrial energy use and emissions reduction are well established in the National Retrofit Plan, the [National Plan for Non-Domestic Building Retrofit and the Long-Term Renovation Strategy 2020](#).

Our analysis of the cost and impact of decarbonisation of the domestic building stock and energy systems in Cork is presented in Figure 24 below. Our analysis incorporates assumptions on the growth of the housing stock by 2030 that will be needed to accommodate a population of 280,000. We anticipate the number of new build dwellings required annually (3,859), of different types (detached, semi-detached / end terrace, mid-terrace, apartment), needed up to 2030 and apply an estimate from the Society of Chartered Surveyors Ireland of Tender Price Inflation over the period. In this analysis we use the target, cost-optimal value of B2 BER as the aiming point for the calculation of expected emissions reductions. We anticipate fabric improvements and installation of air-to-water heat pumps constituting the energy upgrades. In total this delivers an anticipated emissions reduction of 337,124 tonnes CO₂ eq over the implementation period. This is 95% of our absolute target of 353,707 tonnes CO₂ eq. We expect that the final gap of 16,583 tonnes CO₂ eq will be absorbed by new builds exceeding the B2 BER threshold, and the fact that some private dwelling owners undertaking deep energy retrofits will seek to achieve the highest possible BER rating. This analysis includes the 11,500 social housing units owned by the City Council, which are being progressively retrofitted using central government funding and at no cost to tenants. The total cost of domestic retrofit, after grant funding from SEAI is taken into account is estimated at €2,239,125,082. Our plan assumes 13 impact pathways across the six levers of change.

	Adjusted Cost of Work	Total Grants for Upgrade to B2 (with adjusted Cost of Work)	Emissions saved Residential Retrofit (tCO ₂ p.a.)
2024	€757,122,702	€292,382,185	109,964
2025	€674,184,092	€233,161,602	174,249
2026	€510,849,032	€222,626,937	219,556
2027	€470,481,894	€217,237,402	255,450
2028	€458,993,960	€235,208,253	281,686
2029	€466,692,945	€235,299,762	299,707
2030	€548,430,138	€211,713,540	310,063
Grand Total	€3,886,754,763	€1,647,629,681	1,650,676

Figure 24: Total estimated cost and impact of retrofitting the domestic building stock in Cork City

Cork City Council owns approximately 11,000 social housing units and is, under the centrally financed Energy Retrofit Programme, progressively retrofitting these units to a B2 BER level. The City Council receives a flat fee of €34,000 per unit and delivers at a pace set by the Department of Housing. Our approach has been to focus on newer, easier to retrofit, buildings first. To date, 900 units have been completed and the current plan envisages a total of 2,750 completions by 2030. To accelerate progress the City Council must advocate for an increase in the central targets and associated funding to 2030. This will also require an uplift in the unit cost to reflect the relative cost of retrofitting older buildings, and the need for additional capacity within the City Council's Housing Maintenance team to coordinate an accelerated programme of action.

SEAI's National Heat Study estimated that up to 54% of heat demand in Ireland could be provided by District Heating powered by renewable heat. However, there are no existing district heat systems operational in Cork City today. Previous experiments on district heating within social housing developments proved uneconomic and unpopular with tenants and were abandoned. Without an existing infrastructure and without proven consumer demand for district heating it is currently unclear whether new investment in district heating will prove cost effective as an emissions reduction measure in the city. Cork City Council has started to engage with the Geological Survey of Ireland to initiate geological surveys in the city to determine the feasibility of geothermal energy as a heat source for future district heating. We will commit to updating our analysis and developing policy in this area if it is deemed relevant.

Retrofitting of residential buildings has already been ongoing in Cork City for several years through the efforts of building owners, with over 11,000 upgrades implemented to date, according to SEAI data. Residential retrofits are supported by the availability of financial incentives from the SEAI, the facilitation of One-Stop-Shop services and informational campaigns to make the decision-making, contracting and implementation processes simpler and more convenient, and the introduction of subsidised loan finance for grant eligible building upgrades through the [Home Energy Upgrade Loan Scheme](#). [Workforce development strategies are being implemented under the National Retrofit Plan and are informed by the Report on the Analysis of Skills for Residential Construction and Retrofitting 2023-2030. Our approach in Cork City is to convene a Buildings and Energy Sub-Group to specify and deliver projects to accelerate residential retrofit through initiatives on information and decision-support, financing, local workforce development, implementation innovation such as area-based approaches, communications and social marketing, among others.](#)

Commercial and Industrial Energy Retrofit

Cork City does not have significant industrial capacity within the administrative boundary. Most emissions related to commercial and industrial result from the operation of buildings and facilities. Retrofitting, installation of RES, and electric space heating systems are the primary means of decarbonisation in this overwhelmingly privately owned sector. The Irish government has not developed an incentive or supports programme for the transition of the industrial and commercial sectors, believing that the market can provide the necessary capital. We assume that this will be the case and will support primarily with information and advocacy. As above, Local Green Deals are expected to work well as a tool to consolidate commitment to delivery of specific sectoral outcomes, including for action in the decarbonisation of commercial and industrial facilities in the city.

Transport and Mobility

The policy and strategy drivers for decarbonisation of transport and mobility are well-established in the National Sustainable Mobility Policy and the Moving Together Strategy.

The [2023 Climate Action Plan](#) shows NTA research that demonstrates the significant impact of electrification relative to other measures. The achievement of modal shift to active and public transport and the implementation of demand reduction measures in line with the National Sustainable Mobility Policy and the Moving Together Strategy.

Modelled Growth / Reduction in Emissions	Car	HGV	LGV	PT	Other	Total (MTCO ₂ eq.)
Demographic Growth	0.62	0.73	0.01	-0.01	0.48	1.84
Sustainable Transport and Behavioural Change	-1.06	-0.27	-0.08	-	-0.68	-2.09
Electrification and Vehicle Technology	-2.99	-0.29	-0.22	-0.38	-0.86	-4.74
Biofuels	-0.36	-0.36	-0.11	-0.02	-0.24	-1.08
Total	-3.79	-0.19	-0.40	-0.41	-1.30	-6.08

Figure 25: Growth in Transport Emissions to 2030

Our estimates of the emissions impact of electrification of a 60% share of the Cork City private car fleet by 2030, including those estimated to be on the road since 2018, is a reduction of 150.889 tonnes CO₂ eq in the target year of 2030. Our estimate of costs and the emissions impact of electrification is shown below in figure 26 below.

Private Cars	EV Private Vehicle Sales Volume	EV Emissions Savings - Private Cars (tonnes of CO ₂)	EV Annual Purchase Cost	Grants for BEVs
2024	11,387	21,556	€543,408,194	€31,883,109
2025	11,387	43,111	€553,732,949	€31,883,059
2026	11,387	64,667	€564,807,608	€31,883,024
2027	11,387	86,222	€576,103,760	€31,883,081
2028	11,387	107,778	€587,625,836	€31,883,109
2029	11,387	129,334	€599,378,352	€31,883,072
2030	11,387	150,889	€611,365,919	€31,882,917
Grand Total	79,707	603,557	€4,036,422,618	€223,181,370

Figure 26: Estimate of Cost and Emissions Impact of Electrification of the Private Car Fleet in Cork City

The [Cork Metropolitan Area Walking and Cycling Index 2023](#) estimates that the current emissions savings related to active travel take up to 69,000 cars off the road and save 18,000 t CO₂ eq. The study found that while 52% of residents walk or wheel five or more days a week, 62% drive with the same or greater frequency. There is a huge opportunity to increase the modal shift. 69% of residents support the concept of the 15-minute city with more shops and everyday services close to their homes. 77% support more green space close to their homes. 69% support building more segregated cycle infrastructure, even if it means less road space for other traffic. 82% support low-traffic neighbourhoods. 69% of residents report that 30 kmh speed limits would be useful to walk or wheel more and 58% say that such limits would help people cycle more. All these changes would help people to walk, wheel or cycle more. The index estimates the current value of economic benefits of active travel at over €401 million. These statistics demonstrate strong public support for the measures planned in the Cork City CAP and the CCC.

Demand reduction measures are informed by the National Sustainable Mobility Policy. The [Moving Together Strategy](#) and its [implementation document](#), is still in the consultation phase. The direction of travel at the policy level is towards the use of measures, such as strengthening demand management through the planning system and compact growth, embedding the polluter pays principle in the road taxation regime, empowering and supporting Local Authorities to implement demand management, and implementing enabling legislation to support appropriate measure on parking, air quality, among others. This comprehensive and integrated range of potential measures will enable Cork City to accelerate both positive and negative incentives to influence travel behaviour.

The Renewable Transport Fuel Obligation Scheme requires suppliers of mineral oil as a transport fuel to incorporate 49% of supply from renewable sources by 2030. It is not yet possible to reliably estimate either the cost or emissions impact of this scheme due to the commercial sensitivity of price information.

There are numerous fora for engagement with the public and interest groups from industry, service users, and civil society on transport-related development issues, such as the Cork City Transport and Mobility Forum, the Irish EV Owners Association, and Pedestrian Cork. These groups will be helpful in engaging citizens in the dialogue around development of a sustainable transport system, and to build legitimacy and support for decisions taken, and ensuring the voices of the hard-to-hear citizens are at the table.

Investment in transport systems is ramping up in part to deliver the Cork Metropolitan Area Transport Strategy (CMATS). Cork City Council has an extensive and ongoing programme of sustainable transport infrastructure development, outlined in the Investment Plan, that are primarily funded by the National Transportation Authority. It has recently adopted its EV charging strategy to create a network of on-street and destination charging infrastructure to enable the acceleration of the shift from internal combustion engines. More broadly, work to deliver the objectives of the City Development Plan on the 15-minute city and compact growth are moving forward with the development of detailed local area plans for the expansion zones anticipated to absorb the city's growing population while ensuring that access and connectivity through sustainable travel are prioritised. Private sector organisations are actively seeking opportunities to introduce and scale up shared mobility schemes. Bus Éireann and Irish Rail are investing heavily in electrification and extension of their networks, including the preparatory steps for large investment in commuter and light rail systems in the city. New research and policy development for demand management is entering our development process to

accelerate modal shift. The City Council, working in partnership with Dublin City Council, Ireland's other Mission City, and University College Cork are embarking on a Net Zero Cities Pilot Programme (BUILD CAPA-CITIES) to introduce skills for the application of behavioural science in our programming and service delivery to increase modal shift. Our work to deliver the CCC will increase collaboration and partnership to both accelerate implementation of many of the ongoing initiatives described here and to co-create additional projects that may be needed.

Natural Environment and Resource Management

The strategy drivers for the natural environment and resource management are well-established in the National Biodiversity Action Plan, the Waste Action Plan for a Circular Economy, the Cork City Heritage and Biodiversity Action Plan, the Cork City Green and Blue Infrastructure Strategy, the Cork City Trees Strategy, and the Cork City Council Air Quality Strategy.

Cork City impact pathways extend and accelerate actions to increase the area, tree coverage and accessibility of green space, the expansion of the circular economy to reduce waste related emissions, and to more creatively engage farmers within the city boundary in meeting our local food, sequestration and amenity needs. Education, dialogue and co-creation are critical to the further achievement of decarbonisation in this sector. Our existing capital budget envisages nearly €100 million euro of investment up to 2030, with ongoing plans to create a new regional park in the Northwest of the city, to increase tree cover, to support the emergence of a more circular economy, and to upgrade the city centre Bishop Lucey Park, among others. More work is needed to develop further investable opportunities for extending access to high quality green spaces. This will be included in the next iteration of the CCC in 2026.

Communities and Partnerships

Climate policy in Ireland recognises the importance of community engagement and participation in the design and delivery of programming at all levels. This is in keeping with Ireland's history of public engagement in public policy making through citizen assemblies, which have been used successfully to develop policy on potentially contentious policy such as gender equality (2019) and drug use (2024). The National Dialogue on Climate Action, established in 2020, recognised the need for a whole-of-society collaborative effort that improves climate literacy, funds active engagement in climate action and captures insights from engagement including through social and behavioural research.

Cork City is already using stakeholder consultation in the design of its climate actions. We plan to create further opportunities for citizen participation in decision-making through the trialling and scale-up of effective measures for engagement and co-creation that are currently being investigated under the Cork City CAP. These may include initiatives like citizen juries, or a citizen parliament, but this research has not yet been concluded. The Climate Neutral Cork Public Platform will offer both formal and informal opportunities to learn, contribute and collaborate in climate action of all kinds, including for co-creation of projects at the neighbourhood and city levels. Sustaining financial support for community organisations of all kinds to act is a critical commitment, as is increasing investment in climate literacy. Recent EPA research showed this to be at a very low level of 5%.

Governance and Leadership

Cork City's participation in the Mission has already influenced the governance arrangements for transition through the establishment of the Climate Neutral Cork Leadership Group. This cross-sectoral group draws its membership from both the public and private sector. Its mandate is to commit to the vision of a Climate Neutral Cork, to communicate the benefits of the climate transition through their own networks and to demonstrate their leadership through their own actions. The impact pathways in this priority area envisage significant decarbonisation of publicly owned assets, enhanced engagement with the public and civil society, more effectively coordinated advocacy to the central government, better use of behavioural science, and showcasing the innovation and capacity for transition in the City. The Climate Neutral Cork Leadership Group will develop thematic sub-groups, initially on buildings and energy, and transport, to design bankable projects through co-design

Residual Emissions

Cork City anticipates having to manage a total of 262,853 tonnes CO₂ eq in 2030. This is a challenging area for many cities. In Cork we plan to develop and implement a robust methodology for the measurement of abatement of residual emissions. Carbon capture, utilisation and storage (CCUS) is a frontier technology for Ireland even while it is being tested and scaled up around the world. The suitability, costs and deployment options for CCUS has been reviewed by SEAI as part of its [National Heat Study](#). Its importance as a decarbonisation option globally is recognised, notwithstanding the uncertainty around the technology, economics and deployment timeframes. In Cork City specifically, there are no major emitters that would be viable for on-site CO₂ capture. In Ireland lime and cement production facilities are deemed good candidates for CCUS at this stage. Cork City has a substantial rural hinterland within the city boundary which offers the potential for increased sequestration. However, dialogue with landowners, mainly farmers, is not happening and is, at the national level, politically sensitive due to the agricultural sectors importance to the national economy and the sensitivity of food security as a public policy issue. Without major sources of industrial emission with the city there is no current vision for the increased use of the ETS. We must consider the potential for out-of-boundary sequestration and will work with our colleagues in the neighbouring jurisdiction of County Cork to that end. Specific measures to address residual emissions and to develop dialogue with relevant stakeholders will be described in more detail in the next iteration of the CCC in 2026.

1.5

Module B-2

Climate Neutrality Portfolio Design

Module B-2 “Climate Neutrality Portfolio Design” contains a project description for **each action planned** in the CCC Action Plan. This includes interventions targeted at creating/enhancing carbon sinks to address residual emissions.

- A table of planned interventions grouped per field of action, including interventions by local businesses and industry (B-2.1).
- An outline of each action. The table contains all information for implementation (e.g., topic, kind of intervention, emission sector, scope, allocation, responsible actors, GHG reduction by gases and estimated costs), including interventions aimed at addressing residual emissions (incl. carbon sinks) (B-2.2).
- A summary of the actions and impact planned to address residual emissions (B-2.3).

The Climate Neutral Cork Leadership Group is still in the process of co-creating the actions to be taken. Details of how we plan to do this for buildings and retrofitting are set out in BEE/2/AC/A and for transport, specifically fleet electrification, in TM/1/AC/A below. More broadly, co-creation at the city level for a Just Transition is described in section C, below. At the time of submission the broad action descriptions, stakeholders, indicators have been agreed, but the implementation details, specifically the setting out of leadership (where needed), timelines, milestones, prioritisation and risk levels are still in development and will be presented, in full, in the second iteration of the CCC. We do not expect this to slow down implementation between 2024 and 2026.

Cork City Council has valued the role alignment of policy and plans with the UN Sustainable Development Goals. ‘Sustainable Development’ itself and the strategic importance of the 2030 Agenda and the integrated multiagency approach required to achieve the SDGs has proven helpful in designing, delivering and measuring the outcomes of our policy and plans. The connection of our local level actions with those taken at the global level also supports our sense of solidarity through Cork’s contribution to global sustainable development as we aim, through our work “to enhance liveability; create opportunities for economic prosperity; foster environmental responsibility; embrace design excellence and demonstrate visionary leadership and strong governance”, in line with the SDG’s guiding principles. We assume that all actions of the CCC contribute to the achievement of SDG 13 Climate Action, we have also identified the strongest alignments between our actions and the wider set of SDGs. They are set out in section B.2.2 below for each individual action.



B-2.1: Description of action portfolios - textual or visual (C & C Checklist 9) (C & C Checklist 14) (C & C Checklist 16) (C & C Checklist 20)		
Fields of action	Portfolio description	
	List of actions	Descriptions
Built environment & energy	Decarbonise 80% of Cork City's domestic building stock (BEE/1/AC/A)	Mobilise public and private sector for massive acceleration of retrofitting and construction of new NZEB dwellings.
	Modern Methods of Construction (BEE/1/AC/B)	Evaluate the performance and cost-effectiveness of modern, off-site production of structural and energy-conserving building elements for rapid construction of new buildings and retrofitting of existing buildings.
	Review standards and cost factors, pilot and scale retrofitting and RES installation in older buildings that are subject to conservation criteria (BEE/1/AC/C)	Review and update standards, test and scale cost effective retrofit and RES for the approximately 9000 older buildings subject to conservation criteria within the city boundary.
	Utility Construction Coordination (BEE/1/AC/D)	City-level coordination with developers and utilities for efficient enabling infrastructure development.
	Introduction of Building Information Modelling (BIM) in capital projects (BEE/1/AC/E)	Progressive and cascading introduction of BIM from 2024 in projects > €100 million, extended to projects of < €1 million in the next four years, to measure and control embodied carbon in construction of new infrastructure through leveraging public procurement.
	Buildings and Retrofit Sub-Group (BEE/2/AC/A)	Establish a multi-sector public private Sub-Group to identify and work through policy and practical constraints to acceleration of retrofitting, RES and district heating. Examine the use of innovative infrastructure projects to improve renewable energy generation including hydroelectric generation on the Lower Lee, a pilot project for hydrogen as a sustainable fuel in partnership with Energy Cork and pilot and scale renewable generation on Local Authority assets e.g. solar topped car parks.
	Massive Upscaling of Retrofitting and RES in Cork City (BEE/2/AC/B)	Multi-sector advocacy to Government / SEAI to target resources from the National Retrofit Plan on Cork City and construction standards compliance e.g. support requirement on RES in all new builds (PART L Conservation of Fuel and Energy – Dwellings).
	Area-based Retrofitting and RES Installation (BEE/3/AC/A)	Pilot and scale up area-based retrofitting and RES schemes to accelerate completions including public sector investment in public realm improvements.
	Promote Sufficiency and Co-operation in Energy Use (BEE/3/AC/B)	Scale up findings from EU programme “FEEL” for widespread adoption of the concept of sufficiency in energy use.

Continued →

B-2.1: Description of action portfolios - textual or visual (C & C Checklist 9) (C & C Checklist 14) (C & C Checklist 16) (C & C Checklist 20)		
Fields of action	Portfolio description	
	List of actions	Descriptions
Built environment & energy	Expansion of Sustainable Energy Communities (SEC) and Better Energy Communities (BEC) (BEE/4/AC/A)	Build demand and participation in area-based SEC to develop energy master plans, and support transition to BEC to implement preferred local solutions to energy efficiency and RES.
	Decision Support (BEE/4/AC/B)	Support consumer retrofitting and RES investment choices through provision of bespoke, building-specific and impartial advice on the most energy efficient solutions and sequencing.
	Contagious Retrofitting and RES (BEE/4/AC/C)	Consumer-created content-based communications campaign for individuals to showcase the retrofitting and RES projects and their impact, online and in-person events.
	Financing Options for Retrofitting and RES (BEE/5/AC/A)	Publicise low-cost finance and grant opportunities for retrofitting and RES. Pilot and scale funding with zero-upfront cost to building owners
	Coordinated grant support (BEE/5/AC/B)	Case management approach for qualifying applicants to maximise grant support from all relevant public sources to offset capital costs for building owners.
	Consumer Education for Retrofitting (BEE/6/AC/A)	Community-based education facilitated through Cork Learning City and Learning Neighbourhoods networks to raise awareness of the benefits of retrofitting and RES, technical options, potential sources of financial and operational support.
	Expanding Qualified Retrofitting and RES workforce (BEE/6/AC/B)	Increase capacity to train a local workforce for retrofitting and RES through formal training and apprenticeship support for on-the-job workforce development.
Transport & Mobility	Promoting Electrification of the Fleet (TM/1/AC/A)	Promote and support the acceleration of fleet electrification for private cars, light and heavy goods vehicles.
	New Public Realm Upgrades (TM/1/AC/B)	Traffic calming, green features in eight locations – Douglas Street, White Street, Princes Street, Emmet Place, Cattle Market Avenue/ Glen Ryan Road, Cook Street, Marlboro Street, and South Main Street/ Bishop Lucy Park
	Extension and Connection of the Active Travel Network (TM/1/AC/C)	Further extension (beyond that planned under CMATS) of the active travel network and better connection to other systems. Investigate the creation of mobility hubs with shared bikes, scooters, walking and cycling routes, at important destinations within the city e.g. stations, stadia, major employment sites, hospitals etc.

Continued →

B-2.1: Description of action portfolios - textual or visual (C & C Checklist 9) (C & C Checklist 14) (C & C Checklist 16) (C & C Checklist 20)		
Fields of action	Portfolio description	
	List of actions	Descriptions
Transport & Mobility	Reallocation of Road Space (TM/1/AC/D)	Prioritisation of sustainable and shared road use types on existing arteries, including priority lanes for low and zero emission vehicles, public and active transport, and low and zero emission vehicle mandates.
	Support for EV purchase and use (TM/2/AC/A)	Review and reform of national and local tax breaks, benefit schemes or subsidies (full or partial) to aid in the purchase of zero emissions vehicles.
	Traffic Management (TM/2/AC/B)	Review feeder road speed limits citywide and extend 30 Km/h limit where public support exists; prioritise safety and comfort of active travel, public transport users and pedestrians; modify operation of traffic signals to prioritise safety and comfort of active travel and public transport users.
	Parking Strategy (TM/2/AC/C)	Review all aspects of parking policy in city centre and suburban areas, including development standards, to assess potential of parking policy on travel choices. Increase the provision of bike parking facilities citywide.
	Shared Mobility (TM/3/AC/A)	Implement micro-mobility strategy to increase car sharing and shared active and sustainable travel resources.
	Licensing access for NZEV to the city (TM/3/AC/B)	Assess impact of licencing goods and service vehicle (e.g. taxis) access to the city, favouring NZEV.
	Carpooling for Cork (TM/4/AC/A)	Promote participation in carpooling scheme for Cork, employer incentives for increased occupancy of commuter vehicles within city and to/from Cork County.
	Smart Travel Plans (TM/4/AC/B)	A practical package of measures to promote sustainable travel access to specific institutions e.g. schools, hospitals, places of work.
	Community Engagement for Demand Management (TM/4/AC/C)	Local-level consultation and engagement for low-traffic neighbourhoods, speed limits, remote working supports and other measures to influence travel choices and mode shift.
	Finance for Electrification (TM/5/AC/A)	Advocate for new and increased supports for transition to NZEV in the new and second-hand vehicle markets.
	Road pricing (TM/5/AC/B)	Review options and co-create with road users on local innovations in road use and public transport pricing.
	Scrappage scheme for active travel (TM/5/AC/C)	Trial scrappage scheme for cars to e-bike, annual travel passes or alternative.

Continued →

B-2.1: Description of action portfolios - textual or visual (C & C Checklist 9) (C & C Checklist 14) (C & C Checklist 16) (C & C Checklist 20)		
Fields of action	Portfolio description	
	List of actions	Descriptions
Transport & Mobility	Information and Awareness Raising (TM/6/AC/A)	Initiatives to raise awareness and inform the public about sustainable travel behaviours, encouraging the use of alternative transport modes, and including restrictions on advertising for cars and driving.
	Cycling Proficiency (TM/6/AC/B)	Increase availability and accessibility of children and adults to safe cycle training, building confidence and safe cycling behaviour
Natural environment & resource management	Accelerated implementation of green and blue infrastructure (NERM/1/AC/A)	Increased rate of tree planting in public and private locations (right species, right place), introduction of development standards for nature-based solutions e.g. Sustainable Urban Drainage Systems.
	Increased access to green space (NERM/1/AC/B)	Implementation of Northwest Regional Park, Bishop Lucey Park and other green spaces planned, increasing tree cover and number of green installations on street.
	Policy Enforcement for Nature (NERM/2/AC/A)	Increase Cork City Council capacity to enforce conditions in favour of no-net loss and nature positive outcomes development, increase developer knowledge and awareness.
	Growing the circular economy (NERM/4/AC/A)	Increase access to public, social enterprise-based and commercial circular economy opportunities, raise awareness of reduce / reuse / recycle, build intuitional and individual capacity for circularity.
	Building demand for climate action co-benefits (NERM/4/AC/B)	Public education to build knowledge and understanding of the health, economic and social benefits of climate action and opportunities to participate in attaining them.
	Incentives and supports for greening our city (NERM/5/AC/A)	Innovative incentives and supports to individuals, community organisations and businesses to implement bio-diversity measures within their own properties e.g. green roofs, back-garden re-wilding, habitat protection / creation.
	Increasing knowledge and awareness of biodiversity in our city (NERM/6/AC/A)	Work with academia and civil society to promote knowledge and awareness of the biodiversity in our city and its importance to healthy and resilient communities.
Communities & partnerships	Innovative Citizen Participation (CP/2/AC/A)	Trial implementation of novel local level consultation / co-creation / decision-making fora in the city.
	Community Stewardship (CP/3/AC/A)	Establish contracts and fee relationships with community organisations and other groups for the medium-term management and use of public space for climate positive actions.

Continued →

B-2.1: Description of action portfolios - textual or visual (C & C Checklist 9) (C & C Checklist 14) (C & C Checklist 16) (C & C Checklist 20)		
Fields of action	Portfolio description	
	List of actions	Descriptions
Communities & partnerships	Climate Neutral Cork Public Platform (CP/4/AC/A)	Build and launch Platform website and initiate events programme, including Climate Neutral Cork Conference.
	Community Climate Action Fund (CP/5/AC/A)	Sustain and increase funding for community-based climate action citywide.
	Climate Literacy (CP/6/AC/A)	Scale up support for climate literacy through the Cork Learning Cities / Learning Neighbourhoods networks.
Governance & leadership	Public Sector Leadership on Decarbonisation (GL/1/AC/A)	Planning and execution of full retrofit and RES installation on public sector buildings in the city.
	Public Sector Influencing (GL/2/AC/A)	Share knowledge and experience of innovation for public sector decarbonisation through events, communications and demonstrations e.g. Cork City Council experience with ELENA EIB support.
	Applying Behavioural Insights in Cork's Climate Transition (GL/3/AC/A)	Building capacity of City Council and partner staff to understand techniques and insights from behavioural science and to apply them in their work in all sectors.
	Advocacy for Decentralisation of the Climate Transition (GL/4/AC/A)	Working with partners including the Southern Regional Assembly, CCMA and LGMA to advocate for the decentralisation of more funding decisions and policy choices to the local government level to accelerate progress on the transition.
	Diversity = Collective Wisdom (GL/4/AC/B)	Restless effort to increase participation in the Climate Neutral Cork Leadership Group and Public Platform.
	Green Budgeting (GL/5/AC/A)	Utilise information from the EU taxonomy aligned, Green Budgeting System, to crowd in additional investment for climate action.
	Local Green Deals (GL/5/AC/B)	Consolidate portfolios of bankable projects from multiple partners in sector specific Local Green Deals to achieve an investable scale of opportunity
	Workforce of the Future (GL/6/AC/A)	Fully implement the Cork City Council People Strategy and Learning and Development Strategy to mainstream climate knowledge, skills and competencies throughout the organisation.



Continued →


B-2.1: Description of action portfolios - textual or visual (C & C Checklist 9) (C & C Checklist 14) (C & C Checklist 16) (C & C Checklist 20)		
Fields of action	Portfolio description	
	List of actions	Descriptions
Residual Emissions	Investigating and applying carbon capture and storage at scale (RE/1/AC/A)	This is a new area of technology. Cork City Council will investigate potential solutions and project ideas and develop them for future iterations of the CCC.
	Investigating out-of-boundary sequestration (RE/2/AC/A)	Investigate the potential of sequestration of Cork City emissions out-of-boundary. The city is surrounded by County Cork, the largest county in Ireland, which is largely rural.
	Promoting participation in the European ETS (RE/6/AC/A)	Supporting enterprises to join the ETS if they meet the threshold through knowledge sharing and technical support.
	Measuring GHG Sequestration in the City (RE/6/AC/B)	Developing a methodology to measure sequestration within the city boundary.


B.2.2 Individual Actions List


BEE/1/AC/A	
Action name	Decarbonise 80% of Cork City's domestic and commercial building stock
Action type	Construction
Action description	<p>Mobilise public and private sector for massive acceleration of retrofitting and construction of new NZEB dwellings.</p> <p>See BEE/2/AC/A below for details on our planned mechanism for mobilisation of effort in the built environment.</p>
Field of action	BEE
Systemic lever	1: Technology and Infrastructure
Outcome (according to module B-1.1)	<p>In.1 GHG from Stationery Energy (Domestic),</p> <p>In.2 GHG from Stationery Energy (Commercial / Industrial / IPPU),</p> <p>In.6 GHG from public sector, and</p> <p>In.7 GHG from Grid Supplied Energy.</p>
Indirect Impacts (Co-benefits) (according to module B-1.1)	<p>In.10 Improved Air Quality (PM2.5 µg/m3; PM10 # of days; NO2 µg/m3),</p> <p>In.12 Wellbeing of citizens (Likert Scale),</p> <p>In.16 Energy consumption per household (kWh),</p> <p>In.19 Public capital invested in climate action projects (€ million), and</p> <p>In.18 Green jobs (#),</p>
Involved stakeholders	Building owners, Cork City Council, CIF, SEAI, Universities, National Mirror Group, and Homeowners.
GHG emissions reduction estimate (total) per emission source sector	1,650,676 t CO2 eq
Total cost and cost per t CO2 eq	<p>€3.887 billion (exclusive of €1.650 billion in government incentives);</p> <p>€2,355 per t CO2 eq</p>
<div> <div>7 AFFORDABLE AND CLEAN ENERGY</div> <div>9 INDUSTRY, INNOVATION AND INFRASTRUCTURE</div> </div>	



BEE/1/AC/B	
Action name	Modern Methods of Construction
Action type	Research and Piloting
Action description	Evaluate the performance and cost-effectiveness of modern, offsite production of structural and energy-conserving building elements for rapid construction of new buildings and retrofitting of existing buildings.
Field of action	BEE
Systemic lever	1: Technology and Infrastructure
Outcome (according to module B-1.1)	In.1 GHG from Stationery Energy (Domestic), In.2 GHG from Stationery Energy (Commercial / Industrial / IPPU), and In.6 GHG from Public Sector.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m3; PM10 # of days; NO2 µg/m3), In.12 Wellbeing of citizens (Likert Scale), In.16 Energy consumption per household (kWh), and In.19 Public capital invested in climate action projects (€ million).
Involved stakeholders	Building Owners, Cork City Council, CIF, Universities, National Mirror Group, IGBC, Professional Bodies.
<div> <div> 7 AFFORDABLE AND CLEAN ENERGY  </div> <div> 9 INDUSTRY INNOVATION AND INFRASTRUCTURE  </div> </div>	



BEE/1/AC/C	
Action outline	Review standards and cost factors, pilot and scale retrofitting and RES installation in older buildings that are subject to conservation criteria.
Action type	Construction
Action description	Review and update standards, test and scale cost effective retrofit and RES for the approximately 9000 older buildings subject to conservation criteria within the city boundary.
Field of action	BEE
Systemic lever	1.Technology and Infrastructure
Outcome (according to module B-1.1)	In.1 GHG from Stationery Energy (Domestic), In.2 GHG from Stationery Energy (Commercial / Industrial / IPPU), and In.6 GHG from Public Sector.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³), In.12 Wellbeing of citizens (Likert Scale), Energy consumption per household (kWh), and In.19 Public capital invested in climate action projects (€ million).
Involved stakeholders	Building owners, Cork City Council, CIF, SEAI, National Mirror Group, IGBC, Professional Bodies.
	


BEE/1/AC/D	
Action outline	Utility Construction Coordination
Action type	Construction
Action description	City-level coordination with developers and utilities for efficient enabling infrastructure development
Field of action	BEE
Systemic lever	1: Technology and Infrastructure
Outcome (according to module B-1.1)	In.1 GHG from Stationery Energy (Domestic), In.2 GHG from Stationery Energy (Commercial / Industrial / IPPU), In.7 GHG from Grid Supplied Energy, and In.6 GHG from public sector
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³), In.12 Wellbeing of citizens (Likert Scale), In.16 Energy consumption per household (kWh), and In.19 Public capital invested in climate action projects (€ million)
Involved stakeholders	Cork City Council, CIF, Irish Water, ESB Networks, Ervia, EirGrid, CRU, Professional Bodies.
	


BEE/1/AC/E	
Action outline	Introduction of Building Information Modelling (BIM) in capital projects Action name
Action type	Construction
Action description	Progressive and cascading introduction of BIM from 2024 in projects > €100 million, extended to projects of < €1 million in the next four years, to measure and control embodied carbon in construction of new infrastructure through leveraging public procurement
Field of action	BEE
Systemic lever	1.Technology and infrastructure
Outcome (according to module B-1.1)	In.1 GHG from Stationery Energy (Domestic), In.2 GHG from Stationery Energy (Commercial / Industrial / IPPU), and In.6 GHG from public sector.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³), In.12 Wellbeing of citizens (Likert Scale), In.16 Energy consumption per household (kWh), and In.19 Public capital invested in climate action projects (€ million).
Involved Stakeholders	Cork City Council, CIF, IGBC, Professional Bodies.
	


BEE/2/AC/A	
Action outline	Buildings and Retrofit Sub-Group
Action type	Governance
Action description	<p>Establish a multi-sector public private sub-group to identify and work through policy and practical constraints to acceleration of retrofitting, RES and district heating. Examine the use of innovative infrastructure projects to improve renewable energy generation including hydroelectric generation on the Lower Lee, a pilot project for hydrogen as a sustainable fuel in partnership with Energy Cork and pilot and scale renewable generation on Local Authority assets e.g. solar topped car parks.</p> <p>Detailed plans and bankable projects for this action will be co-created in the thematic sub-group for buildings and retrofitting for inclusion in the next iteration of the CCC in 2026. It is important to note that action will be taken as plans, approaches and bankable projects are defined. We will not wait for the second iteration of the CCC to initiate our work in this area.</p> <p>This is a multi-sector group of both public and private sector institutions from both the city and national level, academia, and civil society organisations. The sub-group will incorporate expertise in construction, financial services, energy efficiency, public education and training, communications, and the Just Transition, among others. Some participants are drawn from the Leadership Group. The group will be convened by Cork City Council. Its operational arrangements, including chair, will be determined by the group members. The objectives of the thematic sub-group are to :</p> <ul style="list-style-type: none"> • Identify, plan for and create enabling conditions for acceleration of domestic and commercial retrofitting at the city level, including through public awareness and demand support, skills development and workforce support, coordination of private and public investment, promotion of energy efficiency as a service, supporting ESG disclosures, exploring regional finance approaches overcoming supply chain challenges among others. • Facilitate and support the development bankable retrofitting and energy efficiency projects, and trial innovation projects. • Identify, facilitate and support increased access to finance from state, EU and private sector sources. • Identify and execute targeted advocacy on specific systemic changes needed to enable acceleration. • Solicit input from building owners on plans and projects in development through outreach and engagement through established mechanisms including residents associations and other community networks. <p>We will establish the sub-group in Q4 2024. Given its objectives, this mechanism will also be used to facilitate the development of co-created plans and bankable projects in building retrofit, renewable energy systems and district heating. It will coordinate with, inform and influence the Mission Cities' support work undertaken by the National Mirror Group. Our approach builds on research recommendations from UCC and Cork Chamber into Accelerating Decarbonisation of Cork's Built Environment. A first step will be made through the presentation of Cork City's priorities for support from Central Government at the Second National Mirror Group Meeting to be held in Cork City in October 2024.</p>
Field of action	BEE
Systemic lever	2: Governance and Policy




Outcome (according to module B-1.1)	In.1 GHG from Stationery Energy (Domestic), In.2 GHG from Stationery Energy (Commercial / Industrial / IPPU), In.7 GHG from Grid Supplied Energy, and In.6 GHG from public sector.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³), In.12 Wellbeing of citizens (Likert Scale), In.16 Energy consumption per household (kWh), and In.19 Public capital invested in climate action projects (€ million).
Involved stakeholders	CIF, ESB Networks, SEAI, Ervia, Eirgrid, Irish Water, National Mirror Group, Cork City Council, Energy Cork, Financial Institutions, Commercial Landlords; Homeowner Groups.
 	

BEE/2/AC/B	
Action outline	Massive Upscaling of Retrofitting and RES in Cork City
Action type	Advocacy
Action description	Multi-sector advocacy to Government / SEAI to target resources from the National Retrofit Plan on Cork City and construction standards compliance e.g. support requirement on RES in all new builds (PART L Conservation of Fuel and Energy - Dwellings).
Field of action	BEE
Systemic lever	2: Governance and Policy
Outcome (according to module B-1.1)	In.1 GHG from Stationery Energy (Domestic), In.2 GHG from Stationery Energy (Commercial / Industrial / IPPU), and In.6 GHG from public sector.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³), In.12 Wellbeing of citizens (Likert Scale), In.16 Energy consumption per household (kWh), In.19 Public capital invested in climate action projects (€ million), and In.18 Green jobs (#).
Involved stakeholders	National Mirror Group, SEAI, Buildings and Retrofit Sub-Group.
	



BEE/3/AC/A	
Action outline	Area-based Retrofitting and RES Installation
Action type	Construction
Action description	Pilot and scale up area-based retrofitting and RES schemes to accelerate completions including public sector investment in public realm improvements.
Field of action	BEE
Systemic lever	3. Social Innovation
Outcome (according to module B-1.1)	In.1 GHG from Stationery Energy (Domestic), In.2 GHG from Stationery Energy (Commercial / Industrial / IPPU), and In.6 GHG from public sector.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³), In.12 Wellbeing of citizens (Likert Scale), In.16 Energy consumption per household (kWh), In.21 Brownfield use (% of km ²), In.18 Green jobs (#), and In.19 Public capital invested in climate action projects (€ million).
Involved stakeholders	Buildings and Retrofit Sub-Group, SEAI.
	



BEE/3/AC/B	
Action outline	Promote Sufficiency and Co-operation in Energy Use
Action type	Public education and empowerment, citizen cooperation, resource sharing and repurposing
Action description	Scale up findings from EU programme “FEEL” for widespread adoption of the concept of sufficiency in energy use.
Field of action	BEE
Systemic lever	3. Social Innovation
Outcome (according to module B-1.1)	In.1 GHG from Stationery Energy (Domestic), In.2 GHG from Stationery Energy (Commercial / Industrial / IPPU), In.7 GHG from Grid Supplied Energy, and In.6 GHG from public sector.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m3; PM10 # of days; NO2 µg/m3), In.12 Wellbeing of citizens (Likert Scale), In.16 Energy consumption per household (kWh), In.19 Public capital invested in climate action projects (€ million), In.14 Citizen involvement in co-design / co-creation of climate actions (#), and In.23 Citizen's awareness regarding sustainability and the environment (Likert Scale).
Involved stakeholders	Cork City Council, ESB Networks, SEAI, DECC, PPN, Universities, Voluntary sector, Landlords, Tenants, homeowners, citizens.
	



BEE/4/AC/A	
Action outline	Expansion of Sustainable Energy Communities (SEC) and Better Energy Communities (BEC)
Action type	Participation
Action description	Build demand and participation in area-based SEC to develop energy master plans, and support transition to BEC to implement preferred local solutions to energy efficiency and RES
Field of action	BEE
Systemic lever	4: Democracy and Participation
Outcome (according to module B-1.1)	In.1 GHG from Stationery Energy (Domestic), In.2 GHG from Stationery Energy (Commercial / Industrial / IPPU), and In.6 GHG from public sector.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³), In.12 Wellbeing of citizens (Likert Scale), In.16 Energy consumption per household (kWh), In.19 Public capital invested in climate action projects (€ million), In.14 Citizen involvement in co-design / co-creation of climate actions (#) and In.23 Citizen's awareness regarding sustainability and the environment (Likert Scale).
Involved stakeholders	Cork City Council, SEAI, PPN.
	





BEE/4/AC/B	
Action outline	Decision Support
Action type	Advisory Services
Action description	Support consumer retrofitting and RES investment choices through provision of bespoke, building-specific and impartial advice on the most energy efficient solutions and sequencing.
Field of action	BEE
Systemic lever	4: Democracy and Participation
Outcome (according to module B-1.1)	In.1 GHG from Stationery Energy (Domestic), and In.2 GHG from Stationery Energy (Commercial / Industrial / IPPU).
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³), In.12 Wellbeing of citizens (Likert Scale), In.16 Energy consumption per household (kWh), and In.19 Public capital invested in climate action projects (€ million).
Involved stakeholders	Cork City Council, SEAI, PPN.
<div> <div>7 AFFORDABLE AND CLEAN ENERGY</div> <div>9 INDUSTRY, INNOVATION AND INFRASTRUCTURE</div> </div>	



BEE/4/AC/C	
Action outline	Contagious Retrofitting and RES
Action type	Communications Campaign
Action description	Consumer-created content-based communications campaign for individuals to showcase the retrofitting and RES projects and their impact, online and in-person events
Field of action	BEE
Systemic lever	4: Democracy and Participation
Outcome (according to module B-1.1)	In.1 GHG from Stationery Energy (Domestic), and In.2 GHG from Stationery Energy (Commercial / Industrial / IPPU).
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO2 µg/m ³), In.12 Wellbeing of citizens (Likert Scale), In.16 Energy consumption per household (kWh), and In.19 Public capital invested in climate action projects (€ million).
Involved stakeholders	Cork City Council, SEAI, PPN.
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BEE/5/AC/A	
Action outline	Financing Options for Retrofitting and RES
Action type	Communications Campaign
Action description	Publicise low-cost finance and grant opportunities for retrofitting and RES. Pilot and scale funding with zero-upfront cost to building owners.
Field of action	BEE
Systemic lever	5: Finance and Funding
Outcome (according to module B-1.1)	In.1 GHG from Stationery Energy (Domestic), and In.2 GHG from Stationery Energy (Commercial / Industrial / IPPU).
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³), In.12 Wellbeing of citizens (Likert Scale), In.16 Energy consumption per household (kWh), and In.19 Public capital invested in climate action projects (€ million).
Involved stakeholders	Cork City Council, SEAI, Financial Institutions, PPN.
<div> <div> 7 AFFORDABLE AND CLEAN ENERGY  </div> <div> 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE  </div> </div>	

BEE/5/AC/B	
Action outline	Coordinated grant support
Action type	Coordination
Action description	Case management approach for qualifying applicants to maximise grant support from all relevant public sources to offset capital costs for building owners.
Field of action	BEE
Systemic lever	5: Finance and Funding
Outcome (according to module B-1.1)	In.1 GHG from Stationery Energy (Domestic), and In.2 GHG from Stationery Energy (Commercial / Industrial / IPPU).
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO2 µg/m ³), In.12 Wellbeing of citizens (Likert Scale). In.16 Energy consumption per household (kWh), and In.19 Public capital invested in climate action projects (€ million).
Involved stakeholders	Cork City Council, SEAI.
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BEE/6/AC/A	
Action outline	Consumer Education for Retrofitting
Action type	Consumer Education
Action description	Community-based education facilitated through Cork Learning City and Learning Neighbourhoods networks to raise awareness of the benefits of retrofitting and RES, technical options, potential sources of financial and operational support
Field of action	BEE
Systemic lever	6: Learning and Capabilities
Outcome (according to module B-1.1)	In.1 GHG from Stationery Energy (Domestic), and In.2 GHG from Stationery Energy (Commercial / Industrial / IPPU),
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³), In.12 Wellbeing of citizens (Likert Scale), In.16 Energy consumption per household (kWh), In.19 Public capital invested in climate action projects (€ million), and In.23 Citizen's awareness regarding sustainability and the environment (Likert Scale).
Involved stakeholders	Cork City Council, PPN, SEAI.
 	


BEE/6/AC/B	
Action outline	Expanding Qualified Retrofitting and RES workforce
Action type	Training and Apprenticeships
Action description	Increase capacity to train a local workforce for retrofitting and RES through formal training and apprenticeship support for on-the-job workforce development
Field of action	BEE
Systemic lever	6: Learning and Capabilities
Outcome (according to module B-1.1)	In.1 GHG from Stationery Energy (Domestic), In.2 GHG from Stationery Energy (Commercial / Industrial / IPPU), and In.6 GHG from public sector.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³), In.12 Wellbeing of citizens (Likert Scale), In.16 Energy consumption per household (kWh), In.19 Public capital invested in climate action projects (€ million),) and In.18 Green jobs (#)
Involved stakeholders	CETB, CIF, Dept of Housing, DECC, National Mirror Group.
<div> <div> 4 QUALITY EDUCATION  </div> <div> 7 AFFORDABLE AND CLEAN ENERGY  </div> </div>	



TM/1/AC/A	
Action outline	Promoting Electrification of the Fleet
Action type	Demand generation
Action description	<p>Promote and support the acceleration of fleet electrification for private cars, light and heavy goods vehicles.</p> <p>Detailed plans and bankable projects for this action will be co-created in the thematic sub-group for transport for inclusion in the next iteration of the CCC in 2026. It is important to note that action will be taken as plans, approaches and bankable projects are defined. We will not wait for the second iteration of the CCC to initiate our work in this area.</p> <p>This is a multi-sector group of both public and private sector institutions from both the city and national level, academia, and civil society organisations. The sub-group will incorporate expertise in road and public transport systems, active travel and modal shift, infrastructure, financial services, public education, communications, and the Just Transition, among others. Some participants are drawn from the Leadership Group. The group will be convened by Cork City Council. Its operational arrangements, including chair, will be determined by the group members. The objectives of the thematic sub-group are to:</p> <ul style="list-style-type: none"> • Identify, plan for and create enabling conditions for demand generation for battery electric transportation at the city level, including through public awareness and demand support, skills development and workforce support, coordination of private and public investment, among others. • Facilitate and support the development bankable transportation projects, and trial innovation projects. • Identify, facilitate and support increased access to finance from state, EU and private sector sources. • Identify and execute targeted advocacy on specific systemic changes needed to enable demand generation. • Solicit input from transport system users on plans and projects in development through outreach and engagement through established mechanisms including transport user associations and other communities of interest. <p>We will establish the sub-group in Q4 2024. Given its objectives, this mechanism will also be used to facilitate the development of co-created plans and bankable projects in building retrofit, renewable energy systems and district heating. It will coordinate with, inform and influence the Mission Cities' support work undertaken by the National Mirror Group. A first step will be made through the presentation of Cork City's priorities for support from Central Government at the Second National Mirror Group Meeting to be held in Cork City in October 2024.</p>
Field of action	TM
Systemic lever	1: Technology and Infrastructure
Outcome (according to module B-1.1)	In.3 GHG from Transport.
Indirect Impacts (Co-benefits) (according to module B-1.1)	<p>In.10 Improved Air Quality (PM2.5 µg/m³; PM10 # of days; NO₂ µg/m³),</p> <p>In.12 Wellbeing of citizens (Likert Scale),</p> <p>In.18 Green Jobs (#).</p>


Involved stakeholders	Cork City Council, SEAI, Motor Dealers and Manufacturers, Financial Institutions.
GHG emissions reduction estimate (total) per emission source sector	Private cars – 603,557 t CO ₂ eq Light Goods – 25,776 t CO ₂ eq Heavy Goods – 8,878 t CO ₂ eq
Total cost and cost per t CO ₂ eq	Private cars - €4.036 billion (exclusive of €223.181 million in Government incentives); €6,688 per t CO ₂ eq Light Goods - €89.960 million (exclusive of €13.459 million in Government incentives); €3,490 per t CO ₂ eq Heavy Goods - €41.813 million (exclusive of €1.607 million in Government incentives); €4,857 per t CO ₂ eq


TM/1/AC/B	
Action outline	New Public Realm Upgrades
Action type	Public Realm
Action description	Traffic calming, green features in eight locations – Douglas Street, White Street, Princes Street, Emmet Place, Cattle Market Avenue/ Glen Ryan Road, Cook Street, Marlboro Street, and South Main Street/ Bishop Lucy Park.
Field of action	TM
Systemic lever	1: Technology and Infrastructure
Outcome (according to module B-1.1)	In.3 GHG from Transport, and In.9 Negative emissions through natural sinks.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³), In.12 Wellbeing of citizens (Likert Scale), In.19 Public capital invested in climate action projects (€ million), In.17 Modal share of active and public transport (%), In.22. % of tree canopy within the city (% of municipal area), In.11 Urban Heat Island Effect (oC UHI _{max}), and In.13 Green Spaces (Ha/100,000).
Involved stakeholders	Cork City Council, NTA


TM/1/AC/C	
Action outline	Extension and Connection of the Active Travel Network
Action type	Infrastructure
Action description	Further extension (beyond that planned under CMATS) of the active travel network and better connection to other systems. Investigate the creation of mobility hubs with shared bikes, scooters, walking and cycling routes, at important destinations within the city e.g. stations, stadia, major employment sites, hospitals etc.
Field of action	TM
Systemic lever	1: Technology and Infrastructure
Outcome (according to module B-1.1)	In.3 GHG from Transport.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³), In.12 Wellbeing of citizens (Likert Scale), In.17 Modal share of active and public transport (%), and In.19 Public capital invested in climate action projects (€ million).
Involved stakeholders	Cork City Council, NTA.
	


TM/1/AC/D	
Action outline	Reallocation of Road Space
Action type	Infrastructure
Action description	Prioritisation of sustainable and shared road use types on existing arteries, including priority lanes for low and zero emission vehicles, public and active transport, and low and zero emission vehicle mandates.
Field of action	TM
Systemic lever	1: Technology and Infrastructure
Outcome (according to module B-1.1)	In.3 GHG from Transport.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO2 µg/m ³), In.12 Wellbeing of Citizens (Likert Scale), and In.17 Modal share of active and public transport (%).
Involved stakeholder	Cork City Council, NTA
	


TM/2/AC/A	
Action outline	Support for EV purchase and use
Action type	Public incentives
Action description	Review and reform of national and local tax breaks, benefit schemes or subsidies (full or partial) to aid in the purchase of zero emissions vehicles
Field of action	TM
Systemic lever	2: Governance and Policy
Outcome (according to module B-1.1)	In.3 GHG from Transport.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³), In.12 Wellbeing of citizens (Likert Scale), In.19 Public capital invested in climate action projects (€ million), and In.18 Green Jobs (#).
Involved stakeholder	Cork City Council, National Mirror Group, NTA.
<div> <div> 7 AFFORDABLE AND CLEAN ENERGY  </div> <div> 11 SUSTAINABLE CITIES AND COMMUNITIES  </div> </div>	


TM/2/AC/B	
Action outline	Traffic Management
Action type	Policy and Planning
Action description	Implement findings of the government's Speed Limit Review citywide and extend 30 Km/h limit; prioritise safety and comfort of active travel, public transport users and pedestrians; modify operation of traffic signals to prioritise safety and comfort of active travel and public transport users.
Field of action	TM
Systemic lever	2. Governance & Policy
Outcome (according to module B-1.1)	In.3 GHG from Transport.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³), and In.12 Wellbeing of citizens (Likert Scale).
Involved stakeholders	Cork City Council, NTA.
	


TM/2/AC/C	
Action outline	Parking Strategy
Action type	Policy and Planning
Action description	Review all aspects of parking policy in city centre and suburban areas, including development standards, to assess potential of parking policy on travel choices. Increase the provision of bike parking facilities citywide.
Field of action	TM
Systemic lever	2.Governance & Policy
Outcome (according to module B-1.1)	In.3 GHG from Transport.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³), In.12 Wellbeing of citizens (Likert Scale), and In.17 Modal share of active and public transport (%).
Involved stakeholders	Cork City Council, NTA.
	


TM/3/AC/A	
Action outline	Shared Mobility
Action type	Transport as a service
Action description	Implement micro-mobility strategy to increase car sharing and shared active and sustainable travel resources
Field of action	TM
Systemic lever	3: Social Innovation
Outcome (according to module B-1.1)	In.3 GHG from Transport.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³), In.12 Wellbeing of citizens (Likert Scale), In.19 Public capital invested in climate action projects (€ million), and In.17 Modal share of active and public transport (%)
Involved stakeholders	Cork City Council, NTA.
	


TM/3/AC/B	
Action outline	Licensing access for NZEV to the city
Action type	Regulation
Action description	Assess impact of licencing goods and service vehicle (e.g. taxis) access to the city and suburbs, favouring NZEV
Field of action	TM
Systemic lever	3: Social Innovation
Outcome (according to module B-1.1)	In.3 GHG from Transport.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³), and In.12 Wellbeing of citizens (Likert Scale).
Involved stakeholders	Cork City Council, NTA, National Mirror Group
	


TM/4/AC/A	
Action outline	Carpooling for Cork
Action type	Ride sharing
Action description	Promote participation in carpooling scheme for Cork, employer incentives for increased occupancy of commuter vehicles within city and to/from Cork County
Field of action	TM
Systemic lever	4: Democracy and Participation
Outcome (according to module B-1.1)	In.3 GHG from Transport.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³), In.12 Wellbeing of Citizens (Likert Scale), In.23 Citizen's awareness regarding sustainability and the environment (Likert Scale), In.14 Citizen involvement in co-design / co-creation of climate actions (#), and In.17 Modal share of active and public transport (%)
Involved stakeholders	Cork City Council, Cork County Council, PPN, CBA, Cork Chamber, IBEC.
	


TM/4/AC/A	
Action outline	Carpooling for Cork
Action type	Ride sharing
Action description	Promote participation in carpooling scheme for Cork, employer incentives for increased occupancy of commuter vehicles within city and to/from Cork County
Field of action	TM
Systemic lever	4: Democracy and Participation
Outcome (according to module B-1.1)	In.3 GHG from Transport.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³), In.12 Wellbeing of Citizens (Likert Scale), In.23 Citizen's awareness regarding sustainability and the environment (Likert Scale), In.14 Citizen involvement in co-design / co-creation of climate actions (#), and In.17 Modal share of active and public transport (%)
Involved stakeholders	Cork City Council, Cork County Council, PPN, CBA, Cork Chamber, IBEC.
	



TM/4/AC/B	
Action outline	Smart Travel Plans
Action type	Sustainable access to specific institutions
Action description	A practical package of measures to promote sustainable travel access to specific institutions e.g. schools, hospitals, places of work
Field of action	TM
Systemic lever	4: Democracy and Participation
Outcome (according to module B-1.1)	In.3 GHG from Transport.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³), In.12 Wellbeing of citizens (Likert Scale), In.19 Public capital invested in climate action projects (€ million), In.23 Citizen's awareness regarding sustainability and the environment (Likert Scale), and In.17 Modal share of active and public transport (%).
Involved stakeholders	Cork City Council, NTA.
	


TM/4/AC/C	
Action outline	Community Engagement for Demand Management
Action type	Engagement and Participation
Action description	Local-level consultation and engagement for low-traffic neighbourhoods, speed limits, remote working supports and other measures to influence travel choices and mode shift
Field of action	TM
Systemic lever	4: Democracy and Participation
Outcome (according to module B-1.1)	In.3 GHG from Transport.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³), In.12 Wellbeing of citizens (Likert Scale), In.23 Citizen's awareness regarding sustainability and the environment (Likert Scale), In.14 Citizen involvement in co-design / co-creation of climate actions (#), and In.17 Modal share of active and public transport (%).
Involved stakeholder	Cork City Council, NTA, PPN
	


TM/5/AC/A	
Action outline	Finance for Electrification
Action type	Advocacy
Action description	Advocate for new and increased supports for transition to NZEV in the new and second-hand vehicle markets
Field of action	TM
Systemic lever	5: Finance and Funding
Outcome (according to module B-1.1)	In.3 GHG from Transport.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³), In. 12 Wellbeing of citizens (Likert Scale), and In.19 Public capital invested in climate action projects (€ million).
Involved stakeholders	Cork City Council, National Mirror Group, NTA, Financial Institutions.
	



TM/5/AC/B	
Action outline	Road Pricing
Action type	Policy analysis and planning
Action description	Review options on local innovations in road use and public transport pricing
Field of action	TM
Systemic lever	5: Finance and Funding
Outcome (according to module B-1.1)	In.3 GHG from Transport.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³), In.12 Wellbeing of citizens (Likert Scale), In.14 Citizen involvement in co-design / co-creation of climate actions (#), and In.17 Modal share of active and public transport (%).
Involved stakeholders	Cork City Council, TII, PPN, NTA.
	



TM/5/AC/C	
Action outline	Scrappage scheme for active travel
Action type	Modal shift
Action description	Trial scrappage scheme for cars to e-bike, annual travel passes or alternative
Field of action	TM
Systemic lever	5: Finance and Funding
Outcome (according to module B-1.1)	In.3 GHG from Transport. cc
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³), In.12 Wellbeing of citizens (Likert Scale), In.19 Public capital invested in climate action projects (€ million), and In.17 Modal share of active and public transport (%).
Involved stakeholders	Cork City Council, NTA, Bus Eireann, Irish Rail.
 11 SUSTAINABLE CITIES AND COMMUNITIES	


TM/6/AC/A	
Action outline	Information and Awareness Raising
Action type	Communications Campaign
Action description	Initiatives to raise awareness and inform the public about sustainable travel behaviours, encouraging the use of alternative transport modes, and including restrictions on advertising for cars and driving
Field of action	TM
Systemic lever	6: Learning and Capabilities
Outcome (according to module B-1.1)	In.3 GHG from Transport.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³), In.12 Wellbeing of citizens (Likert Scale), In.19 Public capital invested in climate action projects (€ million), In.23 Citizen's awareness regarding sustainability and the environment (Likert Scale), and In.17 Modal share of active and public transport (%).
Involved stakeholders	Cork City Council, PPN, Irish Rail, Bus Eireann, NTA.
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TM/6/AC/B	
Action outline	Cycling Proficiency
Action type	Training
Action description	Increase availability and accessibility of children and adults to safe cycle training, building confidence and safe cycling behaviour
Field of action	TM
Systemic lever	6: Learning and Capabilities
Outcome (according to module B-1.1)	In.3 GHG from Transport.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³), In.12 Wellbeing of citizens (Likert Scale), In.19 Public capital invested in climate action projects (€ million), In.23 Citizen's awareness regarding sustainability and the environment (Likert Scale), and In.17 Modal share of active and public transport (%).
Involved stakeholders	Cork City Council, NTA, PPN.
	



NERM/1/AC/A	
Action outline	Accelerated implementation of green and blue infrastructure
Action type	Greening
Action description	Increased rate of tree planting in public and private locations (right species, right place), introduction of development standards for nature-based solutions e.g. Sustainable Urban Drainage Systems
Field of action	NERM
Systemic lever	1: Technology and Infrastructure
Outcome (according to module B-1.1)	In.8 Residual emissions permanently sequestered, and In. 9 Negative emissions through natural sinks.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In. 22 % of tree canopy within the city (% of municipal area), In.19 Public capital invested in climate action projects (€ million), In.12 Wellbeing of citizens (Likert Scale), In.11 Urban Heat Island Effect (oC UHI _{max}), In.13 Green Spaces (Ha/100,000), and In.10 Improved Air Quality (PM _{2.5} µg/m ³ ; PM ₁₀ # of days; NO ₂ µg/m ³).
Involved stakeholders	Cork City Council, Southern Regional Assembly, OPW
	



NERM/1/AC/B	
Action outline	Increased access to green space
Action type	Public realm
Action description	Implementation of NW Regional Park, Bishop Lucey Park and other green spaces planned, increasing tree cover and number of green installations on street
Field of action	NERM
Systemic lever	1: Technology and Infrastructure
Outcome (according to module B-1.1)	In.8 Residual emissions permanently sequestered, and In.9 Negative emissions through natural sinks.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.22 % of tree canopy within the city (% of municipal area), In.11 Urban Heat Island Effect (oC UHImax), In.13 Green Spaces (Ha/100,000), In.17 Public capital invested in climate action projects (€ million), In.12 Wellbeing of citizens (Likert Scale), and In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³).
Involved stakeholders	Cork City Council
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NERM/2/AC/A	
Action outline	Policy Enforcement for Nature
Action type	Regulation and Enforcement
Action description	Increase Cork City Council capacity to enforce conditions in favour of no-net loss and nature positive outcomes development, increase developer knowledge and awareness
Field of action	NERM
Systemic lever	2: Governance and Policy
Outcome (according to module B-1.1)	In.8 Residual emissions permanently sequestered, and In.9 Negative emissions through natural sinks.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.22 % of tree canopy within the city (% of municipal area), In.13 Green Spaces (Ha/100,000), In.11 Urban Heat Island Effect (oC UHImax), In.19 Public capital invested in climate action projects (€ million), In.10 Wellbeing of citizens (Likert Scale), In.23 Citizen's awareness regarding sustainability and the environment (Likert Scale), and In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³).
Involved stakeholders	Cork City Council, CIF, National Mirror Group.
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NERM/4/AC/A	
Action outline	Growing the circular economy
Action type	Promotion and coordination
Action description	Increase access to public, social enterprise-based and commercial circular economy opportunities, raise awareness of reduce / reuse / recycle, build intuitional and individual capacity for circularity
Field of action	NERM
Systemic lever	4: Democracy and Participation
Outcome (according to module B-1.1)	In.4 GHG from Waste.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.23 Citizen's awareness regarding sustainability and the environment (Likert Scale), In.20 Recycling rate of municipal waste (%), Green jobs (#), In.15 Funding for Social Innovation initiatives for climate neutrality (€), and In.19 Public capital invested in climate action projects (€ million).
Involved stakeholders	Cork City Council, PPN, CBA, Cork Chamber.
	


NERM/4/AC/B	
Action outline	Building demand for climate action co-benefits
Action type	Communications campaign
Action description	Public education to build knowledge and understanding of the health, economic and social benefits of climate action and opportunities to participate in attaining them
Field of action	NERM
Systemic lever	4: Democracy and Participation
Outcome (according to module B-1.1)	In.4 GHG from Waste, and In.5 GHG from AFOLU.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.19 Public capital invested in climate action projects (€ million), In.23 Citizen's awareness regarding sustainability and the environment (Likert Scale), In.14 Citizen involvement in co-design / co-creation of climate actions (#), and In.12 Wellbeing of citizens (Likert Scale).
Involved stakeholders	Cork City Council, PPN, Cork Healthy Cities, HSE.
	


NERM/5/AC/A	
Action outline	Incentives and supports for greening our city
Action type	Grant support and incentives programme
Action description	Innovative incentives and supports to individuals, community organisations and businesses to implement bio-diversity measures within their own properties e.g. green roofs, back-garden re-wilding, habitat protection / creation
Field of action	NERM
Systemic lever	5: Finance and Funding
Outcome (according to module B-1.1)	In.8 Residual emissions permanently sequestered, and In.9 Negative emissions through natural sinks.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.22 % of tree canopy within the city (% of municipal area), In.11 Urban Heat Island Effect (oC UHImax), In.13 Green Spaces (Ha/100,000), In.19 Public capital invested in climate action projects (€ million), In.12 Wellbeing of citizens (Likert Scale), and In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³).
Involved stakeholder	Cork City Council, PPN, Cork Healthy Cities.
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NERM/6/AC/A	
Action outline	Increasing knowledge and awareness of biodiversity in our city
Action type	Communications campaign
Action description	Work with academia and civil society to promote knowledge and awareness of the biodiversity in our city and its importance to healthy and resilient communities.
Field of action	NERM
Systemic lever	6: Learning and Capabilities
Outcome (according to module B-1.1)	In.9 Negative emissions through natural sinks, and In.4 GHG from Waste
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.23 Citizen's awareness regarding sustainability and the environment (Likert Scale), In.12 Wellbeing of citizens (Likert Scale), and In.19 Public capital invested in climate action projects (€ million).
Involved stakeholders	Cork City Council, Universities, CETB, PPN.
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CP/2/AC/A	
Action outline	Innovative Citizen Participation
Action type	Policy implementation
Action description	Trial implementation of novel local level consultation / co-creation / decision-making fora in the city
Field of action	CP
Systemic lever	2: Governance and Policy
Outcome (according to module B-1.1)	In.1 GHG from Stationery Energy (Domestic), In.2 GHG from Stationery Energy (Commercial / Industrial / IPPU), In.3 GHG from Transport, In.4 GHG from Waste, In.8 Residual emissions permanently sequestered, In.9 Negative emissions through natural sinks, In.7 GHG from Grid Supplied Energy, and In.5 GHG from AFOLU.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.14 Citizen involvement in co-design / co-creation of climate actions (#), In.23 Citizen's awareness regarding sustainability and the environment (Likert Scale), In.10 Wellbeing of citizens (Likert Scale), In.15 Funding for Social Innovation initiatives for climate neutrality (€), and In.19 Public capital invested in climate action projects (€ million).
Involved stakeholder	Cork City Council, Climate Neutral Cork Leadership Group.
	



CP/3/AC/A	
Action outline	Community Stewardship
Action type	Management and use of public space
Action description	Establish contracts and fee relationships with community organisations and other groups for the medium-term management and use of public space for climate positive actions
Field of action	CP
Systemic lever	3: Social Innovation
Outcome (according to module B-1.1)	In.2 GHG from Stationery Energy (Commercial / Industrial / IPPU), In.3 GHG from Transport, In.4 GHG from Waste, In.8 Residual emissions permanently sequestered, In.9 Negative emissions through natural sinks, and In.5 GHG from AFOLU.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.14 Citizen involvement in co-design / co-creation of climate actions (#), In.23 Citizen's awareness regarding sustainability and the environment (Likert Scale), In.10 Wellbeing of citizens (Likert Scale), In.15 Funding for Social Innovation initiatives for climate neutrality (€), and In.19 Public capital invested in climate action projects (€ million).
Involved stakeholders	Cork City Council, PPN.
	



CP/4/AC/A	
Action outline	Climate Neutral Cork Public Platform
Action type	Collaborative community
Action description	Build and launch Platform website and initiate events programme, including Climate Neutral Cork Conference
Field of action	CP
Systemic lever	4: Democracy and Participation
Outcome (according to module B-1.1)	In.1 GHG from Stationery Energy (Domestic), In.2 GHG from Stationery Energy (Commercial / Industrial / IPPU), In.3 GHG from Transport, In.4 GHG from Waste, In.8 Residual emissions permanently sequestered, In.9 Negative emissions through natural sinks, In.4 GHG from Waste, In.6 GHG from Public Sector, and In.5 GHG from AFOLU.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.14 Citizen involvement in co-design / co-creation of climate actions (#), In.23 Citizen's awareness regarding sustainability and the environment (Likert Scale), In.10 Wellbeing of citizens (Likert Scale), and In.19 Public capital invested in climate action projects (€ million).
Involved Stakeholder	Cork City Council, Climate Neutral Cork Leadership Group.
	


CP/5/AC/A	
Action outline	Community Climate Action Fund
Action type	Community finance
Action description	Sustain and increase funding for community-based climate action citywide
Field of action	CP
Systemic lever	5: Finance and Funding
Outcome (according to module B-1.1)	In.2 GHG from Stationery Energy (Commercial / Industrial / IPPU), In.3 GHG from Transport, In.4 GHG from Waste, Residual emissions permanently sequestered, In.9 Negative emissions through natural sinks, and In.5 GHG from AFOLU.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.14 Citizen involvement in co-design / co-creation of climate actions (#), In.23 Citizen's awareness regarding sustainability and the environment (Likert Scale), In.12 Wellbeing of citizens (Likert Scale), In.19 Public capital invested in climate action projects (€ million), and In.15 Funding for Social Innovation initiatives for climate neutrality (€).
Involved stakeholders	Cork City Council, Community Groups.
	


CP/6/AC/A	
Action outline	Climate Literacy
Action type	Educational campaign
Action description	Scale up support for climate literacy through the Cork Learning Cities / Learning Neighbourhoods networks
Field of action	CP
Systemic lever	6: Learning and Capabilities
Outcome (according to module B-1.1)	In.1 GHG from Stationery Energy (Domestic), In.2 GHG from Stationery Energy (Commercial / Industrial / IPPU), In.3 GHG from Transport, In.4 GHG from Waste, In.8 Residual emissions permanently sequestered, In.9 Negative emissions through natural sinks, and In.5 GHG from AFOLU.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.23 Citizen's awareness regarding sustainability and the environment (Likert Scale), In.12 Wellbeing of citizens (Likert Scale), and In.19 Public capital invested in climate action projects (€ million).
Involved stakeholders	Cork City Council, Cork Learning Cities.
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GL/1/AC/A	
Action outline	Public Sector Leadership on Decarbonisation
Action type	Energy efficiency
Action description	Planning and execution of full retrofit and RES installation on public sector buildings in the city
Field of action	GL
Systemic lever	1: Technology and Infrastructure
Outcome (according to module B-1.1)	In.6 GHG from Public Sector.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³), In.12 Wellbeing of citizens (Likert Scale), and In.19 Public capital invested in climate action projects (€ million).
Involved stakeholders	Cork City Council, Climate Neutral Cork Leadership Group, OPW, National Mirror Group.
	


GL/2/AC/A	
Action outline	Public Sector Influencing
Action type	Communications campaign
Action description	Share knowledge and experience of innovation for public sector decarbonisation through events, communications and demonstrations e.g. Cork City Council experience with ELENA EIB support
Field of action	GL
Systemic lever	Governance & Policy
Outcome (according to module B-1.1)	In.1 GHG from Stationery Energy (Domestic), In.2 GHG from Stationery Energy (Commercial / Industrial / IPPU), and In.6 GHG from Public Sector
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m3; PM10 # of days; NO2 µg/m3), In.12 Wellbeing of citizens (Likert Scale), In.19 Public capital invested in climate action projects (€ million), and In.23 Citizen's awareness regarding sustainability and the environment (Likert Scale).
Involved stakeholder	Cork City Council, Climate Neutral Cork Leadership Group, LGMA/CCMA.
<div> <div>  <p>9 INDUSTRY, INNOVATION AND INFRASTRUCTURE</p> </div> <div>  <p>11 SUSTAINABLE CITIES AND COMMUNITIES</p> </div> </div>	


GL/3/AC/A	
Action outline	Applying Behavioural Insights in Cork's Climate Transition
Action type	New ways of working
Action description	Building capacity of City Council and partner staff to understand techniques and insights from behavioural science and to apply them in their work in all sectors
Field of action	GL
Systemic lever	3: Social Innovation
Outcome (according to module B-1.1)	In.1 GHG from Stationery Energy (Domestic), In.2 GHG from Stationery Energy (Commercial / Industrial / IPPU), In. 3 GHG from Transport, In.4 GHG from Waste, In.8 Residual emissions permanently sequestered, In.9 Negative emissions through natural sinks, In.6 GHG from Public Sector and In.5 GHG from AFOLU.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.19 Public capital invested in climate action projects (€ million).
Involved stakeholders	Cork City Council, Net Zero Cities, Universities, Climate Neutral Cork Leadership Group, Climate Neutral Cork Public Platform.
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GL/4/AC/A	
Action outline	Advocacy for Decentralisation of the Climate Transition
Action type	Advocacy
Action description	Working with partners including the Southern Regional Assembly, CCMA and LGMA to advocate for the decentralisation of more funding decisions and policy choices to the local government level to accelerate progress on the transition
Field of action	GL
Systemic lever	4: Democracy and Participation
Outcome (according to module B-1.1)	In.1 GHG from Stationery Energy (Domestic), In.2 GHG from Stationery Energy (Commercial / Industrial / IPPU), In.3 GHG from Transport, In.4 GHG from Waste, In.8 Residual emissions permanently sequestered, In.9 Negative emissions through natural sinks, In.7 GHG from grid supplied energy, In.6 GHG from Public Sector and In.5 GHG from AFOLU.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.19 Public capital invested in climate action projects (€ million), and In.15 Funding for Social Innovation initiatives for climate neutrality (€), and In.21 Brownfield use (% of km ²).
Involved stakeholders	Cork City Council, Southern Regional Assembly, LGMA/CCMA, National Mirror Group.
	


GL/4/AC/B	
Action outline	Diversity = Collective Wisdom
Action type	Community Participation
Action description	Restless effort to increase participation in the Climate Neutral Cork Leadership Group and Public Platform
Field of action	GL
Systemic lever	4: Democracy and Participation
Outcome (according to module B-1.1)	In.1 GHG from Stationery Energy (Domestic), In.2 GHG from Stationery Energy (Commercial / Industrial / IPPU), In.3 GHG from Transport, In.4 GHG from Waste, In.8 Residual emissions permanently sequestered, In.9 Negative emissions through natural sinks, In.7 GHG from grid supplied energy, In.6 GHG from Public Sector and In.5 GHG from AFOLU.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.19 Public capital invested in climate action projects (€ million), In.15 Funding for Social Innovation initiatives for climate neutrality (€), In.21 Brownfield use (% of km ²), In.23 Citizen's awareness regarding sustainability and the environment (Likert Scale), and In.14 Citizen involvement in co-design / co-creation of climate actions (#).
Involved stakeholders	Cork City Council, Climate Neutral Cork Leadership Group.
	


GL/5/AC/A	
Action outline	Green Budgeting
Action type	Finance
Action description	Utilise information from the EU taxonomy aligned, Green Budgeting System, to crowd in additional investment for climate action
Field of action	GL
Systemic lever	5: Finance and Funding
Outcome (according to module B-1.1)	In.1 GHG from Stationery Energy (Domestic), In.2 GHG from Stationery Energy (Commercial / Industrial / IPPU), In.3 GHG from Transport, In.4 GHG from Waste, In.8 Residual emissions permanently sequestered, In.9 Negative emissions through natural sinks, In.7 GHG from grid supplied energy, In.6 GHG from Public Sector and In.5 GHG from AFOLU.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.19 Public capital invested in climate action projects (€ million).
Involved stakeholders	Cork City Council, Climate Neutral Cork Leadership Group.
	

GL/5/AC/B	
Action outline	Bundling of bankable projects in Local Green Deals
Action type	Finance
Action description	Consolidate portfolios of bankable projects from multiple partners in sector specific Local Green Deals to achieve an investable scale of opportunity
Field of action	GL
Systemic lever	5: Finance and Funding
Outcome (according to module B-1.1)	In.1 GHG from Stationery Energy (Domestic), In.2 GHG from Stationery Energy (Commercial / Industrial / IPPU), In.3 GHG from Transport, In.4 GHG from Waste, In.8 Residual emissions permanently sequestered, In.9 Negative emissions through natural sinks, In.7 GHG from grid supplied energy, In.6 GHG from Public Sector and In.5 GHG from AFOLU.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.19 Public capital invested in climate action projects (€ million).
Involved stakeholders	Cork City Council, Climate Neutral Cork Leadership Group, Financial Institutions, National Mirror Group, other business, public sector and community stakeholders.
	


GL/6/AC/A	
Action outline	Workforce of the Future
Action type	Learning and Development
Action description	Fully implement the Cork City Council People Strategy and Learning and Development Strategy to mainstream climate knowledge, skills and competencies throughout the organisation
Field of action	GL
Systemic lever	6: Learning and Capabilities
Outcome (according to module B-1.1)	In.6 GHG from Public Sector
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.19 Public capital invested in climate action projects (€ million).
Involved stakeholders	Cork City Council, Universities.
	

RE/1/AC/A	
Action outline	Investigating and applying carbon capture and storage at scale
Action type	Piloting CCS infrastructure
Action description	This is a new area of technology. Cork City Council will investigate potential solutions and project ideas and develop them for future iterations of the CCC
Field of action	RE
Systemic lever	1: Technology and Infrastructure
Outcomes (according to module B-1.1)	In.8 Residual emissions permanently sequestered.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³), In.12 Wellbeing of citizens (Likert Scale)
Involved stakeholders	Universities; Cork Chamber, Cork Business Association, National Mirror Group
	

RE/2/AC/A	
Action outline	Investigating out-of-boundary sequestration
Action type	Sequestration
Action description	Investigate the potential of sequestration of Cork City emissions out-of-boundary. The city is completely surrounded by County Cork, the largest county in Ireland, which is largely rural and with high potential for sequestration. Specific projects will be proposed in the next iteration of the CCC
Field of action	RE
Systemic lever	2: Governance and Policy
Outcome (according to module B-1.1)	In.8 Residual emissions permanently sequestered, and In.9 Negative emissions through natural sinks.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³), and In.12 Wellbeing of citizens (Likert Scale).
Involved stakeholders	Cork City Council, Cork County Council, Cork Chamber, National Mirror Group
	

RE/6/AC/A	
Action outline	Promoting participation in the European Emissions Trading Scheme
Action type	Learning and capability development
Action description	Supporting enterprises to join the ETS if they meet the threshold through knowledge sharing and technical support
Field of action	RE
Systemic lever	6: Learning and Capabilities
Outcome (according to module B-1.1)	In.8 Residual emissions permanently sequestered and In.9 Negative emissions through natural sinks.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³), and In.12 Wellbeing of citizens (Likert Scale)
Involved stakeholders	Universities; Cork Chamber, Cork Business Association, National Mirror Group
	



RE/6/AC/B	
Action outline	Measuring GHG Sequestration in the City
Action type	Research
Action description	Developing a methodology to measure sequestration within the city boundary
Field of action	RE
Systemic lever	6: Learning and Capabilities
Outcome (according to module B-1.1)	In.8 Residual emissions permanently sequestered.
Indirect Impacts (Co-benefits) (according to module B-1.1)	In.10 Improved Air Quality (PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³), In.12 Wellbeing of citizens (Likert Scale)
Involved stakeholder	Universities; Cork City Council, Cork Chamber, Cork Business Association, National Mirror Group
	

B-2.3: Summary strategy for residual emissions

Cork will investigate actions to offset residual emissions over the lifetime of the CCC. Current options include the use of natural carbon sinks and the application of carbon capture and storage technology which is still inherently experimental and will require intensive study before large scale application of the technology can progress.

As outlined in B-2.1 and B-2.2 there are four key actions to be examined:

- Investigating and applying carbon capture and storage at scale **(RE/1/AC/A)**: This is a new area of technology. Cork City Council will investigate potential solutions and project ideas and develop them for future iterations of the CCC.
- Investigating out-of-boundary sequestration **(RE/2/AC/A)**: Investigate the potential of sequestration of Cork City emissions out-of-boundary. The city is surrounded by County Cork, the largest county in Ireland, which is largely rural.
- Promoting participation in the European ETS **(RE/6/AC/A)**: Supporting enterprises to join the ETS if they meet the threshold through knowledge sharing and technical support.
- Measuring GHG Sequestration in the City **(RE/6/AC/B)**: Developing a methodology to measure sequestration within the city boundary.

1.6

Module B-3

Indicators for Monitoring, Evaluation and Learning

Module B-3 “Indicators for Monitoring, Evaluation and Learning” contains a selection of indicators to monitor and evaluate progress along the selected impacts pathways and fields of action described in Module B-1. as well as a monitoring and evaluation plan, i.e., metadata on each indicator selected, in addition to milestones and timeline. More specifically:

- An overview table listing the indicators selected per outcome and impact including targets and evaluation points (B-3.1);
- A metadata table for each indicator selected (B-3.2).

Table B-3.1 below shows the quantitative and qualitative indicators selected for the CCC and their linkages with impact pathways and actions. This section sets out the target, timeline, standards and metadata for each indicator.

B-3.1: Impact Pathways (C & C Checklist 24)					
Impacts Pathways addressed	Action/ project	Indicator No. (unique identified)	Indicator name		Target values 2030
BEE CP GL	BEE/1/AC/A BEE/1/AC/B BEE/1/AC//C BEE/1/AC/D BEE/1/AC/E BEE/2/AC/A BEE/2/AC/B BEE/3/AC/A BEE/3/AC/B BEE/4/AC/A BEE/4/AC/B BEE/4/AC/C BEE/5/AC/A BEE/5/AC/B BEE/6/AC/A BEE/6/AC/B CP/2/AC/A CP/4/AC/A CP/6/AC/A GL/2/AC/A GL/3/AC/A GL/4/AC/A GL/4/AC/B GL/5/AC/A GL/5/AC/B	In. 1	GHG from Stationery Energy (Domestic)	T CO ₂ eq	353,707
BEE CP GL	BEE/1/AC/A BEE/1/AC/B BEE/1/AC//C BEE/1/AC/D BEE/1/AC/E BEE/2/AC/A BEE/2/AC/B BEE/3/AC/A BEE/3/AC/B BEE/4/AC/A BEE/4/AC/B BEE/4/AC/C BEE/5/AC/A BEE/5/AC/B BEE/6/AC/A BEE/6/AC/B CP/2/AC/A CP/3/AC/A CP/4/AC/A CP/5/AC/A GL/2/AC/A GL/3/AC/A GL/4/AC/A GL/4/AC/B GL/5/AC/A GL/5/AC/B	In. 2	GHG from Stationery Energy (Commercial / Industrial / IPPU)	T CO ₂ eq	230,400

Continued →

B-3.1: Impact Pathways (C & C Checklist 24)					
Impacts Pathways addressed	Action/ project	Indicator No. (unique identified)	Indicator name		Target values 2030
TM CP GL	TM/1/AC/A TM/1/AC/B TM/1/AC/C TM/1/AC/D TM/2/AC/A TM/2/AC/B TM/2/AC/C TM/3/AC/A TM/3/AC/B TM/4/AC/A TM/4/AC/B TM/4/AC/C TM/5/AC/A TM/5/AC/B TM/5/AC/C TM/6/AC/A TM/6/AC/B CP/2/AC/A CP/3/AC/A CP/4/AC/A CP/5/AC/A CP/6/AC/A GL/3/AC/A GL/4/AC/A GL/4/AC/B GL/5/AC/A GL/5/AC/B	In. 3	GHG from Transport	T CO ₂ eq	308,800
NERM CP GL	NERM/4/AC/A NERM/4/AC/B NERM/6/AC/A CP/2/AC/A CP/3/AC/A CP/5/AC/A CP/6/AC/A GL/3/AC/A GL/4/AC/A GL/4/AC/B GL/5/AC/A GL/5/AC/B	In. 4	GHG from Waste	T CO ₂ eq	23,253
NERM CP GL	NERM/4/AC/B CP/2/AC/A CP/3/AC/A CP/4/AC/A CP/5/AC/A CP/6/AC/A GL/3/AC/A GL/4/AC/A GL/4/AC/B GL/5/AC/A GL/5/AC/B	In. 5	GHG from AFOLU	T CO ₂ eq	66,240

Continued →

B-3.1: Impact Pathways (C & C Checklist 24)					
Impacts Pathways addressed	Action/ project	Indicator No. (unique identified)	Indicator name		Target values 2030
BEE GL CP	BEE/1/AC/A BEE/1/AC/B BEE/1/AC//C BEE/1/AC/D BEE/1/AC/E BEE/2/AC/A BEE/2/AC/B BEE/3/AC/A BEE/3/AC/B BEE/4/AC/A BEE/6/AC/B CP/4/AC/A GL/1/AC/A GL/2/AC/A GL/3/AC/A GL/4/AC/A GL/4/AC/B GL/5/AC/A GL/5/AC/B GL/6/AC/A	In. 6	GHG from Public Sector	T CO ₂ eq	69,013
BEE CP GL	BEE/1/AC/D BEE/2/AC/A BEE/3/AC/B CP/2/AC/A CP/4/AC/A GL/3/AC/A GL/4/AC/A GL/4/AC/B GL/5/AC/A GL/5/AC/B	In. 7	GHG from Grid Supplied Energy	T CO ₂ eq	
NERM CP GL RE	NERM/1/AC/A NERM/1/AC/B NERM/2/AC/A NERM/5/AC/A CP/2/AC/A CP/3/AC/A CP/4/AC/A CP/5/AC/A CP/6/AC/A GL/3/AC/A GL/4/AC/A GL/4/AC/B GL/5/AC/A GL/5/AC/B RE/1/AC/A RE/2/AC/A RE/6/AC/A RE/6/AC/B	In. 8	Residual emissions permanently sequestered	T CO ₂ eq	162,853

Continued →

B-3.1: Impact Pathways (C & C Checklist 24)					
Impacts Pathways addressed	Action/ project	Indicator No. (unique identified)	Indicator name		Target values 2030
NERM RE TM CP	TM/1/AC/B NERM/1/AC/A NERM/1/AC/B NERM/2/AC/A NERM/5/AC/A NERM/6/AC/A CP/2/AC/A CP/3/AC/A CP/4/AC/A CP/5/AC/A CP/6/AC/A GL/3/AC/A GL/4/AC/A GL/4/AC/B GL/5/AC/A GL/5/AC/B RE/2/AC/A RE/6/AC/A	In. 9	Negative emissions through natural sinks	T CO ₂ eq	100,000

Continued →

B-3.1: Impact Pathways (C & C Checklist 24)					
Impacts Pathways addressed	Action/ project	Indicator No. (unique identified)	Indicator name		Target values 2030
BEE TM NERM GL RE	BEE/1/AC/A BEE/1/AC/B BEE/1/AC//C BEE/1/AC/D BEE/1/AC/E BEE/2/AC/A BEE/2/AC/B BEE/3/AC/A BEE/3/AC/B BEE/4/AC/A BEE/4/AC/B BEE/4/AC/C BEE/5/AC/A BEE/5/AC/B BEE/6/AC/A BEE/6/AC/B TM/1/AC/A TM/1/AC/B TM/1/AC/C TM/1/AC/D TM/2/AC/A TM/2/AC/B TM/2/AC/C TM/3/AC/A TM/3/AC/B TM/4/AC/A TM/4/AC/B TM/4/AC/C TM/5/AC/A TM/5/AC/B TM/5/AC/C TM/6/AC/A TM/6/AC/B NERM/1/AC/A NERM/1/AC/B NERM/2/AC/A NERM/5/AC/A GL/1/AC/A GL/2/AC/A RE/1/AC/A RE/2/AC/A RE/6/AC/A RE/6/AC/B	In. 10	Improved Air Quality, annualised, WHO threshold values	PM2.5 µg/m³; PM10 # of days; NO2 µg/m³	PM2.5 = 10 PM10 = 20 NO2 = 15
NERM TM	TM/1/AC/B NERM/1/AC/A NERM/1/AC/B NERM/2/AC/A NERM/5/AC/A	In. 11	Urban Heat Island Effect (oC UHImax)	oC UHImax	TBD

Continued →

B-3.1: Impact Pathways (C & C Checklist 24)					
Impacts Pathways addressed	Action/ project	Indicator No. (unique identified)	Indicator name		Target values 2030
BEE TM NERM GL RE	BEE/1/AC/A BEE/1/AC/B BEE/1/AC//C BEE/1/AC/D BEE/1/AC/E BEE/2/AC/A BEE/2/AC/B BEE/3/AC/A BEE/3/AC/B BEE/4/AC/A BEE/4/AC/B BEE/4/AC/C BEE/5/AC/A BEE/5/AC/B BEE/6/AC/A BEE/6/AC/B TM/1/AC/A TM/1/AC/B TM/1/AC/C TM/1/AC/D TM/2/AC/A TM/2/AC/B TM/2/AC/C TM/3/AC/A TM/3/AC/B TM/4/AC/A TM/4/AC/B TM/4/AC/C TM/5/AC/A TM/5/AC/B TM/5/AC/C TM/6/AC/A TM/6/AC/B NERM/1/AC/A NERM/1/AC/B NERM/2/AC/A NERM/4/AC/B NERM/5/AC/A NERM/6/AC/A CP/2/AC/A CP/3/AC/A CP/4/AC/A CP/5/AC/A CP/6/AC/A GL/1/AC/A GL/2/AC/A RE/1/AC/A RE/2/AC/A RE/6/AC/A RE/6/AC/B	In. 12	Wellbeing of citizens	Likert Scale	TBD

Continued →

B-3.1: Impact Pathways (C & C Checklist 24)					
Impacts Pathways addressed	Action/ project	Indicator No. (unique identified)	Indicator name		Target values 2030
NERM TM	TM/1/AC/B NERM/1/AC/A NERM/1/AC/B NERM/2/AC/A NERM/5/AC/A	In. 13	Green Spaces	Ha / 100,000	TBD
BEE TM NERM GL CP	BEE/3/AC/B BEE/4/AC/A TM/4/AC/A TM/4/AC/C TM/5/AC/B NERM/4/AC/B CP/2/AC/A CP/3/AC/A CP/4/AC/A CP/5/AC/A GL/4/AC/B	In. 14	Citizen involvement in co-design / co-creation of climate actions	#	TBD
NERM CP GL	NERM/4/AC/A CP/2/AC/A CP/3/AC/A CP/5/AC/A GL/4/AC/A GL/4/AC/B	In. 15	Funding for Social Innovation initiatives for climate neutrality	€	TBD
BEE	BEE/1/AC/A BEE/1/AC/B BEE/1/AC/C BEE/1/AC/D BEE/1/AC/E BEE/2/AC/A BEE/2/AC/B BEE/3/AC/A BEE/3/AC/B BEE/4/AC/A BEE/4/AC/B BEE/4/AC/C BEE/5/AC/A BEE/5/AC/B BEE/6/AC/A BEE/6/AC/B	In. 16	Energy consumption per household	kWh	TBD

Continued →

B-3.1: Impact Pathways (C & C Checklist 24)					
Impacts Pathways addressed	Action/ project	Indicator No. (unique identified)	Indicator name		Target values 2030
TM	TM/1/AC/B TM/1/AC/C TM/1/AC/D TM/2/AC/C TM/3/AC/A TM/4/AC/A TM/4/AC/B TM/4/AC/C TM/5/AC/B TM/5/AC/C TM/6/AC/A TM/6/AC/B	In. 17	Modal share of active and public transport	%	TBD
BEE TM NERM	BEE/1/AC/A BEE/2/AC/B BEE/6/AC/B TM/1/AC/A TM/2/AC/A NERM/4/AC/A	In. 18	Green jobs	#	TBD

Continued →

B-3.1: Impact Pathways (C & C Checklist 24)					
Impacts Pathways addressed	Action/ project	Indicator No. (unique identified)	Indicator name		Target values 2030
BEE TM NERM GL CP	BEE/1/AC/A BEE/1/AC/B BEE/1/AC//C BEE/1/AC/D BEE/1/AC/E BEE/2/AC/A BEE/2/AC/B BEE/3/AC/A BEE/3/AC/B BEE/4/AC/A BEE/4/AC/B BEE/4/AC/C BEE/5/AC/A BEE/5/AC/B BEE/6/AC/A BEE/6/AC/B TM/1/AC/B TM/1/AC/C TM/2/AC/A TM/3/AC/A TM/4/AC/B TM/5/AC/A TM/5/AC/C TM/6/AC/A TM/6/AC/B NERM/1/AC/A NERM/1/AC/B NERM/2/AC/A NERM/4/AC/A NERM/4/AC/B NERM/5/AC/A NERM/6/AC/A CP/2/AC/A CP/3/AC/A CP/4/AC/A CP/5/AC/A CP/6/AC/A GL/1/AC/A GL/2/AC/A GL/3/AC/A GL/4/AC/A GL/4/AC/B GL/5/AC/A GL/5/AC/B GL/6/AC/A	In. 19	Public capital invested in climate action projects	€ million	TBD
NERM	NERM/4/AC/A	In. 20	Recycling rate of municipal waste	%	TBD
BEE GL	BEE/3/AC/A GL/4/AC/A GL/4/AC/B	In. 21	Brownfield use	% of km2	TBD

Continued →

B-3.1: Impact Pathways (C & C Checklist 24)					
Impacts Pathways addressed	Action/ project	Indicator No. (unique identified)	Indicator name		Target values 2030
NERM TM	TM/1/AC/B NERM/1/AC/A NERM/1/AC/B NERM/2/AC/A NERM/5/AC/A	In. 22	% of tree canopy within the city	% of municipal area	TBD
BEE TM NERM GL CP	BEE/3/AC/B BEE/4/AC/A BEE/6/AC/A TM/4/AC/A TM/4/AC/B TM/4/AC/C TM/6/AC/A TM/6/AC/B NERM/2/AC/A NERM/4/AC/A NERM/4/AC/B NERM/6/AC/A CP/2/AC/A CP/3/AC/A CP/4/AC/A CP/5/AC/A CP/6/AC/A GL/2/AC/A GL/4/AC/B	In. 23	Citizen's awareness regarding sustainability and the environment	Likert scale	TBD

B-3.2 Indicator metadata tables

B-3.2.1 In. 1	
Indicator Name	GHG from Stationery Energy (Domestic)
Indicator Unit	T CO ₂ eq
Definition	Greenhouse gas emissions (mainly CO ₂ emissions) from the operations of dwellings.
Calculation	Base emission information can be derived through "Amount of fuel consumption per fuel type x GHG emission per fuel type". See limitations for Cork City Baseline Emissions Inventory (Action Plan) in section A above.
Indicator Context	
Does the indicator measure direct impacts?	yes
If yes, which emission source sectors does it measure?	Domestic Buildings (dwellings)
Does the indicator measure indirect impacts	no
Is the indicator useful for monitoring the output/impact of action(s)?	yes
If yes, which action and impact pathway is it relevant for?	Impact Pathways according to Module B-1
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	yes
Data requirements	
Expected data source	Baseline Emissions Inventory updates
Is the data source local or regional/ national?	Local
Expected availability	Commissioned
Suggested collection interval	Bi-annual

B-3.2.2 In. 2	
Indicator Name	GHG from Stationery Energy (Commercial / Industrial / IPPU)
Indicator Unit	T CO ₂ eq
Definition	Greenhouse gas emissions (mainly CO ₂ emissions) from the operations of commercial and industrial facilities.
Calculation	Base emission information can be derived through "Amount of fuel consumption per fuel type x GHG emission per fuel type". See limitations for Cork City Baseline Emissions Inventory (Action Plan) in section A above.
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	yes
If yes, which emission source sectors does it measure?	Commercial services and industrial buildings
Does the indicator measure indirect impacts (i.e., co- benefits)?	no
If yes, which co-benefit does it measure?	Specify co-benefit
Is the indicator useful for monitoring the output/impact of action(s)?	yes
If yes, which action and impact pathway is it relevant for?	Impact Pathways according to Module B-1
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	yes
Data requirements	
Expected data source	Baseline Emissions Inventory updates
Is the data source local or regional/ national?	Local
Expected availability	Commissioned
Suggested collection interval	Bi-annual

B-3.2.3 In. 3	
Indicator Name	GHG from Transport
Indicator Unit	T CO ₂ eq
Definition	Greenhouse gas emissions from the operations of vehicles.
Calculation	NTA Eneval Model applied at small area level. See limitations for Cork City Baseline Emissions Inventory (Action Plan) in section A above.
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	yes
If yes, which emission source sectors does it measure?	Transport
Does the indicator measure indirect impacts (i.e., co- benefits)?	no
Is the indicator useful for monitoring the output/impact of action(s)?	yes
If yes, which action and impact pathway is it relevant for?	Impact Pathways according to Module B-1
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	yes
Data requirements	
Expected data source	Baseline Emissions Inventory updates
Is the data source local or regional/ national?	Local
Expected availability	Commissioned
Suggested collection interval	Bi-annual

B-3.2.4 In. 4	
Indicator Name	GHG from Waste
Indicator Unit	T CO ₂ eq
Definition	Greenhouse gas emissions from waste treatment, waste incineration and landfills
Calculation	Quantity of waste per End-of-life (EoL) treatment type x emission factors per EoL treatment.
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	yes
If yes, which emission source sectors does it measure?	Waste
Does the indicator measure indirect impacts (i.e., co- benefits)?	no
Is the indicator useful for monitoring the output/impact of action(s)?	yes
If yes, which action and impact pathway is it relevant for?	
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	yes
Data requirements	
Expected data source	Baseline Emissions Inventory updates
Is the data source local or regional/ national?	Local
Expected availability	Commissioned
Suggested collection interval	Bi-annual

B-3.2.5 In. 5	
Indicator Name	GHG from AFOLU
Indicator Unit	T CO ₂ eq
Definition	IPCC guidelines divides AFOLU emission activities into three categories: Livestock, Land, Aggregate sources and non-CO2 emissions sources on land. The cumulative of these emissions forms the sectoral emissions. It requires identifying which categories of the AFOLU sector are relevant for reporting purposes.
Calculation	To be developed further
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	Yes
If yes, which emission source sectors does it measure?	Fields of action according to GHG inventory format – Module A-1
Does the indicator measure indirect impacts (i.e., co- benefits)?	No
Is the indicator useful for monitoring the output/impact of action(s)?	yes
If yes, which action and impact pathway is it relevant for?	Impact Pathways according to Module B-1
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	yes
Data requirements	
Expected data source	Baseline Emissions Inventory updates
Is the data source local or regional/ national?	Local
Expected availability	Commissioned
Suggested collection interval	Bi-annual

B-3.2.6 In. 6	
Indicator Name	GHG from public sector
Indicator Unit	T CO ₂ eq
Definition	Energy usage from buildings and processes owned and operated by public sector organisations within the city boundary
Calculation	Base emission information can be derived through "Amount of fuel consumption per fuel type x GHG emission per fuel type". See limitations for Cork City Baseline Emissions Inventory (Action Plan) in section A above.
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	yes
If yes, which emission source sectors does it measure?	Public sector
Does the indicator measure indirect impacts (i.e., co- benefits)?	no
Is the indicator useful for monitoring the output/impact of action(s)?	yes
If yes, which action and impact pathway is it relevant for?	Impact Pathways according to Module B-1
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	no
Data requirements	
Expected data source	Baseline Emissions Inventory updates
Is the data source local or regional/ national?	Local
Expected availability	Commissioned
Suggested collection interval	Bi-annual

B-3.2.7 In. 7	
Indicator Name	GHG from grid supplied energy
Indicator Unit	T CO ₂ eq
Definition	GHG emissions occurring as a consequence of the use of grid supplied
Calculation	Base emission information can be derived through "Amount of fuel consumption per fuel type x GHG emission per fuel type". See limitations for Cork City Baseline Emissions Inventory (Action Plan) in section A above.
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	yes
If yes, which emission source sectors does it measure?	Electricity generation
Does the indicator measure indirect impacts (i.e., co- benefits)?	no
Is the indicator useful for monitoring the output/impact of action(s)?	yes
If yes, which action and impact pathway is it relevant for?	Impact Pathways according to Module B-1
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	yes
Data requirements	
Expected data source	Baseline Emissions Inventory updates
Is the data source local or regional/ national?	Local
Expected availability	Commissioned
Suggested collection interval	Bi-annual

B-3.2.8 In. 8	
Indicator Name	Residual emissions permanently sequestered, traded or captured and stored
Indicator Unit	T CO ₂ eq
Definition	This indicator supports the reporting of carbon sequestration through “Technological sinks”, such as Biomass for Energy with Carbon Capture and Storage (BECCS) and Direct Air Carbon Capture and Storage (DACCS) technologies. This indicator can only be reported for Carbon Capture Project (CCP) applications which result in permanent sequestration of the CO ₂ (i.e., injected into geological structures)
Calculation	Direct reporting from Carbon Credit Projects (CCP) based on C40 guidance: C40 and NYC Mayor’s Office of Sustainability, Defining Carbon Neutrality for Cities and Managing Residual Emissions. Cities’ perspective, C40, 2019.
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	yes
If yes, which emission source sectors does it measure?	Residual emissions (column 8)
Does the indicator measure indirect impacts (i.e., co- benefits)?	no
Is the indicator useful for monitoring the output/impact of action(s)?	yes
If yes, which action and impact pathway is it relevant for?	Impact Pathways according to Module B-1
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	no
Data requirements	
Expected data source	Baseline Emissions Inventory updates
Is the data source local or regional/ national?	Local
Expected availability	Commissioned
Suggested collection interval	Bi-annual

B-3.2.9 In. 9	
Indicator Name	Negative emissions through natural sinks
Indicator Unit	T CO ₂ eq
Definition	“Natural sinks” refer to the planting of trees or other conversion of land use. Cities are allowed to account for negative emissions through the enlargement or enhancement of natural sinks within the territory to address residual emissions (accounting for all changes in the carbon stock). Carbon sinks should be accounted for as part of the ‘AFOLU’ sector of the GHG inventory and can be independently monitored as a progress indicator to show negative emissions.
Calculation	2006 IPCC Guidelines on National Greenhouse Gas Inventories
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	yes
If yes, which emission source sectors does it measure?	Residual emissions (column 8)
Does the indicator measure indirect impacts (i.e., co- benefits)?	no
Is the indicator useful for monitoring the output/impact of action(s)?	yes
If yes, which action and impact pathway is it relevant for?	Impact Pathways according to Module B-1
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	no
Data requirements	
Expected data source	Baseline Emissions Inventory updates
Is the data source local or regional/ national?	Local
Expected availability	Commissioned
Suggested collection interval	Bi-annual

Indirect / Co-Benefit Indicators

B-3.2.10 In. 10	
Indicator Name	Improved Air Quality, annualised, WHO threshold values
Indicator Unit	PM2.5 µg/m ³ ; PM10 # of days; NO ₂ µg/m ³
Definition	<p>The PM2.5 indicator corresponds to the highest annual mean of PM2.5 concentration recorded in a particular year at stations in urban and suburban background locations.</p> <p>The PM10 indicator corresponds to the highest number of days in a year where the PM10 concentration level recorded at stations in urban and suburban background locations has exceeded the WHO recommendation of 45 µg/ m³. It refers to the number of days on the monitoring station that measured the most days in excess of the WHO recommendation of 45µg/m³.</p> <p>The NO₂ indicator corresponds to the highest value of the annual mean of nitrogen dioxide (NO₂) concentrations recorded in a particular year at stations with the highest traffic location levels.</p>
Calculation	Highest annual mean at a specific site for PM2.5 and NO ₂ . Fore PM 10 highest number of days at specific sites that exceed target values.
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	no
Does the indicator measure indirect impacts (i.e., co- benefits)?	yes
If yes, which co-benefit does it measure?	Air quality
Is the indicator useful for monitoring the output/impact of action(s)?	yes
If yes, which action and impact pathway is it relevant for?	Impact Pathways according to Module B-1
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	yes
Data requirements	
Expected data source	Cork City Air Quality Monitoring System Cork Air Quality Dashboard
Is the data source local or regional/ national?	local
Expected availability	annual

B-3.2.11 In. 11	
Indicator Name	Urban Heat Island (UHI) Effect
Indicator Unit	oC UHI _{max}
Definition	Maximum difference in air temperature within the city compared to the countryside during the summer months
Calculation	Largest temperature difference between urban and rural meteorological stations in summer months
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	no
Does the indicator measure indirect impacts (i.e., co- benefits)?	yes
If yes, which co-benefit does it measure?	Extremes of temperature
Is the indicator useful for monitoring the output/impact of action(s)?	yes
If yes, which action and impact pathway is it relevant for?	Impact Pathways according to Module B-1
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	yes
Data requirements	
Expected data source	Met Éireann
Is the data source local or regional/ national?	local
Expected availability	annual

B-3.2.12 In. 12	
Indicator Name	Wellbeing of citizens
Indicator Unit	Likert Scale
Definition	The change in perceived wellbeing during the lifetime of the Climate-Neutral and Smart City Mission
Calculation	Qualitative survey
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	no
Does the indicator measure indirect impacts (i.e., co- benefits)?	yes
If yes, which co-benefit does it measure?	Health
Is the indicator useful for monitoring the output/impact of action(s)?	yes
If yes, which action and impact pathway is it relevant for?	Impact Pathways according to Module B-1
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	yes
Data requirements	
Expected data source	Household survey
Is the data source local or regional/ national?	Local
Expected availability	Bi-annual

B-3.2.13 In. 13	
Indicator Name	Green spaces
Indicator Unit	Hectare per 100,000 population
Definition	Zoned green spaces within the city boundary that fall in to one of four zoning categories – green space, recreation and amenity, landscape preservation zone, or hinterland.
Calculation	GIS analysis
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	no
Does the indicator measure indirect impacts (i.e., co- benefits)?	yes
If yes, which co-benefit does it measure?	Physical and mental wellbeing
Is the indicator useful for monitoring the output/impact of action(s)?	yes
If yes, which action and impact pathway is it relevant for?	Impact Pathways according to Module B-1
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	no
Data requirements	
Expected data source	GIS
Is the data source local or regional/ national?	Local
Expected availability	Bi-annual

B-3.2.14 In. 14	
Indicator Name	Citizen involvement in co-design / co-creation of climate actions
Indicator Unit	#
Definition	Number of people involved in participatory process set up during the design and implementation of the climate city contract action plan process
Calculation	Total number of people involved during meetings for the co-creation or co-design of projects on social innovation and climate neutrality
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	no
Does the indicator measure indirect impacts (i.e., co- benefits)?	yes
If yes, which co-benefit does it measure?	participation
Is the indicator useful for monitoring the output/impact of action(s)?	yes
If yes, which action and impact pathway is it relevant for?	Impact Pathways according to Module B-1
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	yes
Data requirements	
Expected data source	Cork City Council records
Is the data source local or regional/ national?	Local
Expected availability	Bi-annual

B-3.2.15 In. 15	
Indicator Name	Funding for Social Innovation initiatives for climate neutrality
Indicator Unit	€
Definition	Total amount of funding dedicated to the city's social innovation initiatives (for training, social innovation business seeding, platforms etc) per category – philanthropy, crowd funding, social bonds, cross-sector partnerships, change in ownership, platforms to attract investors, in-kind donations, hours of volunteering.
Calculation	Co-created calculation process involving multiple stakeholders
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	no
Does the indicator measure indirect impacts (i.e., co- benefits)?	yes
If yes, which co-benefit does it measure?	Social innovation
Is the indicator useful for monitoring the output/impact of action(s)?	yes
If yes, which action and impact pathway is it relevant for?	Impact Pathways according to Module B-1
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	yes
Data requirements	
Expected data source	City budget, others
Is the data source local or regional/ national?	Local
Expected availability	Bi-annual

B-3.2.16 In. 16	
Indicator Name	Energy consumption per household
Indicator Unit	kWh
Definition	A measured trend of the energy a household consumes in kWh
Calculation	Downscaled CSO data
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	no
Does the indicator measure indirect impacts (i.e., co- benefits)?	yes
If yes, which co-benefit does it measure?	Climate behaviour change
Is the indicator useful for monitoring the output/impact of action(s)?	yes
If yes, which action and impact pathway is it relevant for?	Impact Pathways according to Module B-1
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	Yes
Data requirements	
Expected data source	CSO
Is the data source local or regional/ national?	National, downscaled to local
Expected availability	Bi-annual

B-3.2.17 In. 17	
Indicator Name	Modal share of active and public transport
Indicator Unit	%
Definition	Changes in the shares of walking, biking and public transport indicates that the mobility behaviour of the local population has changes and that the preference for climate friendly mobility options has risen.
Calculation	CSO census methodology
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	no
Does the indicator measure indirect impacts (i.e., co- benefits)?	yes
If yes, which co-benefit does it measure?	Climate behaviour change
Is the indicator useful for monitoring the output/impact of action(s)?	yes
If yes, which action and impact pathway is it relevant for?	Impact Pathways according to Module B-1
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	Yes
Data requirements	
Expected data source	CSO, nest national census expected 2028
Is the data source local or regional/ national?	National, downscaled to local
Expected availability	Every 5-6 years

B-3.2.18 In. 18	
Indicator Name	Green jobs
Indicator Unit	#
Definition	Share of jobs related to environmental service activities that contribute substantially to preserving or restoring environmental quality
Calculation	$(\# \text{ of green jobs} / \text{total } \# \text{ of jobs}) \times 100$
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	no
Does the indicator measure indirect impacts (i.e., co- benefits)?	yes
If yes, which co-benefit does it measure?	Economic benefit of transition
Is the indicator useful for monitoring the output/impact of action(s)?	yes
If yes, which action and impact pathway is it relevant for?	Impact Pathways according to Module B-1
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	yes
Data requirements	
Expected data source	LEO, Cork Employment Survey, CSO National Employment and Labour Market Surveys
Is the data source local or regional/ national?	Local and national
Expected availability	Bi-annual

B-3.2.19 In. 19	
Indicator Name	Public capital invested in climate action projects
Indicator Unit	€ million
Definition	Capital invested by the Local Authority in specific climate actions
Calculation	Assessment of public spending against the six objectives of the EU Taxonomy
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	no
Does the indicator measure indirect impacts (i.e., co- benefits)?	yes
If yes, which co-benefit does it measure?	Public expenditure
Is the indicator useful for monitoring the output/impact of action(s)?	yes
If yes, which action and impact pathway is it relevant for?	Impact Pathways according to Module B-1
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	yes
Data requirements	
Expected data source	Cork City Council capital budget
Is the data source local or regional/ national?	Local
Expected availability	Annual

B-3.2.20 In. 20	
Indicator Name	Recycling rate of municipal waste
Indicator Unit	%
Definition	Share of total municipal waste that is recycled
Calculation	(tonnes of recycled waste / tonnes of total waste) x 100
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	no
Does the indicator measure indirect impacts (i.e., co- benefits)?	yes
If yes, which co-benefit does it measure?	Waste
Is the indicator useful for monitoring the output/impact of action(s)?	yes
If yes, which action and impact pathway is it relevant for?	Impact Pathways according to Module B-1
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	Yes
Data requirements	
Expected data source	EPA
Is the data source local or regional/ national?	National, downscaled to local
Expected availability	Bi-annual

B-3.2.21 In. 21	
Indicator Name	Brownfield use
Indicator Unit	% of km ²
Definition	Share of brownfield area that has been redeveloped in the past year as a % of total brownfield area
Calculation	(Area of brownfield redeveloped in the past year / total brownfield area) x 100
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	no
Does the indicator measure indirect impacts (i.e., co- benefits)?	yes
If yes, which co-benefit does it measure?	Compact growth
Is the indicator useful for monitoring the output/impact of action(s)?	yes
If yes, which action and impact pathway is it relevant for?	Impact Pathways according to Module B-1
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	yes
Data requirements	
Expected data source	Strategic and Economic Development Directorate, Strategic Planning Team, Cork City Council
Is the data source local or regional/ national?	Local
Expected availability	Bi-annual

B-3.2.22 In. 22	
Indicator Name	% of tree canopy within the city
Indicator Unit	% of municipal area
Definition	The proportion of grown trees (with the potential to grow to full maturity) relative to the total municipal area
Calculation	(Total area of tree cover/ total area within the Local Authority boundary) x 100
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	no
Does the indicator measure indirect impacts (i.e., co- benefits)?	yes
If yes, which co-benefit does it measure?	Tree cover / biodiversity
Is the indicator useful for monitoring the output/impact of action(s)?	yes
If yes, which action and impact pathway is it relevant for?	Impact Pathways according to Module B-1
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	yes
Data requirements	
Expected data source	Cork City Council
Is the data source local or regional/ national?	Local
Expected availability	Bi-annual

B-3.2.23 In. 23	
Indicator Name	Citizen's awareness regarding sustainability and the environment
Indicator Unit	Likert scale
Definition	The extent to which the CCC Action Plan exploits opportunities to increase citizens' ecological awareness, or to more generally educate citizens about sustainability and the environment
Calculation	5 point likert scale
Indicator Context	
Does the indicator measure direct impacts (reduction in greenhouse gas emissions?)	no
Does the indicator measure indirect impacts (i.e., co- benefits)?	yes
If yes, which co-benefit does it measure?	Awareness
Is the indicator useful for monitoring the output/impact of action(s)?	yes
If yes, which action and impact pathway is it relevant for?	Impact Pathways according to Module B-1
Is the indicator captured by the existing CDP/ SCIS/ Covenant of Mayors platforms?	no
Data requirements	
Expected data source	Household survey
Is the data source local or regional/ national?	Local
Expected availability	Bi-annual

Learning Processes and Development of Future Iterations of the CCC

Cork City Council will adopt a reflexive learning process modelled on Kolb's Theory of experiential Learning shown in Figure 27 below. (C & C Checklist 24)



Figure 27: Kolb's Cycle of Reflective Learning

Kolb's theory describes two ways for people to grasp knowledge. The first is related to the impact of concrete experiences, the second is thinking about those experiences. Reflective observation, watching what is happening, and active experimentation, or trying new ways of working, are ways to help people to transform their experience into knowledge. Cork City Council will mainstream this approach into its management and review processes, whether wholly internal actions, or those conducted in partnership with others. The model accommodates both formal, documented review of actions taken, and informal individual and group learning processes.

Cork City Council has established internal management structures for climate action and the delivery of the Cork City CAP 2024-2029, shown in figure 27 above. These structures will manage and coordinate the work the City Council does on both decarbonisation and adaptation of its own assets and public services, and its influencing, advocacy, and support to other stakeholders in the city as they implement their own actions to achieve net zero. In addition, the structures envisaged to provide city-level governance, the Climate Neutral Cork Leadership Group, and the thematic sub-groups, initially addressing buildings and energy, and transport and mobility, will ensure ongoing coordination, collaboration, and resource identification. Engagement with the public and other enterprises and institutions will be supported by the forthcoming Climate Neutral Cork Public Platform. These structures will provide the infrastructure to manage and coordinate

our collective work towards net zero and to ensure that the wider community are engaged and have opportunities to join in.

The CCC, as an evolving, emergent and flexible plan, will develop through several periodic iterations to be published in 2026, 2028 and 2030 for the post-mission implementation period, as shown in figure 28.

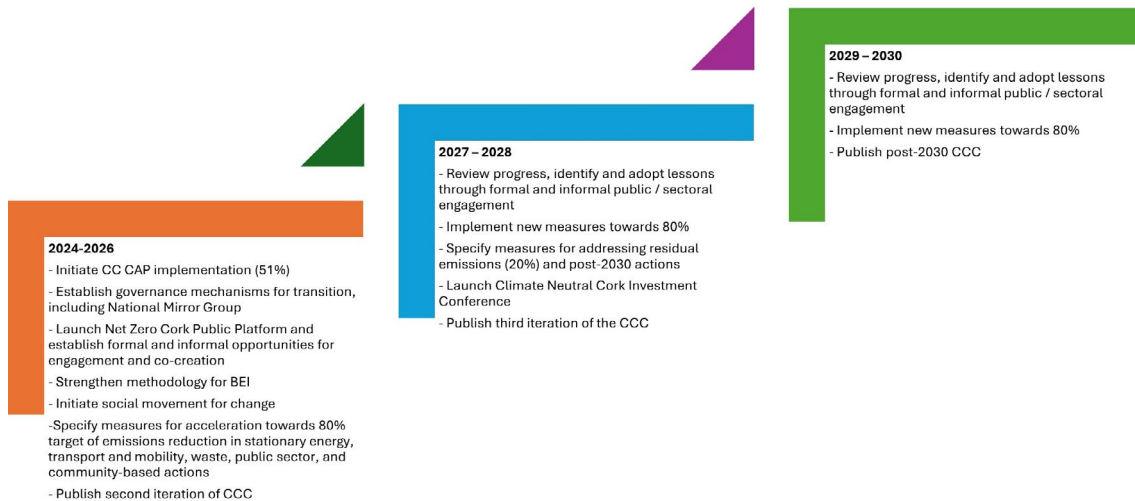


Figure 28: Cork City CCC – a phased approach

The City Council will implement the following steps to inform each successive iteration of the CCC:

- Updated Baseline Emissions Inventory. The second iteration will draw on the latest available data and address some of the methodological limitations of the 2023 edition, such as related to energy consumption and emissions scopes, while maintaining comparability with the baseline.
- Updated Household Survey. The second iteration will be more comprehensive, as survey findings will complement other research work done in the city by our academic partners.
- Follow up climate conversations with key stakeholder constituencies in the city and augmented by our ongoing work to stimulate and support public engagement and the creation of a social movement for change.
- Review of actions taken during each phase, their impact on emissions, and the identification of lessons from what worked and what did not. This task will draw on the monitoring data from stakeholder groups on the progress of their own actions.
- Ongoing work among all stakeholders throughout each phase to co-create and specify new measures, and the means of financing them, to accelerate actions and increase impact.
- Statutory Climate Action reporting mechanism is being developed in collaboration



with the DECC and all Local Authorities in Ireland, with the support of Climate Action Regional Offices. The mechanism co-designed in 2024 will be built upon to monitor and report on progress of the CCC, reducing the risk of duplicated effort.

- Signatories resign the Commitments Document to show their support for changes that arise from the bi-annual review process.

The Climate Action Unit will collate and share data from all relevant sources and undertake analysis and reporting tasks, with external support from academic and commercial partners where needed. A climate data dashboard will be created for all stakeholders to visualise progress towards net zero, which we expect to be in place by the second iteration of the CCC in 2026.

Monitoring reports will be published annually. Periodic internal and external, independent impact evaluations to review what has changed and how will be commissioned separately.

Part

C

Enabling Climate Neutrality by 2030

Part C “Enabling Climate Neutrality by 2030” aims to outline any enabling interventions, i.e., regarding organizational setting or collaborative governance models or related to social innovations – designed to support the climate action portfolios (Module B-2) as well as aiming to achieve co-benefits outlined in the impact pathway (Module B-1). These interventions also address the identified opportunities, gaps and barriers identified Module A-2 and A-3.

1.7

Module C-1

Governance Innovation Interventions

This module details the city's governance innovations for achieving city climate neutrality by 2030, describing innovations in institutional design, in leadership, and in collaborative and outreach processes, whether they are inter-organisational or internal to the key organisations responsible for the city's climate neutrality target. It also describes expected outcomes, for example how these governance innovations enable climate actions and their co-benefits (outlined in Modules B-1 and B-2), and how they address the opportunities, gaps and barriers identified in Modules A-2 and A-3. This content aims to include:

- Descriptions or/and visualisations of a participatory / collaborative governance model to facilitate the city's climate neutrality target, including institutional design (horizontal links among city institutions, vertical links to other levels of government, roles, responsibilities, ground rules, processes). Building on the systems and stakeholder mapping in module A-3, it highlights the relations and processes established or planned to facilitate joint climate action among stakeholders and systems at relevant levels (e.g., showcasing new organisations, partnerships, alliances, networks, or processes), as well as mechanisms of citizen involvement.
- Descriptions of how the governance innovations introduced or planned to reach climate neutrality address some (or all) systemic barriers and opportunities (Module A-3) and contribute to NZC impact pathways (Module B-1), e.g., through improving organisational settings and interorganisational models – horizontally within municipal administration and across local stakeholders in the city ecosystem, as well as vertically at regional and national levels.

C-1.1: Description or visualisation of the participatory governance model for climate neutrality

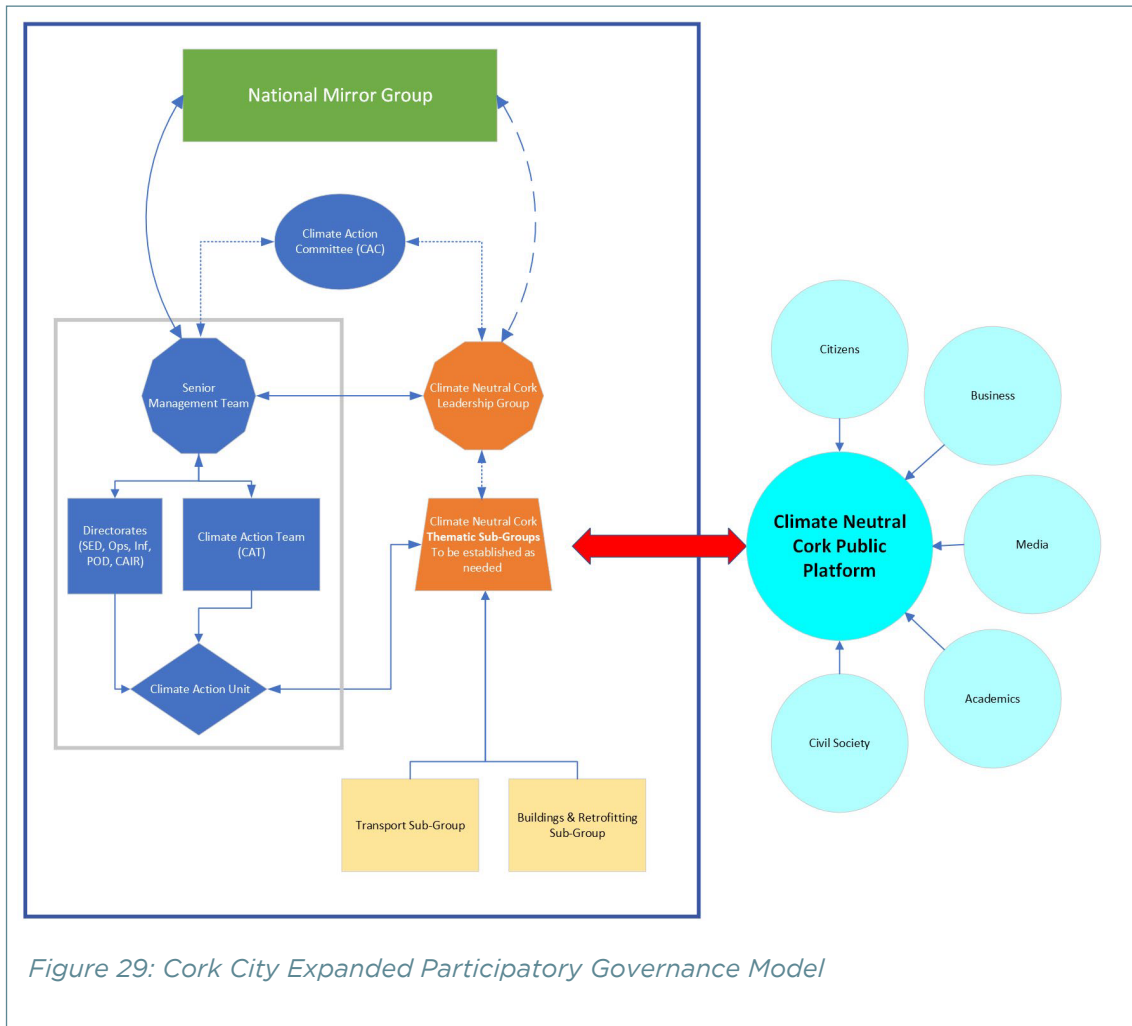
Governance and Innovation

(C & C Checklist 8) (C & C Checklist 9) (C & C Checklist 25)

The Cork City Stakeholder Universe is shown in Figures 21 and 22 above. Our expanded participatory governance model is shown below in Figure 29. This locates the structures that comprise the Cork City Implementation, Monitoring, Evaluation and Learning Model shown in Figure 7, above. This model sets out the co-design and collaborative management and learning structures established at the city level. It shows the connection to the [National Mirror Group](#), an inter-departmental body intended to provide well-coordinated support to the Mission Cities. Climate mitigation policy in Ireland is developed and owned by Central Government. The National Mirror Group is the interface for Cork and Dublin to highlight areas for policy development and coherence. A dotted line to the Climate Neutral Cork Leadership Group is included as one of the members also co-chairs the National Mirror Group, whereas the City Council Chief Executive represents the city.

The Climate Neutral Cork Public Platform is shown as the structure that will facilitate opportunities for the wider community to engage with the Mission, through sharing experience and learning, identifying collaborators, and participating, both formally and informally in co-design and co-creation. There are numerous well-established existing networks for governance across a wide range of social, economic and environmental subjects, listed below in tables C-1.2 and C-2.1. Where a deeper-dive is required we are establishing Thematic Sub-Groups to undertake the necessary analysis, policy and planning, and identification of bankable projects.. We will establish both sub-groups on buildings and retrofitting, and transportation, immediately. Its membership will be drawn from relevant members of the leadership group and additional expert organisations to participate as needed. We are progressively mainstreaming climate action in each of them to institutionalise the participation of citizens and relevant stakeholders in all policy areas. Where possible the sub-group role will be strengthened an existing structure. For example, an inter-agency group to govern strategic transport and land use issues, the Cork Area Strategic Plan (CASP) Group, exists, has the right focus and participation, so extending its remit is a sensible approach. This is a more robust and sustainable approach to engagement than creating yet more networks. The City Council is appraising and experimenting with novel forms of citizen engagement that will also be used by the public platform. Taken together, these structures have the responsibility and capacity to co-design, fund and take mitigation policy into action.

Continued →



Continued →

The membership of the Climate Neutral Cork Leadership Group is highlighted below in Figure 30. The Leadership Group is likely to grow over time.

Member	Function
Cork City Council	Local Authority, Chair of the Leadership Group
Munster Technological University	Third-Level Academic Institution
University College Cork	Third-Level Academic Institution
Cork Education & Training Board	Vocational Education and Training Institution
Cork Chamber of Commerce	Representative Business Organisation
Cork Business Association	Representative Business Organisation
Irish Business & Employer's Confederation	Representative Business Organisation
Construction Industry Federation	Representative Business Organisation for the Construction Industry
Public Participation Network	Statutory Participatory Body for Civil Society Organisations
Health Service Executive	Health Services Implementation Body
South/Southwest Hospital Group	Health Services Implementation Body
An Garda Síochána	Police
Comhairle na nÓg	Youth Council
Bus Éireann	Public Transport Provider
Irish Rail	Public Transport Provider
Uisce Éireann	National Water Infrastructure Provider
ESB Networks	National Electricity Grid Owner

Figure 30: Current Membership of the Climate Neutral Cork Leadership Group

Cork City approach to co-creation of climate actions

Co-creation is fully embedded and will translate our ambition into action for Cork City's transition. To date we have undertaken a design process for the city's statutory CAP development that has engaged citizens, whether as individuals or organised into institutions, businesses, civil society groups or as democratically elected members of the City Council. This process reflects the City Council's policy and plan development process but has gone further than most similar exercises to date, particularly in our engagement of young people and elected representatives in consultation, among other aspects. Cork City's co-creation process is shown below in figure 31.

Continued →

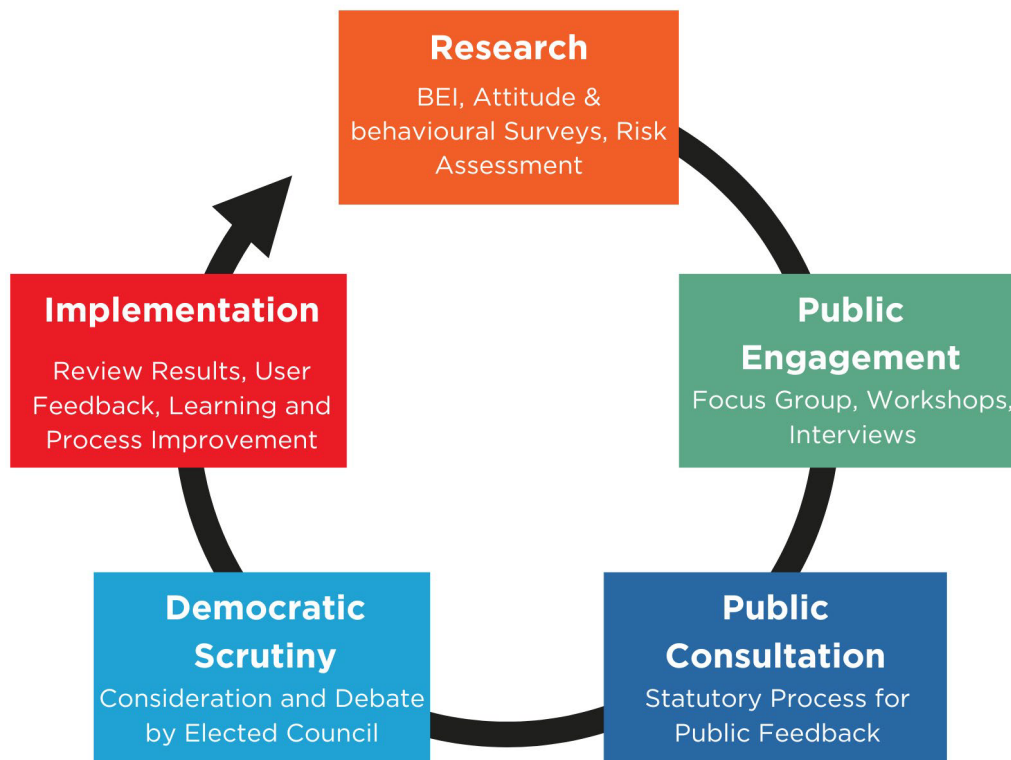


Figure 31: Established Co-Creation Process

We will build upon this process to embed this co-creation, monitoring and learning of key climate actions over time. In part, our approach leverages stakeholder expertise, both professional and lived experience, to input through the thematic sub-groups. This is augmented, to ensure a Just Transition, through the mainstreaming of climate action design in the work of our existing networks of partners working on socio-economic development set out in table C.2.1 below. These networks already address issues of multi-dimensional vulnerability and afford an efficient means to address climate justice for those sections of the community disproportionately or differentially affected by climate change. Their contributions and ways of working are discussed below in section 3.2.2. The public platform, described in more detail below in table C.1. 2, is still at the conceptual stage and is being developed by stakeholders. The purpose of the public platform is to bring together sectoral, institutional and public interest groups to share information, learn from each other, identify opportunities for collaboration, enabling and supporting broad participation in co-creation. The public platform offers the opportunity to utilise innovative mechanisms for public engagement, such as citizen assemblies panels and Living Labs as shown in figure 32 below, to drive its function as an action generating vehicle. The Public Platform will utilise experience of initial experiments implemented by both the City Council's Community, Culture and Participation Directorate, and the Cork Food Policy Council's process for developing a sustainable food strategy for the city. Our co-creation mechanism will be developed and initiated by January 2025.

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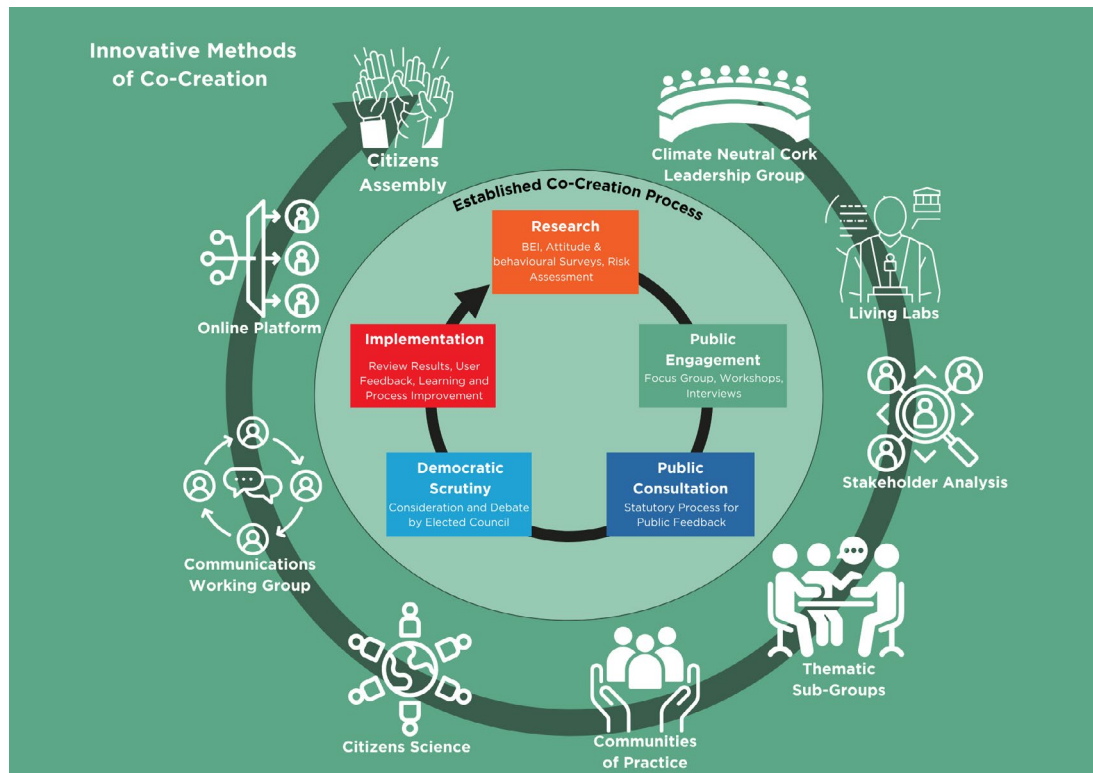


Figure 32: Possible Innovative Mechanisms to be included in the Co-Creation Process

C.1.2: Sample Table: Relations between governance innovations, systems, and impact pathways					
Intervention name	Description	Systemic barriers / opportunities addressed	Leadership and stakeholders involved	Enabling impact	Co-benefits
Climate Neutral Cork Leadership Group	The Leadership Group comprises representation from the business community, civil society, and the public sector. The Leadership Group is chaired by the Chief Executive of Cork City Council and may expand to include additional representation in future. Its role is to amplify a shared commitment to climate neutrality and contribute to a social movement for change, including through members own actions.	<ul style="list-style-type: none"> Government funding and mobilising private resources Planning and Land Use Management Information Organisational Capacity Collaborative Ecosystem Influencing Citizen Demand and Behaviour Learning by Doing 	<ul style="list-style-type: none"> Climate Neutral Cork Leadership Group members 	<ul style="list-style-type: none"> Amplification of key messages Coordinated climate actions at the city level Joint advocacy Co-creation of strategic joint initiatives Challenge Innovation Information and knowledge sharing Plan review Validation of successes through evaluated actions 	<ul style="list-style-type: none"> Acceleration of transition High level of participation in the CCC and achievement of the vision of a net zero Cork City Well-informed and supportive citizens Mobilisation of resources for transition
Climate Neutral Cork Public Platform	A new public participation mechanism that creates space for organisations of all kinds, and individuals to learn from each other, share knowledge, identify collaborators, and map progress to net zero.	<ul style="list-style-type: none"> Co-creation Government funding and mobilising private resources Planning and Land Use Management Information Organisational Capacity Collaborative Ecosystem Influencing Citizen Demand and Behaviour Learning by Doing 	<ul style="list-style-type: none"> Citizens Other civil society organisation Other academics Other businesses Media Climate Neutral Cork Leadership Group members 	<ul style="list-style-type: none"> An action generating vehicle for citizens and diverse groups to participate in co-creation of climate actions Amplification of key messages Coordinated climate actions at the city level Identification of partnership opportunities Joint and public advocacy Information and knowledge sharing Communal events to mobilise action, inform citizens Support a social movement for change 	<ul style="list-style-type: none"> Sustained high levels of support for transition across the community High levels of awareness of the changes being undertaken Growing levels of citizen participation in the transition Innovative inter-sectoral collaborations increasing Citizen well-being grows
Cork City Local Community Development Committee	A statutory body responsible for bringing a more joined up approach to community development in the city	<ul style="list-style-type: none"> Primary responsibility for coordinating, planning and overseeing all social inclusion and community development with the city 	<ul style="list-style-type: none"> Public and private stakeholders along with elected members 	<ul style="list-style-type: none"> Help to drive meaningful citizen and community engagement in climate action and Just Transition Information and knowledge sharing Support social movement to change 	<ul style="list-style-type: none"> Cross sectoral support for accelerated climate action Co-ordinated support for Just Transition Mobilisation of resources for transition
Cork City Council Climate Action Committee	The Committee comprises elected members of the City Council who review progress and approve specific policy measures and plans, disseminate information to their constituents and provide democratic engagement in the development of local policies and plans.	<ul style="list-style-type: none"> Regulatory Responsibility for Key Sectors Planning and Land Use Management 	<ul style="list-style-type: none"> Elected members of Cork City Council 	<ul style="list-style-type: none"> Democratic participation in transition Co-creation of policy initiatives and actions Review progress Communicate with and influence citizens Highlight opportunities for citizen participation 	<ul style="list-style-type: none"> Political support for transition grows Political engagement in managing competing needs and interests grows Political influence on citizens to support climate positive policy initiatives grows

Continued →



C.1.2: Sample Table: Relations between governance innovations, systems, and impact pathways					
Intervention name	Description	Systemic barriers / opportunities addressed	Leadership and stakeholders involved	Enabling impact	Co-benefits
Cork City Council Strategic Policy Committees	The City Council has six statutory Strategic Policy Committees (Housing, Environment, Economic Development, International Relations, Transport and Community) with both elected members and representatives drawn from the community, business and other relevant interest groups. Their role is to support and advise council on the development and review of new policy from the earliest stages. The SPC have no operational role.	<ul style="list-style-type: none"> Government funding and mobilising private resources Planning and Land Use Management Information Organisational Capacity Collaborative Ecosystem 	<ul style="list-style-type: none"> Elected members of Cork City Council Representatives from relevant sectoral interest groups – business, community, civil society 	<ul style="list-style-type: none"> Co-creation of new policy at the city level Review of policy implementation Advice to the executive and elected members on policy development 	<ul style="list-style-type: none"> Co-creation of policy increases support for transition within the community Ownership of and participation in the transition design
Climate Neutral Cork Sub-Group on Buildings and Retrofitting	A new multi-stakeholder sub-group to identify, test, advocate for and implement measures to massively expand domestic and commercial retrofitting for energy efficiency citywide.	<ul style="list-style-type: none"> Government funding and mobilising private resources Organisational Capacity Collaborative Ecosystem Influencing Citizen Demand and Behaviour Learning by Doing 	<ul style="list-style-type: none"> Construction Industry Representatives Financial institutions Energy suppliers SEAI ESB Networks Uisce Éireann Academic institutions Vocational training institutions Cork City Council Others TBD 	<ul style="list-style-type: none"> Identify and test innovations in delivery, materials, techniques Build sector capacity Build and influence consumer demand Strengthen supply chains 	<ul style="list-style-type: none"> Rapidly increasing numbers of domestic and commercial building owners benefit from lower energy bills, healthier and more comfortable buildings Increasing numbers of green jobs Improved public realm

Continued →



C.1.2: Sample Table: Relations between governance innovations, systems, and impact pathways					
Intervention name	Description	Systemic barriers / opportunities addressed	Leadership and stakeholders involved	Enabling impact	Co-benefits
National Mirror Group	A cross-governmental body bringing together the relevant ministries and technical stake bodies in climate-relevant sectors to support the progress of Ireland's Mission Cities through technical and policy support, coordination and problem solving.	<ul style="list-style-type: none">• Government funding and mobilising private resources• Planning and Land Use Management• Information• Organisational Capacity• Collaborative Ecosystem	<ul style="list-style-type: none">• Dublin, Cork and Galway City Councils (Executive + Chair of Environment Special Policy Committee)• Chambers Ireland (Dublin, Cork Galway)• Department of Environment, Climate Change and Communications• Department of Enterprise, Trade and Employment,• Department of Finance,• Department of Further and Higher Education, Research, Innovation and Science,• Department of Health,• Department of Housing, Local Government and Heritage,• Department of Justice,• Department of Public Expenditure, National Development Plan Delivery and Reform, and• Department ofTransport• ESB Networks• Mission National Contact Point for Ireland from Enterprise Ireland• NZC Advisor to Ireland• Regional Assemblies• Social Justice Ireland• EPA• Irish Congress of Trade Unions• Irish Environmental Network• National Transport Authority• Sustainable Energy Authority of Ireland• Transport Infrastructure Ireland• Academic Advisors from Dublin City University (Economics) and University College Dublin (Smart Cities)	<ul style="list-style-type: none">• To assist the cities with their Climate City Contracts and further support needs e.g., funding applications, opportunities for collaborative projects.• Providing oversight and guidance to improve the potential for success at city level.• Ensuring decisions are made in a timely manner at the appropriate level.• Fostering a culture of accountability and transparency and monitoring progress.• Ensure a national focus on the mission and that the cities are fully supported in their ambition to decarbonise by 2030• To serve as the forum in which cities provide updates at the national level and discuss the enablers and barriers at city level.• To gain support for actions needed and serve as a mechanism to translate discussion into progress• To assist the cities with their Climate City Contracts and further support needs e.g., funding applications, opportunities for collaborative projects.	<ul style="list-style-type: none">• Coherent policy support for transition enables acceleration of progress in key emissions domains• Resources targeted efficiently• National technical capacity deployed effectively in support of mission cities to support impact measurement, innovation• Learning from mission cities is effectively shared and applied nationwide

Continued →



1.8

Module C-2

Social Innovation Interventions

This module lists the actions taken by the city to support and foster social innovation initiatives or non-technological innovation more broadly (e.g., in entrepreneurship, social economy, social awareness & mobilization, social cohesion and solidarity, etc) aimed to address the systemic barriers and leverage the opportunities identified in Module A-3³. It also includes:

- A description of the innovations (what do they innovate?).
- Systemic barriers /opportunities addressed by these innovations (from Module A-3).
- Stakeholders involved in the innovation.
- Additional enabling levers (e.g., technical, policy/ regulatory, democracy/ participatory, fiscal/ financial; learning and capabilities, behaviour change).

C.2.1 Sample Table: Relations between social innovations, systems, and impact pathways (C & C Checklist 26)					
Intervention name	Description	Systemic barriers / opportunities addressed	Leadership and stakeholders involved	Enabling impact	Co-benefits
Open Streets	Reimagining use of public space enabled by pedestrianisation	<ul style="list-style-type: none">• Regulatory Responsibility of Key Sectors• Planning and Land Use Management• Information• Organisational capacity• Collaborative Ecosystem• Influencing Citizen Demand and Behaviour• Learning by Doing	<ul style="list-style-type: none">• Cork City Council• Cork Business Association• Cork Chamber• Cork Environmental Forum• Play Strategist• Transport & Mobility Forum• Bus Eireann• Irish Rail	<ul style="list-style-type: none">• Collaborative project to “open streets” for leisure and other uses free from traffic• Lower transport emissions• Impact on modal share	<ul style="list-style-type: none">• Reduced noise• Safer streets• Positive impact on local economy• Community cohesion• Fun
Cork Smart Gateway	Initiative to promote the sustainable development of an innovative ecosystem in the region to increase economic activity, provide better public services, promote collaboration and engagement, and enhance the quality of life for all who live, work, and visit Cork	<ul style="list-style-type: none">• Government funding and mobilising private resources• Information• Organisational capacity• Collaborative Ecosystem• Learning by Doing	<ul style="list-style-type: none">• Cork City Council• Cork County Council• University College Cork• Tyndall National Institute• Nimbus Research Centre• Tech Industry Alliance• Energy Cork	<ul style="list-style-type: none">• Economy• Mobility• Health and Wellbeing• Data• Climate• Digital	<ul style="list-style-type: none">• Innovation• Collaboration• Mobilisation of resources• Organisational capacity

Continued →

³For more guidance on social innovation, please refer to the [NetZeroCities Quick Read on Social Innovation](#), to the [NetZeroCities Report on indicators & assessment methods for social innovation action plans](#) and the [Social Innovation Toolkit. Social innovation case studies](#) are also available on the NetZeroCities website



C.2.1 Sample Table: Relations between social innovations, systems, and impact pathways (C & C Checklist 26)					
Intervention name	Description	Systemic barriers / opportunities addressed	Leadership and stakeholders involved	Enabling impact	Co-benefits
Energy Cork	An industry-driven cluster pursuing coordinated actions to strengthen enterprise and employment within the energy sector in the Cork region.	<ul style="list-style-type: none"> Government funding and mobilising private resources Regulatory Responsibility of Key Sectors Planning and Land Use Management Organisational capacity Collaborative Ecosystem 	<ul style="list-style-type: none"> Cork City Council Cork County Council 90+ Members including : Orsted Sirus IERC Nimbus Research Centre EirQual FloGas XD Consulting P.J. O'Driscoll and Sons Gas Networks Ireland Blue Power Energy CorkBIC Willis Risk Services ESB Inver Energy Schneider Electric Allied Irish Bank 	<ul style="list-style-type: none"> Energy supply Renewable energy Energy transportation Energy Park Active demand side management Building standards and construction Public transport and biogas Electric vehicles Bike sharing Port facilities Cleantech Green hydrogen 	<ul style="list-style-type: none"> Green jobs Public and private investment in climate action Innovation Collaboration
Cork Learning City Learning Neighbourhoods Cork Lifelong Learning Festival	<p>A network of organisations that support a city which effectively mobilises its resources across all sectors to maximise the opportunities for lifelong learning for all its citizens'</p> <p>Cork City has six Learning Neighbourhoods across the Local Authority. Learning Neighbourhood is an area that has an ongoing commitment to learning, providing inclusive and diverse learning opportunities for whole communities through partnership and collaboration.</p> <p>The highlight of the many opportunities for lifelong learning across the city come sin the annual Cork Lifelong Learning Festival.</p>	<ul style="list-style-type: none"> Information Organisational capacity Collaborative Ecosystem Influencing Citizen Demand and Behaviour Learning by Doing 	<ul style="list-style-type: none"> UNESCO Cork City Council Cork Education and Training Board University College Cork Munster Technological Iniversity Health Service Executive National Association of Principals and Deputy Principals Cork Chamber 	<ul style="list-style-type: none"> Annual Lifelong Learning Festival Six Learning Neighbourhoods Learning for Life Learning for Sustainable Development UNESCO Learning City Award 	<ul style="list-style-type: none"> Social inclusion Healthy society Economic growth Public safety Environmental protection Social cohesion Active citizenship Cultural prosperity

Continued →



C.2.1 Sample Table: Relations between social innovations, systems, and impact pathways (C & C Checklist 26)					
Intervention name	Description	Systemic barriers / opportunities addressed	Leadership and stakeholders involved	Enabling impact	Co-benefits
Cork Healthy Cities Cork Trauma Sensitive City Sláintecare Interagency Group	<p>A network of organisations that collaborate as part of a city that continually creates and improves its physical and social environments and expands the community resources that enable people to mutually support each other in performing all the functions of life and developing to their maximum potential. Healthy Cities is based on a recognition that population health is not merely a product of health sector activities but largely determined by policies and actions beyond the health sector.</p> <p>Cork will take a trauma-sensitive city approach is a commitment to all citizens, not just children. It endorses and supports relationships, practices and environments that promote safety, predictability, empowerment, and control</p> <p>Cork, in partnership with the Department of Health, the HSE and community Agencies is a partner in the Sláintecare Healthy Communities Programme to provide increased health and wellbeing services in 19 community areas across Ireland which include the city.</p>	<ul style="list-style-type: none"> Government funding and mobilising private resources Information Organisational capacity Collaborative Ecosystem Learning by Doing 	<ul style="list-style-type: none"> World Health Organisation Health Service Executive Cork City Council University College Cork Kinship Project Clean Air Together Green Spaces for Health Cork Trauma Sensitive City Cork Food Policy Council Child Friendly City Playful Paradigm / Playful Cork City Psyched Department of Health 	<ul style="list-style-type: none"> Collaborative programmes for health Focus on social determinants of health Learning Research Health promotion Mental health 	<ul style="list-style-type: none"> Social inclusion Healthy society Economic growth Environmental protection Social cohesion Active citizenship
Cork City Public Participation Network	<p>A network of over 200 community, voluntary, social inclusion and environmental groups who work together to give a stronger voice to their experience at the Cork City Council level</p>	<ul style="list-style-type: none"> Information Collaborative Ecosystem Government funding and mobilising private resources 	<ul style="list-style-type: none"> Cork City Council Dept. Of Rural and Community Development 200+ member organisations 	<ul style="list-style-type: none"> Representing the voice of civil society in Cork City Council's Strategic Policy Committees Sharing information among members and the wider public Supporting member capacity building and coordination Encouraging support for and participation in voluntary and civil society organisations 	<ul style="list-style-type: none"> Social inclusion Healthy society Public safety Environmental protection Social cohesion Active citizenship Cultural prosperity

Continued →



C.2.1 Sample Table: Relations between social innovations, systems, and impact pathways (C & C Checklist 26)					
Intervention name	Description	Systemic barriers / opportunities addressed	Leadership and stakeholders involved	Enabling impact	Co-benefits
Cork Food Policy Council	Cork Food Policy Council is a partnership between representatives of the community, food retail, farming, fishing, restaurant/catering, education, environmental and health sectors and Local Authorities. It seeks to influence local food policy to follow best practice in developing a healthy, sustainable, & resilient food system. Supporting new partnerships in Cork between statutory, community and voluntary groups, educational institutions & businesses to promote knowledge, skills & experience around food. We advocate for innovative community food initiatives that seek improvements to the food system improving equitable access to quality food.	<ul style="list-style-type: none"> Regulatory Responsibility of Key Sectors Planning and Land Use Management Information Organisational capacity Collaborative Ecosystem Influencing Citizen Demand and Behaviour Learning by Doing 	<ul style="list-style-type: none"> Cork Healthy Cities Health Service Executive Cork City Council Cork Environmental Forum Bia Food Initiative Cafe Gusto Musgrave Irish South and West Fish Producers Organisation Niche Health Action Zone Cork Institute of Technology 	<ul style="list-style-type: none"> Research and analysis Innovation in food systems Policy advocacy Learning 	<ul style="list-style-type: none"> Health Economic growth Biodiversity through sustainable agriculture
Cork Transport and Mobility Forum	A representative group of organisations who have a common interest in sustainable and active travel. TMF fully support sustainable modes of travel measures and policies. Sustainable and Active Travel helps reduce congestion on our roads, supports a low carbon economy, reduces noise and air pollution, improves public health and quality of life. TMF's mission is to increase the number of people travelling through sustainable and active travel in Cork.	<ul style="list-style-type: none"> Regulatory Responsibility of Key Sectors Planning and Land Use Management Information Influencing Citizen Demand and Behaviour 	<ul style="list-style-type: none"> Healthy Ireland An Taisce Green Schools Bus Éireann Clearstream Cork Chamber Cork City Council Cork Community Bikes Cork County Council Cork Cycling Campaign Cork Smart Gateway Cork Taxi Co-op Cork University Hospital Enterprise Holdings Irish Rail Pedestrian Cork Johnson Controls Munster Technological University Cork City PPN SECAD Partnership CLG Southern Regional Assembly University College Cork 	<ul style="list-style-type: none"> Improve the quality of environments through which people travel Broaden accessibility for people to travel more frequently through sustainable and active travel means Change the culture/mind-set in favour of sustainable and active travel Influence travel infrastructure and policy at the national, regional and local levels Advertise/promote options for sustainable and active travel in and around Cork Support and promote sustainable and active travel events in Cork Reduced emissions from transport 	<ul style="list-style-type: none"> Air quality Health Social cohesion Public safety Environmental protection

Continued →



C.2.1 Sample Table: Relations between social innovations, systems, and impact pathways (C & C Checklist 26)					
Intervention name	Description	Systemic barriers / opportunities addressed	Leadership and stakeholders involved	Enabling impact	Co-benefits
Cork Community Response Forum	A group of over 50 community-based civil society and state agencies working together with Cork City Council to protect vulnerable people within the community. Formed during the pandemic to support people sheltering in place, the CRF has subsequently responded to the influx of Ukrainian refugees to the city. It is now supporting the settlement of people seeking international protection and is considering how it can contribute to climate change resilience.	<ul style="list-style-type: none"> Information Organisational capacity Collaborative Ecosystem Influencing Citizen Demand and Behaviour Learning by Doing 	<ul style="list-style-type: none"> Cork City Council Cork City Partnership Cork Simon SHEP Irish Red Cross Cork Volunteer Centre 	<ul style="list-style-type: none"> Support to vulnerable people in emergency situations 	<ul style="list-style-type: none"> Social inclusion Healthy society Public safety Environmental protection Social cohesion Active citizenship
Marginalised Communities Representative Groups Traveller Interagency Group Traveller Youth Workers Network Integration Committee RAPID	<p>A group of community based civil society and state agencies working in concert to ensure the inclusion and integration of marginalised communities into the decision-making framework in Cork City. Groups detailed here include seldom heard from communities including the Traveller community and migrant communities for example.</p> <p>Revitalising Areas through Planning, Investment and Development (RAPID) works with communities across Cork City focusing on areas designated as disadvantaged. The focus is on communities, the voluntary sector and agencies working together in partnership for the betterment of the community.</p>	<ul style="list-style-type: none"> Information Organisational capacity Collaborative Ecosystem Influencing Citizen Demand and Behaviour Learning by Doing 	<ul style="list-style-type: none"> Cork City Council NASC Cork City PPN 	<ul style="list-style-type: none"> Providing support to vulnerable communities within Cork City. Providing a voice for marginalised/ seldom heard from groups in the decision-making process. Help to drive meaningful citizen and community engagement in climate action and Just Transition 	<ul style="list-style-type: none"> Collaboration Social Cohesion Active Citizenship Healthy Society Environmental Protection

Continued →



C.2.1 Sample Table: Relations between social innovations, systems, and impact pathways (C & C Checklist 26)					
Intervention name	Description	Systemic barriers / opportunities addressed	Leadership and stakeholders involved	Enabling impact	Co-benefits
<p>Youth Representative Groups</p> <p>Comhairle na nÓg (Youth Council)</p> <p>Playful Paradigm</p> <p>Cork Child Friendly Cities</p> <p>Children and Young People's Services Committees (CYPSC)</p>	<p>Comhairle na nÓg are child and youth councils in the 31 Local Authorities of the country, which give children and young people the opportunity to be involved in the development of local services and policies. In light of the fact that Comhairle na nÓg is for young people under the age of 18 and who therefore have no other voting mechanism to have their voice heard, Comhairle na nÓg is designed to enable young people to have a voice on the services, policies and issues that affect them in their local area.</p> <p>Comhairle na nÓg has been invited to participate as a member of the Climate Neutral Cork Leadership Team and will join in August 2024.</p> <p>The URBACT Playful Paradigm transfer network is based on the use of “games” for promoting social inclusion, healthy lifestyles and energy awareness, place-making and economic prosperity.</p> <p>Cork as a child-friendly city is one which implements the UN Convention on the Rights of the Child at the local level. As such, the guiding principles of building a child-friendly city mirror the overarching principles of the Convention.</p> <p>The Children and Young People's Services Committees are responsible for securing better outcomes for children and young people in their area through more effective integration of existing services and interventions.</p>	<ul style="list-style-type: none"> • Information • Organisational capacity • Collaborative Ecosystem • Influencing Citizen Demand and Behaviour • Learning by Doing 	<ul style="list-style-type: none"> • Dept. Of Children, Equality, Disability, Integration and Youth • Cork City Council • Church of Ireland • Cork Sports Partnership • Gaelic Athletic Association • Cork Education and Training Board • Dept of Social Protection • An Garda Síochána • Cork City PPN • NASC – the Irish Immigrant Support Centre • Health Service Executive • St Vincent de Paul • Tusla – the Child and Family Agency • Playful Paradigm • Cork Healthy Cities 	<ul style="list-style-type: none"> • Youth mobilisation and advocacy on issues of public policy, including climate action 	<ul style="list-style-type: none"> • Social inclusion • Healthy society • Environmental protection • Social cohesion • Active citizenship

Continued →



C.2.1 Sample Table: Relations between social innovations, systems, and impact pathways (C & C Checklist 26)					
Intervention name	Description	Systemic barriers / opportunities addressed	Leadership and stakeholders involved	Enabling impact	Co-benefits
Age Friedly Representative Groups Age Friendly Cork Age Friendly Forum	Cork City Age Friendly Programme provides links to services and assistance - it promotes Age Action Care and Repair, national and local services through our 16 Area Response Teams and promotes the Friendly Call Service. Cork City Age Friendly Programme City Database is used to reach out to members with both electronic and printed updates on practical initiatives, local and national as appropriate. There are weekly emails and postings that will continue for the foreseeable future. Regular contact is the aim of this initiative. Physical mail drops to all houses on a regular basis are arranged through the Area Teams who can identify people suitable for the Age Friendly services. They build links with An Post, communities and other stakeholders to maintain links with those who are cocooned or isolated.	<ul style="list-style-type: none">• Information• Organisational capacity• Collaborative Ecosystem• Influencing Citizen Demand and Behaviour• Learning by Doing	<ul style="list-style-type: none">• Cork City Council• Health Service Executive• Institute for Public Health• Age Action	<ul style="list-style-type: none">• Support and inclusion for vulnerable elder persons in the community	<ul style="list-style-type: none">• Social inclusion• Healthy society• Public safety• Social cohesion• Active citizenship

C-2.2: Description of social innovation interventions

Cork City benefits from a wide range of socially innovative networks, programmes and organisations. The most relevant of them are listed in table C-2.1 above. Some of these initiatives are already contributing to mitigation and adaptation actions. All of them contribute to climate action through a focus on co-benefit areas that contribute to our vision of a sustainable, resilient city and help to enable a Just Transition. Many of these initiatives are long-standing and some are internationally recognised for their excellence, high performance standards, integrity and delivery track record. There is a growing recognition of the role such collaborative networks can play in developing citizen's knowledge about climate change and mobilizing them to act. . The initiatives are supported through a wide variety of national, local and philanthropic funding, much of which is increasingly requiring recipients to set out the climate impact and sensitivity of the funding provided. The inter-twining of many of these initiatives is apparent from their members and partners which shows the depth and diversity of the ecosystem of social innovation in the city. This resource is essential for our transition to net zero. Climate action and the Climate-Neutral Mission is already on the agenda of many of these groups and climate action is mainstreamed in their work plans. The richness, strength and diversity of these groups is a core asset of the city which we will build on to ensure long-term impact of the transition. Many of these established networks, programmes and organisations deal with multi-dimensional vulnerability related to age, gender, ethnicity, socio-economic status, ability, and sexual orientation, among others. Each of them engage concerned communities directly and many have clients directly involved in governance, service design and review. While the Community Response Forum has, as a collaborative network, mounted responses to extraordinary emergency events, it is one of many structures that is well positioned to engage with climate-vulnerable groups. Indeed, many of its member organisations are also participants in some of the other networks listed in table C-2.1. Our approach is to frame climate change as an issue of relevance to all these network collaborations by considering the often disproportionate impact it causes among their community of interest, and in terms of the socio-economic issues of concern, whether it be housing, disability and age-related services, gender, citizenship, or employment opportunity, among others.

Cork City's climate action focus is integrated into the recently published [Cork City Local Economic and Community Plan 2024-2029 \(LECP\)](#). The aim of the LECP is to improve the quality of life for all those who live, work, study in, or visit Cork City. The LECP's goals and actions have a special focus on those who have not been able to thrive in the city and those who have a high need of the services and supports available across the city.. Principled, people centred values underpin this plan, and these values will be protected in their approach to health accessibility, inclusion, integration, educational attainment, economic ups and downs and a Just Transition to climate change. The LECP supports our aim is to ensure that climate-vulnerability is considered and addressed through these existing networks, programmes and organisations, constituting a comprehensive approach to vulnerability reduction. For the first time, the Cork City LECP integrates a strategic and policy-aligned climate objective. This underpins Cork City Council and its partners' approach to vulnerable groups and mobilises the resources of the organisation to address this important area of need in all its service areas.

Continued →

Cork City Council has a well-established and multi-sector approach to addressing vulnerability of different kinds across the city and a deep understanding of where the most vulnerable are located at both community and household levels. Our area-based capacity, whether in our housing operations, socio-economic supports, community-based social services, has the capacity to target support to the level of the individual, as needed. There is a long-established programme of services, for example, to the most disadvantaged neighbourhoods in the city – Revitalising Areas through Planning Investment and Development ([RAPID](#)) - using an inter-disciplinary approach to address safety, protect and enhance the environment, promote good physical and mental health, support education, training and employment, develop and support enterprise, support youth networks, and support Traveller-specific interventions, among others. Many of these actions can or do incorporate climate benefits including action on emissions and adaptation. A further example of integrated approaches to vulnerability reduction and climate action can be seen in the [Knocknaheeney Housing Regeneration Programme](#), which is replacing old and sub-standard social housing stock with 650 new units built to high-standards of insulation and energy efficiency, and with improved public realm, local services and green space.

Cork City Council is utilizing its participation in European level projects to enhance capacity for public engagement and co-creation. It is implementing a Net Zero Cities pilot project, [Build Capa-Cities](#). This will build the capacity of Cork City Council staff to accelerate progress across several key sectors to climate-neutrality. The project supports the development of a Local Authority focused micro-credentialled training course on behavioral science and how this can be embedded in the way local authority staff work. This will mainstreamed into real world climate-relevant actions and workplans, such as for modal shift. Cork City Council is also a key strategic partner to [University College Cork's](#) participation in [the UNIC European University Project](#). The partnership is supporting development of innovative methods of engagement such as Living Labs. Cork City Council's participation in the EU funded [REACHOUT](#) programme has enabled the development of a [climate vulnerability tool](#) that provides an easy-to-use interface to visualise zones of relative vulnerability relative to mapped risks. The tool utilises the most recent census data (2022) and risk maps, complementing bio-physical impact assessments to help understand the relative sensitivity of any location to a given hazard, and enables users to anticipate where to target mitigation measures and responses.

Continued →

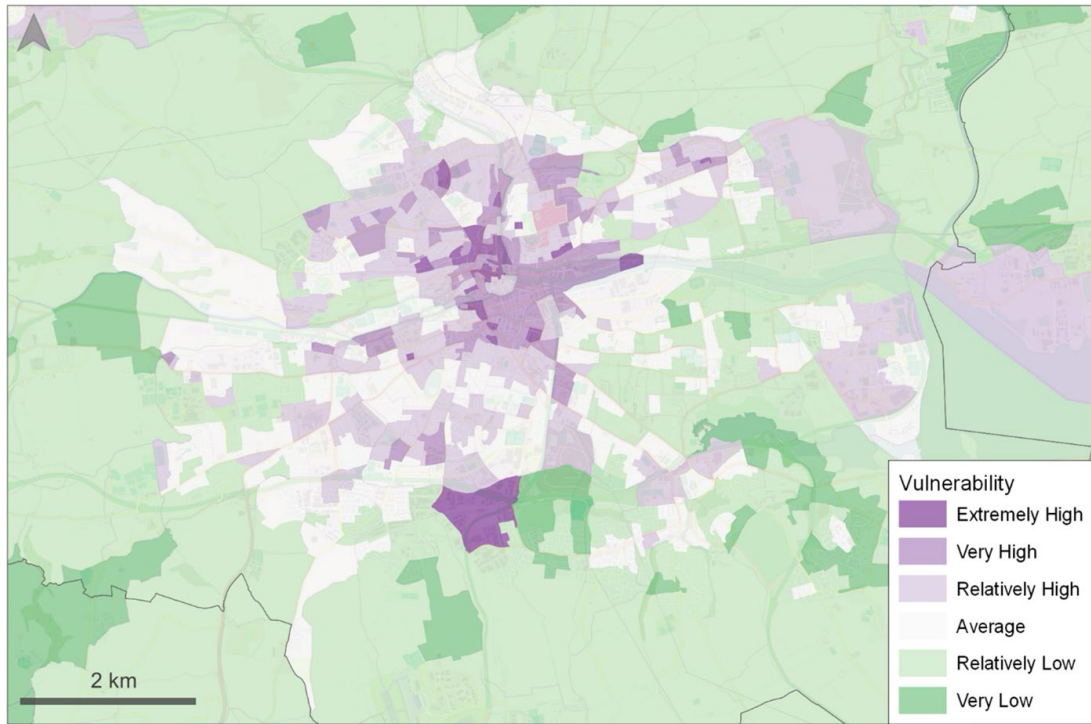


Figure 33: UCC REACHOUT Climate Vulnerability Index

Outlook and next steps

Plans for next CCC and CCC Action Plan iteration (C & C Checklist 24)

Commitments Document

- Update, expand and renew stakeholder commitments to the CCC with each successive iteration

Action Plan

- Clear strategies, emissions reduction impact and costs for policy measures that we currently see need for, but have not been able to specify due to lack of data or appropriate methodology.
- Methodology for robust measurement of city level emissions and assessment of the mitigation impact of policy measures through modelling.
- Updated BEI and household survey.
- Specification of emissions by scope .
- Align BEI methodology with prevailing national model and data sources.
- Inclusion of Port of Cork shipping traffic in the BEI.
- Integration of a vulnerability lens in future risk assessments.
- Updated impact pathways.
- Refine Actions with co-created implementation details, specifically leadership, timeline, milestones, prioritisation and risk level as bankable projects. Including those delivered through public-private partnerships.
- Clear strategy for the treatment of residual emissions.
- Operational description of the appropriate forms of novel citizen engagement for Cork City as part of the Public Platform's role as an action generating vehicle.
- Establishment of a climate action dashboard for monitoring performance and providing information to the public.

- Develop additional investable opportunities to extend access to high quality green spaces, promote and implement nature based solutions to the city's development challenges, and to reduce emissions from waste through the strengthening of a more circular economy.
- Undertake an organisation wide functional review to assess organisational capacity against that needed to deliver an accelerated transition to net zero.
- Initiate dialogue and policy development for the increase of in-boundary carbon sequestration in the city hinterland.
- Introduce Green Budgeting to the Cork City Council.
- Execute the phased approach for the development of future iterations of the CCC, with explicit inclusion of co-creation, and the establishment of a review and learning mechanism to apply Kolb's Cycle of Reflective Learning.

Investment Plan

- Review and update Investment Plan Risk Framework, design methods for upgrading
- Ascertain costs and emissions impact of decarbonising all publicly owned buildings in the city beyond those owned by the City Council, which are already included in the IP.
- Incorporate potential costs and emissions impact of district heating in Cork City following further feasibility assessment in the IP.
- Undertake progressively more detailed assessment of the climate action contribution of the operating budget through alignment with the EU Taxonomy Criteria.
- Create capacity to develop a comprehensive or detailed understanding of the sources of private funding and financing for climate positive projects in the City, or to monitor private investments over time.
- Develop capacity to reliably quantify co-benefit impacts in health and related sectors in monetary terms.
- Develop detailed cost and impact estimates for transport demand management measures and the renewable transport fuels obligation scheme to integrate in the IP.
- Design and introduce capacity to collate and analyse private sector investment in climate goals in the city and identify sources and mobilisation routes to private finance for climate projects in addition to the capital hub.

Annexes

[Cork City Climate Action Plan](#)

[Climate Action Plan Baseline Emissions Inventory](#)

[Climate Action Plan Climate Change Risk Assessment](#)

[Climate Action Plan Residential Survey](#)

[Climate Action Plan Climate Conversations](#)

[Climate Action Plan Young Social Innovators Climate Workshop](#)

[Climate Action Plan Chief Executives Report](#)

[Climate Action Plan Evidence and Engagement Summary Report](#)

[Climate Action Plan Baseline Emissions Survey Methodology](#)



Comhairle Cathrach Chorcaí
Cork City Council

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Executive Summary

Under Ireland's Climate Action and Low Carbon Development Act, each local authority has been mandated to develop Climate Action Plans addressing both mitigation and adaptation measures.

Local Authority Climate Action Plans are expected to further enhance local authorities' ability to lead, engage, coordinate, and become agents of change in response to the ongoing climate change crisis. To inform those efforts, this report describes the modelling and spatial mapping of Cork City's baseline GHG emissions for the base year of 2018. It provides

a summary of emissions modelled across the six sectors. These include households; road transport; commercial services & industry; public services; agriculture, land use, land use change, forestry & fishing; and waste handling & treatment. The following table and sections summarise the key findings from this report.

Sector	CO ₂ -eq in 2018 (ktonne)
Household	332
Road Transport	290
Commercial Services & Industry	216
Public Services	65
Agriculture, Land Use & Fishing	62
Waste Handling & Treatment	22
Total	987



Background



1.1

Policy Context

Under Ireland's Climate Action and Low Carbon Development (Amendment) Act 2021 (hereafter referred to as the 2021 Climate Action Act) each local authority has been mandated to develop Climate Action Plans addressing both mitigation and adaptation measures [1].

Plans are expected to further enhance local authorities' ability to lead, engage, coordinate, and become agents of change in response to the ongoing climate change crisis. They also represent a new opportunity to embed climate mitigation and adaptation in local authority urban planning [2].

To date, local authorities have made considerable progress in accounting for their internal carbon footprint; in energy efficiency improvements in public buildings; and

in developing climate adaptation plans. However, local authorities have made limited progress in climate mitigation beyond their internal carbon footprint.

The new statutory requirement in the 2021 Climate Action Act to provide baseline emissions inventory for the entire administrative area is a significant expansion on the previous role. It requires a detailed understanding of the sources of greenhouse gases in all sectors.



1.2

Objectives of this report

The primary objective of this research was to model and spatially map Cork City's baseline GHG emissions for the base year of 2018. A 'Tier 3 Bottom-up Spatiality-led' approach was applied as set out in the Guidelines for Local Authority Climate Action Plans, Technical Annex C - Climate Mitigation Assessment: Baseline Emissions Inventory [3]. This involved:

- Gathering and processing relevant data on homes, vehicles, and businesses, etc. in each Small Area (SA) in Cork City

- Determining energy demand in each SA for the following sectors: household; commercial and industry; public services; and agriculture & fishing.

- Determining fuel shares in the following sectors: household; commercial and industry; public services; and agriculture, land use & fishing

- Gathering data on electricity and gas use for local authority buildings and public lighting.

- Mapping road transport emissions based on the National Transport Authority Eneval model.

- Proportioning non-energy emissions in agriculture, land use, land use change and fishing emissions based on agricultural areas.

- Computing and mapping the GHG emissions in each small area for the following sectors: household; transport; commercial services & industry; public services; agriculture, land use & fishing; and waste handling and treatment.

- Extracting energy and emissions modelled for the Decarbonisation Zone (DZ) and mapping these..

1.3

Study area

The study domain included the Cork City Council administrative area. This included the expanded Cork City boundary (this expansion occurred in 2019).

1.3.1 Cork City

The expanded Cork City has an area of 187 km² and had a population of approximately 210,000 in the year 2018. Within the new Cork City boundary, there are 856 Small Areas (SAs). SAs are regions which generally contain between 80 and 120 dwellings and are used for the compilation of

Census statistics [4]. With the expansion of the boundary, some SAs fell both within and outside of Cork City. Therefore, it was decided to omit areas where less than 10% of their total area was within the boundary. This removed 13 SAs to give a revised total of 843 SAs.

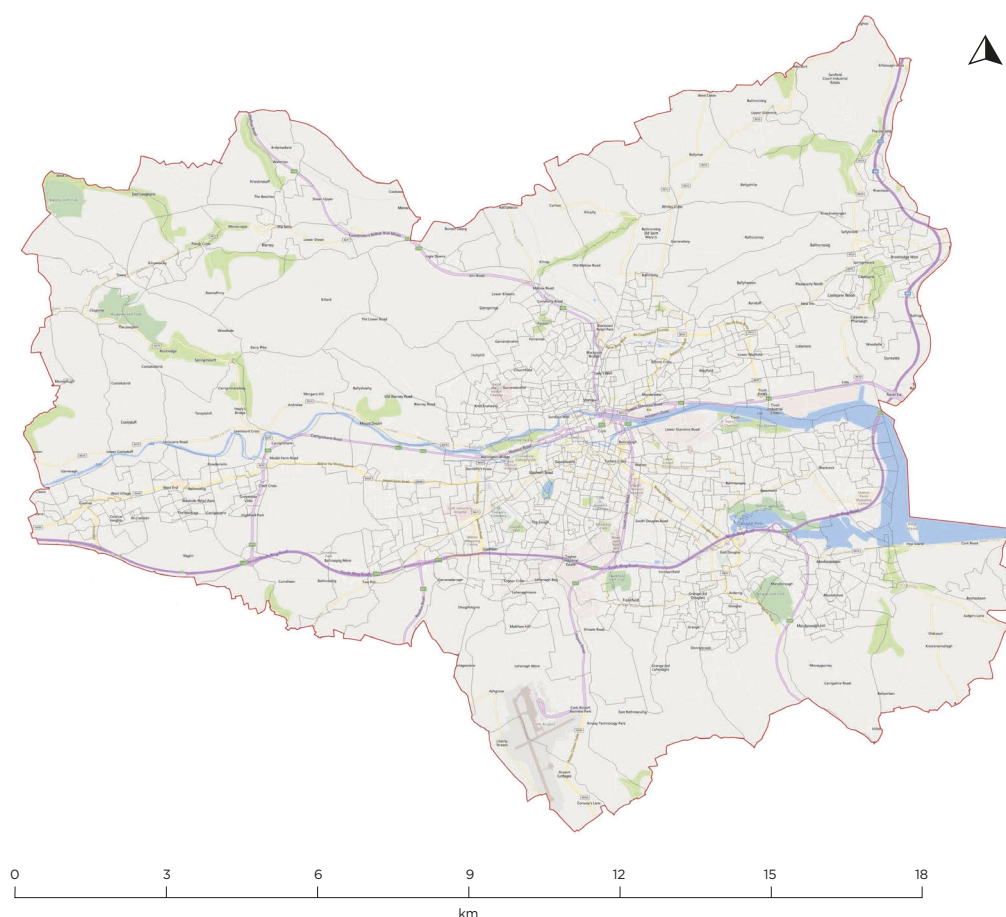


Figure 1. The Cork City Council administrative area with 843 Small Areas shown within its boundary.

1.3.2 Decarbonisation Zone

An area within Cork City, which comprises 52 SAs, was identified as Cork City's Decarbonisation Zone (DZ). The DZ covers a land area of 5km² (approximately 3% of Cork City's total area) and had a population of 13,927 (~11%). It is primarily a residential area with plenty of apartment developments surrounding University College Cork and

Munster Technology University. It also includes Cork City's two large hospitals, namely the Bon Secours Hospital and Cork University Hospital (CUH). Industrial activity within this area is concentrated in the Cork Business and Technology Park on Model Farm Road.

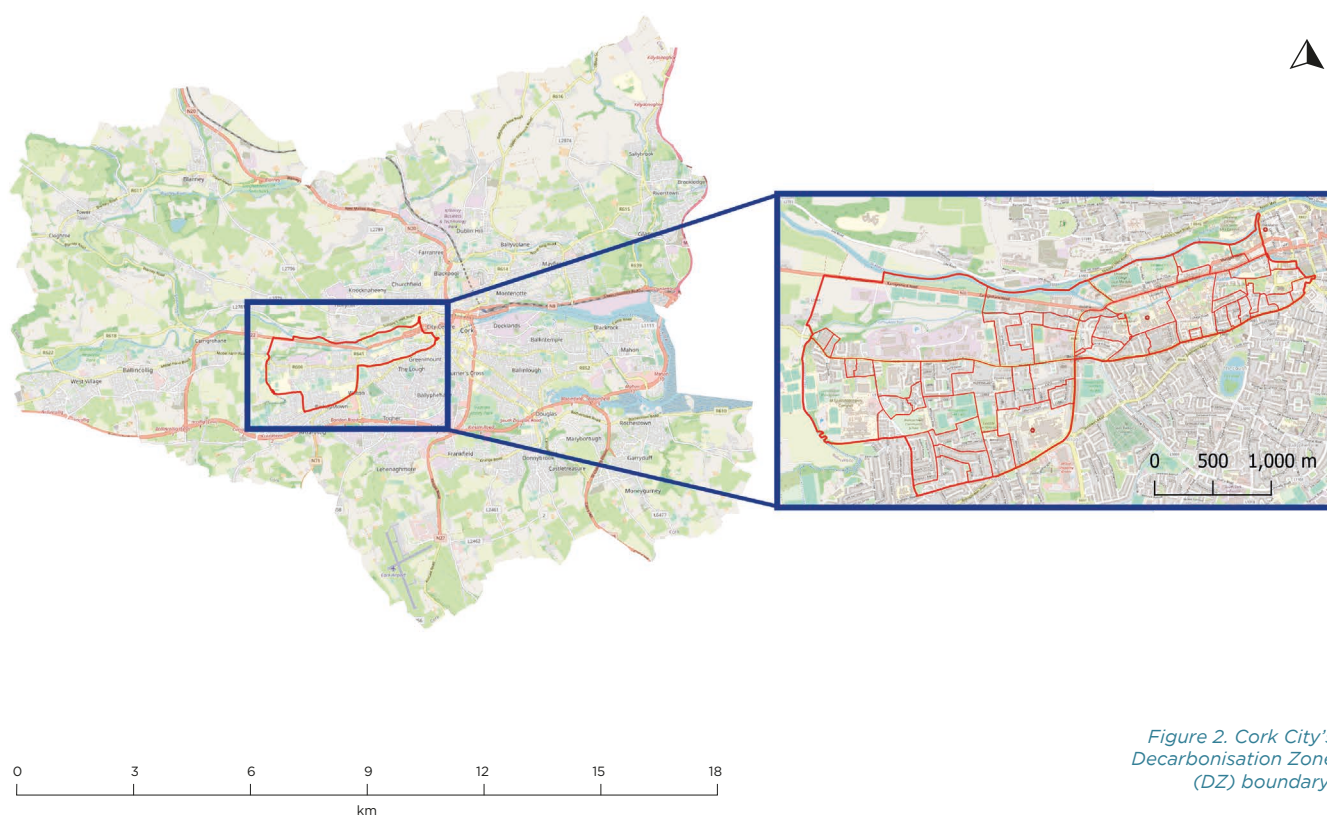


Figure 2. Cork City's Decarbonisation Zone (DZ) boundary.

Analyses & Results by Sector

The approach to spatial mapping of energy and emissions was primarily based on Codema's guidelines [5]. The sectors identified generally followed the categories in EPA's national reporting [6].

One key difference is the attribution of electricity emissions to the source of demand rather than the power plant. In the national inventory, electricity emissions are within 'energy industries', but here they are attributed to the point of

demand (electric appliances or lighting). This classification is more useful for identifying mitigation measures such as those within the Local Authority Climate Action Plan.

Sector	Description
Household	Emissions from both direct fuel burning for space and water heating or cooking as well as those associated with electricity demand
Road Transport	Road transport emissions within Cork City's boundary based on the National Transport Authority Eneval model
Commercial Services & Industry	Emissions from heating and electricity demand in commercial buildings (e.g. shops, offices, hotels, bars) and industry or manufacturing
Public Services	Emissions from Local Authority owned buildings and street lighting along with other public buildings such as hospitals and schools
Agriculture, Land Use & Fishing	Emissions from livestock, land use, land use change, forestry and machinery
Waste Handling & Treatment	Emissions from waste and the treatment of wastewater

BER Entries

With this new dataset (N = 40,121), the BER entries for Cork City were analysed. The entries were separated into sub-categories by BER (A to G) and household type (Table 3).

The BER database also included information about each entry's area for the floor, doors, walls and windows. Each

dwelling type group's average m² values for all ratings were computed. This was used to account for the size differences between the various types of dwellings, i.e., so that relative energy consumption and emissions were considered instead of only the emissions from larger homes.

Dwelling Type	A	B	C	D	E	F	G	Total	Actual Cork City
All households	3%	16%	39%	21%	11%	5%	6%	40,121	78,856
Detached	6%	19%	41%	19%	8%	3%	4%	5,780	11,360
Semi-detached	3%	11%	43%	22%	11%	5%	5%	16,346	32,127
Mid-terrace	2%	15%	36%	21%	13%	6%	7%	10,467	20,572
Apartment	1%	28%	30%	20%	10%	4%	8%	7,528	14,796

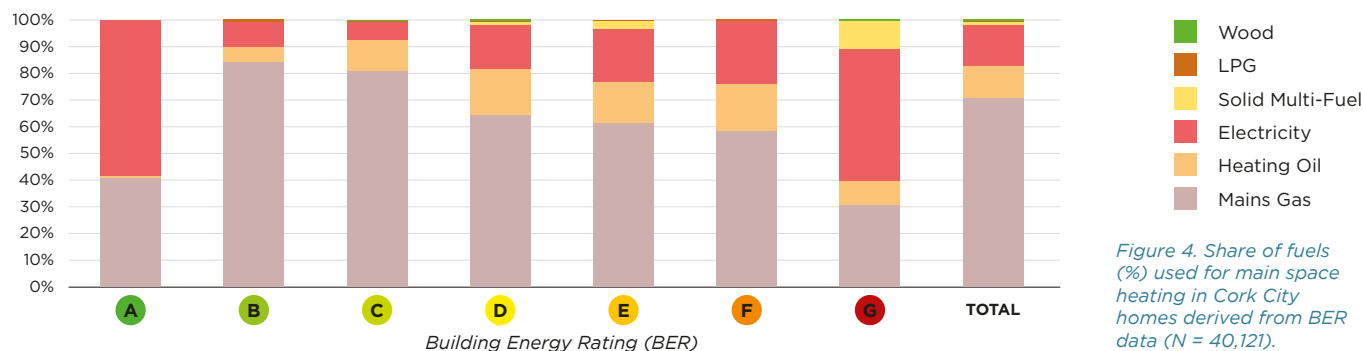
Table 3. All BER household entries categorized by dwelling type and BER rating.

The values for delivered energy of lights, pumps, fans, space heating, water heating etc. were averaged. The average total delivered energy for each BER sub-category was then calculated.

This was then multiplied by the corresponding number of entries in each sub-category to calculate the total energy consumption for the housing type group. The

average annual energy demand for each home was then determined. The same methodology was applied to all housing types, resulting in a total annual energy demand (expressed in GWh) for the household sector of Cork City in 2018, including a breakdown by fuel which could be used to determine emissions based on conversion factors from SEAI's Energy in Ireland Report 2019 [9].

Heating System Types



Using BER data, a model was created in Python (version 3.8.16) to determine the profile of housing types for each SA. These profiles were applied to the housing stock to determine the percentage of each housing type in each local area. For Small Areas with no BER data, the overall profile of housing types for Cork City (Figure 4) was employed. The average annual energy demand and emissions computed previously for each housing type was then applied to the number of homes of each housing type in every SA. Using QGIS (version 3.28.1), energy and emissions were then

spatially mapped for Cork City. As the square area of SAs varied widely across the city, expected spatial patterns became skewed when absolute energy or emissions for each SA code were applied to its geographical area. To standardise emissions across SAs, emissions densities in CO₂ per km² were computed and mapped as well as CO₂ per home and per capita. For the purpose of decarbonising the household sector, heat energy density was also mapped to aid in identifying SAs eligible for district heating. Please see accompanying documentation for all mapped results.

Key findings

- Total CO₂ emissions from the household sector were 332 ktCO₂ in 2018.
- Total energy demand from the household sector was 1174 GWh in 2018.
- The housing stock for Cork City in 2018 included 78,856 homes.
- Semi-detached homes made up the highest share (41%) of the housing stock. This was followed by terraced homes (26%), apartments (19%), and detached homes (14%).
- The average BER was a C1, with 58% of the housing stock having a BER of C3 or higher.
- The highest emitting housing type was detached, contributing 5 tCO₂ per home, while the lowest emitting housing type is apartment, contributing 3 tCO₂ per home
- Home heating demand accounted for 71.7% of energy and contributed 62.6% to total emissions.
- Electrical usage accounted for 29% of energy and contributed 38% to total emissions.
- The larger detached homes in exurban SAs outside the city exhibited the highest total energy and emissions estimates. However, when emissions per km² were examined, due to the higher density development in the city, the urban SAs exhibited the highest values.
- Higher emissions from larger sub-urban homes and lower emissions from smaller apartments and terraced homes in the city centre was also observed in the maps generated.
- No clear spatial pattern was determined when CO₂ emissions per person (capita) was mapped.

Tonnes of CO₂ Emissions per km of road

Utilising the NTA's Eneval emissions model, the road links within Cork City were extracted and the associated GHG emissions along these road segments were determined. The total GHG emissions were subsequently computed at

the SA level. In cases where road links were located across two or more SAs, a percentage of the total GHG emissions was attributed to each SA based on the percentage of road which fell within each SA.



Figure 6. The National Transport Authority South-West Eneval Model extracted for the Cork City boundary. The colour gradient from blue to red shows CO₂ emissions per km of road length

Weekday traffic

Additionally, the modal split along the modelled road links in Cork City was determined for the annual average weekday traffic (See Figure 7).

87% of total journeys were made by car while less than 1% were made by bus. The breakdown does not include zero-carbon commuting modes (walking or cycling).

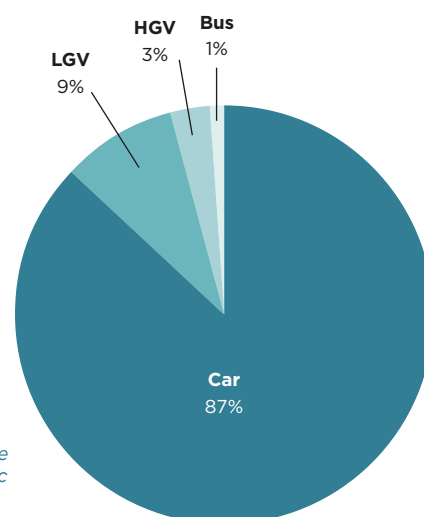


Figure 7. Annual average weekday traffic modal split in Cork City.

Car ownership

While the Eneval model estimates emissions along the city's road network, it is also important to look at car ownership in Cork City. In Figure 8, the number of cars per person in each SA are mapped. The city centre had very low ownership

of 0.03 – 0.25 cars per person while areas surrounding the city had a much higher car ownership of 0.60 – 0.79 cars per person. Please see accompanying documentation for all mapped results.

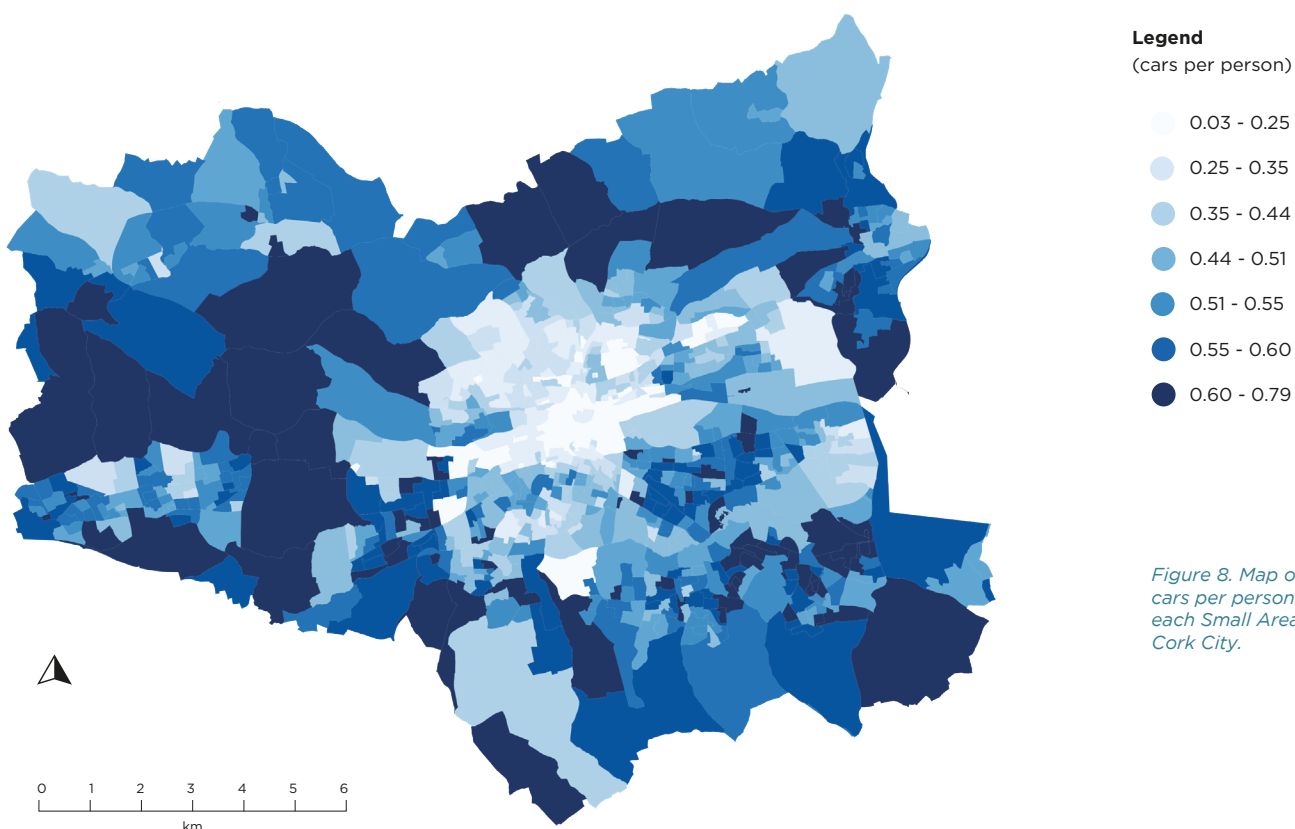


Figure 8. Map of cars per person in each Small Area in Cork City.

Key findings

- Total emissions from road transport were 290 ktCO₂-eq.
- Cork City's modal split was as follows: cars (87%); LGVs (9%); HGVs (4%), and busses (1%).
- Cork City residents owned around 90,000 cars in 2018.
- The major road links (Lower Glanmire Road, N8 and South Ring Road, N40) are clearly visible on Figure 1 and Maps 3.1, 3.2, 3.3 and 3.4.
- Car ownership is significantly higher in the exurban SAs, with some having as high as 800 cars/1,000 people. This compared to a city-wide average of 410 cars/1,000 people and a national average of 450 cars/1,000 people

Non-domestic main heating

Despite the gas network in Cork City, according to the non domestic BER database, electricity is the largest source of space heating in non-domestic buildings. This reflects the national average and may in part be explained by the

type of business activity in the city. Nationally, electricity is the dominated source of space heating in retail and office buildings (Table 5). Please see accompanying documentation for all mapped results.

	Mains Gas	Heating Oil	Electricity	LPG	Other
Retail	17%	4%	78%	1%	1%
Office	31%	7%	60%	1%	1%
Restaurant/public house	28%	24%	41%	4%	2%
Hotel	46%	30%	12%	12%	1%
Warehouses	32%	11%	55%	2%	0%
Workshops/maintenance depot	27%	14%	55%	3%	1%
Industrial process building	30%	27%	36%	3%	3%
Hospitals and primary health care	31%	12%	55%	2%	1%
Community/day centre	37%	26%	31%	4%	2%
Nursing residential homes and hostels	40%	30%	15%	12%	3%
Schools and colleges	42%	26%	23%	6%	3%
Sports facilities	41%	10%	43%	5%	1%
Other	31%	11%	52%	4%	2%
Average	26%	10%	61%	2%	1%

Table 5. Main space heating system fuel in non-domestic buildings in Ireland [11]

Key findings

- Total emissions from the commercial services and industry sector were 216 ktCO₂.
- Total energy demand was 650 GWh. This included Heating (Gas 154 GWh, Oil 14 GWh and Electric 298 GWh) and Electricity (184 GWh).
- There is very little industrial activity (only 2% of the sector total).
- Activity in this sector was mainly concentrated in the city centre where there was a lot of retail and hospitality businesses.
- The average BER for non-domestic buildings in Cork City was a D1 in 2018, which is the same as the national average [11].
- Two key issues in this sector are the lack of data on floor area by different building uses (m²), and reliance on UK energy benchmarks for performance (kWh/m²). Further reflections on this are outlined in Appendix B.

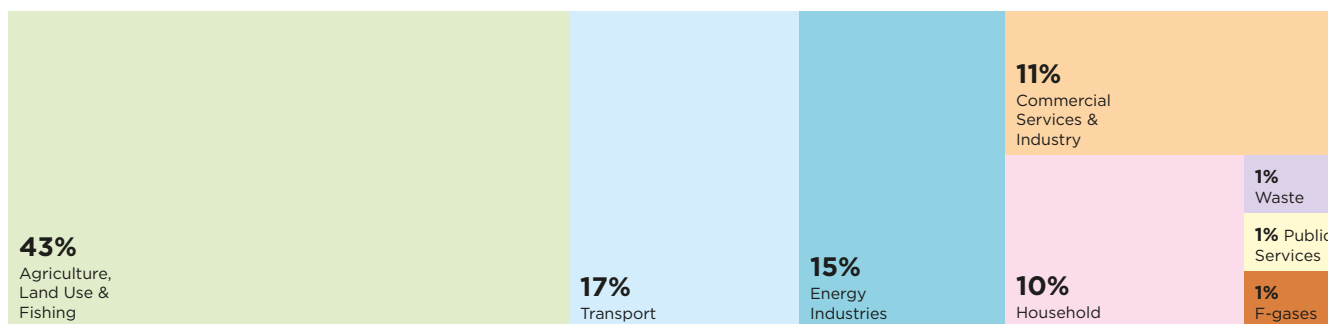
Key findings

- Total emissions from agriculture, LULUCF and fishing were 62 ktCO₂-eq.
- Energy-related emissions in agriculture and fishing are very little at 0.4 ktCO₂ and 0.2 ktCO₂ respectively.
- Cork City Council represents just 0.2% of Ireland's farmland.
- There were only five fishing boats registered to Cork City.

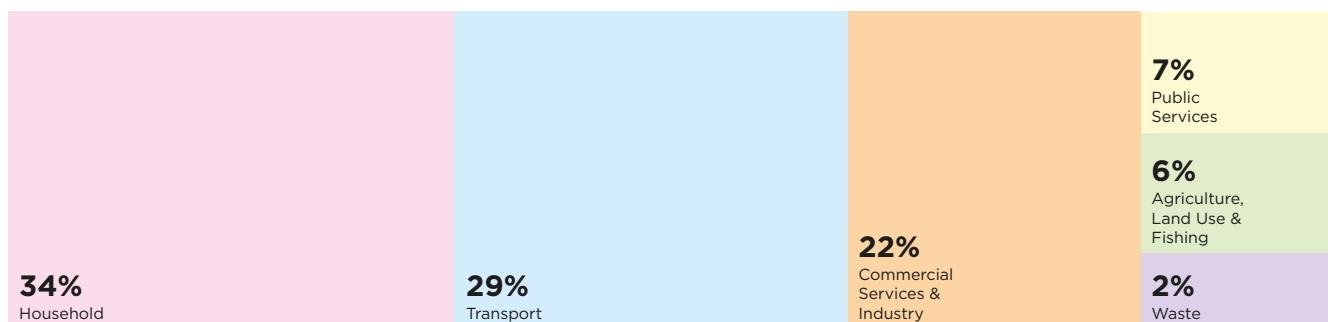
Cork City & Cork City's Decarbonisation Zone

The sectoral breakdown of emissions for Cork City and within the DZ are quite different, and these also differ to the national profile (Figure 12). Please see accompanying documentation for all mapped results.

Ireland



Cork City



Cork City Decarbonisation Zone

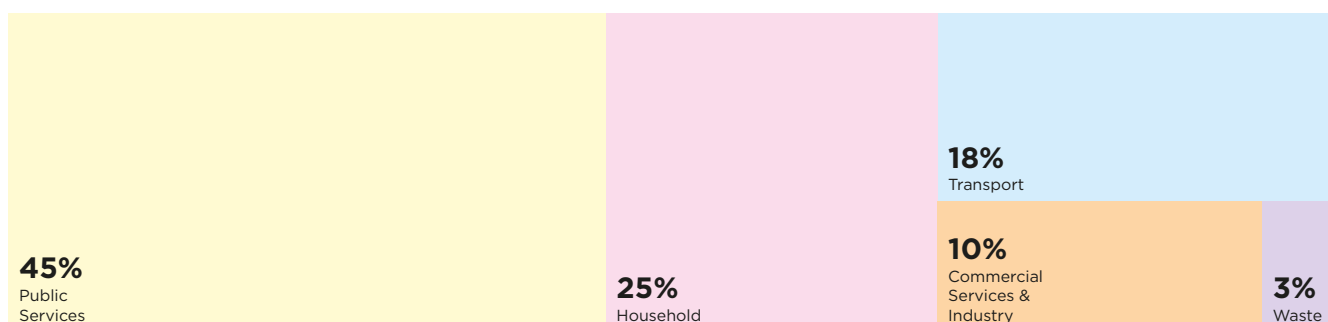


Figure 12. GHG emissions by sector in 2018 nationally [6], for Cork City and for Cork City's Decarbonisation Zone.

Appendices

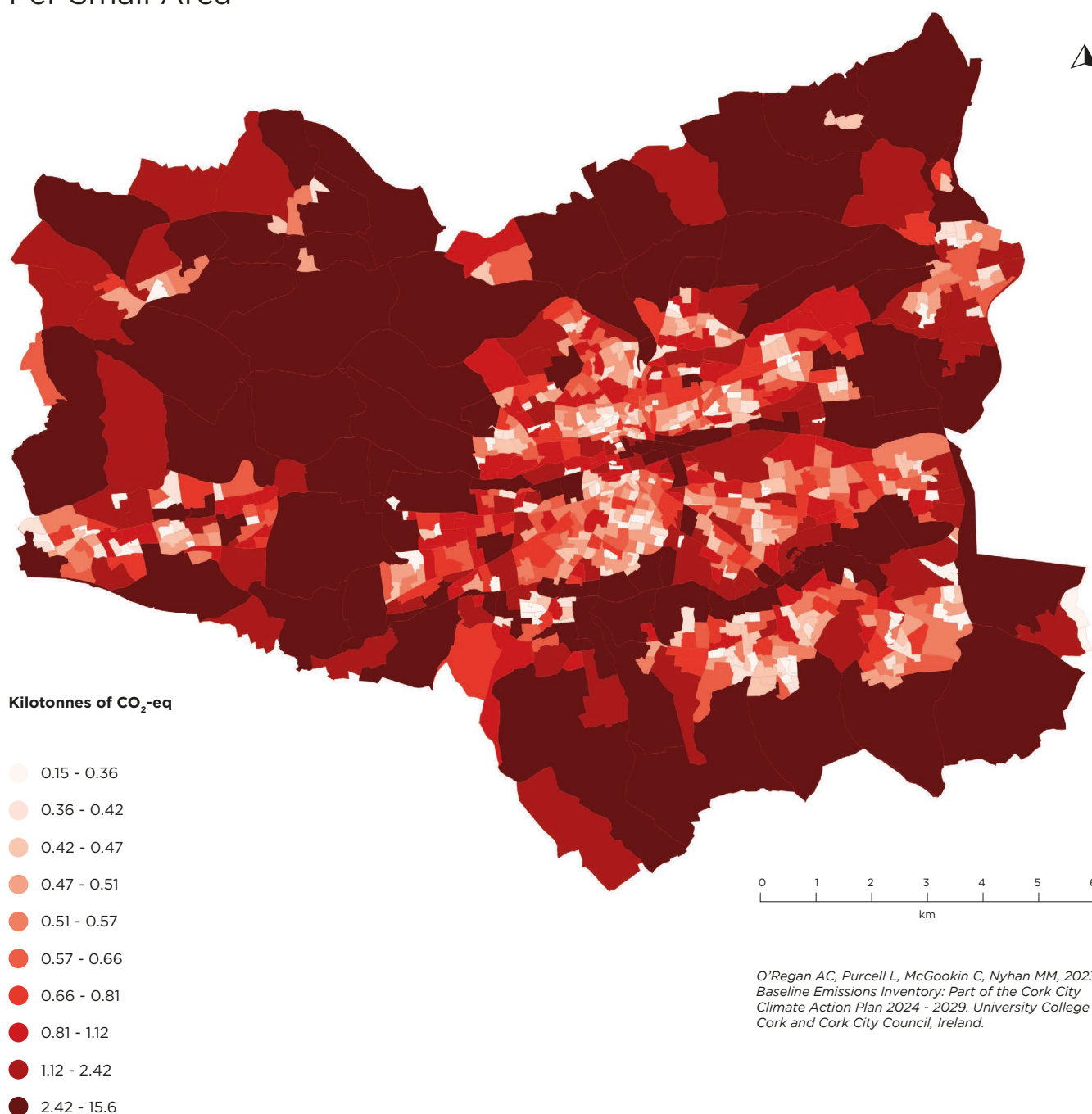
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Map 1.1

CO₂-eq Emissions from all Sectors in Cork City

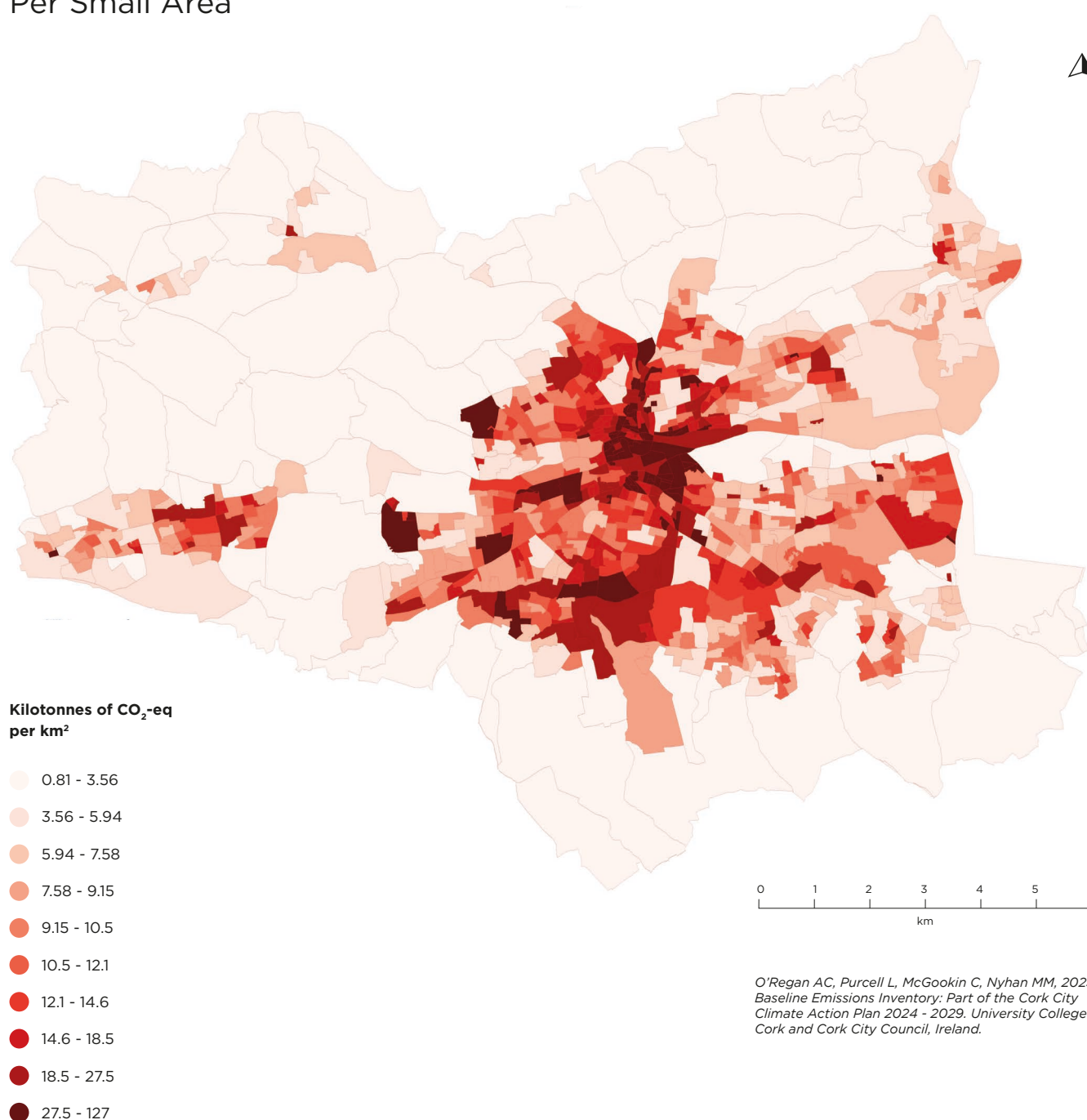
Per Small Area



Map 1.2

CO₂-eq Emissions per km² from all Sectors in Cork City

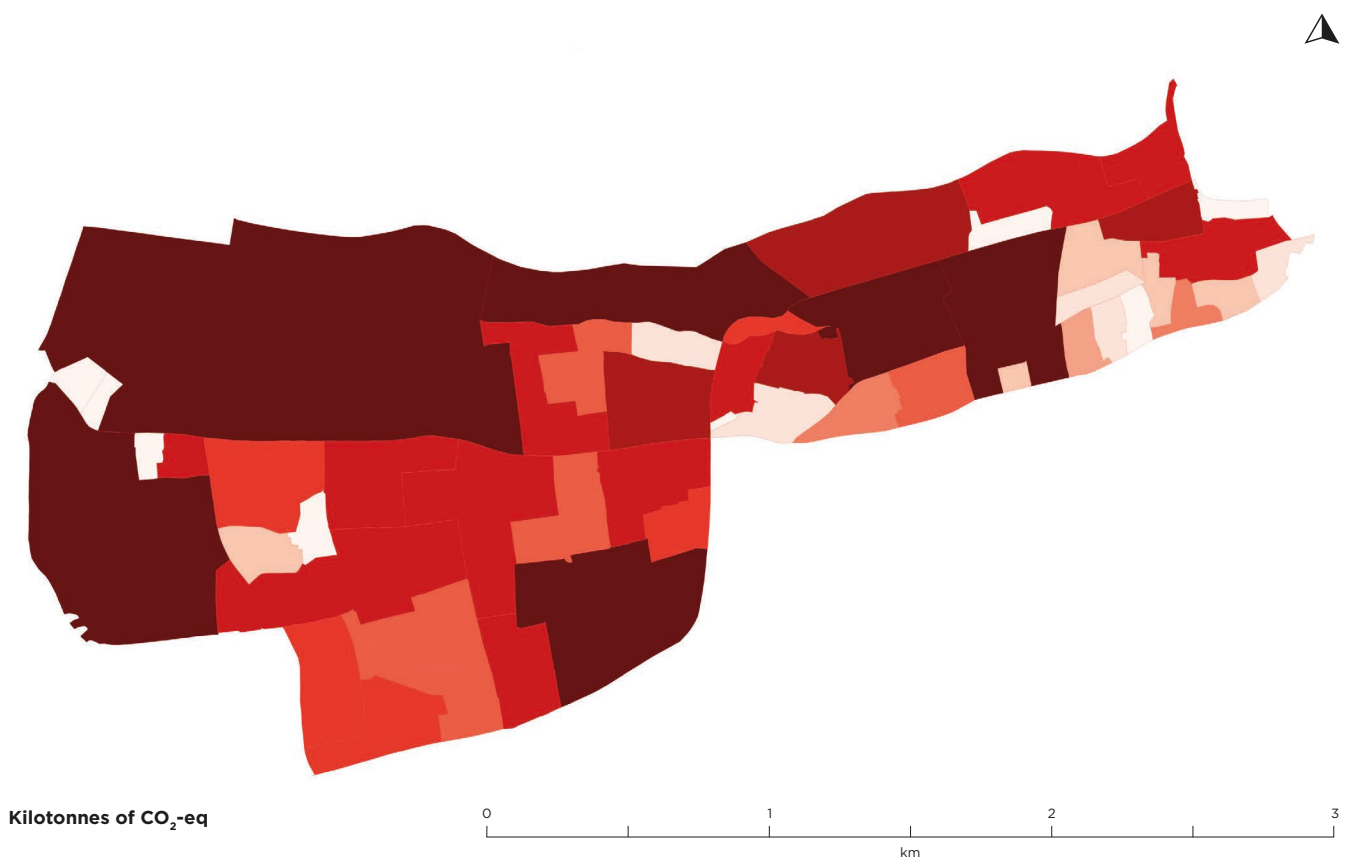
Per Small Area



Map 1.3

Total CO₂-eq Emissions from all Sectors in the Decarbonisation Zone

Per Small Area



Kilotonnes of CO₂-eq

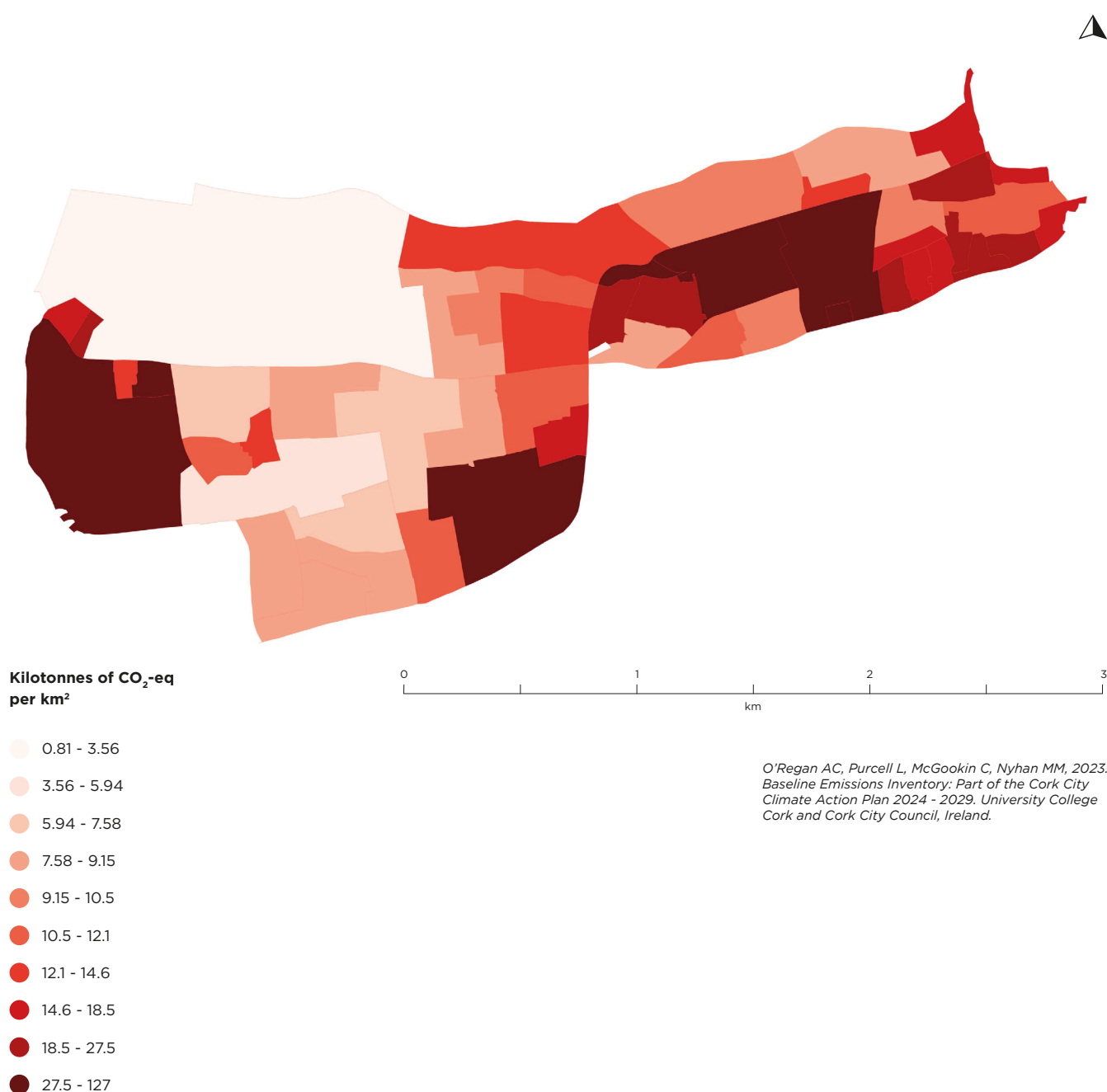
- 0.15 - 0.36
- 0.36 - 0.42
- 0.42 - 0.47
- 0.47 - 0.51
- 0.51 - 0.57
- 0.57 - 0.66
- 0.66 - 0.81
- 0.81 - 1.12
- 1.12 - 2.42
- 2.42 - 15.6

O'Regan AC, Purcell L, McGookin C, Nyhan MM, 2023.
Baseline Emissions Inventory: Part of the Cork City
Climate Action Plan 2024 - 2029. University College
Cork and Cork City Council, Ireland.

Map 1.4

CO₂-eq Emissions per km² from all Sectors in the Decarbonisation Zone

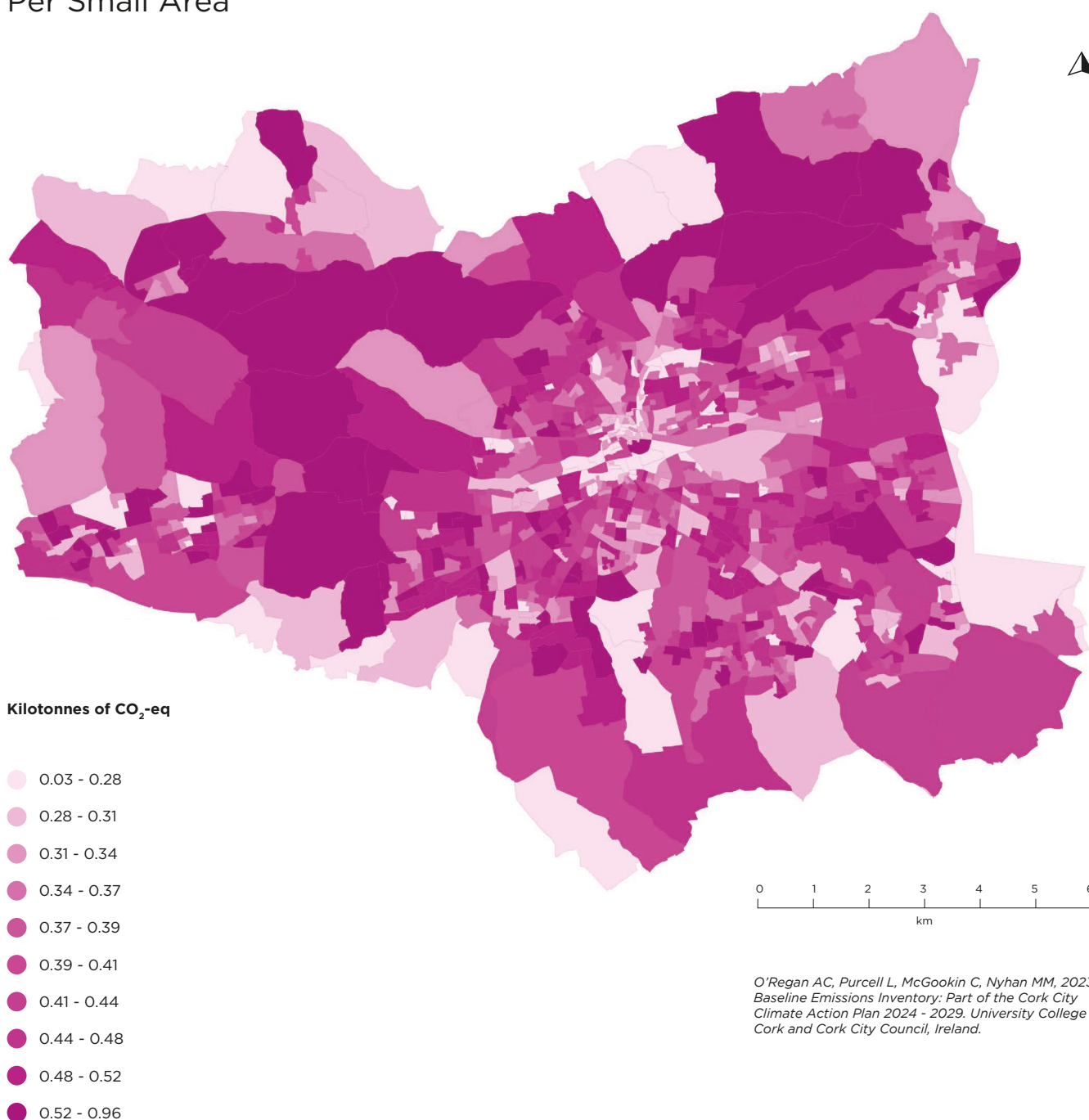
Per Small Area



Map 2.1

Total Household CO₂-eq Emissions

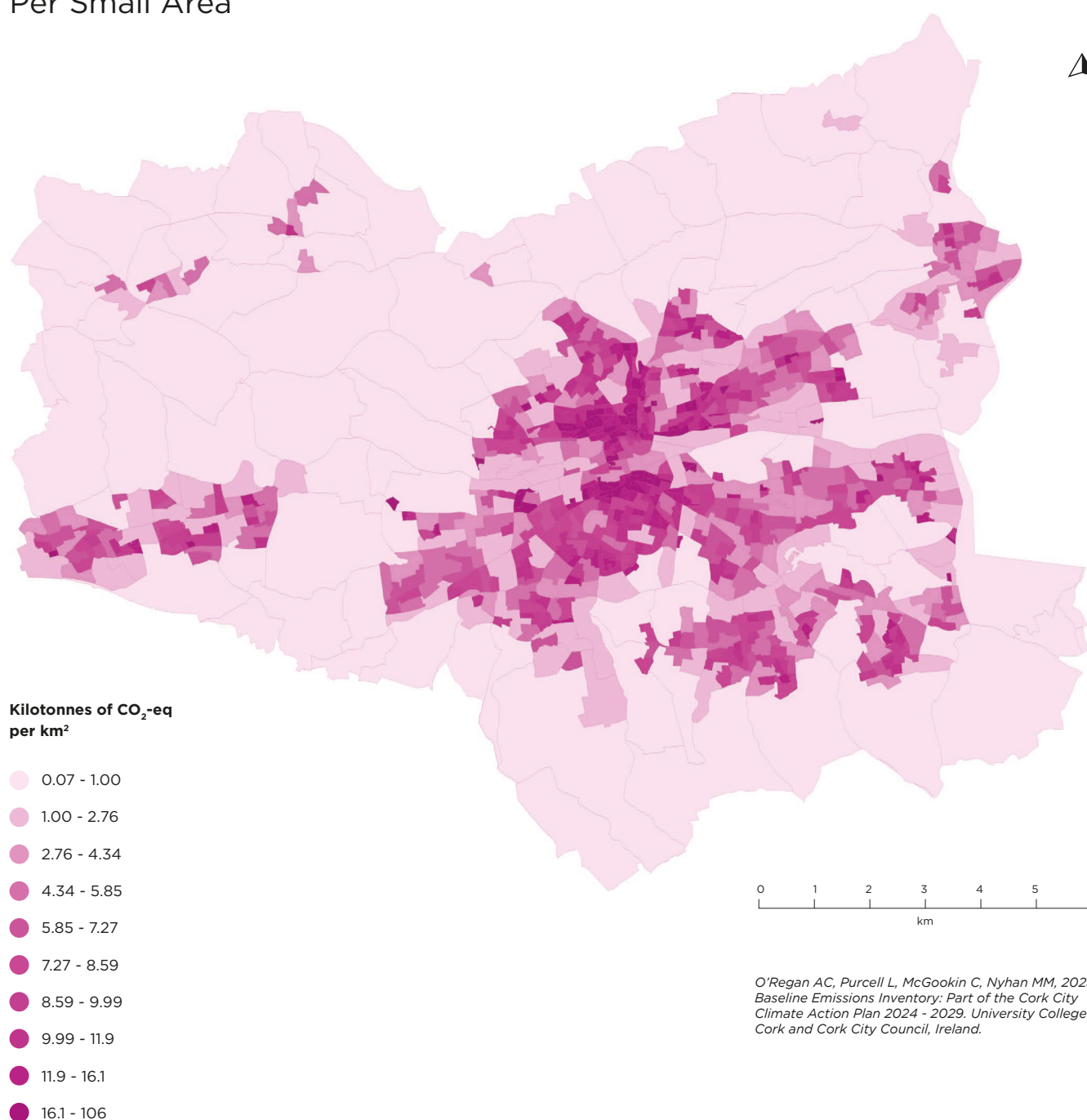
Per Small Area



Map 2.2

Household CO₂-eq Emissions per km²

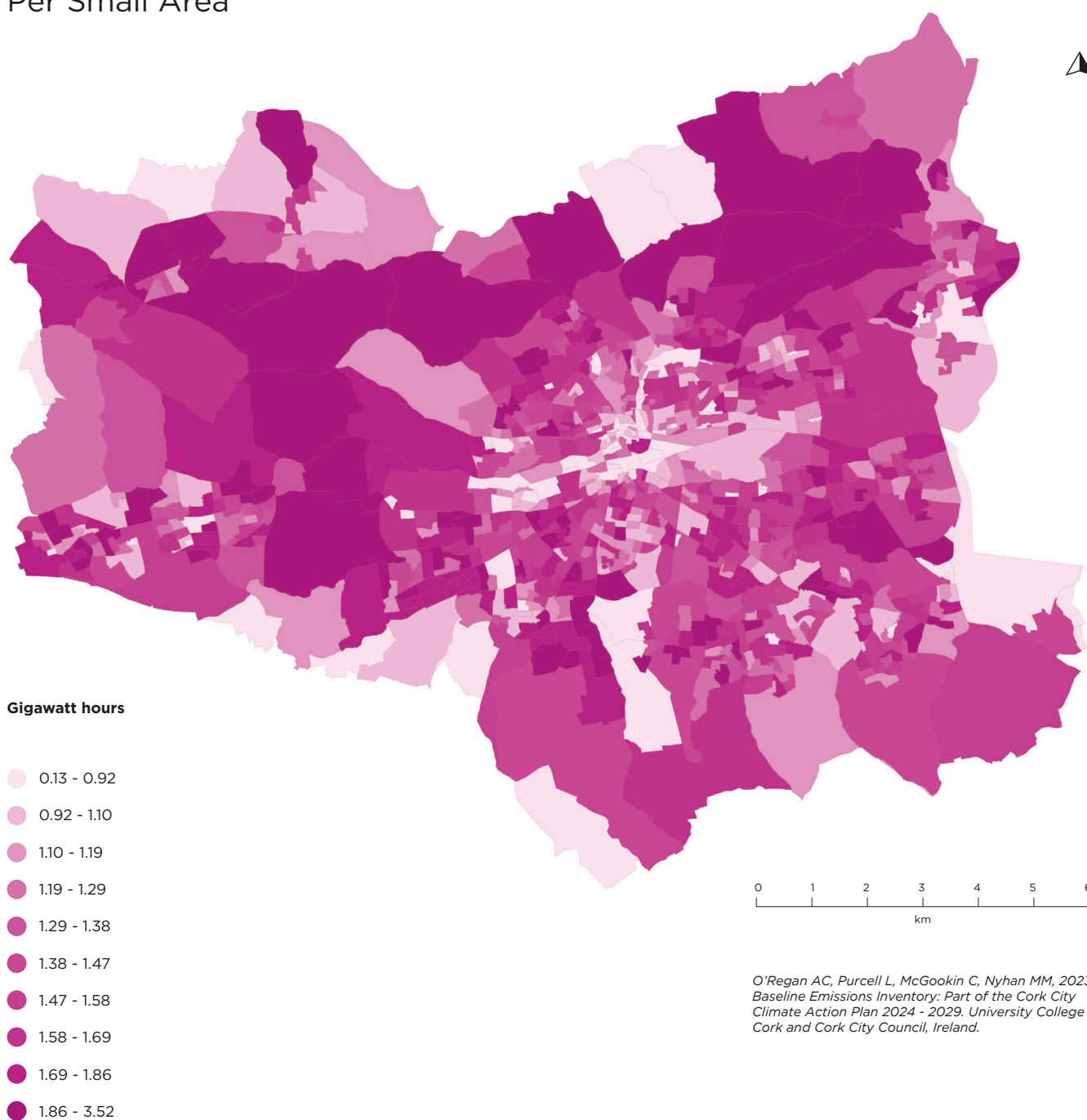
Per Small Area



Map 2.3

Total Household Energy Demand

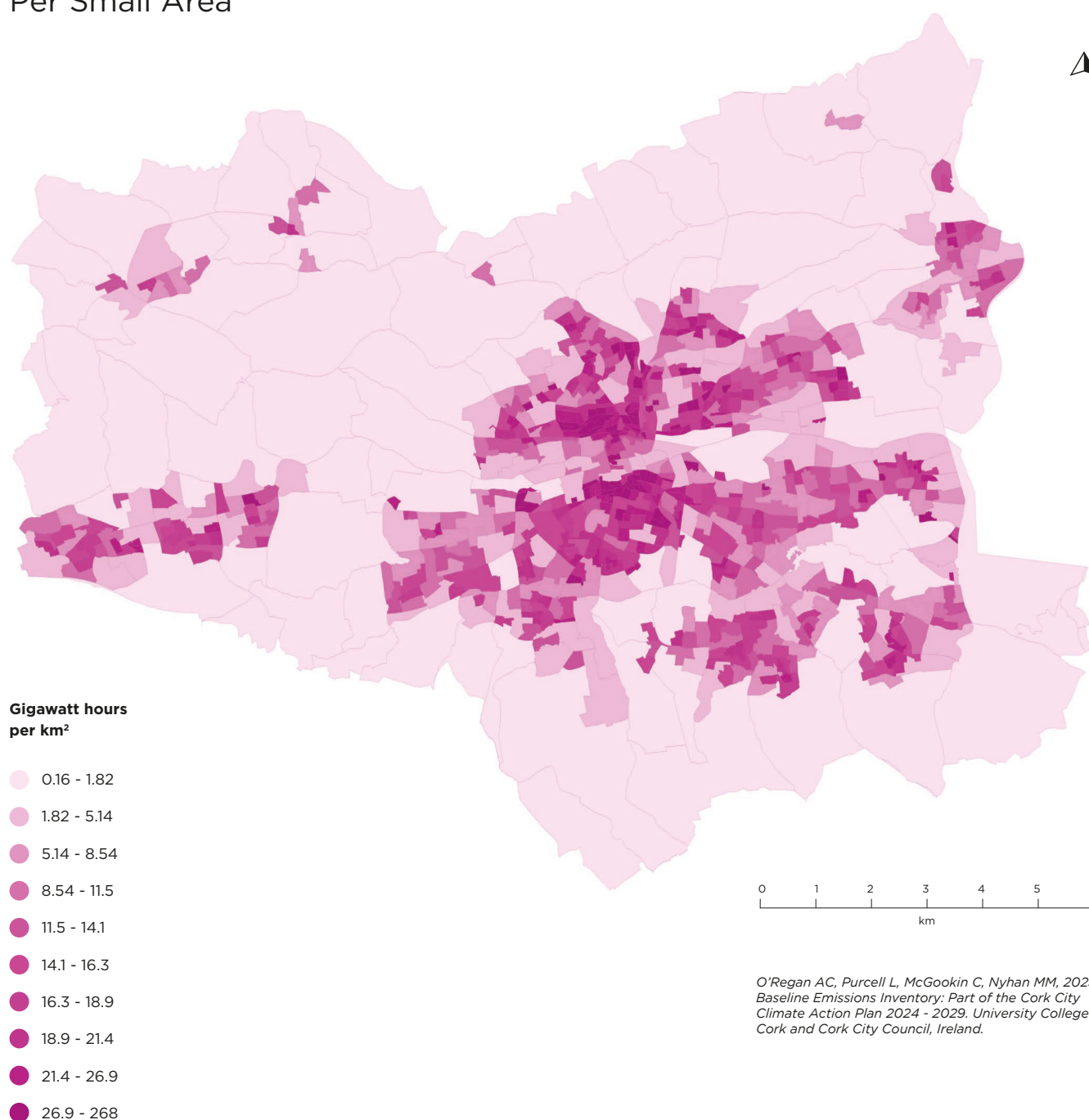
Per Small Area



Map 2.4

Household Energy Demand per km²

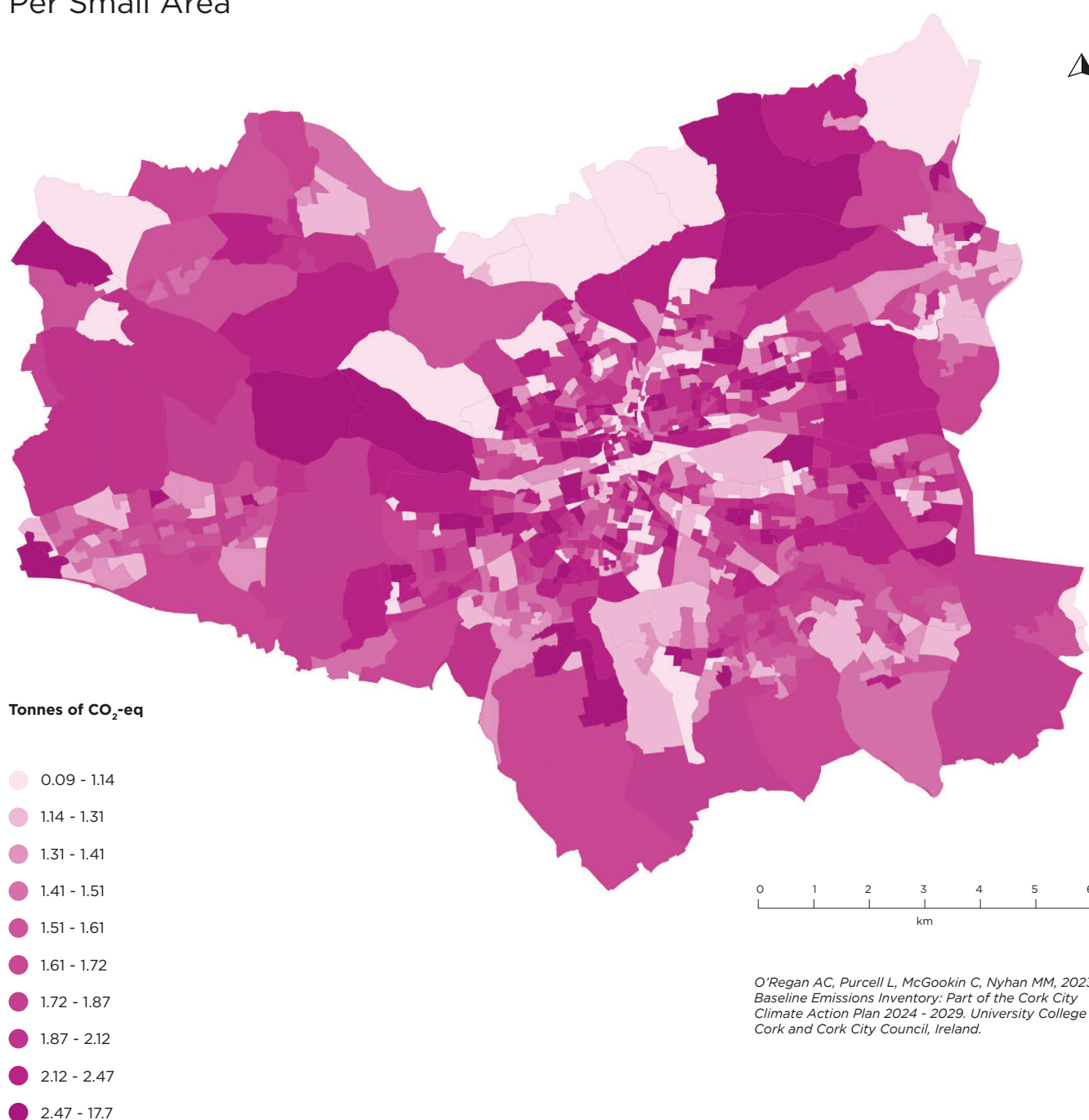
Per Small Area



Map 2.5

Household CO₂-eq Emissions per Capita

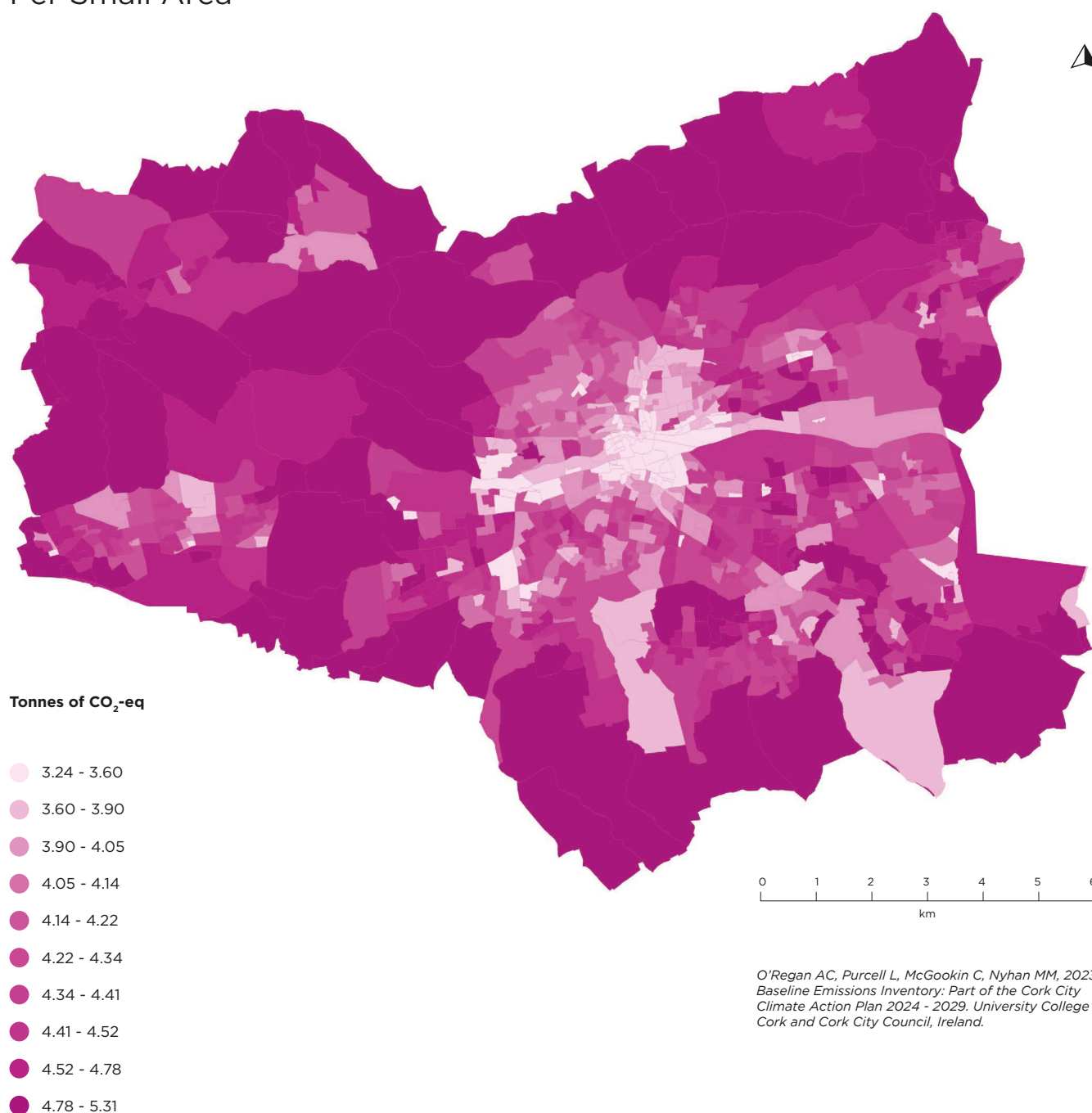
Per Small Area



Map 2.6

Household CO₂-eq Emissions per Home

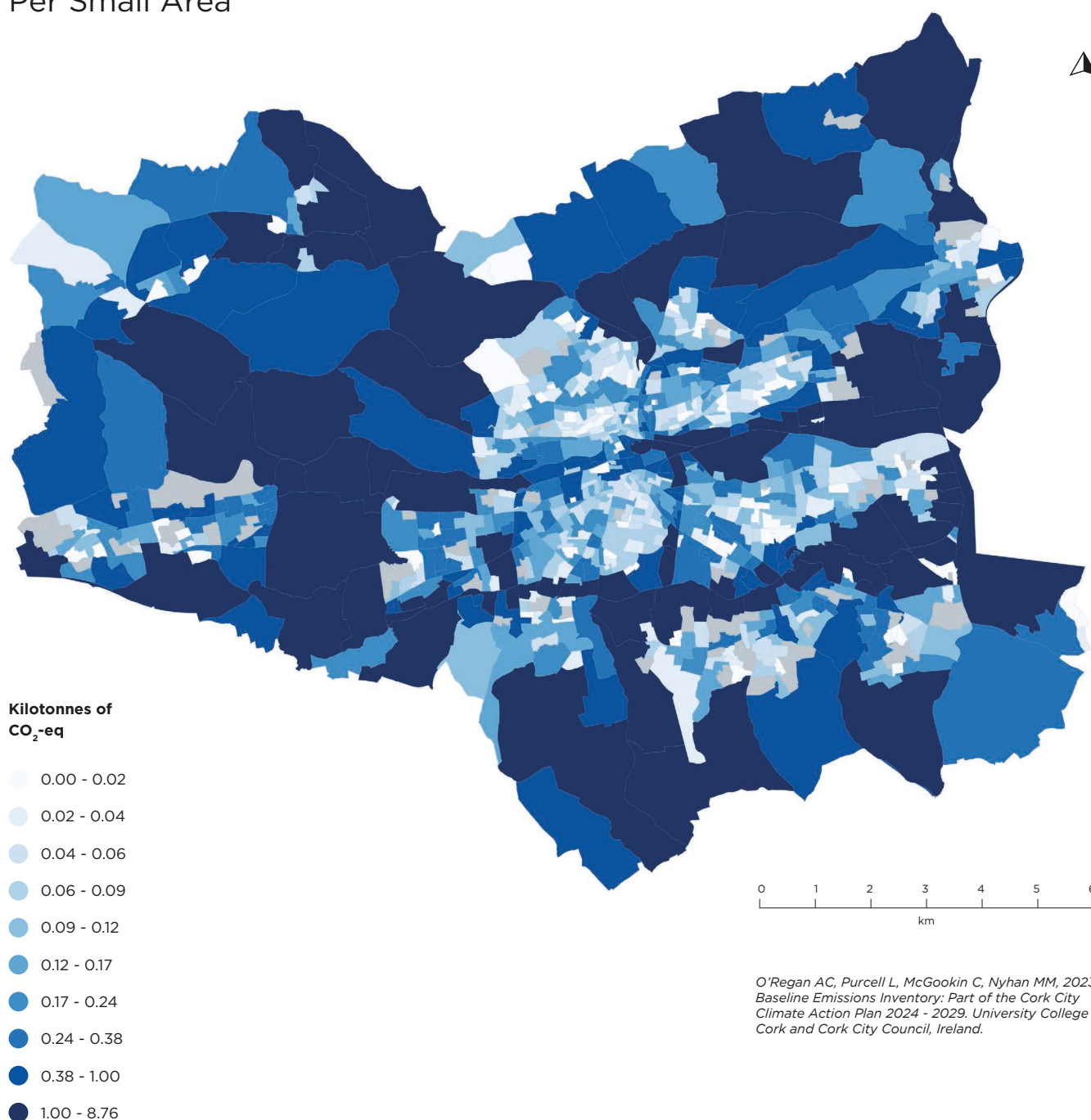
Per Small Area



Map 3.1

Total Road Transport CO₂-eq Emissions

Per Small Area



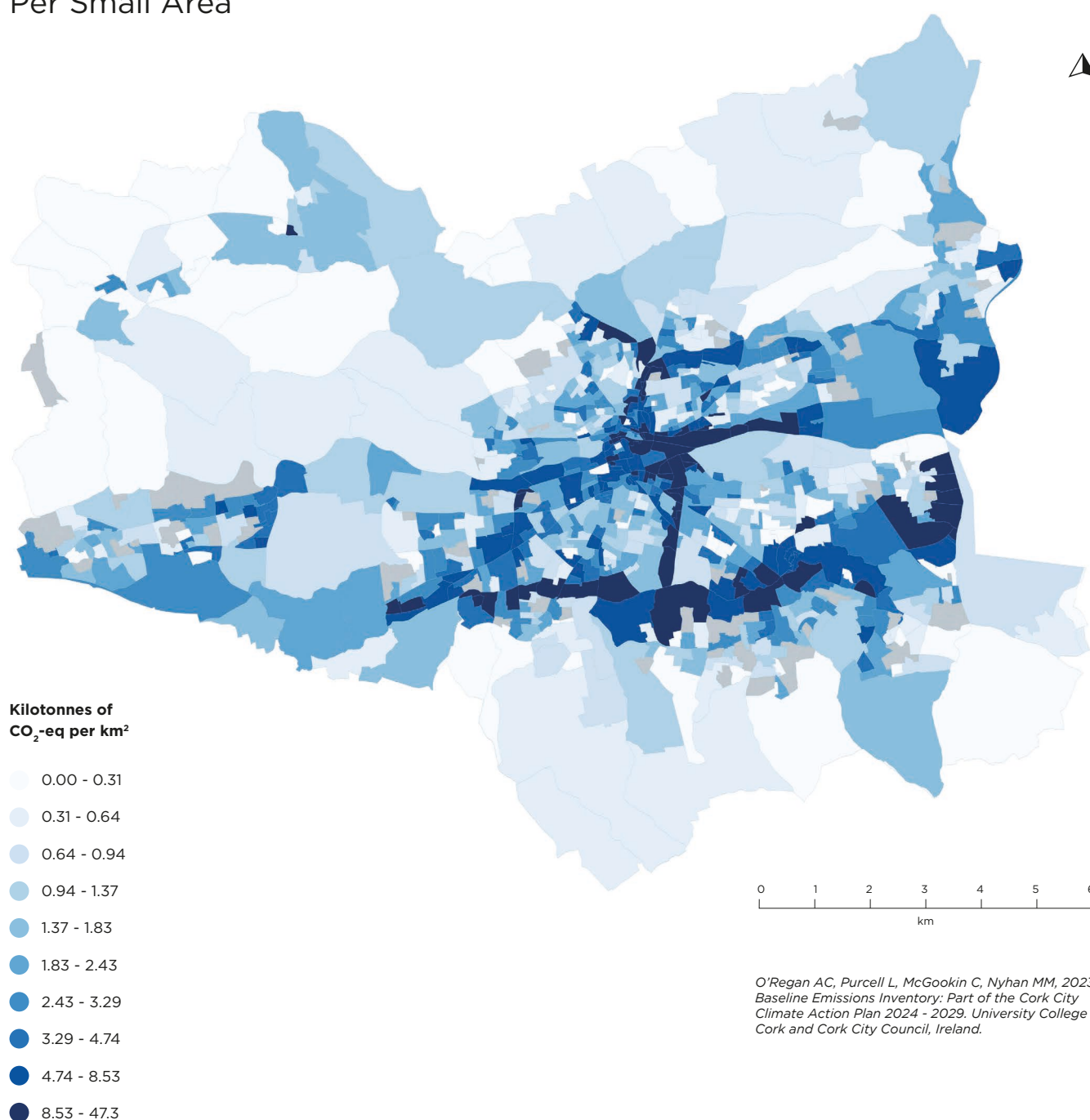
O'Regan AC, Purcell L, McGookin C, Nyhan MM, 2023.
Baseline Emissions Inventory: Part of the Cork City
Climate Action Plan 2024 - 2029. University College
Cork and Cork City Council, Ireland.

● Note: Any Small Areas mapped in grey
have no emissions data for that sector.

Map 3.2

Road Transport CO₂-eq Emissions per km²

Per Small Area



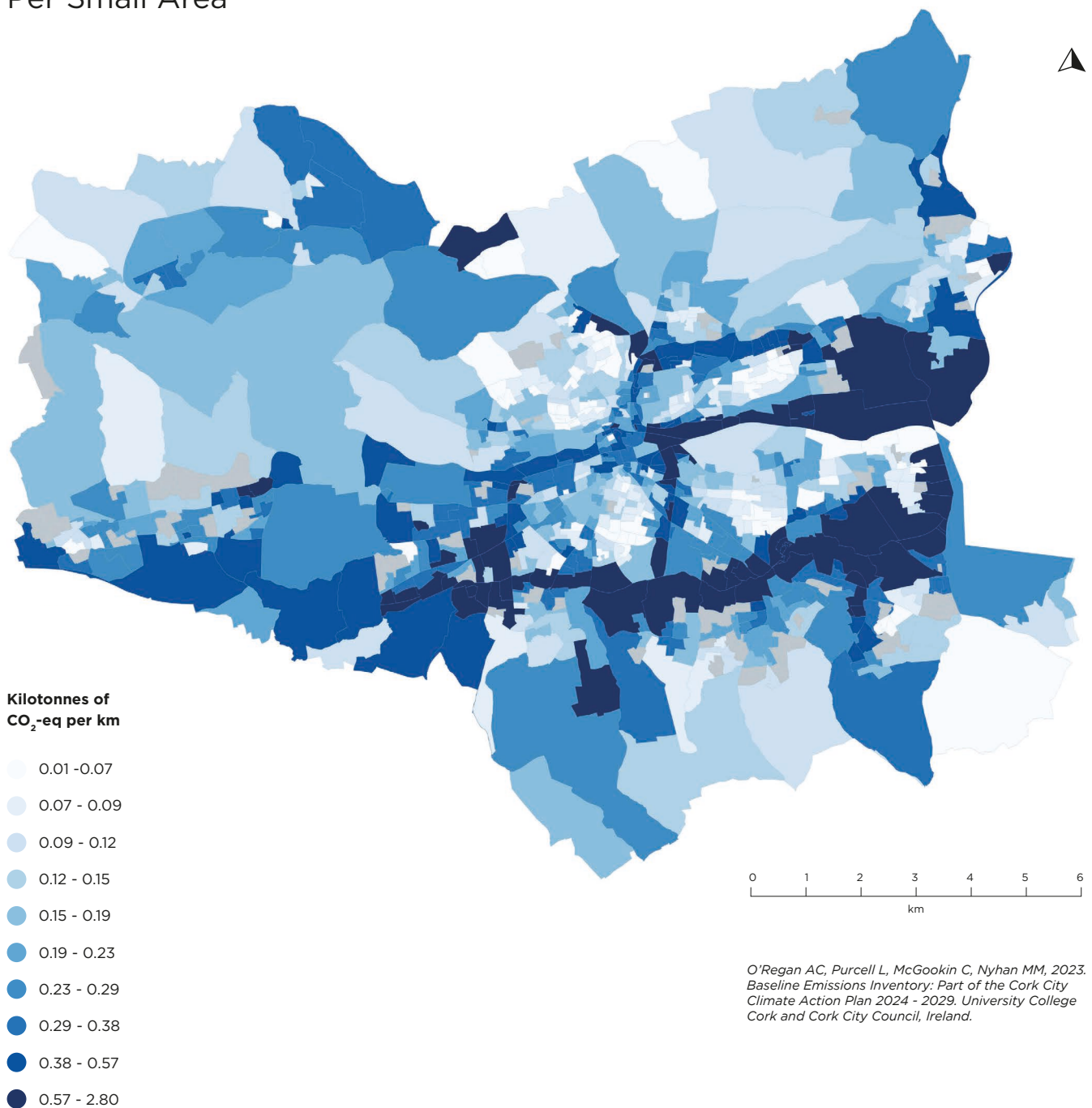
● Note: Any Small Areas mapped in grey have no emissions data for that sector.

O'Regan AC, Purcell L, McGookin C, Nyhan MM, 2023.
Baseline Emissions Inventory: Part of the Cork City
Climate Action Plan 2024 - 2029. University College
Cork and Cork City Council, Ireland.

Map 3.3

Road Transport CO₂-eq Emissions per km of Road

Per Small Area



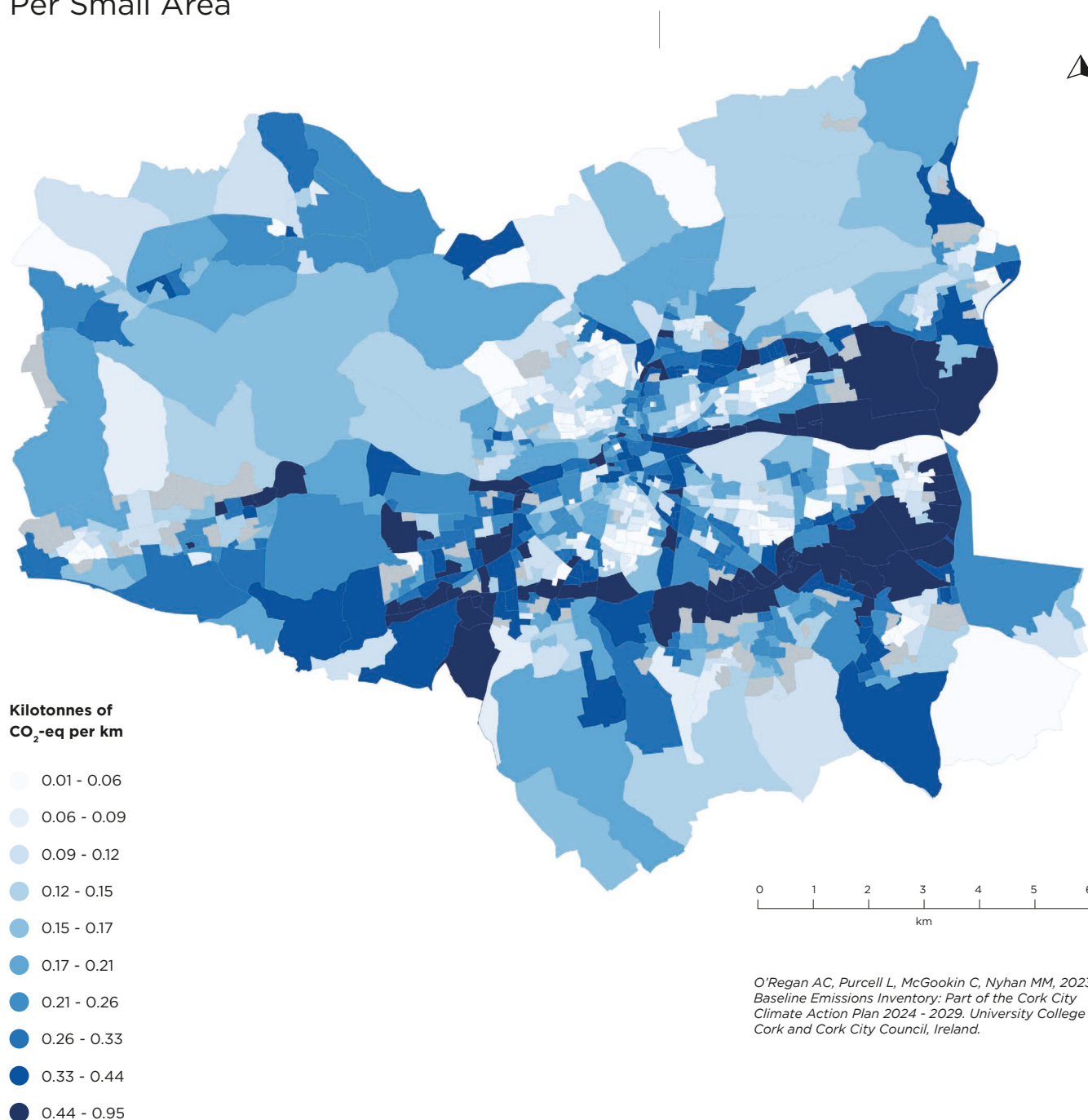
O'Regan AC, Purcell L, McGookin C, Nyhan MM, 2023.
Baseline Emissions Inventory: Part of the Cork City
Climate Action Plan 2024 - 2029. University College
Cork and Cork City Council, Ireland.

● Note: Any Small Areas mapped in grey have no emissions data for that sector.

Map 3.4

Road Transport CO₂-eq Emissions per km of Driveable Road

Per Small Area



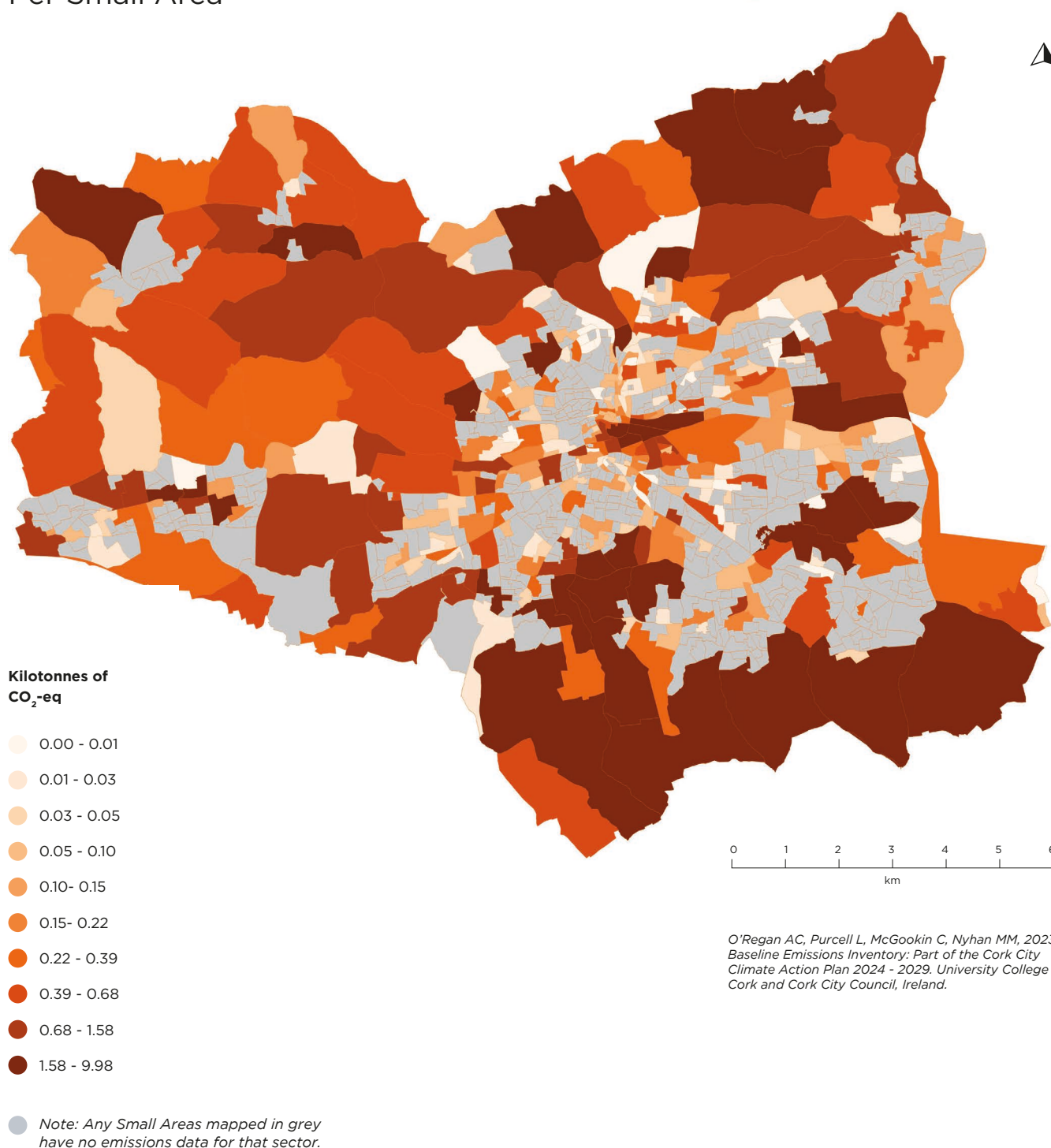
● Note: Any Small Areas mapped in grey have no emissions data for that sector.

O'Regan AC, Purcell L, McGookin C, Nyhan MM, 2023.
Baseline Emissions Inventory: Part of the Cork City
Climate Action Plan 2024 - 2029. University College
Cork and Cork City Council, Ireland.

Map 4.1

Total Commercial and Industry CO₂ Emissions

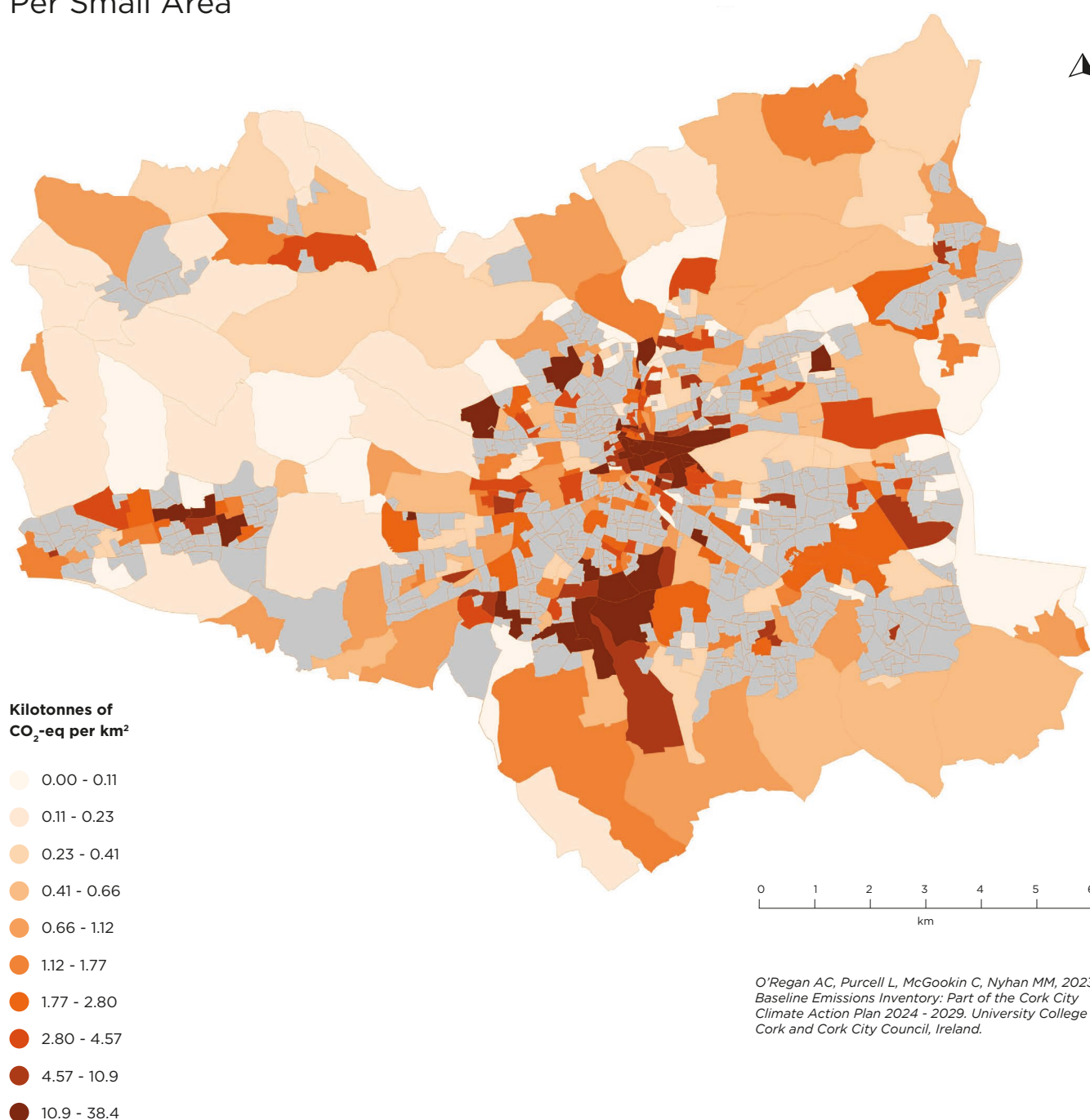
Per Small Area



Map 4.2

Commercial and Industry CO₂ Emissions per km²

Per Small Area



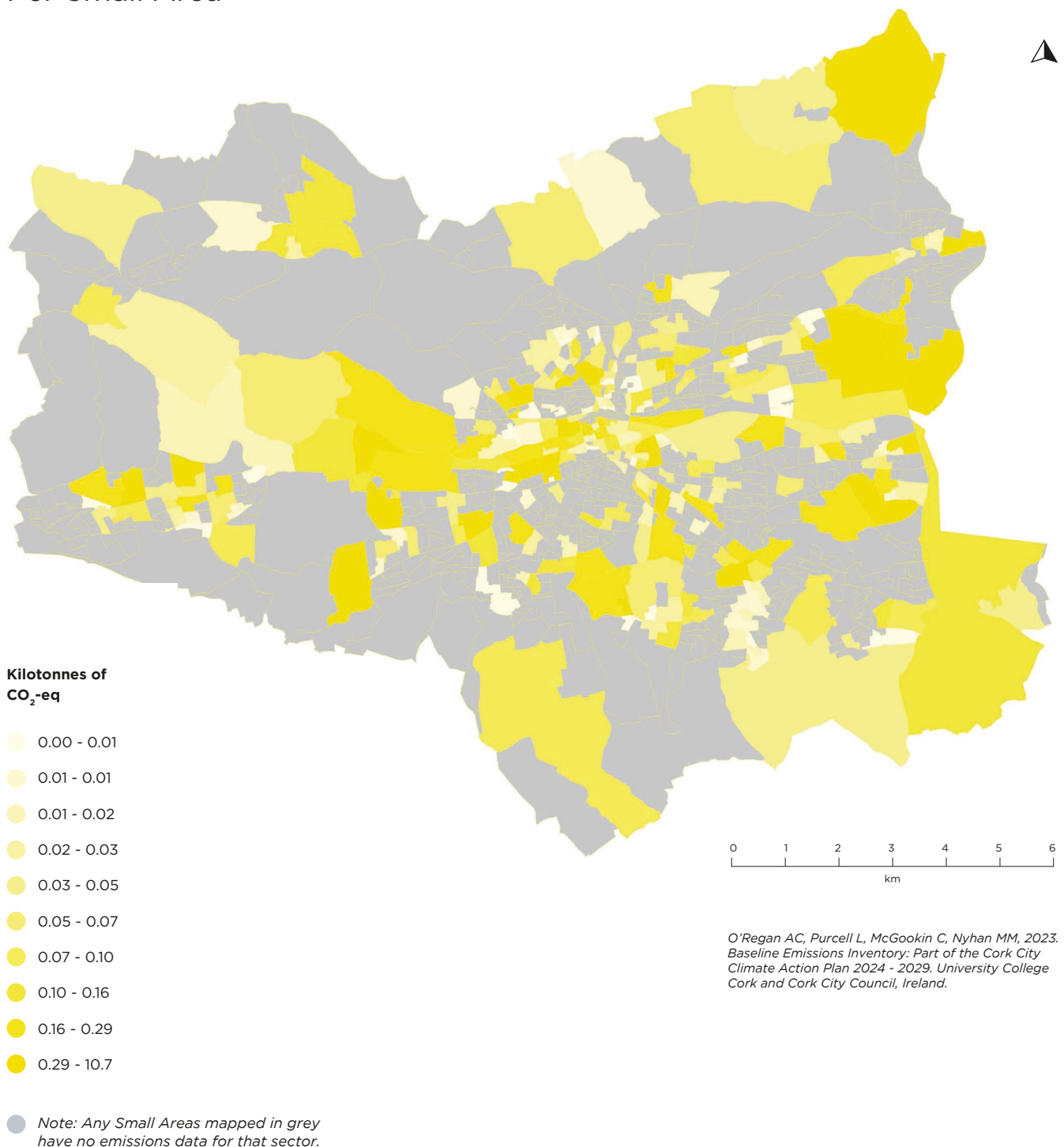
● Note: Any Small Areas mapped in grey have no emissions data for that sector.

O'Regan AC, Purcell L, McGookin C, Nyhan MM, 2023.
Baseline Emissions Inventory: Part of the Cork City
Climate Action Plan 2024 - 2029. University College
Cork and Cork City Council, Ireland.

Map 5.1

Total Public Services CO₂ Emissions

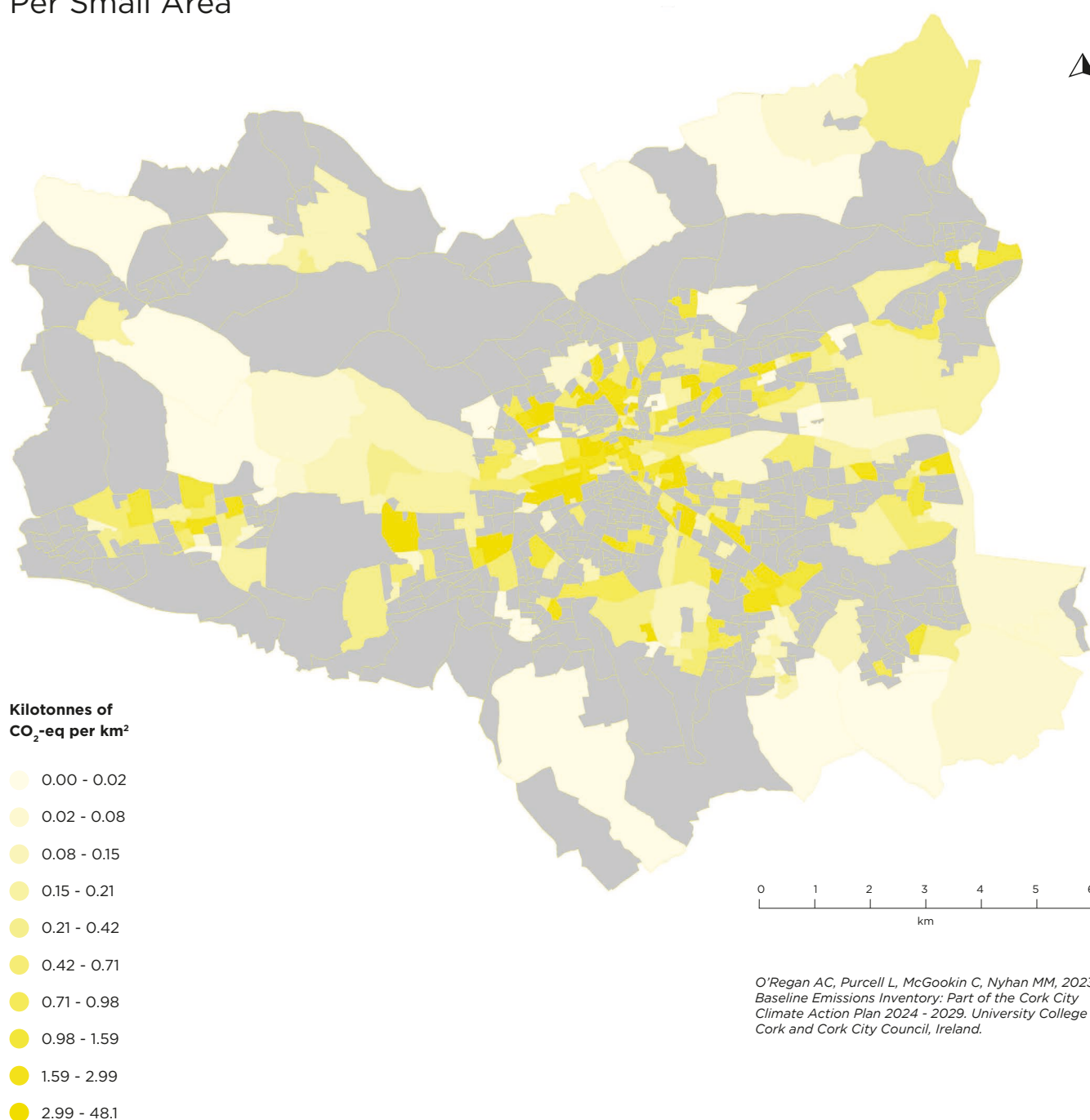
Per Small Area



Map 5.2

Public Services CO₂ Emissions per km²

Per Small Area



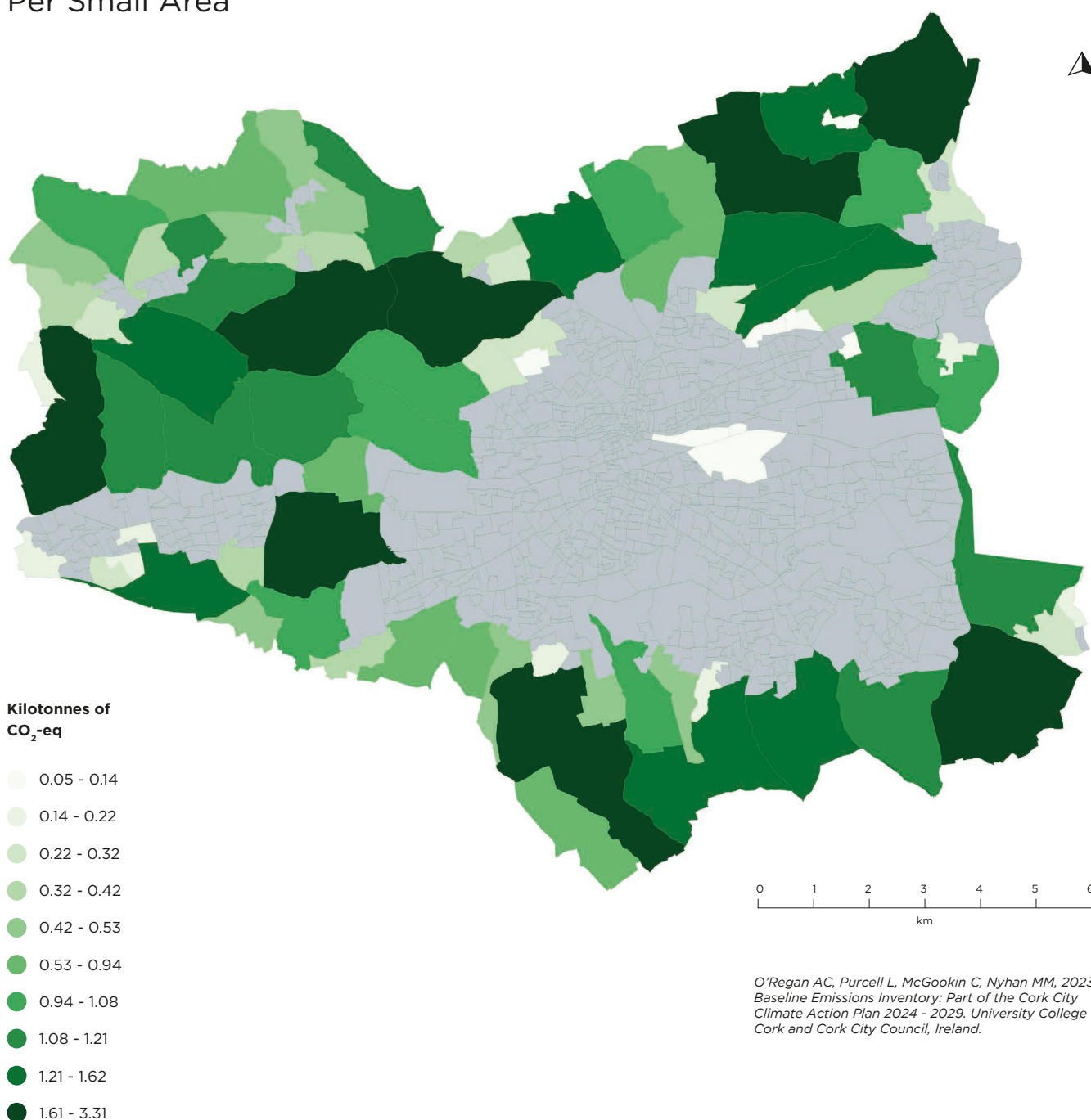
● Note: Any Small Areas mapped in grey have no emissions data for that sector.

O'Regan AC, Purcell L, McGookin C, Nyhan MM, 2023.
Baseline Emissions Inventory: Part of the Cork City
Climate Action Plan 2024 - 2029. University College
Cork and Cork City Council, Ireland.

Map 6.1

Total Agriculture and Fishing CO₂-eq Emissions

Per Small Area



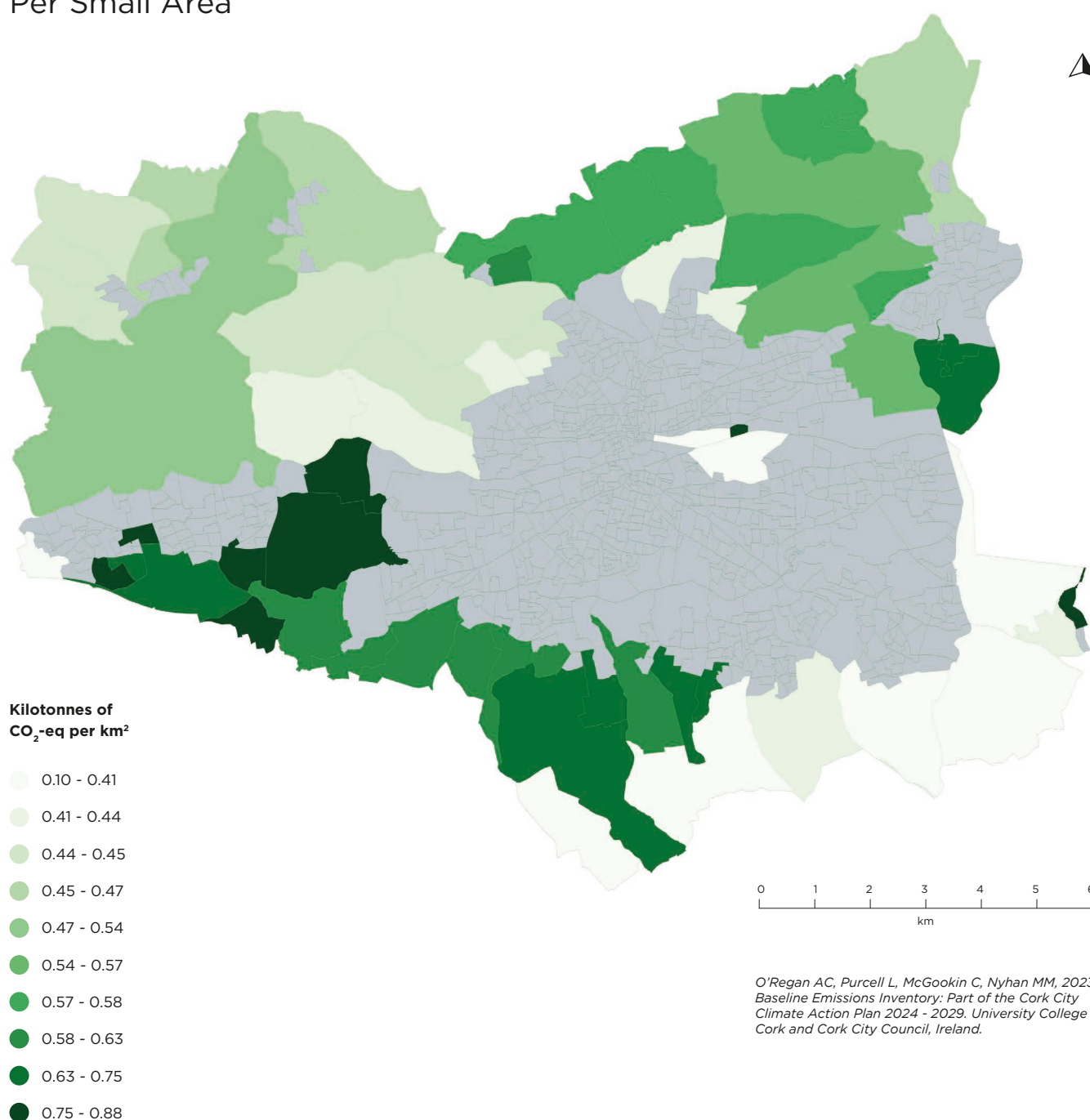
● Note: Any Small Areas mapped in grey have no emissions data for that sector.

O'Regan AC, Purcell L, McGookin C, Nyhan MM, 2023.
Baseline Emissions Inventory: Part of the Cork City
Climate Action Plan 2024 - 2029. University College
Cork and Cork City Council, Ireland.

Map 6.2

Agriculture and Fishing CO₂-eq Emissions per km²

Per Small Area



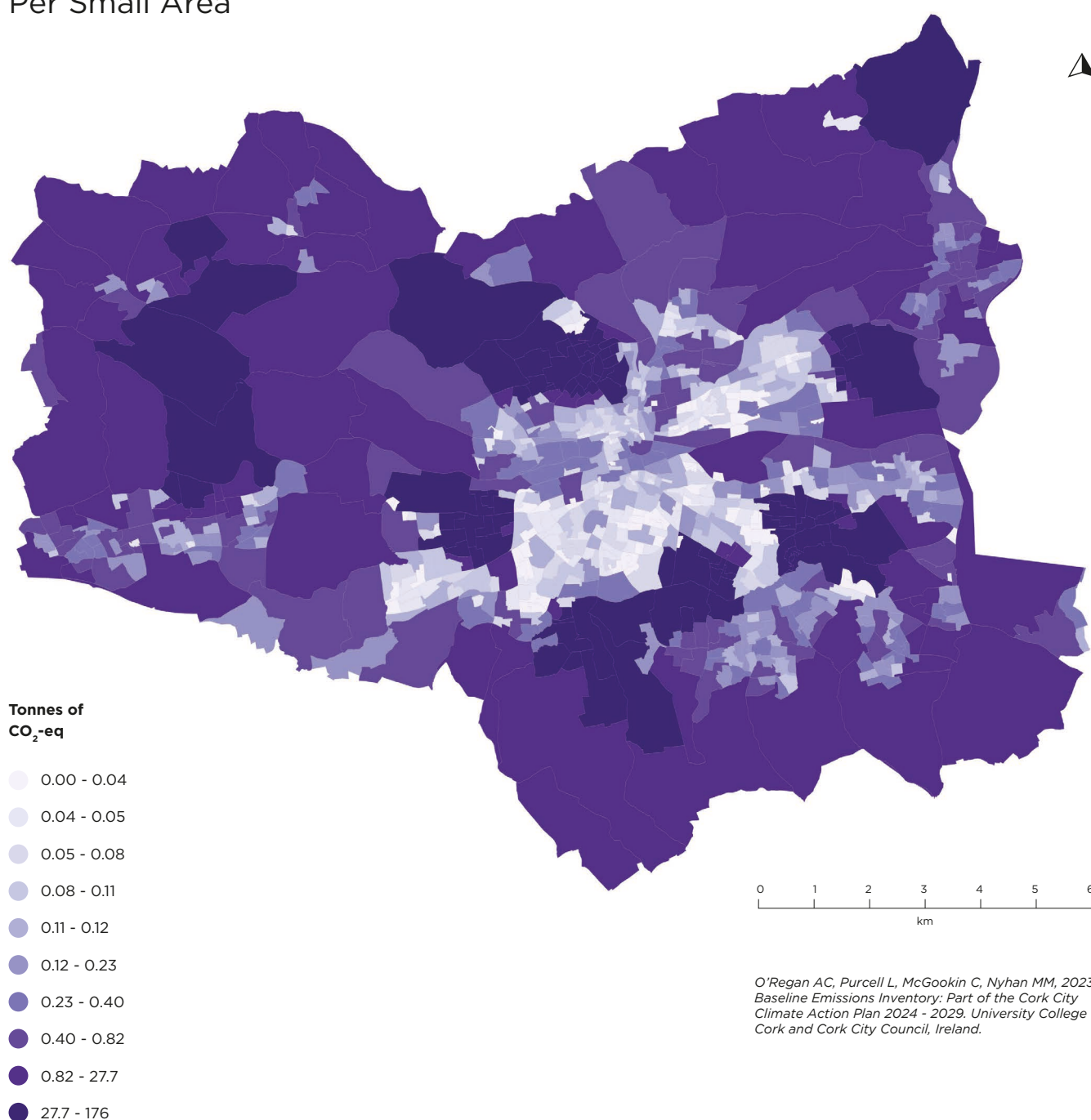
● Note: Any Small Areas mapped in grey have no emissions data for that sector.

O'Regan AC, Purcell L, McGookin C, Nyhan MM, 2023.
Baseline Emissions Inventory: Part of the Cork City
Climate Action Plan 2024 - 2029. University College
Cork and Cork City Council, Ireland.

Map 7.1

Total Waste Handling and Treatment CO₂-eq Emissions

Per Small Area



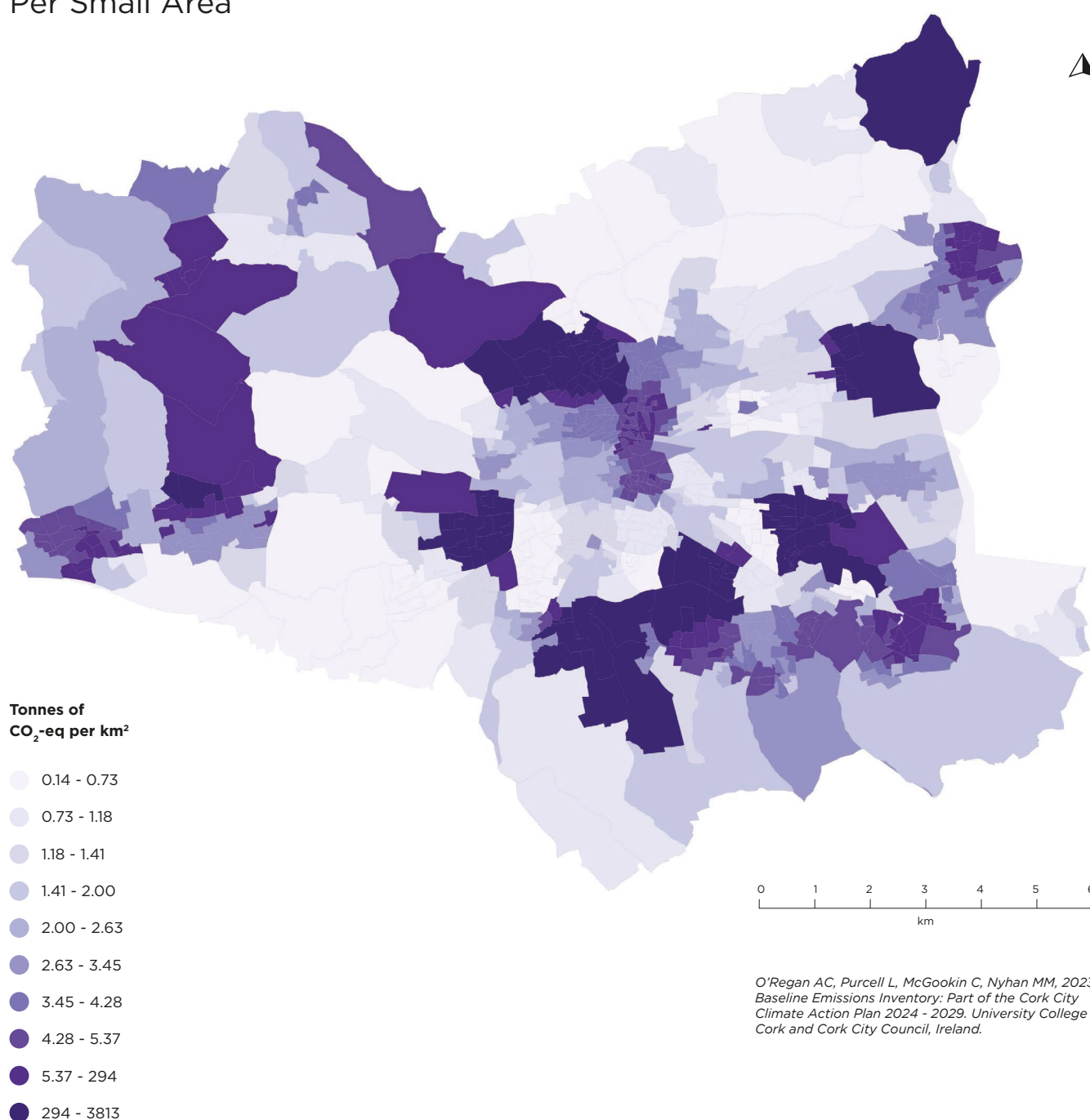
O'Regan AC, Purcell L, McGookin C, Nyhan MM, 2023.
Baseline Emissions Inventory: Part of the Cork City
Climate Action Plan 2024 - 2029. University College
Cork and Cork City Council, Ireland.

Note: Any Small Areas mapped in grey have no emissions data for that sector.

Map 7.2

Waste Handling and Treatment CO₂-eq Emissions per km²

Per Small Area



O'Regan AC, Purcell L, McGookin C, Nyhan MM, 2023.
Baseline Emissions Inventory: Part of the Cork City
Climate Action Plan 2024 - 2029. University College
Cork and Cork City Council, Ireland.

● Note: Any Small Areas mapped in grey
have no emissions data for that sector.

Appendices

Appendix B – Assumptions and Limitations

Key Data

- National emissions in 2018 were taken from the EPA's National Inventory Report ^[6]
- Energy demand and supply in each sector is primarily based on the SEAI's National Energy Balance ^[13].
- The following conversion factors from SEAI's Energy in Ireland Report 2019 were applied to compute emissions from energy demand ^[9]. The solid fuel factor is based on a 50/50 split between peat and coal.

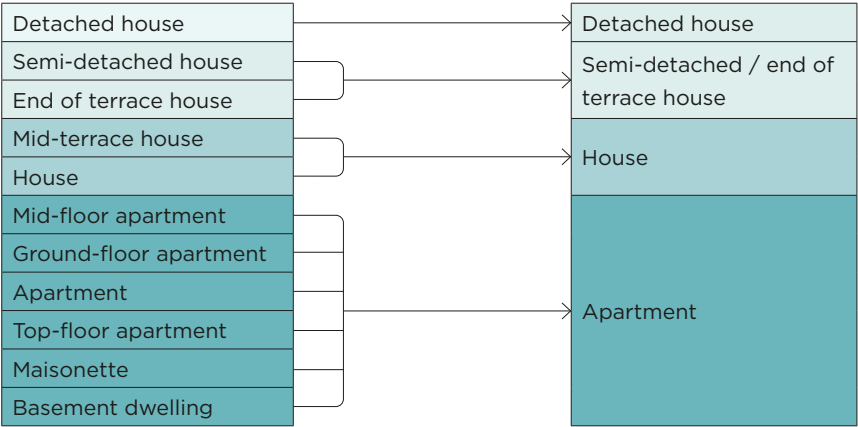
Fuel	ktCO ₂ /GWh
Natural Gas	0.205
Kerosene	0.257
LPG	0.229
Electricity	0.375
Solid Fuel	0.348
Diesel	0.264

Mapping

- The extended city boundary didn't perfectly align with the SAs, which meant some data on the outskirts had to be proportioned based on % share of SA size within the boundary. This assumes the data is uniform across the area, which is unlikely to be the case.
- SAs with less than 10% of their area inside the boundary were excluded, removing 13.

Household

- BER database used to build a housing stock profile of energy demand and fuel share by different end uses, 51% of houses in Cork City have a BER [7].
- The classification of housing types in the Census and BER database are different.
- The 11 dwelling types in the BER dataset were combined into 4 housing categories: detached, semi-detached, mid-terrace and apartment as below.



- Similarly, the 15 BER ratings, from A1 to G, were combined into 7 BER ratings, e.g. A1 and A2 were combined to just A.
- Some SAs had no BERs, and there was a large share with less than 10% of coverage.
- It is well known that the BER is a bad proxy for actual energy demand. The below correction factors (from Figure 27 in [18]) were used to adjust the kWh/m² values for space and secondary heating.

A	B	C	D	E	F	G
84%	79%	66%	60%	57%	53%	47%

Transport

- In using the NTA model, only road transport was considered, which thus omitted aviation, rail and navigation. There is a lack of clear methodology for attributing the GHG emissions of these sectors on such a small scale. For example, many people may travel from outside Cork City to take international flights from Cork airport.
- The breakdown of diesel and petrol within the vehicle categories was not available from the Eneval data, only the total emissions on each road.
- Travel outside the county was not included. For example, if someone drove from Cork City to Waterford, once they cross the border their driving would no longer be within the study area. In contrast, a Tier 2 approach based on the km travelled by cars registered to Cork City would capture all travel even when the cars leave the city boundary, and thus would result in a higher estimate for total emissions.

Commercial Services & Industry

- The Valuation Office provided total floor area by different business types in Cork City, but this was not available at the small area level and omitted hospitality buildings (hotels, B&Bs, bars, restaurants and Cafes).
- Floor area by business type was estimated using OpenStreetMap data ^[12], but there were issues with how some buildings were classified. The 62,864 buildings had to be manually verified to correct those that had been wrongly classified or had no classification. This was a very time intensive process. The vast majority were residential, with 2,611 commercial and industry buildings following several reviews of the data.
- OpenStreetMap data provides building footprint rather than total floor area, i.e. it doesn't include the extra floor area associated with two or three stories. Based on the average number of stories within the SEAI's 'Extensive survey of the commercial buildings stock in the Republic of Ireland' ^[19], a floor area ratio (ratio of floor area to building footprint) of 1.58 was determined.

Stories	Number of buildings
1	877
2	449
3	125
4	38
5	5
6	7

- The non-domestic BER release from CSO gives fuel source in main space heating within each county. However, this data is incomplete. In 2018, only 491 (19%) commercial and industry buildings had a BER out of 2,611 identified [11].
- There are no Irish energy benchmarks, so UK CIBSE guidelines were used [10].

Public Sector

- Buildings that didn't have metered data available (e.g. hospitals, schools) had the same issues as commercial & industry above.
- Floor area for the main hospital buildings was assumed to be 4 stories based on a site assessment of the Cork University Hospital and Mercy Hospital buildings.
- Public lighting data was incomplete, 80% of metered connections had zero values and 9.2 GWh out of 9.45 GWh of the electricity demand is currently unmetered. The unmetered value was evenly spread over the connections with zero values. However, there is likely differences across the city in the level of lighting and thus electricity demand.

Agriculture, Land Use & Fishing

- Livestock and land use emissions portioned based on farm area, which doesn't capture the type of activity within the study area.
- Emissions calculated based on production rather than consumption. This means that the GHG footprint of food consumed (in shops, restaurants or bars) is not included, but rather the very small amount of food produced within the city boundary. The vast majority of food and drinks consumed likely come from outside the study area.

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Abbreviations

BEI	Baseline Emissions Inventory
BER	Building Energy Rating
CO₂	Carbon Dioxide
CH₄	Methane
CSO	Central Statistics Office
DZ	Decarbonisation Zone
ED	Electoral Division
EPA	Environmental Protection Agency
GHG	Greenhouse Gas Emission
GIS	Geographic Information system
HGV	Heavy Goods Vehicle
LGV	Light Goods Vehicle
LPG	Liquid Petroleum Gas
LULUCF	Land Use, Land Use Change and Forestry
N₂O	Nitrous Oxide
NTA	National Transport Authority
SA	Small Area
SEAI	Sustainable Energy Authority of Ireland



Comhairle Cathrach Chorcaí
Cork City Council



NET ZERO CITIES

EU MISSION PLATFORM | CLIMATE NEUTRAL AND SMART CITIES

Climate City Contract

2030 Climate Neutrality Commitments of Cork City



Comhairle Cathrach Chorcaí
Cork City Council

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H2020 Research and Innovation Programme
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5 Signatories	26

1. Introduction

Why are we joining the Mission for a Climate Neutral Cork?

Climate action is at the heart of an ambitious vision for the future of Cork. The National Development Plan envisages Cork as the fastest growing city in Ireland up to 2040. The city is benefitting from rapidly growing Foreign Direct Investment and significant public sector investment. At the same time, Cork is particularly vulnerable to the extreme impacts of climate change. Flooding has been a recurrent theme in our city's history. While our resilience is growing, we have firsthand experience of climate induced hazards, and the multi-dimensional costs incurred.

Our city's commitment to climate neutrality by 2030 is critical goal. Achievement of our climate neutrality goal will ensure that Cork remains a thriving, fair and sustainable place long into the future.

Expression of Interest

When we initially applied to join the other 100 cities participating in the mission, we thought it would help us to make the city an attractive, high-quality, resilient place in which to live, work, visit and do business. We recognised that the prioritisation of climate action would improve quality of life for residents of the city and ensure that Cork plays its local role in addressing the most pressing global challenge of our time. Our ambition to achieve net zero by 2030 is intact and our plan, set out in the Climate City Contract, sets out how it can be achieved.

Mandate for change at the City Level

Cork's involvement in the Mission is a strong signal of the city's ongoing commitment to sustainability and climate neutrality. 86% of respondents to a city-level household survey undertaken in 2023 supported the statement that « **Cork City must transform** into a more sustainable place to live and work that is climate neutral and resilient ».

Mandate for Change at the National Level

In his letter of support for Cork's application to join the Mission, the then Taoiseach, Micheál Martin, stated that Cork will be « at the forefront of demonstrating how local authorities, relevant public bodies, businesses, third level institutions, civil society and citizens can work together in practical ways to tackle emissions ». He went on to call for the establishment of a cross-departmental team at the Central Government level to coordinate the required national level support. This team, the National Mirror Group, met for the first time in May 2024. It has established a thematic sub-group on transportation tasked with the identification of priority projects for accelerated investment. It plans to establish a similar group on the built environment in 2024. The next meeting of the National Mirror Group will be in Cork in October 2024. Ireland's mission cities will present

their highest priority support needs to the group at that point, setting out what useful and practical support from the central government to the cities should look like.

The heightened ambition, to achieve climate neutrality by 2030, is a powerful lever for change that has helped us to form a compelling vision of a future Cork that residents are demanding. Consequently, we are reconsidering our approach to climate change in a holistic and radical way. We expect that it will catalyse innovation, new ways of working, new partnerships, and new social and economic opportunities.

Building on past experience

While some may think this challenge is too big, too difficult, responses to recent challenges, such as Covid-19 and the Global Financial Crash, have been cohesive, ambitious and in some cases led to permanent changes in our infrastructure, services, and partnerships. These responses have acted as catalysts for further positive change. Cork's people remain hungry for the systematic change required to achieve the climate transition and are willing to take part in it.

Actions taken to date

In Cork, our approach to the development of the Climate City Contract is evidence-based and utilises co-creation with the many stakeholders in the city. In 2023, the City Council implemented the following initiatives to develop our approach to climate action:

Understanding the system

In 2023 Cork City Council commissioned a series of research products to inform our climate journey. They were:

- An updated [Baseline Emissions Inventory](#) using 2018 data that comprehensively estimated our sectoral emissions.
- A [Climate Risk Assessment](#) that modelled the changing hazard profile of the city up to 2050 using the latest climate change projections available. The assessment showed our growing exposure to flood and temperature related risk.
- A citywide [household survey](#) to understand the general public's attitudes and behaviours regarding climate change and their support for change.

Engaging our stakeholders

Cork City's baseline research was complemented by extensive engagement with people living and working in the city. The public engagement involved the following actions that involved well over 1000 individuals:

- A series of [Climate Conversations](#) with:
 - business,
 - community organisations,
 - the public sector
 - our elected representatives to inform the prioritisation and design of climate
 - actions at the city level, and
 - [young people](#) and children.

The overarching messages from these conversations, captured with the evidence from our research in a [summary report](#) were:

1. There is a **strong appetite for change** to cope with the climate and biodiversity crises. Citizen engagement is key. Everyone will be included in the journey.
2. **Radical collaboration** is needed. Business as usual will not be enough. This applies equally to stakeholders at the city level and with other levels of governance. Radical collaboration is at the heart of our co-creation.

In 2024 the Climate Neutral Cork Leadership Group, a multi-stakeholder body, was formed to lead the transition process in Cork City over the next five years. Later this year the Climate Neutral Cork Public Platform will be launched to provide a space for virtual and in-person interaction between stakeholders to facilitate learning and collaboration as part of a social movement for change.

Cork's Current Commitment: Our First Step to Climate Neutrality

The outcome of our work in 2023 was the [Cork City Climate Action Plan 2024-2029 \(CAP\)](#) and [annex of actions](#) which was adopted by the City Council in February 2024. It describes the city-level actions to achieve the National Climate Ambition, set out in the [Climate Action and Low Carbon Development \(Amendment\) Act, 2021](#), of a 51% reduction of GHG emissions by 2030. Our approach is to integrate actions that help the city to mitigate emissions and adapt to climate change, as shown below in Figure 1.

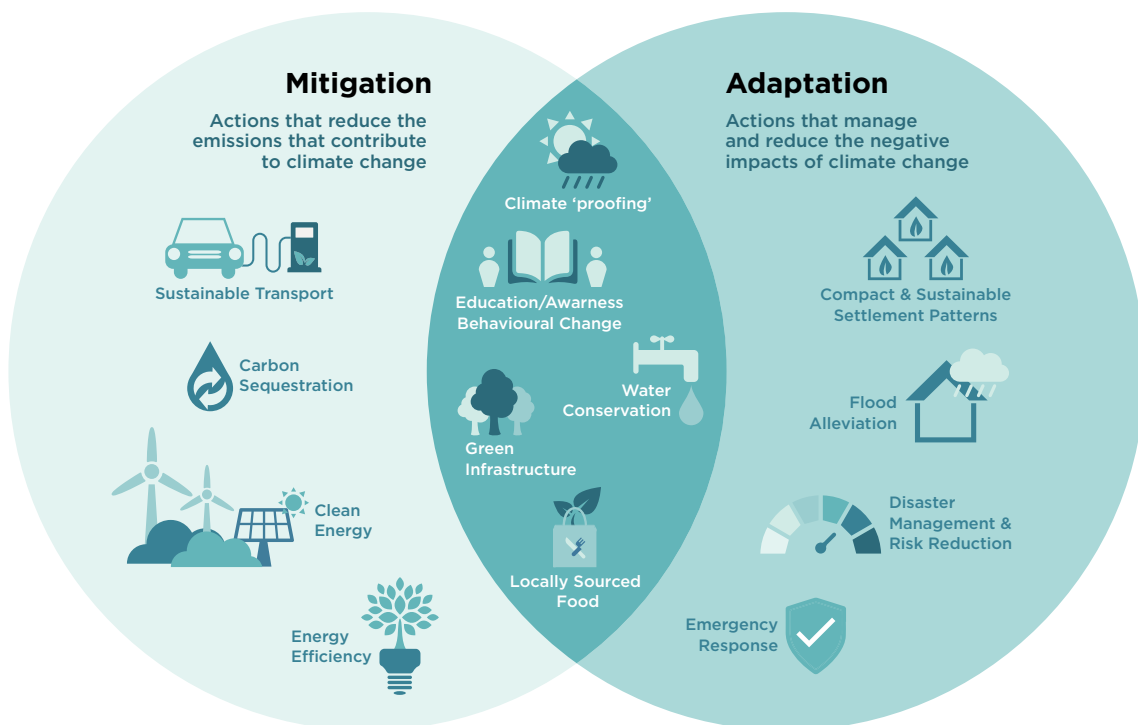


Figure 1: Mitigation and Adaptation Actions in Cork City CAP 2024-2029

The Cork City CAP is incorporated into our Cork City 2030 Climate Neutrality Action Plan (CCC) providing measures to achieve 51% of emissions reduction in the city by 2030. The CCC builds on this foundation to achieve an **80% emissions reduction over 2018 levels by 2030**. Our CAP establishes enabling conditions for action in key sectors and redoubles our commitment to accelerate implementation in those sectors. The CCC extends the impact of the CAP by identifying gaps and addressing some of the more challenging policy areas needed to achieve net zero. The relationship between the CAP and the CCC is shown below in Figure 2.

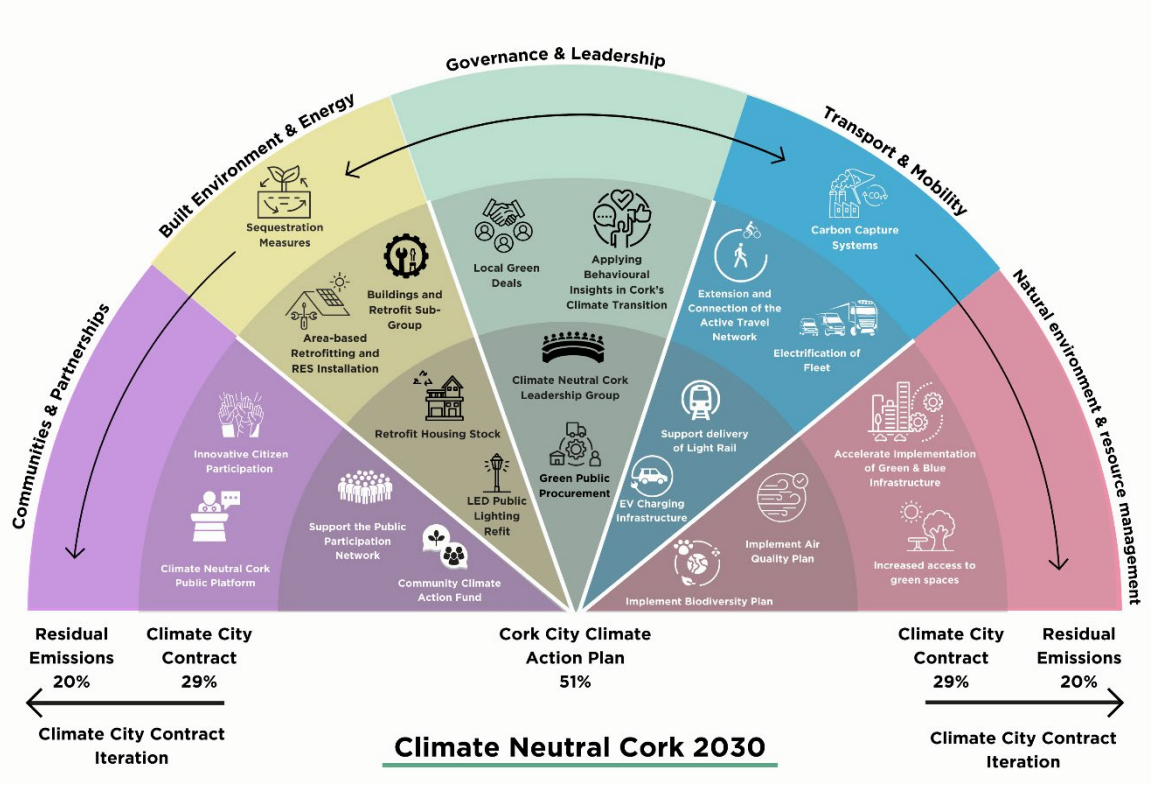


Figure 2: Relationship between Cork City CAP and CCC

EU Support and engagement

Cork City and its various institutions in local government, business, academia, and civil society, are very actively engaged on EU funded climate action initiatives. Participation in the Mission is providing us opportunities, and we expect them to grow over time. Cork City Council, working with Dublin City Council and University College Cork, were recently awarded a Net Zero Cities Pilot Project to build capacity to apply behavioural science in our climate action. We are a partner on Green in Cities, funded from the joint cities / adaptation mission call. We are also a member of the Intelligent Cities Challenge and are using Local Green Deals to consolidate commitments made as part of the Climate City Contract into specific actions to implement. The City Council is preparing a submission to the EIB for an ELENA grant to facilitate the decarbonisation of its buildings, an opportunity we learned about through the Mission.

More broadly, institutions in the City are participating in myriad projects and international collaborations of relevance to our transition funded by, among others, Horizon Europe, Interreg, LIFE, and UNIC. Cork City is also participating in the EU Missions on Adaptation to Climate Change and to Restore our Oceans and Waters, and is actively learning from

our peer cities, including Malmo, Mannheim, Dublin, Turin, and Barcelona, among others, across the continent.

National Progress on Climate Change

To date Ireland is making progress on transition. For example, the country's renewable energy share, especially in wind generated electricity, has been growing steadily over the past two decades, as shown in Figure 3 below, but is lagging behind the national climate budget.

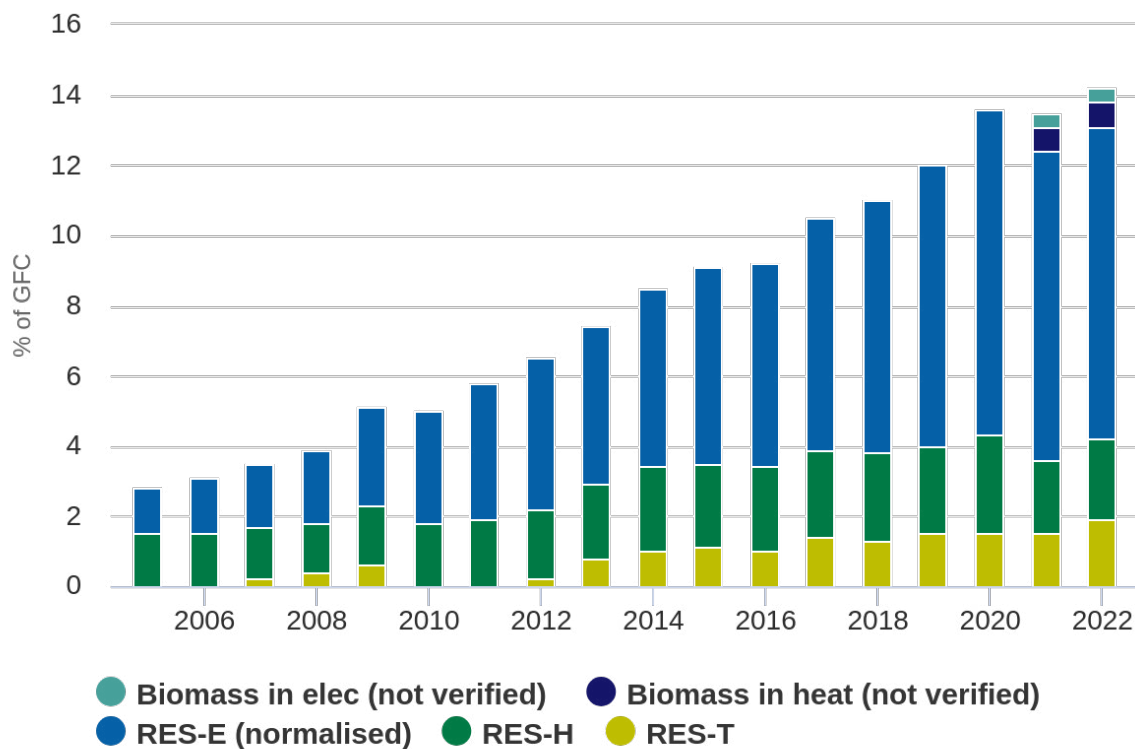


Figure 3: Overall Renewable Energy Share (RES); Source SEAI (Sustainable Energy Authority of Ireland)

Progress on Climate Change in Cork City

Locally, Cork City has made [progress](#) on the implementation of:

- Bus Connects, an important project to increase bus services by 53%, electrify the bus fleet and improve frequency and reliability.
- Design and route finding for a 17 km light rail system crossing the whole city.
- Construction of 72 km of safe cycling infrastructure city-wide to enable modal shift.
- Development of a flagship housing regeneration project in Cork's Docklands, providing new, A-rated homes for over 20,000 people on a 147-hectare site, that builds in green space, active travel, nature-based drainage solutions and other climate-friendly features.
- An additional 20,000 A-rated new homes in expansion areas built to achieve the city's goal of compact growth, as described in the [Cork City Development Plan 2022-2028](#).



- Delivery of major flood relief infrastructure in Douglas, Togher and Glanmire, with significant additional protection planned in the Lower Lee Flood Relief Scheme.
- Over 5200 energy upgrades in the city's homes ([Local Authority Climate Action Plan Dashboard | Statistics | SEAI](#)) ;
- Significant progress on the implementation of the €3.5 billion [Cork Metropolitan Area Transport Strategy](#) including development of increased opportunities for safe active travel, improved rail connectivity and urban bus network, to reduce 46,000 tonnes of road related emissions annually.
- Award of €860,000 in community climate action fund grants to be implemented in the coming 18 months.
- Retrofit of our sports and leisure facilities.
- A review of all policies and procedures, including enhanced green public procurement procedures.

These achievements will significantly accelerate progress towards net zero in the coming five years.

2. Goal: Climate neutrality by 2030

Cork's Net Zero Goal

Cork City Council's **vision**: Cork City is transforming into a climate neutral and resilient city. We are rapidly becoming a fairer, healthier, more economically vibrant, and more sustainable place to live, work and do business.

Cork City has established three inter-linked goals for 2030:

1. **Achieve net zero GHG emissions in line with the EU's Climate -Neutral and Smart Cities Mission's objective, which we consider a minimum of an 80% emissions reduction over 2018 baseline levels¹.**
2. **Protect and enhance our natural and built environment for future generations, and**
3. **Establish best-practice governance to lead the city into a sustainable and prosperous future.**

Our elected representatives are committed to the achievement of this vision. The City's first Climate Action Plan was unanimously adopted on February 12th, 2024. The city is home to a diverse array of stakeholders in business, the public sector, academia, and community organisations all forging towards a more sustainable and climate neutral future, and with strong support from the public, who are demanding that action is taken. All stakeholders are working together to achieve climate neutrality.

The vision articulated is critical. We know there are gaps, some significant, in our knowledge, capacity, finance, and infrastructure. We know that significant effort will be needed to mobilise support from the Government of Ireland and the EU. Most importantly, we know that we must build and sustain a social movement for change among the citizens of the city, ensuring that each of us can make the critical changes needed in how we consume, move about, work and operate our homes and businesses. Our transition is one based on co-creation of solutions, networked governance, collaboratively financed and implemented, and that is focused on learning by doing, and impact.

Successive iterations of our CCC will set out specific solutions to achieve the additional decarbonisation needed to achieve net zero.

Our success is dependent on our ability to accelerate the implementation of the many policies, strategies and plans that are already in place in the most climate relevant sectors, and to develop new initiatives to build on them further. Success is not only dependent on what the City Council does. It is a true "whole of society" effort that will engage and activate our private sector, our communities, our public sector bodies, and our academic institutions.

¹ The EU Mission considers 80% direct emissions reduction to be "net zero" with, on average, 20% of residual emissions in hard-to-decarbonise sectors being addressed through deployment of future technical solutions such as Carbon Capture and Storage, sequestration, or emissions trading.

Co-Benefits of Climate Action

People who live and work in the city will be the ultimate beneficiaries. Our research shows that citizens of Cork appreciate the links between climate action and their co-benefits.

Benefits of transition will accrue in a range of areas that include:

Health:

- Improved air quality,
- Improved wellbeing of citizens,
- Increased area of green spaces within the city, and
- Increase in the modal share of active and public transport.

Economy:

- Citizen involvement in the co-design / co-creation of climate actions,
- Increased funding for social innovation initiatives for climate neutrality,
- Increase in the number of green jobs,
- Increased public capital invested in climate action projects, and
- Increased development of brownfield areas.

Resilience:

- Reduction of the Urban Heat Island Effect,
- Reduced energy consumption per household,
- Increased citizen's awareness regarding sustainability and the environment,
- Increased recycling rate of municipal waste, and
- Increased percentage of tree canopy within the city.

Area

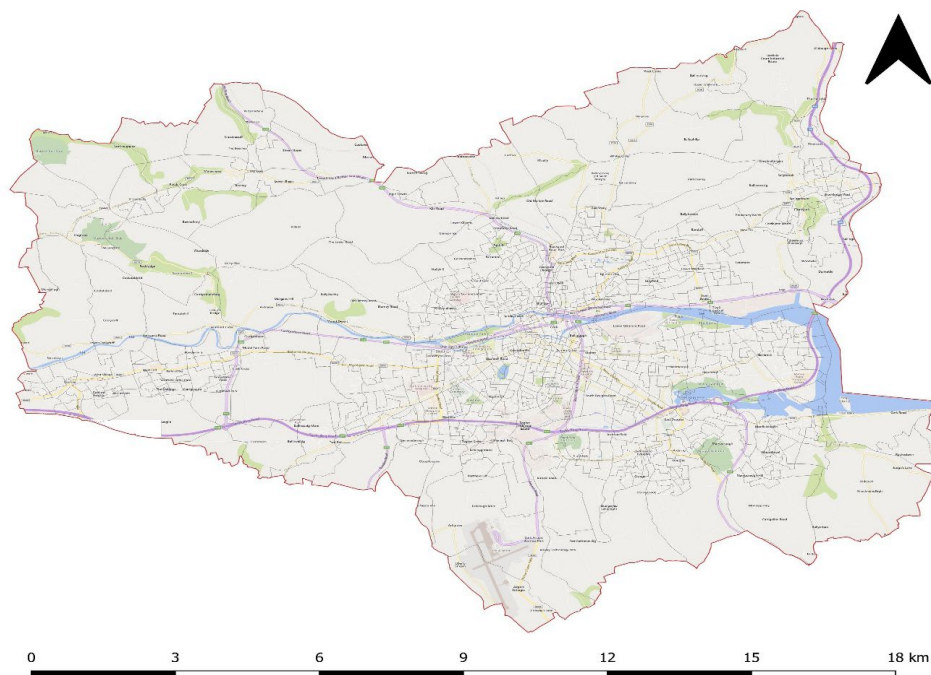


Figure 4: Cork Net Zero Cities Boundary

The area for action under the CCC is the Cork City Council Administrative Boundary, shown in Figure 4 above. It comprises 187 km². There are no geographical exclusions from the area.

Cork's Emissions Baseline in 2018

Emissions Breakdown by Sector for Cork City

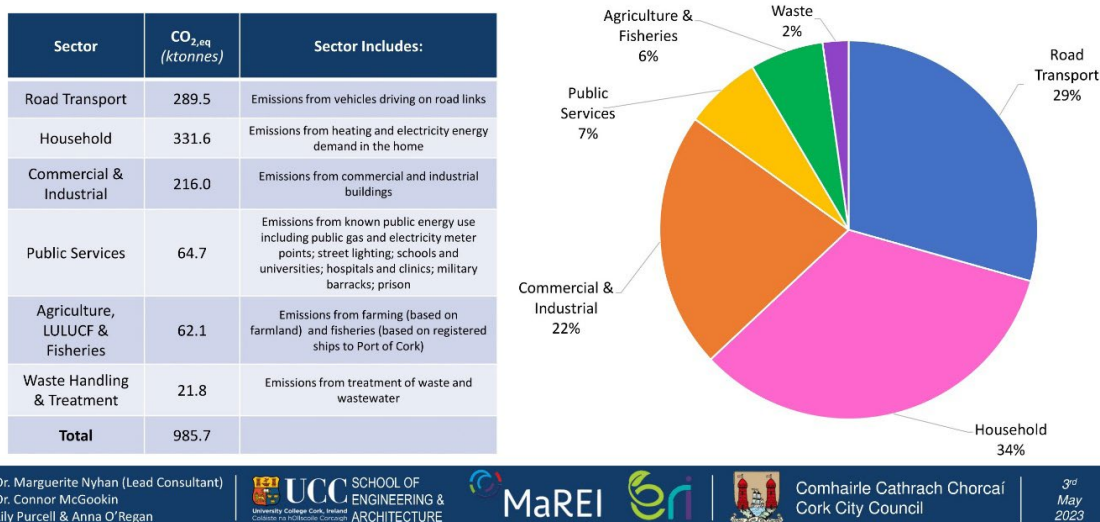


Figure 5: Cork City Baseline Emissions Inventory using 2018 data

Sectors

The CCC will guide action in the following relevant sectors:

1. Domestic buildings
2. Commercial / industrial buildings and processes
3. Transport and mobility
4. Public sector
5. Agriculture, land use, land use change and forestry
6. Waste

Gases

The CCC includes the following greenhouse gases in its estimate of CO₂ equivalents:

1. Carbon Dioxide (CO₂)
2. Methane (CH₄)
3. Nitrous Oxide (N₂O)
4. F-Gases (hydrofluorocarbons and perfluorocarbons)
5. Sulphur Hexafluoride (SF₆)
6. Nitrogen Trifluoride (NF₃)

Scopes

The CCC will ultimately specify scope 1 and 2 emissions (with scope 3 for out of boundary waste emissions only) in its decarbonisation plan. However, since the updated BEI (Baseline Emissions Inventory) methodology, informed by Government of Ireland

recommendations, did not specify the elaboration of scopes, this data will be specified in the second iteration of the CCC, planned for publication in 2026.

Exclusions

There are two specific exclusions from this plan. Flights from Cork City Airport and navigation of ships entering and leaving the Port of Cork, both of which currently sit within the city boundary, are excluded from the calculations in Cork City's Baseline Emissions Inventory. There is no currently available methodology for calculating these emissions on a small area basis. It is noted that Cork International Airport is implementing a [sustainability strategy](#) to achieve net zero emissions in the operation of its terminal and campus well in advance of 2050. Flight emissions are included in the EU Emissions Trading Scheme and are governed, in Ireland, by the [Environmental Protection Authority](#). The Port of Cork is in the process of implementing [its masterplan for 2050](#). This plan will see the movement of its operations out of the Cork City boundary to the Lower Harbour area. The City Quays Facility will have moved by 2028, and the Tivoli Docks will move between 2030 and 2040. These are both issues we intend to address in future iterations of the CCC.

Emissions Trading System

There are currently no European Emissions Trading Systems facilities within the boundary of Cork City.

Risks of Inaction

Even if it was a legal possibility, the risks of inaction are potentially severe. Firstly, the cost of transition goes up every day, and the range of choices on what should be done, and the time to accomplish those actions reduces. Cork's reliance on fossil fuel as a main source of energy will continue to rise and may become decoupled from renewable energy prices in future. Failure to act may make the city less attractive to tourists and inward investment, who are likely to increasingly seek more sustainable destinations. Social pressures and inequality may grow as citizens are faced with growing vulnerability to extreme weather events and ongoing deterioration of air quality.

3. Strategic priorities

Strategic priorities for the CCC

Prioritisation

Since we have just five years to accomplish our transition all of the priorities stated above will be addressed simultaneously. We understand that their achievement will require the accomplishment of preparatory tasks in all sectors that are now being initiated. This includes spatial plan reviews, stakeholder engagement, identification of sources of finance, and deployment of appropriate capacity, among others.

The Cork City Climate Action Plan has adopted five themes as strategic priorities to organise its actions.

The five priority themes, their specific objectives and a summary of the most important early changes are:

Governance & Leadership

- Our community will work together through an inclusive and accountable governance structure to achieve a fair climate transition that leaves no one behind.
- A governance structure that engages people living and working in the city and supports them in gaining knowledge and acting, individually and collectively, in ways that protect and enhance our climate and environment.

The early changes targeted under this strategic priority may be summarised as:

- Public sector leadership through full decarbonisation of local authority and other public sector buildings
- Increase coordinated regional advocacy to central government on subsidiarity, funding and policy coherence, and Bundling bankable projects from multiple stakeholders in Local Green Deals.

Communities & Partnership

- Climate action will be mainstreamed in all areas of community development, including for youth, gender, poverty and social inclusion, integration, health, arts, and travel, among others.
- The diverse community groups in Cork City will play a significant role in climate action, achieving a fair and inclusive transition.
- The City Council and other institutions will facilitate individuals and community groups to act.

The early changes targeted under this strategic priority may be summarised as:

- Implement innovative participation measures investigated under Cork City CAP,
- Creation of a public platform for climate action which brings together different actors to share ideas, information and to develop partnerships, and
- Sustained funding for climate actions implemented by community organisations growing over time.

Built Environment & Energy

Institutions and building owners in Cork City will work together to accelerate retrofitting and the installation of renewable energy systems.

- Innovation will be de-risked for building owners and effectively tested in the city and, where successful, will be rapidly scaled up.
- The expansion zones and regeneration areas are flagship, climate-positive development projects that integrate our policies and good practices set out in the City Development Plan, the Green and Blue Infrastructure Strategy, and the Trees Strategy, among others.

The early changes targeted under this strategic priority may be summarised as:

- Scale up of retrofitting services for domestic and commercial properties,
- Upgrade of electricity distribution network and increased supply to meet growing demand,
- Prioritise development in expansion zones, and
- Expanding qualified workforce.

Transport & Mobility

- People living and working in Cork City will avail of an excellent sustainable public transport system and accessible, safe active-travel routes, using a car as a last resort.
- Provision of multi-modal sustainable transport options for everyone.
- Reduced car ownership and significantly reduced car use in the city.

The early changes targeted under this strategic priority may be summarised as:

- Accelerating electrification of the private, commercial and public fleet,
- Extension of the active travel infrastructure network,
- Management of demand for car use,
- Increasing availability of shared mobility, and
- Smart travel plans for institutions.

Natural Environment & Resource Management

- Green space will be easily accessible on foot by all residents.
- The potential for carbon sequestration, nature and biodiversity gain, and climate-

risk mitigation through green and blue infrastructure will be maximised in every new development and established neighbourhood.

- The city will adopt the reduce-reuse-recycle principle of a circular economy.

The early changes targeted under this strategic priority include:

- Increased rate of tree planting.
- Enforcement of planning regulations in favour of nature and biodiversity, and
- Strengthening participation in the circular economy, recycling, repair and reuse.

The early changes summarised in each of the five strategic priorities are our starting points. These are starting points for a general programme of decarbonisation. Given that Cork City is at an early stage in its transition it is recognised that action in many areas, undertaken simultaneously, is needed. A more detailed and extensive breakdown is presented in our Action Plan in Table B-1.1 summarising impact pathways.

Stakeholder Engagement for Cork's Transition

Cork City has established an inclusive Climate Neutral Cork Leadership Group who are spearheading the citywide transition and who are signatories of our contract. The stakeholder universe is shown in figure 6 and 7 below.

- The **Leadership Group** comprises representation from the business community, civil society, and the public sector. The Leadership Group is chaired by the Chief Executive of Cork City Council and may expand to include additional representation in future.
- The **local ecosystem of institutions and citizens** are partly represented through the Leadership Group and can also collaborate, learn, and share experience through the Climate Neutral Cork Platform.
- Commitments to the CCC will be strengthened and materialised through the establishment of **Local Green Deals**, the tool established by the Intelligent Cities Challenge that Cork City is participating in.
- Our enabling environment comprises a wide range of government, state bodies, commercial entities and media organisations that can influence the achievement of our transition. The **National Mirror Group** is a cross-governmental body bringing together the relevant ministries and technical stake bodies in climate-relevant sectors to support the progress of Ireland's Mission Cities through technical and policy support, coordination and problem solving.

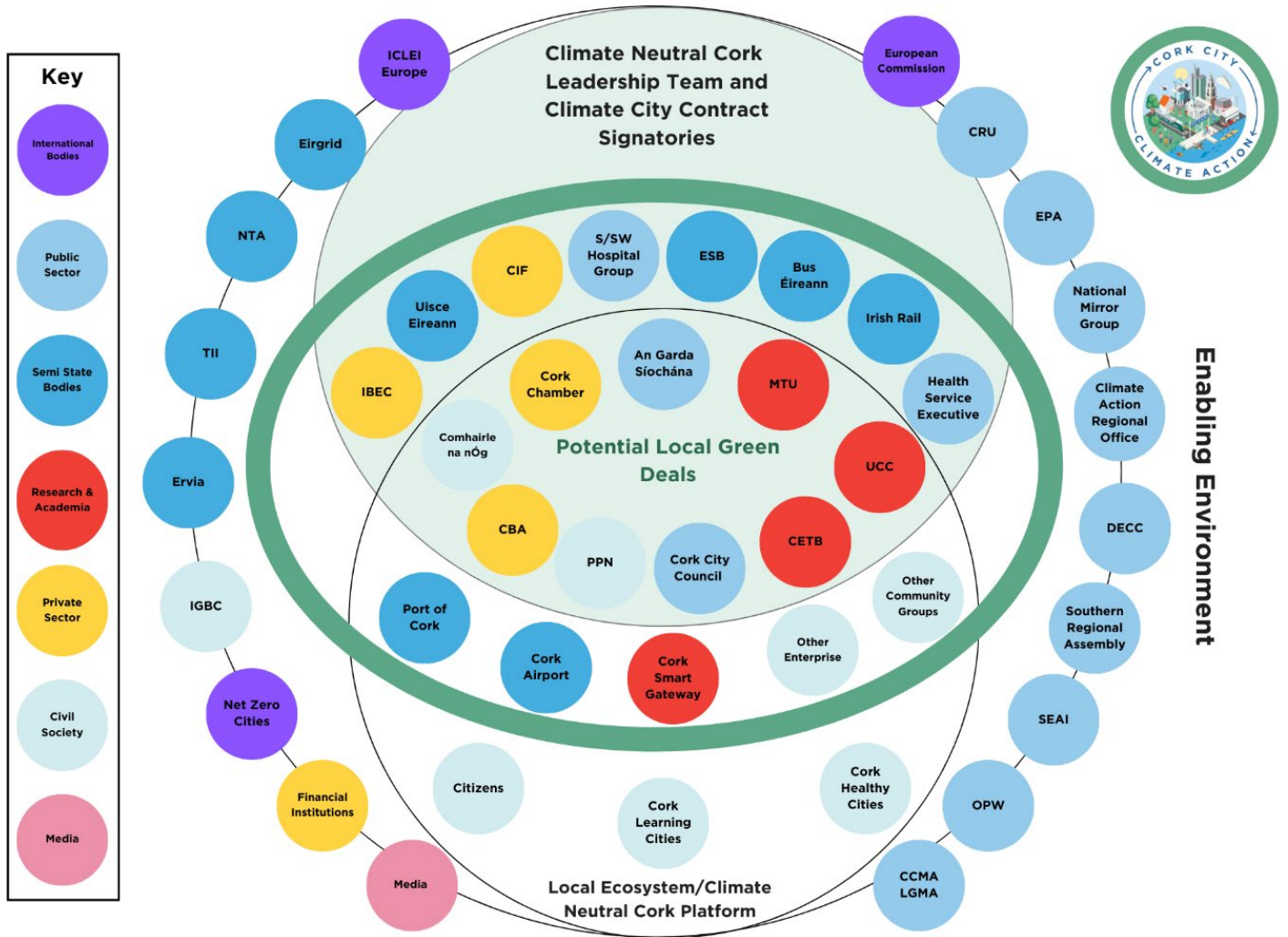


Figure 6: Cork City Stakeholder Universe



Figure 7: Cork City Stakeholder Universe aligned with Strategic Priorities of the CCC

The **Climate Neutral Cork Leadership Group** currently comprises the following member organisations:

Member	Function
Cork City Council	Local Authority, Chair of the Leadership Group
Munster Technological University	Third-Level Academic Institution
University College Cork	Third-Level Academic Institution
Cork Education & Training Board	Vocational Education and Training Institution
Cork Chamber of Commerce	Representative Business Organisation
Cork Business Association	Representative Business Organisation
Irish Business & Employer's Confederation	Representative Business Organisation
Construction Industry Federation	Representative Business Organisation for the Construction Industry
Public Participation Network	Statutory Participatory Body for Civil Society Organisations
Health Service Executive	Health Services Implementation Body
South/Southwest Hospital Group	Health Services Implementation Body
An Garda Síochána	Police
Bus Éireann	Public Transport Provider
Comhairle na nÓg	Youth Council
Irish Rail	Public Transport Provider
ESB Networks	Electricity Grid Owner
Uisce Éireann	National Water Infrastructure Provider

The Stakeholder Universe mapping contains the following stakeholders:

Acronym	Stakeholder	Description
CARO	An Garda Síochána	The police force in Ireland
	Bus Eireann	An Irish state-owned bus and coach operator
	Climate Action Regional Authority	Coordinates and supports local government to lead transformative change and measurable climate action across our cities and counties
CBA	Cork Business Association	An engaged, connected and committed representative of the business community in Cork City
CCC	Cork City Council	The local authority for the city of Cork
CCMA	County & City Management Association	The County and City Management Association (CCMA) is the 'representative voice' of the local government management network.
CETB	Cork Education and Training Board	Provides a range of Further Education and Training services in Cork
CIF	Construction Industry Federation	The Irish construction industry's representative body
	Comhairle na nÓg	Child and youth councils in the thirty-one local authorities of Ireland, which give children and young people the opportunity to be involved in the development of local services and policies
	Cork Chamber	A Chamber of Commerce, delivering on a progressive, economic, social and sustainability agenda
	Cork Healthy Cities	Cork is a designated World Health Organisation Healthy City, with this designation is a requirement of the local authority to commit to health and a process and structure to achieve it
	Cork Learning Cities	Committed to developing Cork as a Learning City for all its citizens. Believe in giving access to and supporting all our citizens to assume any learning opportunities, at any stage, throughout their lives.
CRU	Commission for Regulation for Utilities	Ireland's independent energy regulator
DECC	Cork Smart Gateway	Engage with smart technology providers, citizens, and researchers to solve the challenges faced by county and city living.
	Department of the Environment, Climate and Communications	A department of the Government of Ireland that is responsible for the telecommunications and broadcasting sectors and regulates, protects, and develops the natural resources of Ireland
	EirGrid	EirGrid is the state-owned electric power transmission operator in Ireland
EPA	Environmental Protection Agency	Responsible for protecting and improving the environment as an asset for the people of Ireland
ESB	European Commission	The European Commission is the primary executive arm of the European Union
	Electricity Supply Board	A state-owned electricity company in Ireland
	Ervia	A multi-utility company distributing pipeline natural gas and dark fibre services in Ireland

Acronym	Stakeholder	Description
IBEC	Irish Business and Employers' Confederation	A business representative lobbying organisation and human resources provider in Ireland
ICLEI Europe	International Council for Local Environmental Initiatives Europe	A leading network of local and regional governments committed to sustainable development
IGBC	Irish Green Building Council	A non-profit organisation that works to accelerate the transformation of the built environment to one that is sustainable.
	Irish Rail	The operator of the National Railway Network of Ireland
LGMA	Local Government Management Association	Is a state agency that supports and advises' local authority on strategy, policy, and innovation
MTU	Munster Technological University	A public technological university located in Cork and Kerry
	National Mirror Group	Brings together representatives from all areas of civilised society, who give their independent advice on EU policies and legislation
NTA	National Transport Authority	NTA is responsible for developing and implementing strategies to provide high quality, accessible, sustainable transport across Ireland
	Net Zero Cities	A project that helps European cities to overcome barriers and achieve net zero emissions by 2030
PPN	Public Participation Network	A network that allows local authorities to connect with community groups around the country
	Southern Regional Assembly	The Southern Regional Assembly has a role in regional planning, implementing the Regional Spatial & Economic Strategy and managing EU programmes and funding in the Southern Region of Ireland
S/SW Hospital Group	South/Southwest Hospital Group	One of the hospital groups established by the Health Service Executive of Ireland
SEAI	Sustainable Energy Authority of Ireland	Ireland's national sustainable energy authority
TII	Transport Infrastructure Ireland	TII is a state agency that provides and operates sustainable transport infrastructure in Ireland
UCC	University College Cork	A public university in Cork
	Uisce Éireann	A state-owned water utility company in Ireland

The **stakeholder network** is supported by Cork City Council which has aligned its own governance structure with that for the mission, as shown in figure 9 below.

Cork City Implementation, Monitoring, Evaluation and Learning Structure for Climate Action

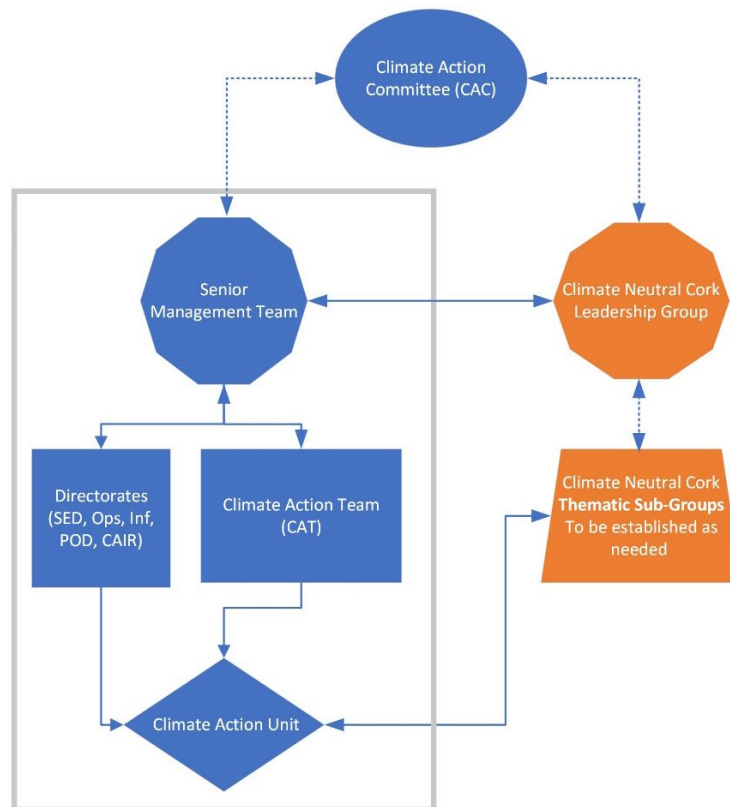


Figure 8: Cork City Implementation and MEL Structure

In this structure:

- **The Climate Action Committee (CAC)** comprises elected members of the City Council who review progress and approve specific policy measures and plans.
- The **City Council Senior Management Team** hold delivery responsibility for sectoral implementation through their individual directorates.
- The **Climate Action Team (CAT)** comprises senior officers from all directorates responsible for delivery of specific actions under the CAP and CCC. This is the apex coordination body for climate action in the City Council.
- The **Climate Action Unit** provides coordination services, information management for the internal coordination body, the Climate Neutral Cork Leadership Group, and the Net Zero Cork Platform. Our understanding of the Mission architecture and methodology has grown alongside an expanding Climate Action Unit, which now comprises five full-time staff.
- The **Climate Neutral Cork Leadership Group** comprises multi-sector stakeholders (public sector, private sector, community groups) to coordinate the development and implementation of the CCC.



- The **Climate Neutral Cork Platform** is a public participation body that creates space for organisations of all kinds, and individuals to learn from each other, share knowledge, identify collaborators, and map progress to net zero.

Informal Opportunities for Climate Action

In addition to the establishment of formal structures for discussion, co-creation, partnership, and collaboration, we also encourage informal spaces to arise for dialogue and innovation to take place, and to propagate climate leadership. Our [Community Climate Action Fund](#) will help to build networks and promote leadership and participation in concrete actions. The [EcoLab](#) component of the Kinship Project at Tramore Valley Park, a unique green space in the city built on a former landfill site, provides one such space for creative engagement. Further funding from sources like [Creative Ireland](#), among others, and the establishment of the Net Zero Cork public platform will increase opportunities for informal leadership of the climate transition to emerge.

4. Process and principles

A Principled Plan

Cork's CCC is a **principled plan**. It builds on the 2019 [Climate Action Charter](#). While this plan supersedes some of the specific clauses of the Charter, its commitment to a participatory approach that includes residents' voices, strong partnerships including with business and academia, and the mainstreaming of climate action in all our work, such as planning and regulation, and effective monitoring and evaluation, remain highly relevant.

Our principles are:

- **Cork City residents support climate action.** Our proposals will be bold and ambitious. Business as usual will not be enough. We will ensure citizens are at the heart of decision-making throughout the transition.
- We will take risks through **innovation** and **learn from our mistakes**.
- **Our transition to net zero will be fair.** It will help the most vulnerable groups in the city so that climate action does not push them further behind.
- We will seek out **creative and high-impact partnerships** with our community organisations, businesses, and academic institutions, among others, to drive and accelerate progress.

These principles are established in the Cork City CAP 2024-2029, adopted by the City Council in February 2024. Stakeholders' willingness to engage and our shared principles will be applied consistently throughout the implementation of the CCC.

Embedding Learning in the CCC



Figure 9: Kolb's Experiential Learning Cycle

Kolb's theory describes two ways for people to grasp knowledge. The first is related to the impact of concrete experiences, the second is thinking about those experiences. Reflective observation, watching what is happening, and active experimentation, or trying new ways of working, are ways to help people to transform their experience into knowledge. Cork City Council will mainstream this approach into its management and review processes, whether wholly internal actions, or those conducted in partnership with others. The model accommodates both formal, documented review of actions taken, and informal individual and group learning processes.

Cork's Systemic Work Process and Future Iterations of the CCC

Cork City Council has established internal management structures for climate action and the delivery of the Cork City CAP 2024-2029, shown in figure 8 above. These structures will manage and coordinate the work the City Council does on both decarbonisation and adaptation of its own assets and public services, and its influencing, advocacy, and support to other stakeholders in the city as they implement their own actions to achieve net zero. In addition, the structures envisaged to provide city-level governance, the Climate Neutral Cork Leadership Group, and the thematic sub-groups, initially addressing buildings and energy, and transport and mobility, will ensure ongoing coordination, collaboration, and resource identification. Engagement with the public and other enterprises and institutions will be supported by the forthcoming Climate Neutral Cork Public Platform. These structures will provide the infrastructure to manage and coordinate our collective work towards net zero and to ensure that the wider community are engaged and have opportunities to join in.

Cork City has embarked upon a phased approach to achievement of net zero, in the context of the EU Climate Neutral and Smart Cities Mission, set out in figure 10 below.

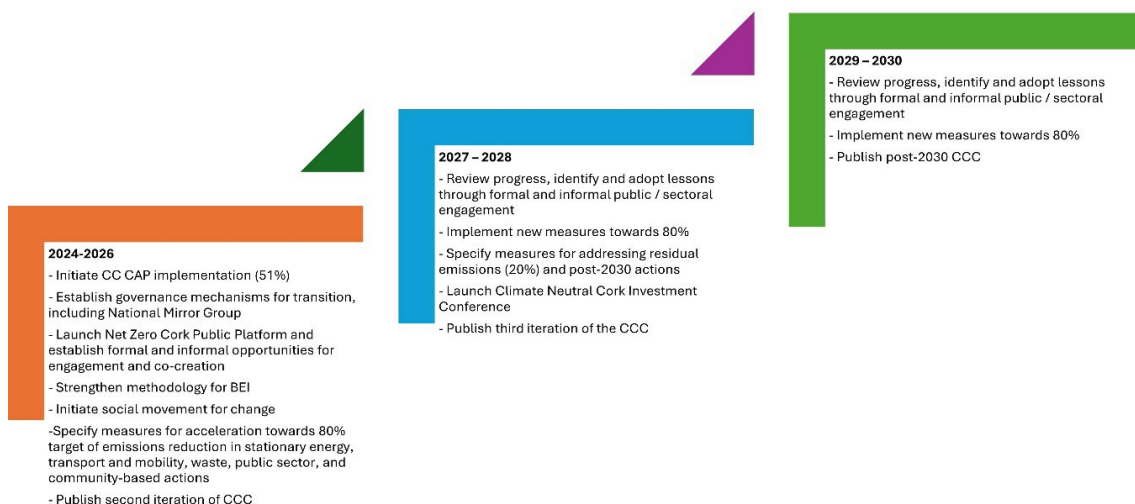


Figure 10: Cork City CCC - Phased Approach up to 2030

The City Council will implement the following steps to inform each successive iteration of the CCC:

- **Updated Baseline Emissions Inventory.** The second iteration will draw on the latest available data and address some of the methodological limitations of the 2023 edition, such as related to energy consumption and emissions scopes, while maintaining comparability with the baseline.
- **Updated Household Survey.** The second iteration will be more comprehensive, as survey findings will complement other research work done in the city by our academic partners.
- Follow up climate conversations with key stakeholder constituencies in the city and augmented by our ongoing work to stimulate and support public engagement and the creation of a social movement for change.
- **Review of actions taken during each phase,** their impact on emissions, and the identification of lessons from what worked and what did not. This task will draw on the monitoring data from stakeholder groups on the progress of their own actions.
- **Ongoing work among all stakeholders** throughout each phase to co-create and specify new measures, and the means of financing them, to accelerate actions and increase impact.
- **Statutory Climate Action reporting mechanism** is being developed in collaboration with the DECC (Department of the Environment Climate and Communications) and all local authorities in Ireland, with the support of Climate Action Regional Offices. The mechanism co-designed in 2024 will be built upon to monitor and report on progress of the CCC, reducing the risk of duplicated effort.
- **Signatories re-sign the Commitments Document** to show their support for changes that arise from the bi-annual review process.

The Climate Action Unit will collate and share data from all relevant sources and undertake analysis and reporting tasks, with external support from academic and commercial partners where needed. A climate data dashboard will be created for all stakeholders to visualise progress towards net zero, which we expect to be in place by the second iteration of the CCC in 2026.

Monitoring reports will be published annually. Periodic internal and external, independent impact evaluations to review what has changed and how will be commissioned separately.

5. Signatories

Name of the signatory (organisation)	Sector	Level	Name of the responsible person	Position of the responsible person
Cork City Council	Local Authority	Local	Anne Doherty and Councillor Kieran McCarthy	Chief Executive Immediate past Lord Mayor of Cork
Department of the Environment, Climate and Communications	Relevant National Climate Action Department	National	Eamon Ryan	Government Minister
Cork Education & Training Board	Vocational Education and Training Institution	Local	Denis Leamy	Chief Executive Officer
Cork Chamber of Commerce	Representative Business Organisation	Local	Conor Healy	Chief Executive Officer
Cork Business Association	Representative Business Organisation	Local	Aaron Mansworth	President
Irish Business & Employer's Confederation	Representative Business Organisation	National	Stephen Griffin	Senior Director
Construction Industry Federation	Representative Business Organisation for the Construction Industry	National	Joanne Treacy	Director
Public Participation Network	Statutory Participatory Body for Civil Society Organisations	Local	Alannah O'Callaghan	PPN Co-ordinator
Irish Rail	Public Transport Provider	National	Jim Meade	Chief Executive Officer
Munster Technological University	University	Local	Maggie Cusack	President
ESB Networks	Electricity Utility	National	Nicholas Tarrant	Managing Director
Health Services Executive Cork and Kerry Region	State Health Services Provider	Regional	Andy Phillips	Regional Executive Officer
University College Cork	University	Local	John O'Halloran	President
Comhairle na nÓg	Youth Council	Local	Elaine Howley	Comhairle Facilitator
Bus Éireann	Public Transport Company	National	Stephen Kent	Chief Executive

All members of the Climate Neutral Cork Leadership Group have signalled their intent to sign the Commitments Document.



Comhairle Cathrach Chorcaí Cork City Council

Halla na Cathrach, Corcaigh - City Hall, Cork - T12 T997

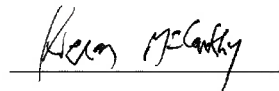
We, the undersigned, hereby commit to collaborate with members of the Climate Neutral Cork Leadership Group to strive to make Cork City climate neutral by 2030. We agree on the joint ambition and commitments, as outlined in the Commitments document. Cork City has established three inter-linked goals for 2030:

1. Achieve net-zero GHG emissions in line with the EU's Climate-Neutral and Smart Cities Mission's objective, which we consider a minimum of an 80% emissions reduction over 2018 baseline levels.
2. Protect and enhance our natural and built environment for future generations, and
3. Establish best-practice governance to lead the city into a sustainable and prosperous future.

We aim to support these goals with the following actions:

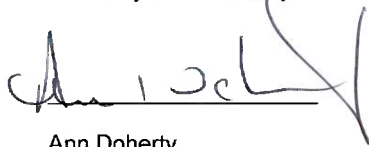
- Implementation of our Local Authority Climate Action Plan
- Accelerate actions wherever possible
- Continue to promote the City's climate neutrality ambition to our communities and stakeholders

Date of signature



Cllr Kieran McCarthy

Lord Mayor of Cork City



Ann Doherty

Chief Executive Officer



We are Cork.