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Executive Summary

Cork City Council is currently preparing a Cork City Climate Action Plan as part of both our statutory climate-action requirements and our participation in the EU 100 Climate-Neutral and Smart Cities Mission. Cork City Council is participating in the Mission as it acknowledges the need for the City to accelerate actions and learn from our partners in the Mission. This summary report synthesises the findings of the analysis and consultation work completed to inform the development of the draft Cork City Climate Action Plan.

Two baseline studies were conducted to provide the evidence base for the Plan.

Baseline Emissions Inventory (May 2023)

UCC's MaREI mapped the greenhouse gas emissions of the city. Emissions were modelled and mapped for six sectors: road transport; households; commercial services & industry; public services; agriculture, fisheries, land use, land use change & forestry; and waste handling & treatment.

Climate Change Risk Assessment (May 2023)

This report provides an assessment of potential climate change risks for Cork City and the impacts of these for the delivery of services by Cork City Council. The assessment was carried out by KPMG for Cork City Council.

Three pre-plan stakeholder engagement series were held to solicit a broad range of ideas and suggestions from our community. Over 760 people participated in the various aspects of this engagement process.

Residential Survey on Climate Action

(April/May 2023)

Cork City Council commissioned a face-to-face residential survey to elicit the views of citizens on climate action.

Cork City Climate Conversations

(May/June 2023)

Four participatory stakeholder workshops were held in May and June. These were with the public, private and community sectors, and with City Councillors.

Engagement with Children and Young People

(March 2023)

This consultation used play and discussion with young people to determine how to make Cork City the best place for people and nature to thrive. A further workshop was held by the Young Social Innovators with young people representing five second-level schools.

Executive Summary

This report summarises the outcomes of the studies and engagement process and synthesises them in the following conclusions:

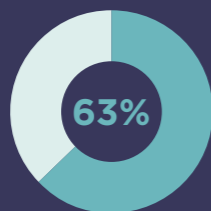
Supportive

The majority of residents of Cork City support **Climate Action**



Emissions

Most of the city's emissions come from our **residential properties** and **road transport**.

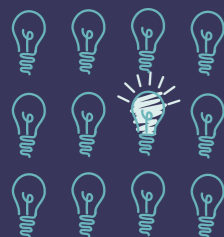


Ambitious Changes



Residents of Cork City want to see **ambitious climate actions** taken and want any changes to be fair.

A different approach



We all need to **work differently** to achieve greater sustainability, working in partnership and communicating more clearly.

Action

Existing policies and plans at the global to local level require the Council to **act**.



Negative Impact

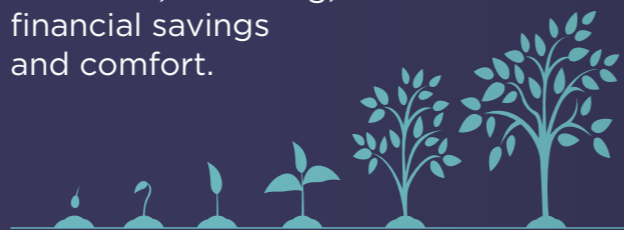


Residents of Cork City will experience negative impacts from climate change if action is **not taken**.



Benefits of action

Climate action will create many **positive and desirable co-benefits** on health, wellbeing, financial savings and comfort.





Introduction

Introduction

The Local Authority Climate Action Plan (the Plan) is a statutory requirement of the Climate Action and Low Carbon Development (Amendment) Act of 2021.

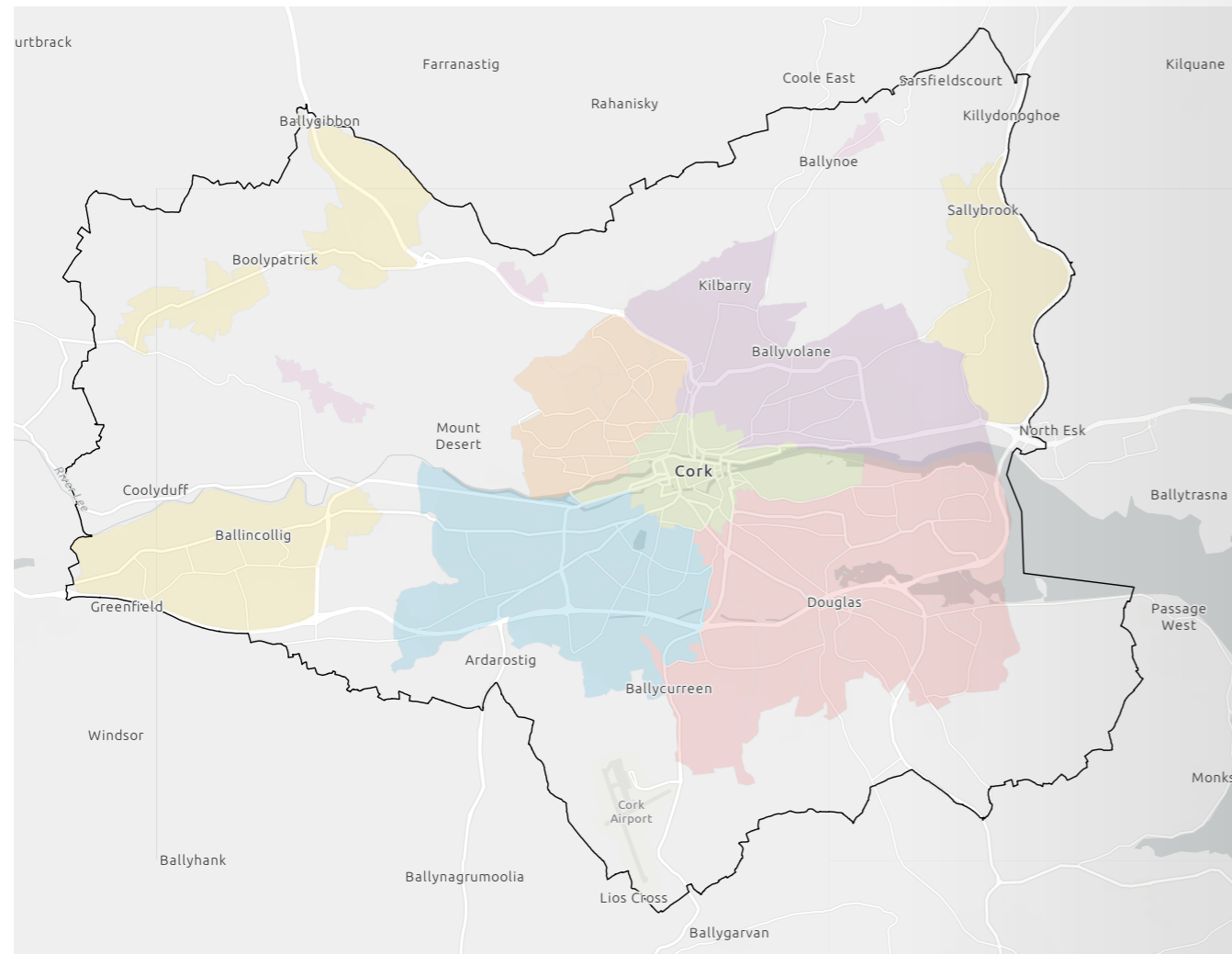
The Plan must set out 'specific, action-focused, time-bound and measurable actions' that contribute to the achievement of Ireland's legally binding climate ambition to '*transition to a resilient, biodiversity rich, environmentally sustainable and climate neutral economy*' by the end of 2050. Our interim target is a 51% reduction in greenhouse gas (GHG) emissions by 2030. Cork City Council's Plan is aligned with the Local Authority Climate Action Plan Guidelines published in 2023.

In Cork City, the wider context is that we are participating in the EU 100 Climate-Neutral and Smart Cities Mission. This landmark initiative requires us to significantly accelerate the delivery of the European Green Deal's goal of becoming a 'net zero' continent by 2050.

The 'Cities Mission' will require systemic transformation in how we produce and use energy, particularly in our buildings and transport sectors. We will need to overcome local barriers to achieving carbon-neutral status well ahead of that current European, and national, target.

Without downplaying the daunting governance, resourcing and logistical challenges that lie ahead, and recognising that Cork is starting from a comparatively low base, the prestigious designation as a Mission City vindicates the considerable recent progress made by Cork City Council. This includes establishing Ireland's first dedicated local authority Climate Action Committee (elected representatives), supported by a Climate Action Team (chaired by the Chief Executive) that operates across the organisation.

The challenges of sustainability and climate action also underpin the 2022-2028 City Development Plan, which frames how Cork will accommodate very significant population growth over the next two decades. Accordingly, significant investment in initiatives to improve quality of life has been rolled out, including: active travel measures; retrofit of social-housing stock; and development of parks, and blue and green amenities in a manner that supports biodiversity. A pronounced Smart City agenda is also in evidence.



Decarbonisation Zone

Government guidance on climate action planning requires each local authority to identify a Decarbonising Zone (DZ). While ultimately the aim is that the whole city will be a decarbonised zone, the DZ area, as shown in Figure 1, will be used to pilot specific actions. At c. 5km², the DZ covers about 3% of the city's area, stretching from the west of the city centre at the Tyndall Institute out towards,

and including, the Munster Technological University's Bishopstown campus. The DZ has a population of 13,927, approximately 6% of the population. It was chosen as it incorporates a broad mix of public and private sector buildings, with Higher Education Institutions, a business and technology park, two hospital, hotels, schools, and mixed residential buildings.

Profile of Cork City

Cork City is Ireland's second largest city. According to the 2022 Census, Cork City has a population of 224,004 people, an increase of 13,151 (c. 6.2%) since the previous census in 2016. The River Lee runs through the heart of the city and on to Cork Harbour.

The rivers and waterways play an important role in the layout and structure of the city and are an integral element of the city's landscape character.

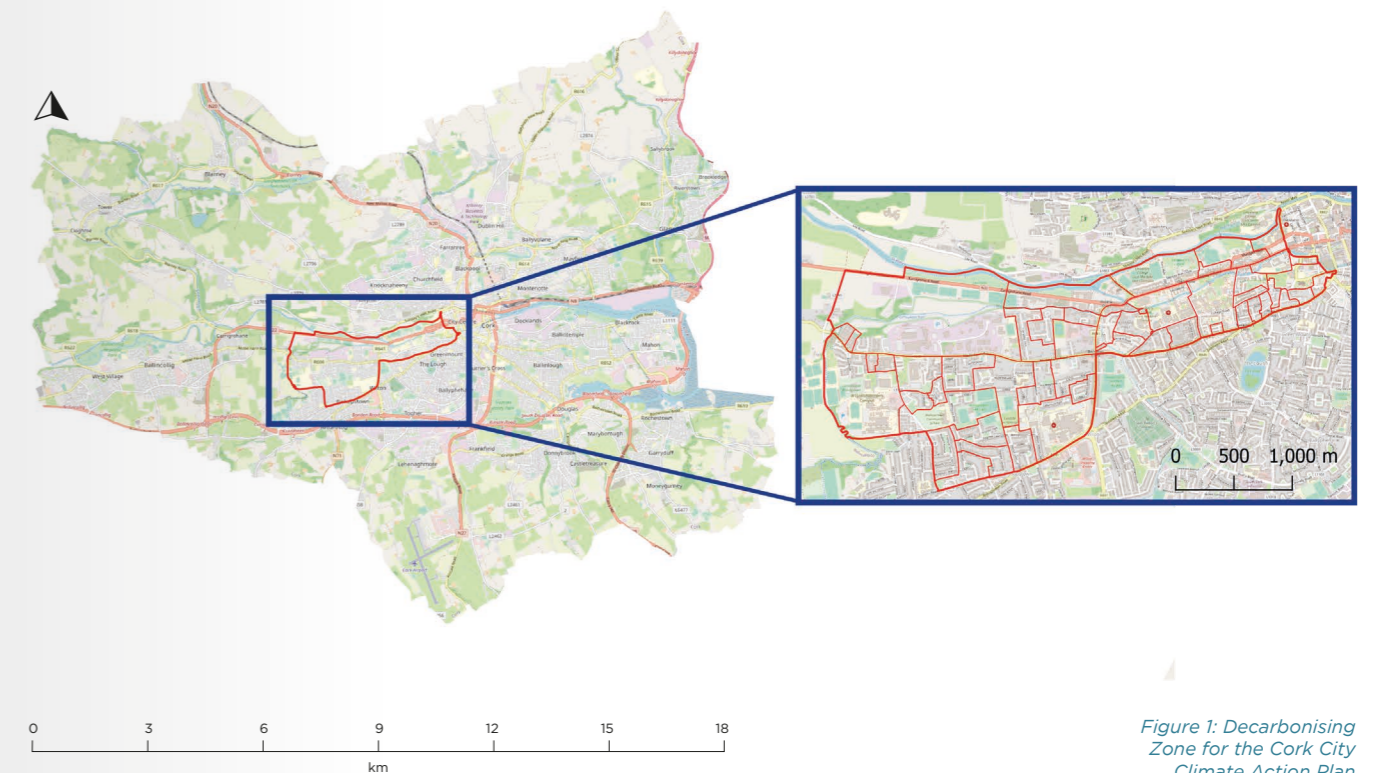


Figure 1: Decarbonising Zone for the Cork City Climate Action Plan



Summary of baseline studies

Baseline Emissions Inventory (The Mitigation Baseline)

Cork City Council commissioned UCC's MaREI Centre to spatially map the GHG emissions of Cork City and the DZ for the base year of 2018.

MaREI is an internationally recognised centre for energy, climate and marine research and is co-ordinated by the Environmental Research Institute in UCC. The base year of 2018 was chosen as most data was available for that year. Emissions were modelled and mapped across six sectors, as shown in Figure 2: households; road transport; commercial services & industry; public services; agriculture, land use (including forestry) and fishing; and waste handling & treatment. The sectors match those used in the national emissions inventory.

In Cork City, Greenhouse Gas emissions per-capita in 2018 were found to be three times lower than the national figure. This was largely due to the lack of agricultural emissions and industrial activity within the city.

Total GHG emissions for Cork City were found to be 987 kt CO₂-eq. Energy-related CO₂ emissions were 92% of GHG emissions (902 ktCO₂-eq).

The two largest sources of GHG emissions were found to be buildings and transport. The DZ accounts for 8% of Cork City's GHG emissions and almost 50% of these are from public buildings. This was due to the concentration of public sector building in the DZ area such as UCC, MTU and CUH.

In terms of absolute emissions (total kt CO₂), the city suburbs and urban towns, with their larger homes, and the main transport link roads (e.g. N40 and Dunkettle Interchange) were evident on the maps.

Emissions Breakdown by Sector for Cork City

Sector	CO ₂ -eq (ktonnes)
Household	332
Commercial Services & Industrial	216
Road Transport	290
Public Services	65
Agriculture, Land Use & Fishing	62
Waste	22
Total	987

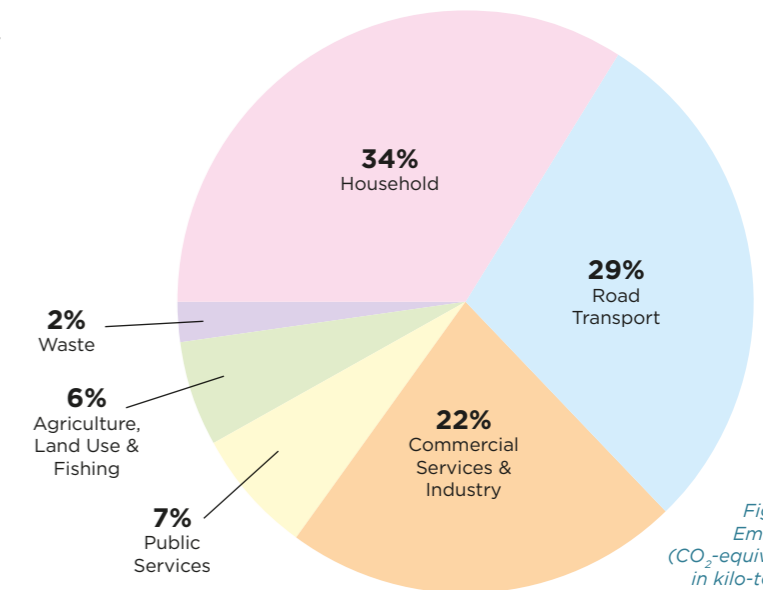














Figure 2: Emissions (CO₂-equivalents in kilo-tonnes) per sector in Cork City, 2018.

Climate Change Risk Assessment (The Adaptation Baseline)

KPMG completed a Climate Change Risk Assessment for Cork City. As the climate changes, we will see changes to our weather patterns that will potentially pose additional risks to the population and the city’s natural and built environment. The projected changes in risk posed by major natural hazards are summarised below.

 <p>Pluvial and fluvial flooding</p>		<p>Pluvial (from rainfall) and fluvial (from the river) flooding already pose a significant risk for Cork City and have resulted in the inundation of homes (e.g. Glanmire) and buildings (e.g. Douglas and the Carrigrohane Road), disruption of transport networks (e.g. South City Link Road), increased pressure on emergency services (such as with the evacuation of residents in 2009), and the closure of public amenities (e.g. Mardyke Arena). Projected increases in the frequency of extreme precipitation events will result in increased surface water and riverine flood risk for Cork City.</p>
 <p>Heatwaves and drought</p>		<p>Cork City experienced both a heatwave and a drought in 2018, with heatwaves also recorded in 2022. These events placed an increased demand on water resources and also put increased pressure on recreational areas, such as at the Lough. Projected increases in the frequency of heatwaves and drought conditions will mean that events currently experienced on a common basis will become more frequent.</p>
 <p>Tidal flooding</p>		<p>Tidal flooding, as in 2020 and 2021, resulted in the submergence of transport routes, damage to vehicles (e.g. at Morrison’s Island), inundation of buildings, and increased pressure on emergency services. Rising sea levels will increase the frequency of tidal inundation, resulting in an increased flood risk for the city.</p>
 <p>Coastal erosion</p>		<p>Coastal erosion is currently not considered a risk for Cork City. However, projected increases in sea level may result in an increased level of risk for coastal habitats (e.g. Cork Harbour Ramsar Site).</p>

 <p>Severe windstorms</p>		<p>Severe windstorms are currently experienced on a very frequent basis in Cork City and result in wide-ranging impacts, including damage to buildings and infrastructure (e.g. Kent Station), disruption to energy supply, and disruption of transport networks. Projections indicate no significant change to this frequency.</p>
 <p>Cold spells</p>		<p>Recent experiences of very cold spells (e.g. December 2022) and heavy snowfall, such as Storm Emma in 2018, demonstrate the wide range of impacts for Cork City. These included, amongst others, damage to water infrastructure and disruption of supply, cancellation of public transport, and widespread business and economic impacts. Projected increases in average temperature and decreases in the frequency of snowfall indicate a decrease in the frequency of cold spells, heavy snow fall, and their associated impacts.</p>

In addition to variations in the frequency of hazardous events, the population and developments in the city will change, potentially affecting their exposure and vulnerability to those events. Considering the projected changes in exposure and vulnerability, the future impacts for each of the ten hazards considered was assessed. These are outlined in Table 1 on the following page.

The **risks** associated with existing hazards, such as river, rain, and tidal flooding, are projected to increase because of projected **increases** in the frequency of those events and

also due to an increase in the areas, assets and populations exposed to these hazards.

Heatwaves and droughts, although already experienced in Cork City, are expected to occur more frequently and with a greater impact. The impact of more frequent hazardous events will be exacerbated by projected increases in population and the proportion of population considered vulnerable (those aged 65 years and over). These hazards can therefore be considered as **emerging risks** for the region.

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.

Colour coding of impact ratings

- Negligible
- Minor
- Moderate
- Major
- Catastrophic

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

Table 1: Projected Future Impacts of Climate Change in Cork City. (Source KPMG 2023)

Colour coding of impact ratings

- Negligible
- Minor
- Moderate
- Major
- Catastrophic

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

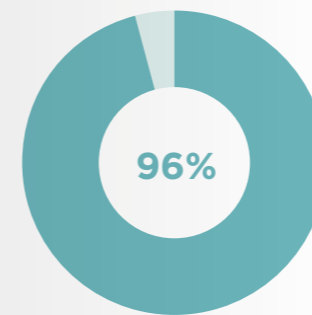
Table 1 (continued).



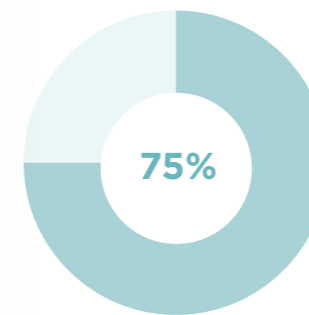
Pre-Draft Plan Stakeholder Engagement

Residential Survey on Climate Action

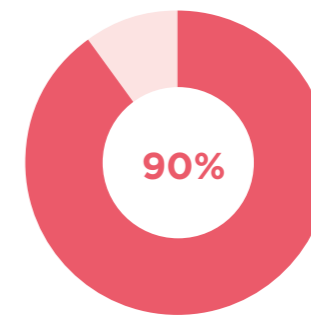
A national survey conducted by the EPA in 2022, Climate Change in the Irish Mind, found that Irish people overwhelmingly want Government to act on climate change.



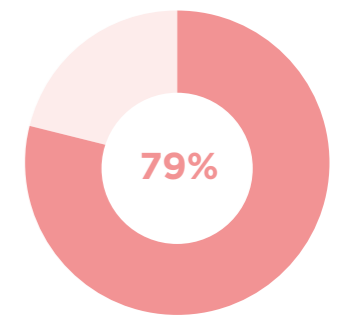
Nearly all, **96%**, of Irish people believe climate change is happening.



75% of people in Ireland think extreme weather poses either a 'high' or 'moderate' **risk to their community** over the next 10 years.



90% of people in Ireland say the country has a **responsibility** to act on climate change and should do what it can to reduce its own greenhouse gas emissions.



A large majority, **79%**, of Irish people say that climate change should be either a 'very high' or 'high' priority for Government.

To complement the national survey and inform the Climate Action Plan, Cork City Council wanted to establish Cork citizens' views on several key climate issues.

Cork City Council commissioned a household survey, carried out by Behaviour and Attitudes (B&A) and with input from the Environmental Protection Agency (EPA), to pin the analysis to the city level and to focus on policy areas where the Council has authority to act.

The survey focused on transport and residential, as they are the two biggest contributors to Cork City's direct and indirect annual GHG emissions. It also gauged city residents'

climate literacy and their support for some potential climate actions for the city.

In total, a representative sample size of 509 resident interviews was conducted face-to-face in the respondents' homes. The information coverage for the survey included the following modules: Resident Profile; Transport; Households; Knowledge & Understanding of Climate Change & Climate Action; Citywide Action.

Some key findings of the survey are summarised on Table 2 on the following page:








 <p>Climate Impacts</p>	<p>80% of residents believe climate change is already affecting weather in the Cork City area; over 1 in 3 respondents indicate they or their household has already suffered from one of the climate impacts. Belief reduces further down the socio-economic scale.</p>
 <p>Public Transport</p>	<p>Public transport in the Cork City area is evaluated very positively: over 60% of weekly users indicate the service has improved in the past 12 months across fares, frequency, reliability, and speed of travel.</p>
 <p>Hybrid / Electric Vehicles</p>	<p>1 in 4 petrol/diesel car owners are likely to purchase a hybrid or electric vehicle within the next three years. The key barriers to purchasing are expense and range concerns. Any change in driving frequency since COVID-19 is directly related to adapted working arrangements: only those who work from home are driving less.</p>
 <p>Cycling</p>	<p>26% of respondents cycle, with usage heavily weighted towards men and those under 35 years. The key barriers to cycling more frequently are perceived safety, and the related absence of cycle lanes.</p>
 <p>Home Upgrades / Retrofits</p>	<p>Near 1 in 3 homeowners are considering undertaking a home retrofit or energy upgrade within the next 12 months. Where previous upgrades focused on insulation, current demand appears broader in scope. 39% know their current BER rating. Respondents did not appreciate the major contribution of residential buildings to the city's GHG emissions.</p>
 <p>Co-benefits</p>	<p>Appreciation of links between climate actions and their co-benefits is consistently apparent. The potential for the co-benefits to drive support for climate action is also evident; support is similar across the co-benefits with low energy bills and reducing traffic congestion being the most persuasive.</p>
 <p>Support for Climate Actions</p>	<p>The top four climate actions are each supported by at least 85% of residents: more parks and biodiversity; more on-street tree planting; prioritisation of locally produced food; more pedestrianised streets. Reallocating road space and higher density housing are more contentious.</p>



Table 2: Key findings of the Residential Survey

Cork Climate Conversations

Change by Degrees Ltd facilitated four participatory workshops, to listen and to gather ideas and insights from the different stakeholder groups to inform the Climate Action Plan.

The focus was on identifying impactful and innovative ideas, on promoting collaboration, and on actions that deliver co-benefits and contribute to the Sustainable Development Goals (SDGs) while addressing the biggest sources of emissions. The four workshops were for the **Public Sector, Community Sector, Business Sector** and for **elected members of Cork City Council**.

The four workshops revealed a high level of interest in climate action, excitement about the Mission City ambition, and creativity and bravery to try new things. There are big ideas that will need significant investment and coherent and cohesive leadership. But there is also permission to try, to ask for help, and to challenge others to find solutions rather than obstacles.

 <p>Actionable / Investable Ideas</p>	<ul style="list-style-type: none"> • Implement existing climate-relevant plans. • Large-scale retrofitting programme for public and private buildings, with appropriate financial supports / incentives and information. • Solar panels on every roof. • Establish a forum to learn from experience of what works and what does not. • Review options to enhance energy security and sustainability in the city. • Combine public sector purchasing power. • Review employee parking in the city. • Review working methods. • Increase the level of pedestrianisation of neighbourhoods and the city centre. • Retain focus on a just transition.
 <p>Process and Culture Changes</p>	<ul style="list-style-type: none"> • Increase radical collaboration in and beyond the public sector, pool resources, and find shared solutions to common challenges. • Work more effectively with partners. • Recall the Covid Emergency, treat climate action the same way • Put in place measures to support property and business owners to finance decarbonisation. • Continue to build trust among all parties. • Be willing to take risks. • Engage diverse groups in climate action where they gather. • Tell stories, speak in plain English, to support climate action. • Improve communications reiterating how climate action will make the city more liveable.

YSI Climate Action Workshop

Young Social Innovators developed and hosted a stakeholder engagement event for secondary school pupils. Six pairs of pupils from five secondary schools participated. Participants were all at least in Transition Year, aged 15–17.

Participants were climate literate and displayed a good understanding of what climate change is, its impacts and causes. Participants also demonstrated great intrinsic knowledge of the local area surrounding their schools and associated climate hazards.

Nature-based solutions were overwhelmingly the most popular action card amongst this group of participants. This was closely followed by energy and transport, as in Figure 3.

Participants Preferences amongst provided Action Cards

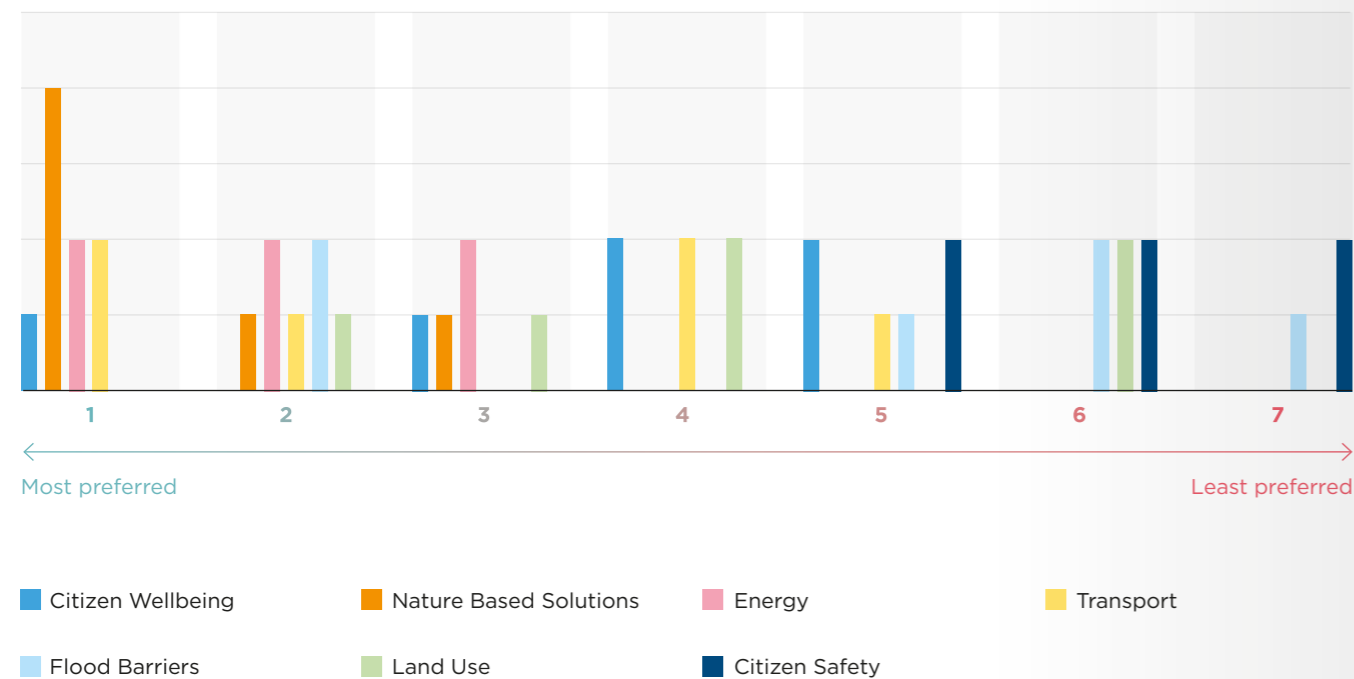


Figure 3

Play Strategist Consultation Process with Children

Martin O’Donoghue (Play Strategist) designed and piloted a *Playful Consultation Process* to facilitate the city’s children’s perspective in preparing the Draft Cork City Climate Action Plan. The consultation used play and discussion to determine how to make Cork City the best place for people and nature to thrive.



Figure 4. Wordcloud.

A word cloud of the 102 submissions made by the children is featured above in Figure 4.

The most popular ideas focused on increasing the number of trees across the city; pro-pollinator planting in parks,

windowsills, streets, and gardens; reducing plastic packaging in shops; and a playful approach to litter-bin design. Other suggested ideas included green roofs; wind turbines in the city; more solar panels; and bike lanes, so that children can cycle safely by themselves.

Conclusions

The baseline studies and pre-draft plan consultations show that:

- 1** The climate and biodiversity crises present serious challenges to the future well-being of Cork City and its citizens. In the city, 80% of citizens believe climate change is affecting the weather and a third have experienced impacts. Consistent and positive support for climate actions in the Cork City area is evident.
- 2** Existing and forthcoming national, regional, and city-level policies and plans require climate action in diverse areas such as buildings, transport, infrastructure, culture, economic development, and social cohesion. Our Climate Action Plan will incorporate these existing commitments.
- 3** Cork City emits nearly 1 million tonnes of CO₂ annually. 34% of emissions, the highest share, come from residential properties that use fossil fuels. Road transport contributes 29% of emissions, the second highest share. Making our homes more energy efficient and cosier, and reducing congestion through more and better public transport and active travel, are important ways to reduce our exposure to the damaging effects of climate change.
- 4** Cork City and its citizens will experience increasing and significant negative impacts on their assets including houses and infrastructure, their health and wellbeing, the environment, their social networks, and cultural heritage from climate-related hazards such as flooding and heatwaves. These hazards will place a greater financial burden on households and the city.
- 5** Most residents of Cork City are very supportive of different kinds of climate action and will benefit from making the city cleaner, healthier, less congested, and greener. Growing numbers of citizens are already taking personal action, whether in choosing to walk or cycle, or to make their homes more energy efficient. Many more plan to follow suit.
- 6** Residents have shared big ideas to achieve the transition to a sustainable, climate neutral city, such as large-scale public investment in retrofitting buildings and installing solar panels on every suitable roof. They want the transition to be fair, making sure that no one is left behind.
- 7** Our people demand that we all work in a different way. During the Covid-19 pandemic we collaborated in a radically different way to survive, and we need to retain this emergency approach to address the climate and biodiversity crises. We must be willing to take risks and to share power, to accelerate climate action and to involve everyone in the solutions. We must communicate more effectively to connect with our community on an emotional level to build support for change.

Conclusions



Comhairle Cathrach Chorcaí
Cork City Council