Climate Ready Edinburgh Plan 2024-2030

Foreword

In 2019, the City of Edinburgh Council declared a climate emergency and made a commitment to be net zero by 2030. This recognised both the urgency of the challenge and the role we must play as Scotland's capital city.

Since then, the Council has declared a nature emergency and made ambitious commitments to support the health and wellbeing of our city and citizens.

Our 2030 Edinburgh Climate Strategy sets out what it will take to meet these goals. This includes the actions and investments Edinburgh must make to become a net zero, adapted and nature positive city.

While reducing our carbon emissions is crucial to the future of our city, we also need to recognise that a changing climate presents new risks to how we live both now and in the coming years. Put simply, we need to adapt for our city to thrive.

For this reason, we need a single citywide partnership plan for how we can adapt to climate change. We've called this, the *Climate Ready Edinburgh* plan.

Global and local events tell us we have no other choice. In Edinburgh, we are already experiencing extreme weather. From rising temperatures, bringing heatwaves and drought, to heavy rainfall and significant flooding events across the city.

Extreme weather will continue to disrupt how we live our lives. That's why we need to take an inclusive approach to this, with climate justice at the heart of how we work. We know that inequality persists in our city, and we must ensure our response to climate change does not exacerbate poverty.

Climate change, nature and poverty are all inter-related challenges, which must be addressed with increased investment, urgency, skill and determination.

We know that the decisions we make now can secure the comfort, safety and wellbeing of future generations in a thriving green city. We hope that you will work with us to help deliver our vision, where people, communities and nature can all live well in a changing climate.

Councillor Cammy Day
Leader of the City of Edinburgh Council and Chair, Edinburgh Partnership

Gordon Reid
General Manager Zero Emissions, Scottish Water and Chair, Edinburgh Adapts

Back to contents

Contents

Back to contents

Glossary

Climate Adaptation

As defined by Adaptation Scotland, ‘Adaptation is about responding to the changes that we have seen in Scotland’s climate over the last few decades and preparing for the challenges and opportunities that we will face as our climate continues to change in the decades ahead. Adaptation goes hand in hand with work to reduce greenhouse gas emissions, often referred to as climate change mitigation.’

Climate Justice

‘Justice that links development and human rights to achieve a human-centred approach to addressing climate change, safeguarding the rights of the most vulnerable people and sharing the burdens and benefits of climate change and its impacts equitably and fairly.’ Intergovernmental Panel on Climate Change (IPCC).

Just Transition

‘A transition that ensures the economic, environmental and social consequences of the ecological transformation of economies and societies are managed in ways that maximise opportunities of decent work for all, reduce inequalities, promote social justice, and support industries, workers and communities negatively affected, in accordance with nationally defined priorities, and based on effective social dialogue.’ Joint Oireachtas Committee on Climate Action.

People First Approach

The Public Sector Equalities Duty requires public authorities to have due regard to certain equality considerations when exercising their functions. The Climate Ready Edinburgh Plan aims to ensure that all protected characteristic groups are supported to understand the impacts of climate change and there is consideration of their needs throughout this Plan’s actions. This applies in relation to tackling climate change through taking a climate justice and just transition approach.

A Nature Positive City

‘In 2050, Edinburgh will have a species-rich nature network from the uplands of the Pentland Hills to the coastal waters of the Firth of Forth. It will be an environment abundant in wildlife that is enjoyed and respected by people, making Edinburgh a beautiful place to live, work and visit.’ Edinburgh Biodiversity Action Plan 2022-2027 Vision.

Nature-based Solutions

Nature-based solutions are actions to protect, sustainably manage, and restore natural and modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human wellbeing and biodiversity benefits.

Introducing our Vision and Connections

Introduction

The Climate Ready Edinburgh Plan is the city's second adaptation plan and follows on from the Edinburgh Adapts Plan 2016 to 2020.

It builds on the Edinburgh 2030 Climate Strategy and the latest available evidence on how our climate is changing and will continue to change in the coming decades. It sets out the actions we need to take to ensure the city can adapt locally to these changes in our climate.

We consulted on the draft plan in early 2024 and listened to the views of individuals, communities and organisations on how the city could better prepare for climate change.

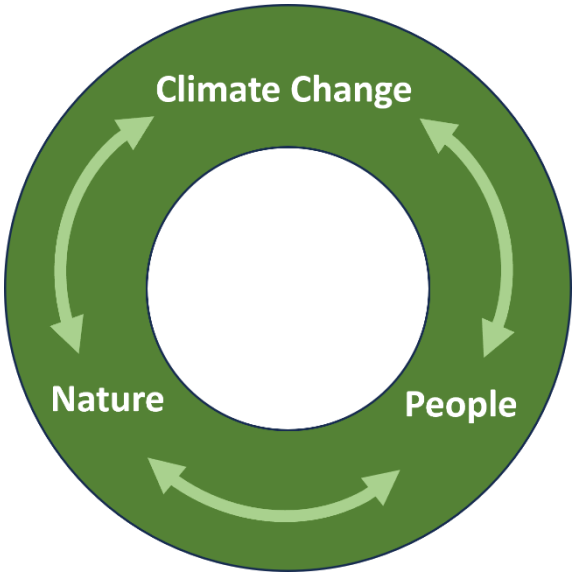
This plan aims to adapt our city in ways that are fair, equitable and beneficial to our people, communities, businesses, and nature.

Vision

We want to be a city that's not only net zero, climate resilient, and nature positive, but also takes a 'people first' approach, aligning with climate justice principles and guaranteeing a just transition for all.

Connections

The relationship between climate change, nature and people are interconnected and will impact on one another as the impacts of climate change become more acute. We therefore consistently refer to them all when we discuss climate change.

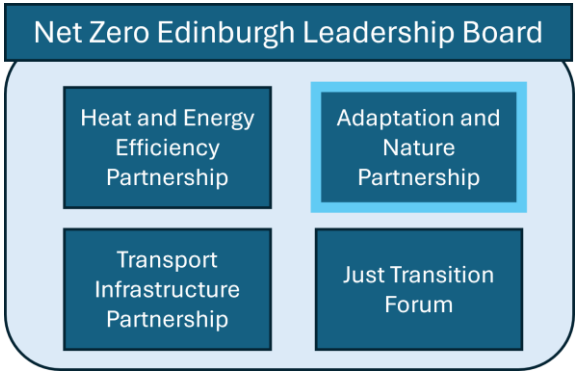


Back to contents

Governance and Delivery

The plan has been developed by the Adaptation and Nature Partnership, chaired by Scottish Water. The partnership is one of four thematic workstreams reporting to the Net Zero Edinburgh Leadership Board (NZELB), which is the overarching body responsible for monitoring progress and supporting partnership working. Actions set out in the plan will be delivered by the members of the Adaptation and Nature Partnership, alongside supporting agencies from the Net Zero Edinburgh Leadership Board, key stakeholders and citywide organisations. The supporting and interconnected partnerships are shown in Figure 1.

Figure 1 - Governance structure of adaptation in Edinburgh



The Adaptation and Nature Partnership is made up of:

- The City of Edinburgh Council
- Scottish Water
- Scottish Environment Protection Agency
- Edinburgh World Heritage
- Historic Environment Scotland
- NHS Lothian
- NatureScot
- Edinburgh Biodiversity Partnership
- University of Edinburgh
- Heriot-Watt University
- Napier University
- Edinburgh College
- Sniffer.

In some instances, it will be better to take actions forward at a regional level. Therefore, we are also working with regional partners to tackle surface water and river flooding and on cross-boundary and regional climate issues, starting with the development of a regional climate change risk assessment. This will help to ensure a clear and consistent approach to adaptation across Edinburgh and southeast Scotland.

The Case for Adaptation

All the actions in this plan will be examined through a lens of climate justice to ensure that we prioritise funding. We will take a 'people first' approach, working with all of our people and communities, including those vulnerable to particular climate risks and impacts.

The starting point for developing this plan was to first understand the likely impacts of climate change and the risks they create for the city. Developing this means we need to

- understand how climate change has already, and will continue to, affect Edinburgh and the potential consequences of this
- quantify the extent to which appropriate, prompt and long-term action will bring long-term savings
- make sure we use green blue infrastructure and nature-based solutions where possible to adapt our city, creating beautiful, nature positive places that benefit our citizens, commuters and visitors to the city.

How has Edinburgh's climate already changed?

In 2022, the City of Edinburgh Council commissioned AtkinsRealis to undertake an updated climate change risk assessment for the city, which included looking at how our climate has already changed. This work was based on the Met Office's "State of the UK Climate" report which is produced annually. [1]

Findings from the Met Office's report show that recent decades have been warmer and wetter, with changes in rainfall patterns and more frequent, heavy downpours. Sea levels are rising along our coast and there have been fewer days with frost and snow cover.

Scotland's 10 warmest years on record have all occurred since 1997. The average temperatures for the last decade (2014-2023) were 1.02ºC warmer than the 1961-1990 average, and the warmest year on record was 2022.

There has been an increase in rainfall over Scotland in the past few decades with an increasing proportion of rainfall coming from heavy rainfall events. The annual average rainfall in the last decade (2014-2023) was 10% wetter than the 1961-1990 average, with winters 29% wetter.

Mean sea level around the UK has risen by approximately **1.4 mm/year** from the start of the 20th century and the rate of sea level rise has increased over the last 30 years.

[1] The State of the UK Climate report is an annual publication which provides an accessible, authoritative and up-to-date assessment of UK climate trends, variations and extremes, based on the latest available climate quality observational datasets. The latest report is available on the Met Office website.

How will Edinburgh's climate change in the future?

The updated climate change risk assessment also examined how the climate is predicted to change in the future. It used information from the Met Office's UK Climate Projections 2018 (UKCP18)[2].The UKCP18 provides the most up-to-date and appropriate climate change scenarios for understanding climate change in Edinburgh.

From the risk assessment analysis of UKCP18, the long-term projected climate trends for Edinburgh are shown in the next column.

Long-Term Projected Climate Trends for Edinburgh

Average temperatures will continue to increase across all seasons.

Typical summers will be warmer and drier and winters milder and wetter.

Weather will remain variable and may become more variable.

Intense, heavy rainfall events will increase in both winter and summer.

As global average temperatures increase, we will also experience rises in sea level around Edinburgh's coast.

Winter frost and snowfall will reduce.

UK Climate Change Committee recommended approach

There are four potential climate outcomes included in UKCP18 going from an assumption of sustained and rapid reductions in greenhouse gas emissions globally to more extreme changes that are projected if emissions continue to rise and emission reduction targets are not achieved.

The amount of change that occurs will depend on how successful we are in reducing greenhouse gas emissions globally.

For this plan, we have chosen the most extreme scenario called the 'high emissions scenario' (Relative Concentration Pathway 8.5 (RCP8.5)). This approach is recommended by the UK Climate Change Committee, which advises taking a precautionary approach and adapting to 2°C of warming while preparing for a 4°C temperature rise.

[2] Adaptation Scotland's summary of UKCP18 projections for Scotland

Back to contents

Temperature

Temperatures in the 21st century are around 1°C higher than in the pre-industrial era.[3]

This warming trend is projected to continue into the latter half of the century. We therefore need to be ready for

- average temperature increases exceeding 5°C in the summer and 3°C during winter months
- the number of days exceeding 22°C increasing in frequency to 11 days per year by the 2070s
- heatwaves becoming around 4 times more frequent
- overnight temperatures exceeding minimum comfort thresholds for sleeping
- the number of days below 14.4°C decreasing over the next 60 years
- extreme cold and snow events are likely to become less frequent, but extreme events such as the 2018 “Beast from the East” may still occur.

Overheating due to rising temperatures is an emerging risk for Edinburgh. Temperature increases are likely to cause overheating of buildings, including health and education facilities, transport and travel disruption, and pose a particular risk to certain groups of people.

Rainfall

Rainfall patterns are changing and will continue to change.

- Average winters are projected to become up to 30% wetter by 2070, with more heavy rainfall and a greater number of wet days.
- Summers will become up to 60% drier by 2070. However, summer heavy rainfall events are projected to become more extreme, with greater amounts of rain falling over a shorter period of time.
- A notable increase in storm intensity can be expected over the next 30 years, with further increases in the subsequent 20 years.

In terms of severity, flooding and overheating are the two key climate risks that will impact Edinburgh the most.

Storms

In recent years, severe storms and high winds have caused damage, disruption and delays to Edinburgh.

Climate projections are uncertain regarding changes in wind speed. However, it is more likely that wind gust speeds and storm intensity will increase under a warming climate. There is also an increased risk of summer storms linked to heavy summer rainfall.

Many of the impacts from storms are interlinked with the impacts associated with flooding events.

Additional risks include an increased chance of power outages during high winds and thunderstorms. Driving wind and rain can cause structural damage and increase damage from damp and water ingress in buildings.

[3] UK MET Office Climate Projections: Headline Findings

Sea level rise

As global temperatures increase, sea levels will continue to rise along Edinburgh's coast.

Minimum increases of between 16-20 cm are likely in the next 20 years and increases as high as 90 cm are possible under a high emissions scenario.

In addition, there is also a low possibility that sea level rise this century could be much faster than anticipated as a result of additional melt from the Greenland and Antarctic ice sheets. This means that a sea level rise of 2m by 2100 cannot be ruled out for the UK.

Rising sea levels will mean extreme events such as storms having a greater impact and a greater risk of flooding from wave overtopping, especially during storm surges and high tides.

Sea level rise will also lead to greater erosion of Edinburgh's coastline and put increasing pressure on our sea defences.

The combination of possible increases in storm intensity in addition to projected sea level rise and a morphologically dynamic coast, means that protection in the future cannot be taken for granted.

Drought

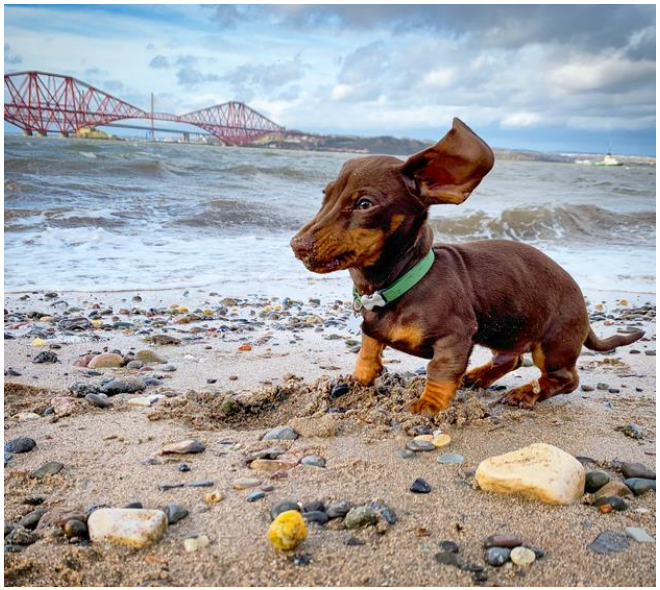
Prolonged periods of hot and dry weather due to increased summer temperatures and reduced rainfall could lead to drought.

This will exacerbate the effects of changing rainfall patterns on Edinburgh's lochs and reservoir levels and impact on river levels, wetlands and other water bodies in the city, affecting water availability and quality.

Additionally, reduced river flows can cause reduced dilution of pollutants, affecting aquatic health and biodiversity in rivers such as the Water of Leith.

Drought could also lead to soil erosion, reduce carbon storage and damage Edinburgh's peatland areas.

The evidence base showing how Edinburgh's climate is projected to change in the future and the impacts of this to the city is set out in Appendix 2.



What this plan does

The Climate Ready Edinburgh Plan sets out the specific actions our partnership has agreed are essential if we are to address the risks and impacts of a changing climate.

This plan aims to adapt Edinburgh in ways that are fair, equitable and beneficial to our people, communities and businesses, and help deliver a nature positive city.

We have identified nine priority themes and thirty-one objectives, which each have a set of actions for delivery between now and 2030.

For each action, the plan sets out the city partners who will deliver or support delivery of these actions, and the changes that need to be made to support climate justice and our natural environment.

> “Climate adaptation presents a proactive approach and pathway to safeguarding our future. Navigating the challenges of a changing climate requires collaboration, and the Climate Ready Edinburgh Plan exemplifies the collective effort needed. Embracing climate change adaptation not only enhances resilience but also presents a unique opportunity to shape a more equitable and just society for generations to come.”
>
> **Dave Gorman**, **Director of Social Responsibility and Sustainability, University of Edinburgh**

Back to contents

Climate Ready Edinburgh Priority Themes

Seven key priority themes are underpinned by two cross-cutting themes on building understanding of the risks to the city from climate change and on governance and investment. This is to ensure the plan continues to be based on the latest climate science and that the correct governance and investment is in place to drive delivery. This is shown in Figure 2 below.

A - Planning and the built environment: actions to help mitigate the effects of climate change by making our buildings and infrastructure more resilient.

B - Water management: actions to tackle flooding and the associated impacts from severe weather events.

C - Coastal adaption: actions to manage sea level rises and the impact to our coastline and surrounding communities.

D – Sustainable transport: actions to support a well-connected resilient city.

E - Safeguarding and enhancing our natural environment: actions that will support our natural environment and biodiversity.

F - Community, health and wellbeing: actions to support and build the resilience of our communities and health services, taking a 'people first' approach and ensuring a just transition for all.

G – Economy and culture: actions to increase business resilience, skills and job opportunities in adaptation and build up the resilience of our arts, festivals and events.

H - Building understanding of climate risk: actions to continue to ensure our understanding of how the climate is changing and the impacts of this to the city are based on the latest climate science.

I - Governance and investment: actions to drive delivery and partnership working.

Back to contents

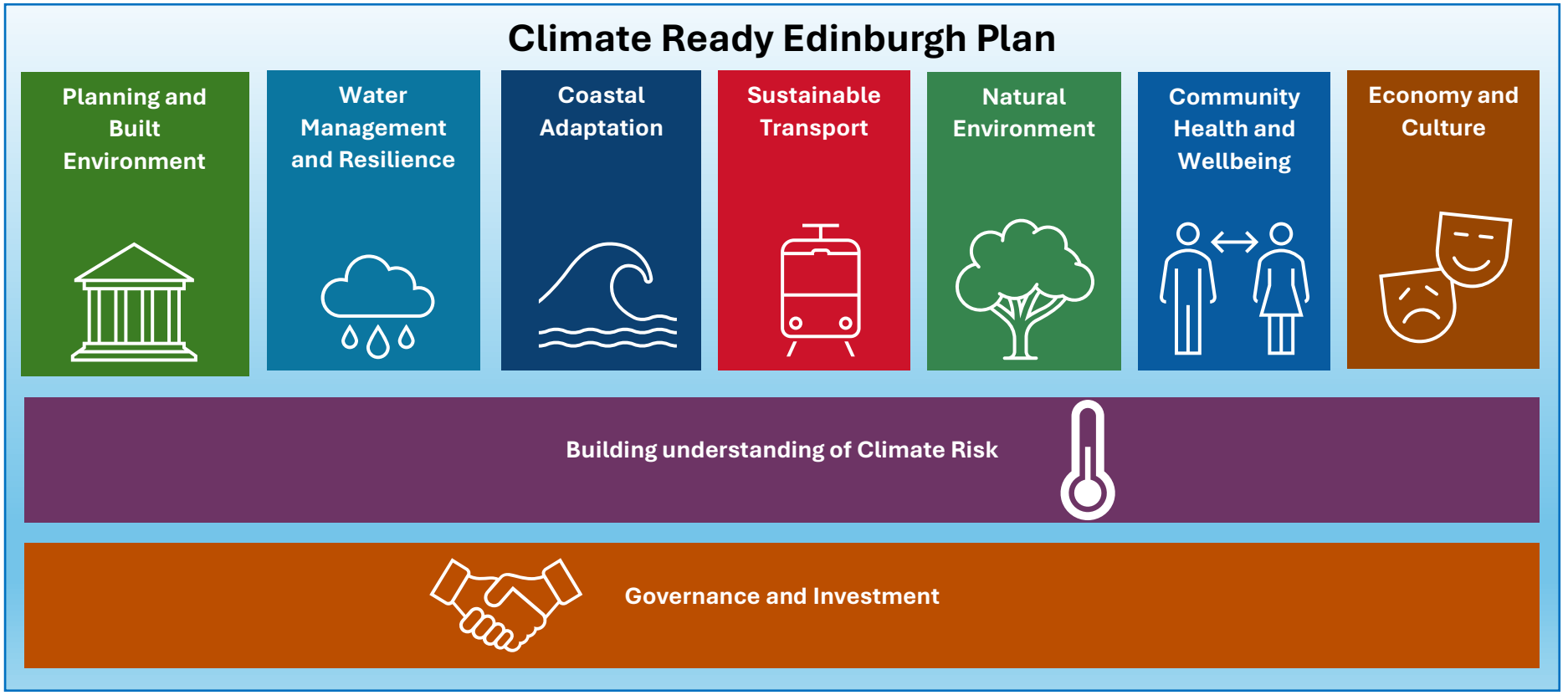


Figure 2 - Climate Ready Edinburgh Priority Themes

Climate Ready Edinburgh Strategic Objectives

A: Planning and the built environment

We can already see the impacts of climate change on our built environment. Rising temperatures, severe and variable weather and intense rainfall are damaging our buildings and infrastructure and causing disruption to travel.

As temperatures rise, overheating of buildings will become an increasing issue. Increased frequency of severe weather will lead to greater flooding, water ingress and dampness, increasing damage to the fabric of our buildings, infrastructure and surrounding areas.

The effects of climate change will not be felt evenly across the city. How exposed a place or community is to these impacts, the nature of the surrounding built and natural environment and differences in socio-economic circumstances will all impact on people's ability to adapt, especially the poorest, most marginalised and those living in vulnerable locations.

We have identified four key objectives to build resilience into Edinburgh's built environment.

Objective A1: Embed climate adaptation into future planning policy and guidance

We will embed climate adaptation and nature considerations into future city planning policy, guidance and projects, aligning with National Planning Framework Four (NPF4) considerations and Edinburgh's Water and Nature Visions. This includes building adaptation into all our planning functions, city strategies, masterplans and guidance documents, including Edinburgh's next local development plan (City Plan 2040) and Edinburgh Design and Street Guidance.

"The Climate Ready Edinburgh plan is a stepping stone to protect and sensitively adapt the Old and New Towns of Edinburgh World Heritage Site against the current and future impacts of climate change. Its vision and actions will support Edinburgh World Heritage efforts to address these challenges whilst sustaining the Outstanding Universal Value of the World Heritage Site and enhancing the quality of life of its residents."

Yann Grandgirard, Head of Climate Change, Edinburgh World Heritage

Objective A2: Adapt the Old and New Towns of Edinburgh World Heritage Site to be resilient to climate change

We will work in partnership to adapt Edinburgh's globally important World Heritage Site (WHS), ensuring it is done in ways that protect and enhance its outstanding universal value.

We will do this through:

- Supporting implementation of the climate adaptation actions in the Old and New Towns of Edinburgh World Heritage Site Management Plan 2023-2031.
- Undertaking retrofit pilot projects to increase energy efficiency and adapt our heritage buildings.
- Working in partnership to explore opportunities to develop guidance and practical measures to address climate change risks posed to buildings and infrastructure in the WHS and conservation areas, to reduce their vulnerability and increase their ability to cope with increasing heat, flooding and extreme weather.

Objective A3: Deliver climate resilient buildings and infrastructure across the city respecting its unique heritage

We will increase the climate resilience of our buildings and infrastructure, creating place-based, attractive neighbourhoods that benefit people and nature.

We will do this through:

- Building understanding of the risks increased heat, flooding and other extreme weather poses to Edinburgh's buildings and infrastructure and use this understanding to engage with developers, investors and landowners on embedding climate adaptation into developments.
- Exploring opportunities for adaptation within the Council's property estate and aligning these to the Council retrofit programme and strategy work.
- Building resilience into Edinburgh's social housing stock and rental sector and providing more targeted support to owners of basement properties to deal with increased ground water and surface water flooding risk.
- Using green infrastructure to increase the resilience of Edinburgh's school estate and raising awareness of climate change and the nature emergency amongst pupils and staff through our outdoor learning and Wilding Wee Spaces programmes.
- Engaging with the city's major landowners and sports providers on ways to increase the resilience of their buildings and outdoor spaces, integrating green blue infrastructure where possible.
- Reducing flooding, managing drought, providing cooling and protecting and increasing nature connectivity through Edinburgh's Canal Strategy.
- Delivering the University of Edinburgh's Adaptation Framework and adaptation actions in their upcoming Climate Strategy Implementation Plan and working to encourage development of other higher and further education adaptation plans in the city.

Image: Rendering of proposed street design of George Street

Back to contents

Objective A4: Increase permeable surfacing and use nature-based solutions to reduce the impact of urban creep and increase nature-rich landscapes, creating attractive well-adapted places

We will do this through:

- Encouraging the development of green roofs, raingardens and permeable hard surfacing to reduce the impact of flooding and increasing heat in Edinburgh's built environment.
- Promoting depaving of front gardens and not using plastic grass, to reduce flood and heat risk, and enhance nature.

To do this we will undertake a review of permitted development rights. This is building work that does not require planning permission.

We will look at increasing tree canopy in urban areas to help reduce urban heating. We will also make sure that guidance and policy documents such as the Water Vision, the Sustainable Rainwater Management guidance and the Edinburgh Design Guidance provides sufficient guidance and support to designers.

Climate adaptation in action: case studies

Choose a case study to find out how we are adapting:

Edinburgh's World Heritage Site

George Street and First New Town

B: Water Management

Flooding has a huge impact on all sectors of society. In terms of severity, river, surface water and coastal flooding are the key risks that will impact the city the most. The Scottish Environment Protection Agency National Flood Risk Assessment 2018 estimated that in Edinburgh, there are currently 28,200 homes, businesses and services at risk of flooding from all sources in a significant storm. This event has a 29.5% chance of happening in a 70-year period.[4] Due to climate change this could increase by 37% to 38,800 homes, businesses and services by the end of the century.

The impacts of flooding will not be felt evenly across the city, with vulnerable communities disproportionately affected. Flooding events have already led to disruptions to transport infrastructure, cutting off parts of the city, as well as damaging homes, communities, businesses, and our natural environment. At the same time, we know we will also experience more periods of water scarcity and drought affecting water supply, agriculture, city landscapes and increasing fire risks.

We have identified four key objectives to build resilience into Edinburgh's water management systems:

Objective B1: Deliver a long-term sustainable approach to water management across Edinburgh

We will work to reduce flooding and deal with drought in the city through a co-ordinated approach to water management helping to create well-managed water resilient places, We will do this through:

- Updating and delivering Edinburgh's Water Management Vision, taking account of drought as well as flooding from all sources. The Vision has a series of detailed water management objectives. This includes delivering targeted green blue infrastructure to help reduce flooding and removing surface water from combined sewers in prioritised areas of the city.
- Delivering a Surface Water Management Plan for the city, identifying priority areas and implementing strategic projects to improve flood resilience and placemaking in these areas.
- Updating Edinburgh Design Guidance design water chapter and Sustainable Rainwater Management Guidance and factsheets for all types of flooding, water scarcity and river erosion risks.
- Supporting the development of the Gogarburn Partnership and other cross boundary river partnerships to explore natural flood management opportunities upstream and improvements to river corridors downstream.
- Supporting a citywide communication and engagement programme to champion good rainwater management and water stewardship and to value the water we use every day in our homes and businesses.
- Working with our local communities to maintain city landscapes and green spaces through the Friends of the Parks and other initiatives.

[4] Vision for Water Management in the City of Edinburgh, Page 9.

Back to contents

Objective B2: Deliver a strategic Green Blue Network for Edinburgh

A key objective of the Water Vision is taking forward the existing Strategic Green Blue Network for the city (see case study), further refining the blue, green and nature networks elements and developing projects to enhance them. These strategic routes also help to reduce surface water and river flooding and ensure our green spaces will become interconnected as part of Edinburgh's Nature Network, whilst providing natural shading and cooling.

Objective B3: Manage demand for domestic and commercial water supplies

Drought is an emerging climate change risk for the city. Periods of water scarcity and drought will need to be planned for, to deal with lower river and reservoir levels at these times. This will be done through managing demand for water all year round, reducing leakage and implementing water efficiency improvements. We will also explore household and community water management measures that could be implemented in areas of high flood vulnerability and risk.

Objective B4: Build public and private sector organisational resilience to water management

To support private and public sector partners in building water resilience into their risk assessments and through adapting their systems, assets and services.

"A changing climate is a here and now problem and we need to adapt. We in Scottish Water and our customers are already seeing the impacts. There is a lot to do, and no single organisation can solve this in isolation, and I welcome the publication of this plan as a key step in preparing Edinburgh for the future."

Gordon Reid
General Manager Zero Emissions, Scottish Water and Chair, Edinburgh Adaptation and Nature Partnership

Climate adaptation in action: case studies

Choose a case study to find out how we are adapting:

- A Water Management Vision for Edinburgh
- Edinburgh Surface Water Management Plan
- Edinburgh Green Blue Network
- Flood Prevention and River Restoration
- Orchard Park Swale

C: Coastal Adaptation

Driven by global temperature increases, rising sea levels and coastal erosion are now emerging as key climate risks for Edinburgh.

Although storms, coupled with high tides, have caused damage to our coastal defences in the past, to date, coastal flooding in the city has been relatively limited.

Between 2008 and 2011, maintenance and repairs to coastal defences in Edinburgh was estimated at £740,000. Maintenance and repair costs are likely to increase as coastal defences are nearing or are already past their design life, and defences are more frequently tested by storm events. Buildings and other infrastructure currently exist in areas that would be at risk if these coastal defences were breached. Whilst there is ongoing monitoring and management of existing defences, further understanding of the risks posed by sea level rise and coastal erosion is required to protect existing infrastructure and facilitate future coastal development.

As well as impacting our communities, sea level rise and coastal erosion present a direct risk to nature with potential knock-on effects for other habitats and species for which these assets provide important corridors that contribute to ecological connectivity.

Edinburgh's coast is globally important for nature and parts of it are designated as a Special Protection Area. This is an international designation for the protection of rare, threatened and vulnerable bird species.

Objective C1: Ensure the future development of Edinburgh's coast is resilient to climate change

To manage the risk to our coastal communities and infrastructure we will:

- Develop and deliver a new Coastal Change Adaptation Plan by 2026. This plan will inform the measures to be taken to protect and adapt Edinburgh's coast now and into the future.
- Continue to carry out robust inspection regimes and maintenance of existing coastal defences.
- Support, where possible, the development of natural coastal defences to improve the resilience of vulnerable soft coastal areas to flooding and erosion.

"The Scottish Environment Protection Agency (SEPA) fully supports the Adaptation Plan, and the contribution it makes to the aim of being a net zero, climate resilient, and nature positive Edinburgh. For cities to thrive in a changing climate we must transform how we manage water and land. Success will secure the future of our urban areas, create better places to live, and improve biodiversity."

Nathan Critchlow-Watton
Head of Water and Planning, SEPA

Back to contents

Objective C2: Protect and enhance Edinburgh's coastal habitats and species

To ensure we are protecting and enhancing this key habitat and ecosystem we will work in partnership to:

- Build understanding of how climate change will impact our coastal habitats and species.
- Continue to work with partners to identify and undertake measures to increase the resilience of coastal habitats, especially in areas of high biodiversity value and designated sites.
- Where feasible, develop nature-based solutions to protect Edinburgh's coast from sea level rise and coastal surges, including through new habitat creation.

Objective C3: Protect coastal communities and businesses

We will do this by raising awareness with residents, businesses and others on the risks to the coast from climate change to help them take action to increase their resilience.

Climate adaptation in action: case studies

Choose a case study to find out how we are adapting:

- **Edinburgh's Coastal Change Adaptation Plan**
- **Granton Waterfront Coastal Park**
- **Restoration Forth.**

D - Sustainable Transport

Edinburgh's transport infrastructure plays a key role in helping our city prosper and stay connected. It helps people access jobs, education, and services they depend on, and helps businesses to access the customers and investors they need to thrive.

Our transport systems already experience disruption from flooding and storm damage, causing travel disruption, cancellations and delays. These disruptions could increase in severity and frequency in coming years as a result of climate change.

Objective D1: Build resilience into Edinburgh's transport network and infrastructure

To ensure our transport system and infrastructure increases its resilience to climate change we will:

- Work with local and national transport providers on raising awareness of the impacts of climate change on our transport infrastructure and services, and on ways to build resilience into future planning and development of travel services.
- Engage with the ports sector on risks to their operations from climate change and explore options for building resilience.

Objective D2: Embed adaptation into Edinburgh's City Mobility Plan

The City Mobility Plan (CMP) is Edinburgh's Local Transport Strategy, aiming to deliver a carbon neutral and adapted transport and travel system for the city**.** We will embed adaptation into the CMP through:

- Ensuring Edinburgh's Circulation Plan and associated Streetspace Allocation Framework integrate green blue infrastructure and nature enhancements, to reduce the urban heat island effect, provide shade, reduce flooding and improve air quality.
- Building climate resilience into the design and routing options of any future tram extensions, taking into consideration increasing heat, flooding and extreme weather events, and impacts on existing green infrastructure and green corridors.
- Ensuring the impacts of heat and flooding are considered as part of design and retrofitting of cycle and walking routes.

Objective D3: Embed climate resilience into Edinburgh's road network

We will ensure our road network is fully adapted through:

- Sustainably managing our local roads network to increase its resilience to extreme weather and flooding.
- Delivering training for road designers on incorporating sustainable drainage within roads design.
- Using road surfacing treatments to extend the life of our roads to minimise the requirement for full resurfacing.

E: Safeguarding and enhancing our natural environment and city landscapes

Edinburgh declared a nature emergency in 2023 in recognition of the need for an accelerated response to reversing global biodiversity loss.

Climate change is placing additional pressure on already struggling habitats and species in and around Edinburgh. The increasing occurrence and severity of climate change related events such as flooding, sea level rise, droughts and wildfires are expected to result in species and habitat change and loss, affecting their ability to survive and adapt.

These changes represent a significant risk to the city's natural environment and landscapes, as well as its role as a safe and vibrant place to live and work. But it also has serious implications for Edinburgh's resilience to the climate emergency. As well as protecting and enhancing nature, a resilient natural environment is a critical part of the solution to the climate emergency. Nature-based solutions play a vital role in helping the city to adapt as well as supporting the aim of Edinburgh becoming a nature positive city by 2030.

To safeguard and enhance the natural environment and city landscapes, we have developed four objectives:

Objective E1: Embed adaptation and nature recovery into city planning processes, land management plans, strategies and projects relating to the natural environment

To ensure that as the climate changes, city planning processes protect and enhance nature we will:

- Develop a Forestry and Woodland Strategy to improve protection for ecologically important areas of woodland habitat, identify priority areas for woodland restoration, creation and regeneration, carbon sequestration, a reduced heat island effect, flood mitigation and nature recovery.
- Embed adaptation as part of the delivery of Edinburgh's Nature Vision, Thriving Greenspaces Strategy and Nature Network. This will include development of park masterplans which include sustainable drainage features and improvements for nature.

Objective E2: Ensure Edinburgh's habitats and species are protected, enhanced and resilient to climate change

We will do this by:

- Undertaking a natural capital and biodiversity assessment of the city, identifying the habitats, ecosystems and ecological services at greatest risk from climate change and those which offer the greatest benefits to nature and adaptation.
- Supporting delivery of the key actions in Edinburgh's Biodiversity Action Plan, Strategic Green Blue Network, Nature Vision, Nature Networks and One Million Tree City project.
- Developing guidance on priority habitats and special landscape areas in the city, the risks and opportunities to these from climate change, carbon capture potential, and species choice for future habitat resilience within different city development contexts.
- Updating the iTree Survey to feed into all plans and strategies in the Council as required and help define citywide tree canopy targets and protection measures.
- Developing a drought and fire risk strategy for all Council owned trees and greenspaces to feed into management plans.
- Developing a Green Finance model to help fund nature and adaptation projects (FIRNS).
- Develop a citywide action framework on biosecurity that monitors the impacts on species and ecosystems of plant diseases, insect pests and invasive species

"NatureScot recognises the extent of the challenges that climate change will bring to the City of Edinburgh, including the direct and long-term implications for our coastal and terrestrial habitats and species. While these challenges are often complex and difficult, we recognise this is also an opportunity to make the city greener, more nature rich and better for people through the process of climate change adaptation and infrastructure renewal. NatureScot warmly welcomes the content of the Adaptation Plan and looks forward to playing a collaborative role in its delivery, working with all stakeholders to ensure we protect, restore and value nature as part of the process."

Frazer McNaughton, Operations Manager, Operations South, NatureScot

Objective E3: Build a co-ordinated approach to protecting and enhancing Edinburgh's natural assets across key public and private sector estates

We will do this through supporting the preparation and updating of landscape management plans for key sites across the city to improve their climate resilience and biodiversity.

Objective E4: Ensure minimum disturbance, positive management and protection of soil during planning, development and construction processes, to maintain soil function, natural processes, quality and stability

Climate change has had a significant impact on soil health globally. We will introduce measures to encourage management and protection of soil during planning, development and construction whilst also implementing measures to restore soil function and the natural processes which aid carbon sequestration and slow run-off within wider catchments.

Climate adaptation in action: case studies

Choose a case study to find out how we are adapting:

- Edinburgh's Biodiversity Action Plan
- Edinburgh Nature Network
- Edinburgh Million Tree City
- Plants with Purpose

F: Community, Health and Wellbeing

Communities across the city are vulnerable to a whole range of impacts from climate change including flooding, damage to property and temperature fluctuations. Climate change impacts are frequently felt most by the poorest and most marginalised groups in society, who may also suffer from reduced health and wellbeing.

Addressing climate impacts requires a cross-sector approach in recognition of the many factors that contribute to health and inequalities.

We have developed four objectives to protect our people and communities.

Objective F1: Improve community resilience to climate change

Protecting all our people and communities is a key area of focus. To do this we will:

- Work with the Edinburgh Partnership to develop actions that build community resilience into Edinburgh's Local Outcome Improvement Plan and Local Improvement Plans.
- Include climate justice as a key theme for the reconvened Poverty Commission as part of its work to review progress to date and refresh calls to action to end poverty in Edinburgh.
- Align adaptation measures with plans to alleviate poverty, improve human health and support people, recognising that these issues are interlinked and must be addressed in tandem to support climate justice.
- Explore opportunities to align and include just transition within Edinburgh's new Equality, Diversity and Inclusion Framework.
- Support the development of third sector and community-based adaptation plans and ensure their integration into wider plans that impact on these communities and areas.
- Strengthen Edinburgh's Winter Weather Contingency Plan to incorporate other extreme weather events and heatwaves, to ensure homeless people and rough sleepers are protected during these times, building on the work already being done through care shelter arrangements and outreach services.

Objective F2: Increase public awareness of climate change

We will do this through:

- Developing a public engagement strategy to raise awareness of climate change, and ways in which residents can get involved and actively make changes in their homes and neighbourhoods.
- Building community capacity by promoting Adaptation Scotland's "Community Climate Adaptation Routemap: A practical guide for communities to adapt to climate

change" and working with existing citizen platforms and community initiatives.
- Holding a citywide summit to raise awareness of adaptation and engage with all sectors on the Plan, including community, public, private and third sector.
- Strengthening response capabilities and improving points of contact structures for resilience incidents.

Objective F3: Improve the health sector's ability to adapt

We will work in partnership to increase the resilience of our health services, raising awareness, protecting health sites and the services we deliver to users, especially certain groups. We will do this through:

- Raising awareness amongst staff and service users of climate risks to health, health and social care, and health infrastructure.
- Rolling out the NHS Climate Change Risk Assessment and Adaptation Planning Tool for Healthcare Assets across health provision facilities and services across Edinburgh.
- Identifying and prioritising health and social care sites, including care homes, and associated infrastructure most at risk from climate change.
- Assessing current vulnerability registers and identifying gaps in relation to climate change impacts.
- Exploring options for resilient service provision, including remote access and community hub provision.
- Cascading relevant public health messaging relating to adverse weather and other acute climate impacts, in line with Public Health Scotland's Adverse Weather and Health Plan 2024-2026.
- Increasing the amount of quality greenspace on NHS Lothian's estate and other city health facilities to increase climate resilience and biodiversity, prioritising sites identified as hotspots for flooding and heat risk.

Objective F4: Increase awareness of and measures to deal with the environmental health impacts of climate change

We will work with partners to develop a fuller understanding of the potential impacts of climate change on air quality and pest and diseases, and from this identify actions to address these.

We will do this through:

- Exploring opportunities to raise awareness and communicate the interconnections between climate change and air quality.
- Monitor the impacts of rising temperatures, milder winters and increasing rainfall on pest control and factor these into Council wildlife management practices going forward.

G: Economy and Culture

Climate change also poses a threat to the future prosperity of Edinburgh. A vibrant economy is vital to the continued success of the city and the wellbeing of its communities. Appropriate adaptation is required to maintain a city that remains attractive to investors and businesses. Edinburgh is Scotland's leading tourist destination with a unique cultural and historic environment, and world-renowned events destination which could be impacted by future climate events.

Objective G1: Raise awareness of and provide support to Edinburgh's businesses to adapt

We will work with our partners to raise awareness of climate change risks and impacts among Edinburgh's business community, providing information, resources and support to help them adapt. We will do this through:

- Promoting Adaptation Scotland's guidance and tools to support small businesses to adapt.
- Developing a central source of information and resources for businesses on adaptation, including sources of funding and practical steps to take to future-proof buildings, infrastructure and business operations.
- Delivering business mentoring and support programmes to realign business operations towards net zero and climate resilience.

Objective G2: Increase skills and job opportunities in adaptation

We will work with our partners to support access to good quality jobs and workforce skills for Edinburgh's changing climate. We will do this through:

- Supporting people to access good quality jobs in a net zero and climate resilient economy.
- Scoping out the skills requirements for future green industries and aligning citywide workforce development programmes to meet the needs of net zero and climate resilient businesses.
- Working with the Scottish Government and educational institutes on workforce skills development, traineeships and courses on buildings and infrastructure design, maintenance and repair in a changing climate.

Objective G3: Strengthen the resilience of Edinburgh's economy

We will do this through:

- Sharing best practice on raising awareness about climate change and the actions that should be taken by staff during severe weather events and heatwaves to protect themselves and the services they deliver.
- Encouraging local production and markets to reduce climate change induced disruptions in global trade impacting the city.

Objective G4: Build up the resilience of Edinburgh's cultural sector, festivals and events

Edinburgh is a cultural city and hosts the world's largest international festival every year. We will work to ensure the future resilience of our cultural sector and venues through:

- Delivering the adaptation actions in the Council's Cultural Venues and Museums and Galleries Sustainability Strategy.
- Working collaboratively with the city's cultural sector to increase its adaptive capacity, including through sign-up to the Green Arts Charter.
- Developing a central source of information and practical tools to help our cultural sector adapt, including through promotion of Creative Carbon Scotland's "Adapting our Culture" toolkit.
- Supporting Edinburgh's creative sector to engage with citizens and visitors to the city on adaptation.
- Building up the resilience of Edinburgh's festivals and other major events.

H: Building understanding of climate change risks

Understanding the risks and consequences of climate change, and the impacts this will have on our city will be key to ensuring the right investment decisions are taken, whilst also ensuring our communities and nature are protected. The need to adapt will require us to continually engage in new research to ensure our level of understanding and resilience planning is always fully embedded in our decision-making processes.

Objective H1: Ensure ongoing monitoring, evaluation and research to inform decision-making on climate change adaptation

We will ensure we embed climate change risks and build our understanding of climate impacts through:

- Ongoing monitoring, evaluation and research to inform decision-making on climate change adaptation.
- Transparency on our progress and ensuring public climate change datasets are available to the public in user-friendly and accessible formats.
- Working collaboratively with leading industry experts to ensure future policies take account of climate adaptation measures.
- Learning from the successes of others and ourselves and applying those to future interventions.

I: Governance and Investment

Ensuring we embed climate adaptation across our work, organisations and communities will be key to ensuring action and delivery of climate adaptation measures. Governance and collaborative working will enable us to tackle this challenge as a collective.

Governance of this strategy has already been established through the Net Zero Edinburgh Leadership Board, with the Edinburgh Adaptation and Nature Partnership responsible for overseeing the delivery of this plan and cross sector working with supporting workstreams.

Objective I1: Ensure governance structures are in place to adapt Edinburgh to the impacts of climate change

This Plan will be further embedded in key governance structures by:

- Establishing an Edinburgh Adaptation and Nature Partnership core review group to annually monitor and update the plan, which works with and reports into the Net Zero Edinburgh Leadership Board.
- Embedding adaptation across all Council services, including risk, and establishing governance to support delivery.

Objective I2: Increase investment in adaptation

Funding the challenge will be a key area of focus. To address the investment gap, we must:

- Embed adaptation into the Council's Capital Budget Strategy and city financial plans.
- Work with the Scottish Government to unlock and facilitate new legislative powers, policy and funding to enable good adaptation measures to be realised.
- Unlock investment and re-evaluate current capital budgets to ensure resource can be allocated to climate adaptation measures.
- Collaborate with key partners, including the government to develop a pipeline of investable projects.

Objective I3: Support the development of a regional climate change risk assessment and adaptation measures

As well as working at the local level, we will work on a regional basis to build resilience and ensure cross-boundary risks and impacts are identified and actions developed to adapt to these. We will do this through:

- Supporting the delivery of a regional climate change risk assessment focusing on the Edinburgh and East of Scotland City Region Deal local authority area.
- Collaborating with our partners on regional approaches and opportunities for cross-boundary and shared action on adaptation.
- Supporting proposals to develop a regional climate adaptation investment technical assistance fund.

Climate adaptation in action: case studies

Choose a case study to find out how we are adapting:

Edinburgh's New Gardens Project programme

"Sniffer is delighted to be part of the Climate Ready Edinburgh partnership, and to support the development and delivery of the Plan through the Adaptation Scotland Programme. Climate Ready Edinburgh is a leading example of the place-based, collaborative approach to climate adaptation that is crucial to ensuring that Scotland's cities and regions can flourish in our changing climate"

Ben Connor
Head of Climate Ready Placemaking, Sniffer

Funding the Change

Substantial investment will be required to address the impacts of climate change in our city. Success will be about doing things differently but also responding early to new challenges. This means we will need to use current funding differently but also identify new investment where required. Upfront early investment will prevent longer term damage to our city from climate change and this needs to be balanced with the difficult funding decisions being managed by all partners in the partnership.

Back to contents

Climate Ready Edinburgh Implementation Plan

A: Planning and the Built Environment

Objective A1: Embed climate change adaptation into future planning policy and guidance

Reference	Action	Delivery Partners	Timescale
A1.1	Update Edinburgh Design and Street Guidance to reflect City Plan 2030 planning policies and National Planning Framework Four (NPF4) relating to climate change adaptation (enhance Edinburgh's green spaces, protect biodiversity, reduce flood and heat risk, improve air and water quality).	**The City of Edinburgh Council**	2024-2025
A1.2	Embed climate change adaptation and nature considerations into city and area spatial strategies, masterplans, development briefs and project requirements to address NPF4 and Local Development Plan requirements	**The City of Edinburgh Council**	2024-2030
A1.3	Develop the mechanisms to deliver good quality green infrastructure according to the specifications, drawings and landscape establishment and maintenance plans that have been approved by the transport, planning and roads construction consent process.	**The City of Edinburgh Council**	2024-2030
A1.4	Embed climate change adaptation into Edinburgh's next local development plan (City Plan 2040).	**The City of Edinburgh Council**	2024-2030

Objective A2: Adapt Edinburgh's World Heritage Sites to be resilient to climate change and preserve their character

Reference	Action	Delivery Partners	Timescale
A2.1	Work in partnership to ensure that adaptation of Edinburgh's World Heritage Sites is done in ways that preserve its historic character and Outstanding Universal Value.	**Edinburgh World Heritage, Historic Environment Scotland, The City of Edinburgh Council**	Ongoing
A2.2	Support implementation of the climate emergency actions in the Old and New Towns of Edinburgh World Heritage Site Management Plan 2023-2031	**Edinburgh World Heritage, Historic Environment Scotland, The City of Edinburgh Council**	2024-2031

A2.3	Working in partnership, explore opportunities to develop guidance on maintenance and repair of historic buildings and practical solutions, including through pilot projects. This is to alleviate the risks posed by flooding, dampness, extreme weather events and increasing heat to buildings and infrastructure in Edinburgh's World Heritage Site. Build on work previously done in this area.	**Edinburgh World Heritage, Historic Environment Scotland, The City of Edinburgh Council**	2025-2027
A2.4	Deliver heritage adaptation and energy retrofit pilots to test innovative approaches to adapting the World Heritage Site buildings and infrastructure.	**Edinburgh World Heritage, Historic Environment Scotland, The City of Edinburgh Council**	2023-2030

Objective A3: Deliver climate resilient buildings and infrastructure across the city while respecting its unique heritage

Reference	Action	Delivery Partners	Timescale
A3.1	Undertake an assessment of people's experiences of the risks and vulnerabilities climate change poses to Edinburgh's buildings and surrounding areas, using similar approaches as done for the consultation on the WHS and conservation areas	**The City of Edinburgh Council, University of Edinburgh, Climate Ready South East Scotland**	2024-2026
A3.2	Use the results of the buildings vulnerability assessment to engage with developers, landowners and contractors on increasing the resilience of Edinburgh's built environment including through the production of guidance.	**The City of Edinburgh Council, University of Edinburgh, Climate Ready South East Scotland**	2026-2030
A3.3	Use multi-disciplinary teams where appropriate, including landscape architects, from the outset of new work using design consultants to explore opportunities for green and blue infrastructure for climate adaptation and nature enhancement. This would include strategy, plan and project level work.	**The City of Edinburgh Council**	2024-2030
A3.4	Embed adaptation into the Council's Authority Construction Requirements (ACRs) and link the ACRs to Edinburgh's Design and Street Guidance	**The City of Edinburgh Council**	2024-2030
A3.5	Explore the opportunities for adaptation, referencing the expected risks of flooding and the heat island effect, within the Council's Corporate Property Estate and align to the Council's retrofit programme and strategy work.	**The City of Edinburgh Council**	2024-2030
A3.6	Work with the Council's housing team on ways to adapt the city's Council housing stock, including finance mechanisms and creation/retrofitting of surrounding green spaces, as well as ongoing maintenance of measures once installed.	**The City of Edinburgh Council**	2024-2030
A3.7	Engage with the social rented sector, private landlords and tenants on ways to adapt rented accommodation in the city, to tackle flooding, dampness and mould and prevent overheating of homes.	**The City of Edinburgh Council, Affordable Housing Partnership**, social/private landlords, Climate Ready South East Scotland	2024-2030

A3.8	Support owners of basement properties to prepare for increased risk of ground water and surface water flooding through resilient design including garden areas.	**The City of Edinburgh Council**	2024-2028
A3.9	Use nature-based solutions and green infrastructure to increase the resilience of Edinburgh's school estate and raise awareness of climate change and the nature emergency amongst pupils and staff through the Wilding Wee Spaces programme and outdoor learning. Explore the ongoing links to information and contacts within the Council to support this work.	**The City of Edinburgh Council**	2024-2030
A3.10	Engage with large landowners in the city on adapting their outdoor spaces, including through integration of green blue infrastructure, suds, tree coverage and wildlife corridors.	**The City of Edinburgh Council, SEPA, NatureScot, Scottish Water**, other large landowners	2024-2030
A3.11	Engage with sports providers on ways to increase the climate resilience of their buildings and indoor spaces and integrate green blue infrastructure into their outdoor leisure facilities.	**The City of Edinburgh Council, Edinburgh Leisure,** other sports providers	2024-2030
A3.12	Take forward the adaptive actions embedded into Edinburgh's Canal Strategy 2024-2029 to help reduce localised flooding, manage drought, provide cooling and protect and increase connectivity of nature as resources permit.	**Scottish Canals, The City of Edinburgh Council**	2024-2026
A3.13	Deliver the adaptation actions in the University of Edinburgh's Adaptation Framework and upcoming Climate Strategy Implementation Plan and work to encourage the development of other city higher and further education institution's adaptation plans and strategies.	**University of Edinburgh,** Heriot Watt University, Napier University, Edinburgh College	2024-2030
A3.14	Explore household and community water management measures that could be piloted or introduced in flood vulnerable/high risk areas.	**The City of Edinburgh Council, Scottish Water**	2024-2026

Objective A4: Increase permeable surfacing and use nature-based solutions to reduce the impact of urban creep and increase nature-rich landscapes, creating attractive well-adapted places

Reference	Action	Delivery Partners	Timescale
A4.1	Promote retrofitting of green roofs, introduction of raingardens, permeable hard landscape areas and not using plastic grass or paving over front gardens in the city. Ensure Edinburgh's Water Vision, Sustainable Rainwater Management Guidance and Edinburgh Design Guidance provides sufficient guidance and support.	**The City of Edinburgh Council, Edinburgh and Lothians Strategic Drainage Partnership,** developers, utilities providers, transport agencies	2024-2030

A4.2	Undertake a review of permitted development rights for householders to increase permeability and prevent urban creep. Ensure Edinburgh's Water Vision, Sustainable Rainwater Management Guidance and Edinburgh Design Guidance provides sufficient guidance and support.	**The City of Edinburgh Council, Edinburgh and Lothians Strategic Drainage Partnership,** developers, utilities providers, transport agencies	2024-2026

B: Water Management

Objective B1: Deliver a long term and sustainable approach to water management across Edinburgh

Reference	Action	Delivery Partners	Timescale
B1.1	Update Edinburgh's Water Management Vision for dealing with water scarcity.	**Edinburgh and Lothians Strategic Drainage Partnership,** Edinburgh World Heritage, Council Nature Recovery and Climate Adaptation Working Group (NRCA)	2024-2025
B1.2	From mapping of surface water flood risk areas, deliver a citywide Surface Water Management Plan, identifying priority areas and implementing strategic projects to improve flood resilience and placemaking in those areas.	**Edinburgh and Lothians Strategic Drainage Partnership**, Edinburgh World Heritage, NRCA	2023-2030
B1.3	Support the development of the Gogarburn Partnership and other cross boundary river partnerships in delivering natural flood management upstream and improvements to river corridors. Support Edinburgh's Canal Partnership.	**Edinburgh and Lothians Strategic Drainage Partnership**, **Climate Ready East of Scotland**, NRCA	2024-2027
B1.4	Work within the Edinburgh and Lothians Strategic Drainage Partnership and others to remove surface water from the combined sewer network.	**Edinburgh and Lothians Strategic Drainage Partnership, NatureScot, Climate Ready East of Scotland**, Historic Environment Scotland, NRCA	2023-2030
B1.5	Develop Council processes to support the introduction of shared surface water maintenance agreements within Scottish Water (Section 7 Agreements of the Sewerage (Scotland) Act 1968). Maintain above ground landscape aspects of the adopted sustainable drainage assets.	**Edinburgh and Lothians Strategic Drainage Partnership**, Edinburgh World Heritage, NRCA	2023-2030

B1.6	Update Edinburgh Design Guidance and Sustainable Rainwater Management Guidance and factsheets for all types of flooding, water scarcity and fluvial erosion risks.	**Edinburgh and Lothians Strategic Drainage Partnership,** NRCA, Edinburgh and Lothians Greenspace Trust (ELGST), Royal Botanic Garden Edinburgh, Edinburgh World Heritage	2024-2026
B1.7	Work with local communities through delivery partnerships to contribute to the maintenance of city landscapes and green spaces.	**Edinburgh and Lothians Strategic Drainage Partnership,** NRCA, ELGST, Royal Botanic Garden Edinburgh, Edinburgh World Heritage	2024-2030

Objective B2: Deliver a strategic Green Blue Network for Edinburgh

Reference	Action	Delivery Partners	Timescale
B2.1	Define Edinburgh's Strategic Green Blue Network and identify and prioritise projects based on this. Embed these into Edinburgh's future Local Development Plans and in all applicable Council plans and strategies.	**ELSDP**, **NRCA Group,** Historic Environment Scotland, Edinburgh World Heritage	2023-2030
B2.2	Commence Green Blue Network infrastructure projects in prioritised high-risk areas of surface water flooding across the city (starting with Drylaw, Inverleith, and Craigleith and initiate planning in other priority catchments).	**Edinburgh and Lothians Strategic Drainage Partnership, NRCA,** Historic Environment Scotland, Edinburgh World Heritage	2023-2030

Objective B3: Manage demand for domestic and commercial water supplies during drought

Reference	Action	Delivery Partners	Timescale
B3.1	Manage the increased risk of lower river and reservoir levels associated with droughts by managing demand for water all year round, through reduced leakage and water efficiency improvements, in alignment with SEPA's water supply and wastewater sector plan.	**Scottish Water**	2024-2030

Objective B4: Build public and private sector organisational resilience to water management

Reference	Action	Delivery Partners	Timescale
B4.1	Work with public and private sector partners on the development of climate risk assessments of their organisations and estate and on measures to adapt their systems, assets and services, assess the efficiency and inspect the condition of existing networks (operational, repair, frequency of maintenance). Includes both urban and rural agricultural working practices.	**The City of Edinburgh Council, Scottish Water, SEPA,** Climate Ready South East Scotland	2024-2026

C: Coastal Adaptation

Objective C1: Ensure the future development of Edinburgh's coast is resilient to climate change

Reference	Action	Delivery Partners	Timescale
C1.1	Continue to take forward Edinburgh's coastal actions in Cycle 2 of the Local Flood Risk Management Plan (LFRMP) for the Forth Estuary Catchment.	**The City of Edinburgh Council, neighbouring local authorities, SEPA, Scottish Water**	2022-2028
C1.2	Continue robust inspection regimes and maintenance of coastal defences.	**The City of Edinburgh Council**	2022-2030
C1.3	Deliver an Edinburgh Coastal Change Adaptation Plan, taking into account research on sea level rise, coastal erosion, effects on protected habitats and storm surge from Dynamic Coast and the regional climate assessment. The plan will inform the measures to be taken to adapt and protect Edinburgh's coast, and when, and will be assessed under the Habitat Regulations.	**The City of Edinburgh Council, Dynamic Coast Partnership (SEPA, NatureScot, Scottish Government, University of Glasgow), Climate Ready South East Scotland**	2023-2026
C1.4	Use the Coastal Change Adaptation Plan to inform the implementation of City Plan 2030 planning policies, development plans and decisions, infrastructure investment and habitat protection along the coast.	**The City of Edinburgh Council, Scottish Water, SEPA** Edinburgh Biodiversity Partnership, NatureScot	2026-2030
C1.5	Engage with Scottish Water on coastal climate risks affecting their infrastructure and assets.	**City of Edinburgh Council, Scottish Water**	2024-2026
C1.6	Support the development of natural coastal defences to improve the resilience of vulnerable soft coastal areas to flooding and erosion. Where this is not possible and hard engineering is required, use eco-engineering methods to 'green the grey' hard	**City of Edinburgh Council, Edinburgh Biodiversity Partnership**	2023-2031

	surfaces to provide habitat for marine life, and if necessary, work with regional partners to explore compensatory habitat creation.	Forth Estuary Forum, Edinburgh Living Landscapes	
C1.7	Co-ordinate the preparation of Investment Plans in line with the Forth Green Freeport Retained Non-Domestic Rates Investment Strategy, to include suitable projects aligned to the "Enabling and coastal infrastructure" Strategic Investment Theme.	**The City of Edinburgh Council**	2024-2049

Objective C2: Protect and enhance Edinburgh's coastal habitats and species

Reference	Action	Delivery Partners	Timescale
C2.1	Work with partners to understand the implications of climate change on coastal habitats and species.	**The City of Edinburgh Council, Edinburgh Biodiversity Partnership, Climate Ready South East Scotland**	2024-2026
C2.2	Implement measures to ensure the protection, enhancement and restoration of coastal habitats and species through City Plan 2030, coastal strategies and projects.	**The City of Edinburgh Council, Edinburgh Biodiversity Partnership,** Forth Estuary Forum, Edinburgh Living Landscapes	2026-2030
C2.3	Work with NatureScot on reducing pressures in areas of high biodiversity value along Edinburgh's coast including Special Protection Areas (SPAs) and Sites of Special Scientific Interest (SSSI). Integrate these into Edinburgh's Nature Network.	**The City of Edinburgh Council, NatureScot**	2024-2030
C2.4	Develop nature-based solutions to protect Edinburgh's coast from sea level rise and storm surges through new habitat creation (e.g. seagrass meadows, oyster beds, breakwater reefs, mini pools, artificial habitat bricks on sea walls and defences).	**The City of Edinburgh Council, NatureScot, Edinburgh Nature Network,** Restoration Forth	2023-2030

Objective C3: Protect coastal communities and businesses

Reference	Action	Delivery Partners	Timescale
C3.1	Raise awareness with residents, businesses and others of the risks to the coast from climate change to help them take action to increase the resilience of their homes, businesses and communities.	**Climate Ready South East Scotland, The City of Edinburgh Council, Sniffer,** Edinburgh Community Climate Forum, Just Transition Partnership	2024-2030

D: Sustainable Transport

Objective D1: Build resilience into Edinburgh's transport network and infrastructure

Reference	Action	Delivery Partners	Timescale
D1.1	Actively engage with local transport companies and providers on the risks and impacts of climate change on their services and infrastructure and ways to alleviate them.	**Transport Infrastructure Partnership, Climate Ready South East Scotland,** Transport Scotland, Transport for Edinburgh, Lothian Buses, Network Rail	2024-2026
D1.2	Engage with regional and national transport providers on building resilience into major transport infrastructure and routes in and out of the city. This includes working with road and rail providers to ensure design and specifications for current and future transport infrastructure are robust to future climate impacts such as flooding and heat.	**Transport Infrastructure Partnership, Climate Ready South East Scotland,** Transport Scotland, Transport for Edinburgh, Lothian Buses, Network Rail	2024-2030
D1.3	Engage with the ports sector on risks to their operation due to sea level rise, storms and coastal erosion and options for adaptation.	**Edinburgh Adaptation and Nature Partnership**	2024-2030

Objective D2: Embed adaptation into Edinburgh's City Mobility Plan

Reference	Action	Delivery Partners	Timescale
D2.1	Integrate green blue infrastructure and nature enhancements, permeable surfacing and other adaptative measures as part of the delivery of Edinburgh's Circulation Plan and associated Streetspace Allocation Framework, to reduce the urban heat island effect, provide shade, reduce flood risk and improve air quality.	**The City of Edinburgh Council**	2023-2030
D2.2	Ensure climate resilience is built into the design and routing options of any future tram extensions, taking into consideration increasing heat, flooding and extreme weather events, and impacts on existing green infrastructure and green corridors.	**The City of Edinburgh Council**	2024-2035
D2.3	Ensure the impacts of heat and flooding are considered in the design and retrofitting of cycling and walking routes in Edinburgh's Active Travel projects. From this, implement measures to reduce these impacts, such as protection of existing green	**The City of Edinburgh Council**	2024-2030

	infrastructure and establishment of new tree and hedge planting and other nature-based solutions to provide shade, cooling and flood alleviation.		

Objective D3: Build resilience into Edinburgh's road network

Reference	Action	Delivery Partners	Timescale
D3.1	Deliver training for road designers on how to incorporate sustainable drainage within roads design to help ensure the city's transport infrastructure is future proofed.	**The City of Edinburgh Council**	2024-2026
D3.2	Sustainably design, plan, upgrade, maintain and manage Edinburgh's local road network, to increase the city's resilience to extreme weather, and reduce embodied carbon in road and infrastructure construction.	**The City of Edinburgh Council**	2023-2030
D3.3	Use surface treatments to extend the life of roads to minimise the requirement for full resurfacing.	**The City of Edinburgh Council**	2023-2025

E: Safeguarding and Enhancing Our Natural Environment

Objective E1: Embed adaptation into city planning processes, land management plans, strategies and projects relating to the natural environment

Reference	Action	Delivery Partners	Timescale
E1.1	Develop a Forestry and Woodland Strategy to improve protection for ecologically important areas of woodland habitat, identify priority areas for woodland restoration, creation and regeneration, carbon sequestration, a reduced heat island effect, flood mitigation and nature recovery.	**The City of Edinburgh Council, Edinburgh Biodiversity Partnership,** Forestry Commission, NatureScot	2024-2026
E1.2	Embed adaptation into Edinburgh's Nature Vision and land use planning decisions through local development plan processes and guidance. Include tree canopy cover and habitat creation, restoration and enhancement.	**The City of Edinburgh Council**	2024-2030
E1.3	Embed adaptation into Edinburgh's Thriving Greenspaces Strategy and Nature Network. This includes through the development of park masterplans, school playgrounds**,** sustainable drainage features, heat energy solutions and improvements for nature.	**The City of Edinburgh Council**	2024-2026

Objective E2: Ensure Edinburgh's habitats and species are protected, enhanced and resilient to climate change

Reference	Action	Delivery Partners	Timescale
E2.1	Undertake a natural capital and biodiversity assessment of the city, identifying habitats, ecosystems and ecological services at greatest risk from climate change and those which offer the greatest benefits to nature and adaptation.	**The City of Edinburgh Council**	2024-2025
E2.2	Embed the findings of the natural capital and biodiversity assessment into Edinburgh's Strategic Green Blue Network, Nature Network, Biodiversity Action Plan, site management plans and other policies and projects to increase habitat and species resilience, connectivity, reduce flood risk, provide shade, improve air and water quality, in ways that also consider fire risk.	**City of Edinburgh Council, Climate Ready South East Scotland, Edinburgh Biodiversity Partnership,** University of Edinburgh, other relevant partners	2024-2030
E2.3	Support delivery of the key actions in Edinburgh's Biodiversity Action Plan, Local Nature Networks and One Million Tree City project.	**The City of Edinburgh Council**	2024-2030
E2.4	Create a practical guide for climate adaptation and nature recovery for communities and individuals.	**The City of Edinburgh Council**	2024-2027
E2.5	Develop guidance on priority habitats and special landscape areas in the city, the risks and opportunities to these from climate change, carbon capture potential, and species choice for future habitat resilience within different city development contexts.	**Edinburgh Biodiversity Partnership, NatureScot,** Scottish Wildlife Trust, Historic Environment Scotland, RBGE	2024-2025
E2.6	Work in partnership on assessing the risks and opportunities to priority habitats and protected historic and special landscape areas within the city.	**City of Edinburgh Council, NatureScot, Scottish Wildlife Trust, Royal Botanic Garden Edinburgh**	2023-2027
E2.7	Update the iTree Survey to feed into all plans and strategies in the Council as required.	**The City of Edinburgh Council**	2024-2025
E2.8	Provide information and training for landscape architects/managers and associated professionals who work on future planning of the city's landscape and habitats.	**The City of Edinburgh Council, Edinburgh and Lothians Greenspace Trust, Woodland Trust, RBGE,** Edinburgh Living Landscapes,	2024-2030
E2.9	Develop a drought and fire risk strategy for all Council owned trees and greenspaces to feed into management plans.	**The City of Edinburgh Council**	2024-2026

E2.10	Continue robust inspection regimes and maintenance of the Council owned trees and greenspaces.	**The City of Edinburgh Council**	2024-2030
E2.11	Develop a Green Finance model to help fund nature and adaptation projects (FIRNS).	**The City of Edinburgh Council**	2024-2026
E2.12	Develop a citywide action framework on biosecurity that monitors the impacts on species and ecosystems of plant diseases, insect pests and invasive species which may all become worse due to climate change.	**Edinburgh Biodiversity Partnership, The City of Edinburgh Council**	2024-2027

Objective E3: Build a co-ordinated approach to protecting and enhancing Edinburgh's natural assets across key public and private sector estates

Reference	Action	Delivery Partners	Timescale
E3.1	Support the preparation and updating of landscape management plans for key sites across the city to improve climate resilience and biodiversity, complementing Historic Environment Scotland's work on historic landscapes.	**Edinburgh Adaptation and Nature Partnership, Historic Environment Scotland,** other organisations	2024-2026

Objective E4: Ensure minimum disturbance, positive management and protection of soil during planning, development and construction processes, to maintain soil function, natural processes, quality and stability

Reference	Action	Delivery Partners	Timescale
E4.1	Signpost to good practice guidance and information on ways to improve soil management for land managers and those involved in food growing in the city. Include information about the importance of preserving soil function and the natural processes that aid carbon sequestration, flood reduction and biodiversity.	**Edinburgh Biodiversity Partnership,** NatureScot, Edinburgh Adaptation and Nature Partnership	2024-2026
E4.2	Develop policy and guidance to reinforce the importance of soil and construction risks. Include training for planners, key construction professionals including land surveyors, Homes for Scotland and local community councils, architects, landscape architects and engineers. Update Council strategies and Edinburgh Design Guidance and embed in future Local Development Plans.	**The City of Edinburgh Council** SEPA, construction sector, NatureScot	2024-2030

F: Community, Health and Wellbeing

Objective F1: Improve community resilience to climate change

Reference	Action	Delivery Partners	Timescale
F1.1	Work with the Edinburgh Partnership to develop actions to build community climate resilience and embed them into Edinburgh's Local Outcome Improvement Plan and Local Improvement Plans.	**Edinburgh Partnership** Community Planning partnerships, voluntary and community organisations	2024-2026
F1.2	Include climate justice as a key theme for the reconvened Edinburgh Poverty Commission as part of its work to review progress to date and refresh the calls to action to end poverty in Edinburgh.	**Edinburgh Poverty Commission, The City of Edinburgh Council**	March 2025
F1.3	Align climate change adaptation measures with plans to alleviate poverty, improve human health and support all people, recognising that these issues are interlinked and must be addressed in tandem to support climate justice.	**The City of Edinburgh Council**, **Edinburgh Partnership, Public Health Scotland**	2024-2030
F1.4	Explore opportunities to align and include just transition within Edinburgh's new Equality, Diversity and Inclusion Framework.	**The City of Edinburgh Council**	2024-2025
F1.5	Explore ways to strengthen Edinburgh's Winter Weather Contingency Plan to incorporate other extreme weather events such as heatwaves, heavy rain and storms to ensure homeless people and rough sleepers are informed and protected during these times. Build on the work already being done through care shelter arrangements and outreach services.	**The City of Edinburgh Council**	2024-2026
F1.6	Support development of third sector and community place-based adaptation plans and ensure their integration into wider plans that impact on these communities and areas.	**The City of Edinburgh Council, EVOC, ECCAN**	2024-2030
F1.7	Use the Integrated Impact Assessment process to ensure we are protecting vulnerable communities and that inequalities are key considerations of all city developments, strategies, projects and upgrades to infrastructure.	**The City of Edinburgh Council** NHS Lothian	2024-2025
F1.8	Routinely review and seek to influence national policy on climate migration and displacement as a result of climate events.	**The City of Edinburgh Council**	2024-2030

Objective F2: Improve public awareness of climate change

Reference	Action	Delivery Partners	Timescale
F2.1	Develop a public engagement strategy to raise awareness of climate change, and ways in which residents can get involved and actively make changes in their homes and neighbourhoods.	**City of Edinburgh Council, Community Planning Partnership, Sniffer**	2024-2026
F2.2	Build community capacity through promoting Adaptation Scotland's "Community Climate Adaptation Routemap: A practical guide for communities to adapt to climate change" and work with existing citizen platforms and community initiatives.	**The City of Edinburgh Council, Sniffer, EVOC, ECCAN**	2024-2030
F2.3	Hold a citywide summit to raise awareness of adaptation and engage with all sectors on the Plan, including community, public, private and third sector arrangements and outreach services.	**The City of Edinburgh Council**	2024-2025
F2.4	Strengthen resilience response capabilities in conjunction with multi-agency partners and the development of a more robust points of contact structure for resilience incidents, including severe weather events and heat waves.	**The City of Edinburgh, Scottish Water, SEPA,** Scottish Fire and Rescue Service, Police Scotland	2024-2030

Objective F3: Improve the health sector's ability to adapt

Reference	Action	Delivery Partners	Timescale
F3.1	Raise awareness amongst staff and service users of climate risks to health, health and care services and health infrastructure.	**NHS Lothian**	2024-2030
F3.2	Roll out the NHS Climate Change Risk Assessment and Adaptation Planning Tool for Healthcare Assets across health provision facilities and services across Edinburgh.	**NHS Lothian, City of Edinburgh Council,** Edinburgh Health and Social Care Partnership	2024-2030
F3.3	Identify and prioritise the health and social care sites, including care homes, and associated infrastructure most at risk from climate change and take action to alleviate these risks.	**NHS Lothian, City of Edinburgh Council,** Edinburgh Health and Social Care Partnership	2024-2030
F3.4	Assess current vulnerability registers and identify gaps in relation to climate change impacts.	**NHS Lothian, Edinburgh Health and Social Care Partnership**	2024-2030
F3.5	Explore options for resilient service provision, including remote access and community hub provision.	**NHS Lothian, Edinburgh Health and Social Care Partnership**	2024-2030

F3.6	Cascade relevant public health messaging relating to adverse weather and other acute climate impacts, in line with Public Health Scotland's Adverse Weather and Health Plan (2024-26) [currently in draft].	**NHS Lothian, Edinburgh Health and Social Care Partnership**	2024-2030
F3.7	Increase the amount of quality greenspace on NHS Lothian's estate and other city health facilities to increase climate resilience and biodiversity, prioritise sites identified as hotspots for flooding and heat risk.	**NHS Lothian**	2024-2030

Objective F4: Increase awareness of and measures to deal with the environmental health impacts of climate change

Reference	Action	Delivery Partners	Timescale
F4.1	Explore opportunities to communicate the interrelationship between climate change and local air quality through awareness raising and communications, including through school activities, public messaging and annual events such as Clean Air Day.	**The City of Edinburgh Council**	2024-2030
F4.2	Monitor the impacts of rising temperatures, milder winters and increasing rainfall on pest control, including rats, mice and other vermin, and factor these changes into Council wildlife management practices going forward.	**The City of Edinburgh Council**	2024-2026

G: Economy and Culture

Objective G1: Raise awareness of and provide support to Edinburgh's businesses to adapt

Reference	Action	Delivery Partners	Timescale
G1.1	Promote Adaptation Scotland's guidance and tools to support small businesses to adapt.	**City of Edinburgh Council, Edinburgh Chamber of Commerce, Sniffer**	2024-2030
G1.2	Develop a central source of information and resources for businesses on adaptation, including sources of funding and practical steps to take to future-proof buildings, infrastructure and business operations.	**City of Edinburgh Council, Edinburgh Chamber of Commerce, Sniffer**	2024-2030
G1.3	Deliver business mentoring and support programmes to realign business operations towards net zero and climate resilience.	**City of Edinburgh Council, Edinburgh Chamber of Commerce**	2024-2030

Objective G2: Increase skills and job opportunities in adaptation

Reference	Action	Delivery Partners	Timescale
G2.1	Support people to access good quality jobs in a net zero and climate resilient economy and ensure that job opportunities are accessible to all.	**The City of Edinburgh Council, Edinburgh Local Employability Partnership**	2024-2026
G2.2	Scope out the skill requirements for future green industries and align citywide workforce development programmes to meet the developing needs of net zero and climate resilience businesses.	**City of Edinburgh Council,** Further and Higher Education Institutes	2024-2026
G2.3	Work with the Scottish Government and educational institutes on workforce skills development, traineeships and courses on buildings and infrastructure design, maintenance and repair in a changing climate.	**The City of Edinburgh Council, Edinburgh Local Employability Partnership, Edinburgh World Heritage,** Further and Higher Education Institutes	2024-2030

Objective G3: Strengthen the resilience of Edinburgh's economy

Reference	Action	Delivery Partners	Timescale
G3.1	Share best practice on raising awareness about climate change and the actions that should be taken by staff during severe weather events and heatwaves to protect themselves and the services they deliver.	**The City of Edinburgh Council, Edinburgh Adaptation and Nature partnership members**	2024-2026
G3.2	Encourage local production and markets to reduce climate change induced disruptions in global trade impacting the city.	**The City of Edinburgh Council**	2024-2030

Objective G4: Build up the resilience of Edinburgh's cultural sector, festivals and events

Reference	Action	Delivery Partners	Timescale
G4.1	Deliver the adaptation actions in the Council's Cultural Venues and Museums and Galleries Sustainability Strategy.	**The City of Edinburgh Council**	2024-2030
G4.2	Work collaboratively with Edinburgh's cultural sector partners to increase the adaptive capacity of their work, venues, events and collections through sign-up to the Green Arts Charter, grant agreements and other actions.	**Creative Carbon Scotland, City of Edinburgh Council,** Creative Scotland, Climate Ready South East Scotland, Festivals Edinburgh, cultural sector partners	2024-2030
G4.3	Develop a central source of information and practical tools for Edinburgh's cultural sector on dealing with the impacts of climate change and ways to adapt including through promotion of Creative Carbon Scotland's "Adapting our Culture" toolkit.	**Creative Carbon Scotland, City of Edinburgh Council, Sniffer**	2024-2030
G4.4	Support Edinburgh's creative sector to engage with citizens and visitors to the city on what adaptation is, why it is needed and what actions they can take collectively and individually to build resilience.	**City of Edinburgh Council Creative Carbon Scotland**	2024-2030
G4.5	Build up the resilience of Edinburgh's festivals to deal with rising temperatures, severe rain, flooding and storms.	**Edinburgh Festivals Forum, Creative Carbon Scotland, City of Edinburgh Council**	2024-2030
G4.6	Encourage and support the climate resilience of Edinburgh's winter festivals and major events.	**The City of Edinburgh Council**	2024-2030

H: Building understanding of Climate Change Risks

Objective H1: Ensure ongoing monitoring, evaluation and research to inform decision-making on climate change adaptation

Delivery Partners: University of Edinburgh ECCI, Climate Ready South East Scotland, Sniffer, Dynamic Coast, SEPA, DDI, The City of Edinburgh Council, further and higher education partners, wider city

Reference	Action	Timescale
H1.1	Utilise latest research and data to drive innovation in tackling climate change including collation of key evidence sets (flood risk maps, Urban Heat Island/coastal change etc) and make these available to update risk assessments and improve decision making. Work with SEPA to improve mapping of surface water flood risk.	Ongoing
H1.2	Make sure public climate change datasets are available to the public in understandable and accessible forms.	2024-2030
H1.3	Carry out further research to enable options appraisals and cost benefit analysis of different adaptation responses in Edinburgh to improve decision making.	2024-2030
H1.4	Encourage research programmes to address adaptation gaps and build knowledge of adaptation measures that work for Edinburgh.	2024-2030
H1.5	Develop a spatial map showing locations across Edinburgh most at risk from overheating/exceeding different temperature thresholds.	2024-2025
H1.6	Research design guidelines for increased temperatures including consideration of the thermal comfort impact for people including the measurement of radiant temperatures. Support and inform the development of planning policy to help reduce exposure and enhance ability to react (e.g. affect building planning guidelines, shading, and density controls).	2025-2026
H1.7	Develop adaptation partnership training and placement opportunities for students.	2024-2030
H1.8	Learn from successful research and projects in other cities and regions and apply lessons learned to adaptation in Edinburgh.	2024-2030

I: Governance and Investment

Objective I1: Ensure governance structures are in place to adapt Edinburgh to the impacts of climate change

Reference	Action	Delivery Partners	Timescale
I1.1	Establish an Edinburgh Adaptation and Nature Partnership core review group to annually monitor and update the plan, which works with and reports into the Net Zero Edinburgh Leadership Board.	**Edinburgh Adaptation and Nature Partnership,** Dynamic Coast, SEPA, Scottish Water, NatureScot, Net Zero Edinburgh Leadership Board and partnerships	Annually
I1.2	Embed adaptation across all Council services, including health and social care, risk, and establish governance to support delivery.	**The City of Edinburgh Council**	2024-2026
I1.3	Include adaptation in Edinburgh Council's Risk Register to take account of: • Unknown costs of the transformational change needed to adapt and build resilience to climate change impacts • Risk aversion, particularly in relation to new technologies that could support mitigation and adaptation • Reputational damage and failure in corporate social responsibility if climate action is not mainstreamed and embedded across the Council	**The City of Edinburgh Council**	2024-2027

Objective I2: Increase investment in adaptation

Reference	Action	Delivery Partners	Timescale
I2.1	Embed adaptation into the Council's Capital Budget Strategy taking into consideration the outcomes of the economic assessment. Ensure resources are set aside for investment in adaptation measures and that new investments take account of the impacts of climate change.	**The City of Edinburgh Council**	2024-2026
I2.2	Work with the Scottish Government and partners to develop sustained and dedicated resources across all sectors to enable development, installation, maintenance and management of adaptation infrastructure.	**The City of Edinburgh Council**	2024-2030
I2.3	Work in partnership to develop a pipeline of priority investment adaptation proposals and business cases to deliver the key priorities of the Plan. This	**Edinburgh Adaptation and Nature Partnership, The City of**	2024-2030

	includes identification of a pipeline of pilot projects building on current and future partnership working and demonstration of best practice.	**Edinburgh Council, Climate Ready South East Scotland**	
I2.4	Embed adaptation into city financial plans. Any new investment should take account of climate change to avoid later retrofit or redesign.	**Edinburgh Adaptation and Nature Partnership, The City of Edinburgh Council, Climate Ready South East Scotland**	2024-2030

Objective I3: Support the development of a regional climate change risk assessment and adaptation measures

Reference	Action	Delivery Partners	Timescale
I3.1	Support the delivery of a regional climate change risk assessment focusing on the Forth estuary and Edinburgh and South East Scotland City Region Deal (ESECRD) local authority partner area.	**Climate Ready South East Scotland, Sniffer**	Delivered by 2026
I3.2	Collaborate with CRSES partners on regional approaches and opportunities for cross-boundary and shared action on adaptation.	**Climate Ready South East Scotland, Sniffer**	2026-2030
I3.3	Support proposals to develop a regional climate adaptation investment technical assistance fund, to develop and test new business models and bankable project ideas.	**Climate Ready South East Scotland, Sniffer**	2024-2030

Objective I4: Deliver rapid whole-system change

Reference	Action	Delivery Partners	Timescale
I4.1	Advocate nationally and influence for review of key national and local policy, fiscal and regulatory frameworks to support climate action at the pace and scale required to respond to the climate and nature emergencies.	**Edinburgh Adaptation and Nature Partnership, Climate Ready South East Scotland City**, NatureScot, other partners	Ongoing
I4.2	Collaborate with Scottish Government and other partners on identifying resources for supporting local partnerships in developing a pipeline of investable sustainability projects.	**Edinburgh Adaptation and Nature Partnership, Climate Ready South East Scotland City,** NatureScot, other partners	Ongoing

Appendix 1 – Case Studies

Old and New Towns of Edinburgh UNESCO World Heritage Site

In 2021, Edinburgh World Heritage undertook a Climate Change Risk Assessment (CCRA) of the city's UNESCO World Heritage Site. The project's aim was to understand the challenges posed by climate change to Edinburgh's **Old and New Towns** and its communities who live, work or visit the site. The work was supported by the **Place-Based Climate Action Network (P-CAN)** and the **AtlaS World Heritage project.**

Extensive engagement was carried out, using two climate change risk and vulnerability assessment methodologies: one developed during the project, and the **Climate Vulnerability Index (CVI)** created by James Cook University Australia and applied for the first time to a 'urban' World Heritage Site.

This led to a Climate Action Plan for the Old and New Towns which will inform mitigation and adaptation policies and actions to help increase the site's resilience to climate change while preserving what makes it a unique place to live and visit. This Climate Action Plan has been integrated into the site's World Heritage Management Plan 2023-2031.

Edinburgh World Heritage's Climate Emergency Grant

In December 2022, Edinburgh World Heritage launched a new Climate Emergency Grant to address issues identified during implementation of the CCRA project. The grant provides funding to private owners and public, private and third sector organisations wishing to carry out targeted energy efficiency improvements or adaptation interventions alongside conservation repairs to their properties. The fund specifically focuses on two priorities:

- energy efficiency improvements to historic windows or external doors to increase their thermal performance and reduce heat losses.
- adaptation of rainwater goods to increase their capacity in handling larger volumes of rainwater.

Learning from these pilot projects will provide practical and replicable solutions that suit Edinburgh's local context. These will inform case studies and future guidance to support residents, local stakeholders and construction professionals, in addition to supporting conservation repairs in the World Heritage Site and

raising awareness on climate change challenges. The second round of funding attracted a high number of applications with ten projects being funded.

George Street and First New Town

The George Street and First New Town Public Realm Improvements reflect a vision for the city as part of Edinburgh's City Centre Transformation and Our Future Streets. The proposed design will create a greener, safer, accessible place for everyone to enjoy. Designs include several climate adaptation measures to ensure the area is fit for the future, whilst sensitively designing within the renowned World Heritage Site.

Heritage

As part of Edinburgh's UNESCO World Heritage Site, the proposal protects the principles of James Craig's simple, geometric and spacious design for the New Town.

Urban Greening

The proposed design includes seating alongside ground level and raised planters. Urban planting absorbs carbon, helps filter out air pollutants, provides a cooling effect in warmer urban areas and can help improve mental wellbeing. The proposal provides a formal and symmetrical approach to incorporating greenery along the street, with appropriate low maintenance plants, trees and hedging, that will be visually appealing and add colour, seasonal variation and enhance biodiversity.

Water management

Street greening also provides an opportunity to increase sustainable drainage by reducing the volume and speed of rainwater entering and potentially overwhelming the drainage system, which can cause flooding. Planting regulates water flow, improves water quality, and reduces urban water run-off. The rate at which surface water drainage re-enters the freshwater cycle is slowed down by the planting and soil, so reduces the risk of flooding.

A sustainable urban drainage strategy has been developed for the street which aligns with the Edinburgh Water Vision and Sustainable Rainwater Management guidance and integrates with the unique heritage to help to make the street more adaptable to the impacts of climate change. Drainage elements incorporated into the proposals include permeable joints in paving, rain gardens, linear channels and kerb drainage units.

Transport

The design proposal prioritises walking and wheeling, then cycling. General vehicle access will be banned with exceptions for essential vehicles at all times of the day including Blue Badge holders and emergency vehicles. And to a limited number of vehicles for certain hours including loading vehicles and taxis to support businesses and allow people to travel home safely at night.

Image: Rendering of proposed street design

Back to page 15

A Water Management Vision for Edinburgh

Edinburgh's Water Vision aims to deliver a long term and sustainable approach to river and storm water management and conservation across the city to help manage current and future flood and drought risk in a changing climate.

This is being taken forward by Edinburgh's Green Blue city partnership comprising the City of Edinburgh Council, Scottish Water, SEPA and NatureScot. The partnership reports to the Edinburgh and Lothians Strategic Drainage Partnership who co-ordinate action to tackle surface water and sewer flooding in the city. This partnership reports to the Adaptation and Nature Partnership.

Guidance has been produced under this Vision, including on Sustainable Rainwater Management with factsheets to help ensure all projects manage surface water sustainably.

Edinburgh Surface Water Management Plan

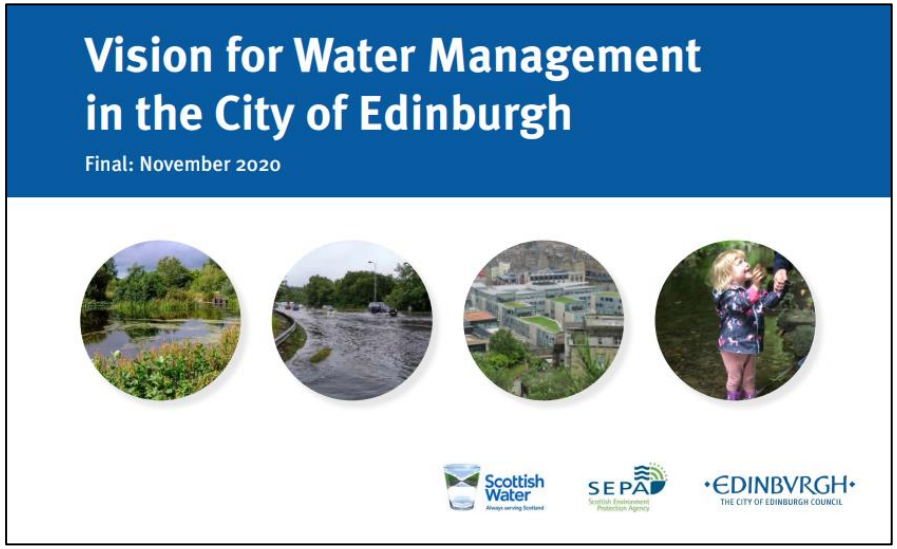
The Edinburgh Surface Water Management Plan (SWMP), developed with the support of Mott Macdonald consultancy, seeks to increase understanding on the causes of surface water flooding in the city and develop strategies to manage the risk.

Surface water is the water that remains on the ground after it rains. This water is normally absorbed or directed to drainage networks.

But during heavy rain this water can collect and cause flooding unless managed. Climate change is altering the amount of rain and when it falls, increasing surface water flood risk across the city. This trend is likely to continue, with the extent not yet fully understood.

Actions are being developed for areas at increased risk. The actions will be reviewed in line with changes in flood risk understanding and development opportunities that can bring many benefits.

Back to page 17



Edinburgh's Strategic Green Blue Network

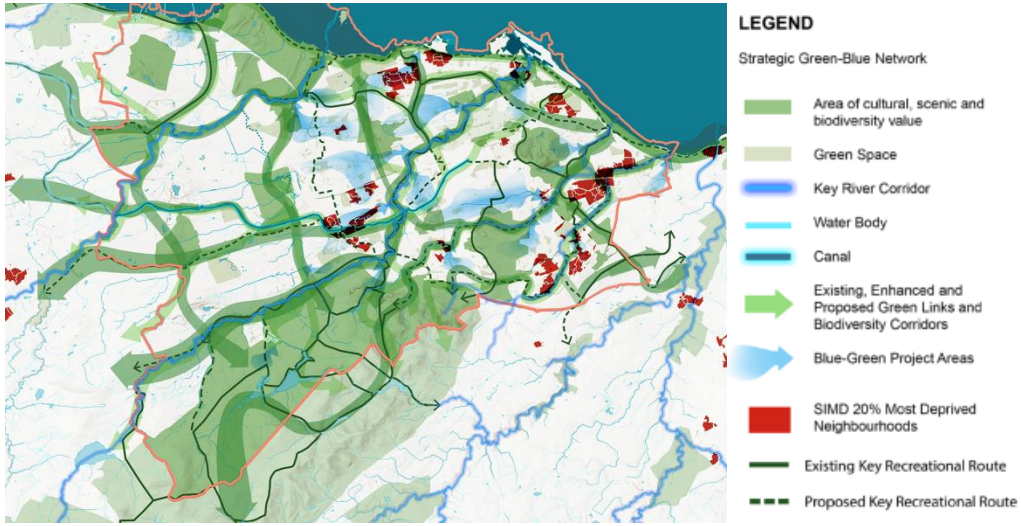
What is a Green Blue network?

A Green Blue network is a broad term for a set of interconnected green and blue spaces in our environment and refers to linked parks, woodlands, rivers and waterways, raingardens and tree-lined streets. Successful Green Blue networks support biodiversity and nature restoration, provide safe and beautiful routes and places for people, and increase resilience to climate change by helping to regulate temperatures and sustainably manage flood risk.

In line with the above, **Edinburgh's Green Blue Network** aims to deliver a network of beautiful, biodiverse, connected places in the city that are climate resilient and help to manage flood risk and regulate temperature regimes. AtkinsRealis consultancy supported the development and refining of the city's Green Blue Network.

Figure 3 shows Edinburgh's overall strategic Green Blue Network, including areas and routes important for recreation, biodiversity and water management. It also shows how the network serves Edinburgh's most deprived areas. The mapping identified key strategic components but other green blue networks also exist at a local scale in the city.

Figure 3 Edinburgh's Green Blue Network (in-development draft)



Back to page 17

Back to contents

Green Blue neighbourhoods

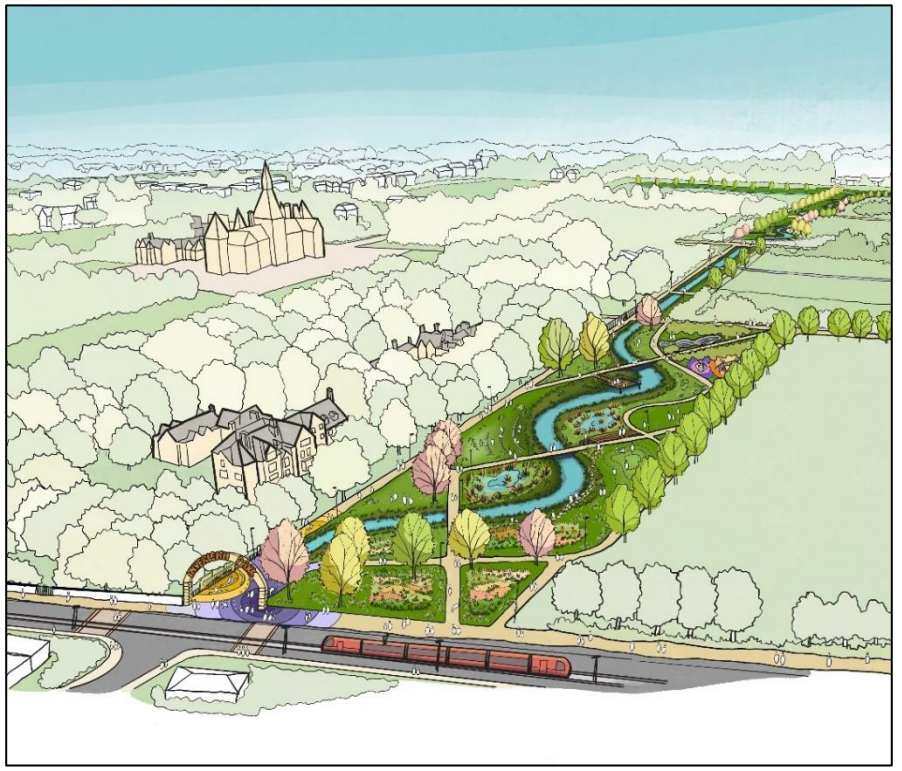
The first Green Blue neighbourhood to be taken forward is the Drylaw, Craigleith and Inverleith area of Edinburgh. Flood modelling and more detailed townscape studies have built on the Green Blue Network information. This has allowed a list of projects within this area to be prioritised. This is now being taken forward by a multi-disciplinary design team.

These projects will deliver beautiful, green, biodiverse, well-connected places that also reduce the risk of surface water flooding.

This neighborhood work is known as ‘Climate Ready Edinburgh’ and, along with Edinburgh’s Green Blue network, won The Landscape Institute Awards 2023 in ‘Excellence in climate, environment, and social outcomes.’

Back to page 17

Figure 4 Artist vision of river landscape restoration at Inverleith Park



Flood Prevention and River Restoration

The watercourses in Edinburgh are an integral part of the city's heritage and character. Historical development and land-use pressure has resulted in properties in certain areas being identified as at risk of river flooding. Climate change is increasing flood and erosion risk across the city due to increased intensities of rainfall and higher peak river flows.

To help improve understanding of flood risk the Council collects data via watercourse gauges and uses this information in conjunction with meteorological records to inform flood studies. Results from these studies include flood extent and depth mapping that is reviewed to develop strategic actions to help manage flood and erosion risk.

Phase 1 and 2 of the Water of Leith flood scheme were constructed to help reduce the likelihood and impact of flooding. **Reservoir operational regimes** in the Pentlands are also adjusted to help hold back water following extreme events to reduce peak river flows downstream.

The Braid Burn flood scheme includes two emergency flood storage reservoirs and multi-functional greenspaces which can be flooded in extreme events reducing flood risk to property elsewhere.

It is important that development near watercourses does not increase flood risk or potential damages to new or existing property. As a result, development is managed through Planning and Building Standards following **Council guidance**.

The Council also actively manages flood risk through inspections of major watercourses on a regular basis to identify potential issues that may increase flood or erosion risk. The Council also maintains an operational response that includes ongoing maintenance, use of flood forecasting data to inform deployment of defences, and emergency action plans to react as events unfold.

River Restoration

A masterplan for both the Niddrie Burn and the Gogar Burn is being developed to support well-connected, biodiverse and water resilient communities. The completed Niddrie Burn restoration scheme enhanced sustainable flood management alongside landscape and ecological improvements. This has helped unlock improved access and recreational value.

As part of the **West Edinburgh Placemaking Framework and Strategic Masterplan** the Gogar Burn was investigated to explore opportunities to enhance habitat connectivity and improve ecology and flood management.

Natural bank reinforcement works have been implemented on the Water of Leith in Canonmills (as shown to the right). The Council has plans for further bank reinforcement work for other areas of the city to reduce the risk of watercourse bank erosion to help provide safer, more accessible access to our nature spaces.

Back to page 17

Orchard Park Swale

To reduce flooding in the residential area surrounding Orchard Park, the Council is leading on the construction of sustainable drainage systems (SuDS) between August and November 2024.

To hold back and slow surface water, a new valley is being formed, otherwise known as a swale. This swale will be planted with wildflowers and plants designed to be attractive year-round and help pollinators thrive.

Trees and a new footpath will allow people to access the park more easily. These systems will further support planting biodiversity, connecting pollinator habitats, health and wellbeing, and the development of resilient green environments that are adaptable to the changing climate.

Sustainable drainage systems (SuDS)

Sustainable drainage systems help manage flooding by treating rainwater where it falls. SuDs often include extra local features that are great for biodiversity.

Image of swale at Dalmarnock Train Station | SNH

Swales

A **swale** is a long, shallow valley feature like a ditch that can run along a road or path. Swales gather surface water and either move it elsewhere or slow it down allowing it to enter the ground. Swales can be planted to maximise the available wildlife habitat.

SuDS trees

All street trees in Edinburgh take up rainwater, improve air quality, and cool urban heat effects. **SuDS trees** have specially designed systems below ground that allow them to better collect, store and treat rainwater.

Street Tree, Fountainbridge Edinburgh | Google Maps 2019

Rain gardens

Rain gardens collect rainwater (often from roofs) and filter it through plants and drainage layers into the soil below. These attractive, low maintenance, wildlife-friendly planted features can often be found next to roads.

Greener Grangetown Rain Garden Planting | Arup

Back to page 17

Coastal Change Adaptation Plan

Climate change is projected to cause sea level rise and more frequent storms which would impact coastal communities and ecosystems through increased flooding and coastal erosion. The coast provides opportunities for recreation, agriculture, tourism, fishing, industry and port facilities. Planning how we sustainably adapt our coasts in the face of the threat of erosion and rising sea levels will be key to protecting and enhancing these activities, ecosystems and communities.

The Scottish Government's **Coastal Change Adaption Guidance** will be used to develop the Coastal Change Adaptation Plan (CCAP) by 2026. A range of groups will be consulted including public and organisational stakeholders, such as coastal infrastructure owners of bridges, ports and wastewater treatment works, as part of the development of the CCAP.

Natural and artificially engineered coastal defences form part of the existing coastline offering protection from storm surges, extreme weather events and flooding. They also support existing ecosystems, nature and communities. Flooding and erosion risks, worsened by a changing climate, mean that it is increasingly difficult to hold the existing line with hard-engineered and nature-based interventions. Nature-based solutions include sand dunes and sand bars, beaches, reefs and seagrass meadows. The CCAP will support policy development including definition of trigger points that will be used to monitor and respond to flood and erosion risks as they change through time.

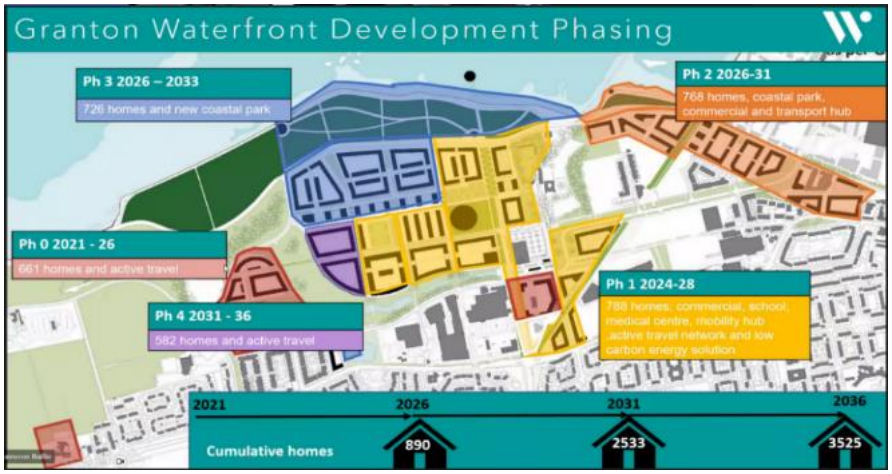
Back to page 19

Granton Waterfront

A **Development Framework** has been approved for Granton Waterfront to create a new vibrant, green and sustainable coastal quarter on Edinburgh's waterfront.

This includes the creation of a coastal park as part of the development to provide natural resilience to coastal flooding from rising sea levels and storm surges, and networks of natural spaces and green blue infrastructure which will help to protect and enhance biodiversity and improve health and well-being.

Granton Waterfront is the largest regeneration project of its kind in Scotland. Edinburgh's ambitions to tackle climate change and transition to a net zero-carbon economy are fundamental to the **Granton Waterfront vision**.

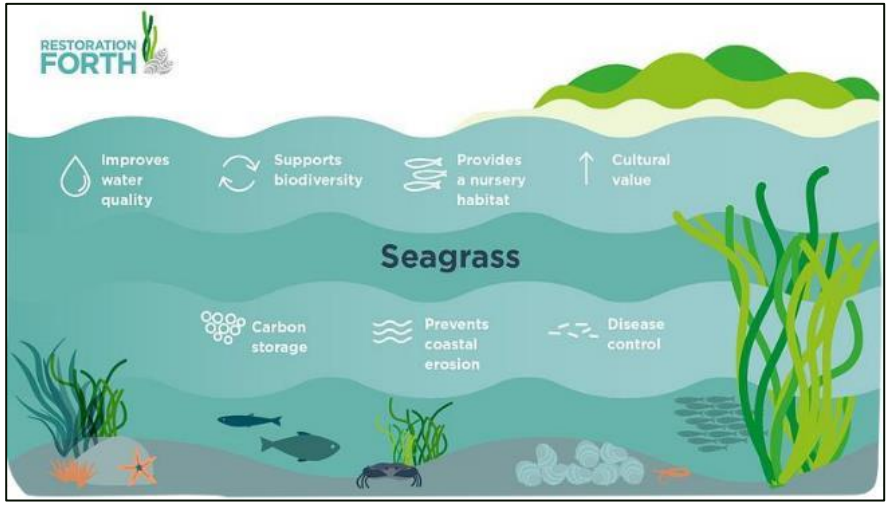


Restoration Forth

Restoration Forth, led by WWF, is a conservation partnership between charities, local community groups and scientists which aims to restore seagrass and oyster reef habitats in the Firth of Forth. The partnership aims to enhance the coastal environment of the Forth, helping to support biodiversity, prevent coastal erosion, sequester carbon and improve water quality.

This project works closely with local communities through volunteering activities, citizen science and marine awareness programmes to restore these habitats and to champion habitat restoration in the marine environment for the benefit of these communities.

Back to page 19



Edinburgh Biodiversity Action Plan

Edinburgh's Biodiversity Action Plan (EBAP) is the framework for nature conservation in the city. The EBAP aligns with the 2050 Goals of the **Global Biodiversity Framework**, to increase natural ecosystems, reduce species loss, protect genetic diversity, and restore ecosystem services. It also responds to emerging commitments including ensuring Edinburgh becomes a nature positive city by 2030.

The Edinburgh Biodiversity Partnership brings together over 30 organisations and groups including research organisations such as Royal Botanic Garden Edinburgh and city universities, government agencies, environmental and conservation charities, expert species and nature groups, and local communities working in parks and greenspaces.

The EBAP aims to connect, protect, improve and create new habitats within the city and increase the resilience of ecosystems which enable species to cope with the climate change pressures placed upon them.

Actions also aim to increase understanding of how Edinburgh's changing climate is affecting the city's habitats, species and the functioning of its ecosystem services, and what measures need to be taken to alleviate them.

Back to page 23

Edinburgh Nature Network

As part of **Edinburgh's Thriving Green Spaces initiative**, the City of Edinburgh Council has become the first local authority in Scotland to develop a citywide nature network, developed in partnership with Scottish Wildlife Trust, University of Edinburgh, Edinburgh Biodiversity Partnership members and other stakeholders.

The aim of the network is to protect and enhance the city's species and habitats and the ecological services they provide, as well as creating nature corridors to increase species movement and expansion.

The majority of the Network is based on the city's large network of designated sites and priority habitats. Mapping these areas gives the core Nature Network area. A buffer zone has also been added. Opportunities for habitat creation in this zone deliver an increase in the coverage of the network.

The Nature Network has been incorporated into Edinburgh's Green Blue Network. Development of the network provides benefits for people, wildlife, and climate across the city.

Back to page 23

Edinburgh Million Tree City

Woodlands and trees provide many positive effects within a city. The roots of established trees provide channels through the soil that can increase the capacity of the ground to absorb water. Trees also release water back into the atmosphere through their leaves, which cools the air around the tree and reduces the overall volume of water entering rivers.

A mature tree in leaf helps slow heavy rainfall and provides shade for people.

All these characteristics of trees help reduce the likelihood of rivers bursting their banks and minimise flooding from heavy rainfall and extreme weather events and help keep the city cooler.

Trees support the city's biodiversity. With woodland wildlife in decline, it is vital for many of these animals, insects, and plants to have the trees, hedges, and Wee Forests in which to forage, reproduce, and flourish.

In 2020, Edinburgh had an estimated 731,000 trees. To reach a million trees by 2030, taking into account tree losses, around 250,000 more trees need to be planted in the city. The Council needs the help of residents, communities, businesses, and other organisations to do this. The project was kickstarted by an Emergency Tree Fund grant over three years from the Woodland Trust, which ended in 2023. Work continues with Edinburgh and Lothians Greenspace Trust and other partners to deliver this ambitious target. So far, we have 88,867 more trees (36%) towards the 250,000 target.

Plants with Purpose

The Royal Botanic Garden Edinburgh's **nature-based solutions programme** provides scientific evidence, skills, and advice to partners across society.

The five-year **Plants with Purpose programme** looks at types of plants that will flourish in a changing climate. The programme aims to improve resilience in towns and cities through better use of plants to absorb flood water, moderate extreme temperatures and provide habitat for pollinators.

RBGE is also carrying out a number of adaptation demonstration sites including green roofs, stormwater planters as shown in the picture to the right, living lawns and a raingarden. The raingarden was planted in 2019 to solve persistent flooding of nearby paths and is now an outdoor space to facilitate discussion about urban flooding.

Stormwater planters at the Royal Botanic Garden Edinburgh in May 2024

Back to page 23

Edinburgh’s New Gardens Project

The Edinburgh New Gardens project is part of a national programme of exploratory blended finance projects called ‘FIRNS’ (Facility for Investment Ready Nature in Scotland). Blended finance is money that comes from both the private and public sectors. Edinburgh’s project will build a methodology for a blended green finance model using the Drylaw, Craigleith and Leith projects. These projects have already been designed to a stage that we can measure (and put a financial value to) the improvements to the environment that would be created after construction.

Ultimately, the project hopes to use green finance to plan, design and construct many projects for climate adaptation and nature recovery in the city.

This project is supported by The Facility for Investment Ready Nature in Scotland (FIRNS) which is being delivered by NatureScot in collaboration with The Scottish Government and in partnership with the National Lottery Heritage Fund.

Stakeholders working with the City of Edinburgh Council include: the Scottish Wildlife Trust (SWT), Scottish Environment Protection Agency (SEPA) and Scottish Water.

Back to page 30

Edinburgh’s New Gardens Project team in a planning session

.

Appendix 2 – Edinburgh Climate Risk Assessment Summary

How has Edinburgh's climate already changed?

An updated climate change risk assessment was undertaken for the city, based on the Met Office's "State of the UK Climate"[5] report, which is produced annually.

Findings from this report show that recent decades have been warmer and wetter, with changes in rainfall patterns and more frequent, heavy downpours. Sea levels are rising along our coast and there have been fewer days with frost and snow cover.

Scotland's 10 warmest years on record have all occurred since 1997. The average temperatures for the last decade (2014-2023) were 1.02°C warmer than the 1961-1990 average, and the warmest year on record was 2022.

There has been an increase in rainfall over Scotland in the past few decades with an increasing proportion of rainfall coming from heavy rainfall events. The annual average rainfall in the last decade (2014-2023) was 10% wetter than the 1961-1990 average, with winters 29% wetter.

Mean sea level around the UK has risen by approximately **1.4 mm/year** from the start of the 20th century and the rate of sea level rise has increased over the last 30 years.

How will Edinburgh's climate change in the future?

The changes in climate that we are already experiencing are projected to continue and intensify.

The updated climate risk assessment used information from the Met Office's UK Climate Projections 2018 (UKCP18). The UKCP18 provides the most up-to-date and appropriate climate change scenarios for understanding climate change in Edinburgh.[6]

There are four potential climate outcomes included in UKCP18 going from an assumption of sustained and rapid reductions in greenhouse gas emissions globally to more extreme changes that are projected if emissions continue to rise and emission reduction targets are not achieved. The amount of change that occurs will depend on how successful we are in reducing greenhouse gas emissions globally.

For this plan, we have chosen the most extreme scenario called the 'high emissions scenario' (Relative Concentration Pathway 8.5 (RCP8.5)). This approach is recommended by the UK Climate Change Committee, who advise taking a precautionary approach and adapting to 2°C of warming while preparing for a 4°C temperature rise.

[5] The State of the UK Climate report is an annual publication which provides an accessible, authoritative and up-to-date assessment of UK climate trends, variations and extremes, based on the latest available climate quality observational datasets. The latest report is available on the Met Office website.

[6] Adaptation Scotland's summary of UKCP18 projections for Scotland

From the risk assessment analysis of UKCP18 for Edinburgh, the long-term projected climate trends for Edinburgh are:

Average temperatures will continue to increase across all seasons.

Typical summers will be warmer and drier and winters milder and wetter.

Weather will remain variable and may become more variable.

Intense, heavy rainfall events will increase in both winter and summer.

As global average temperatures increase, we will also experience rises in sea level around Edinburgh's coast.

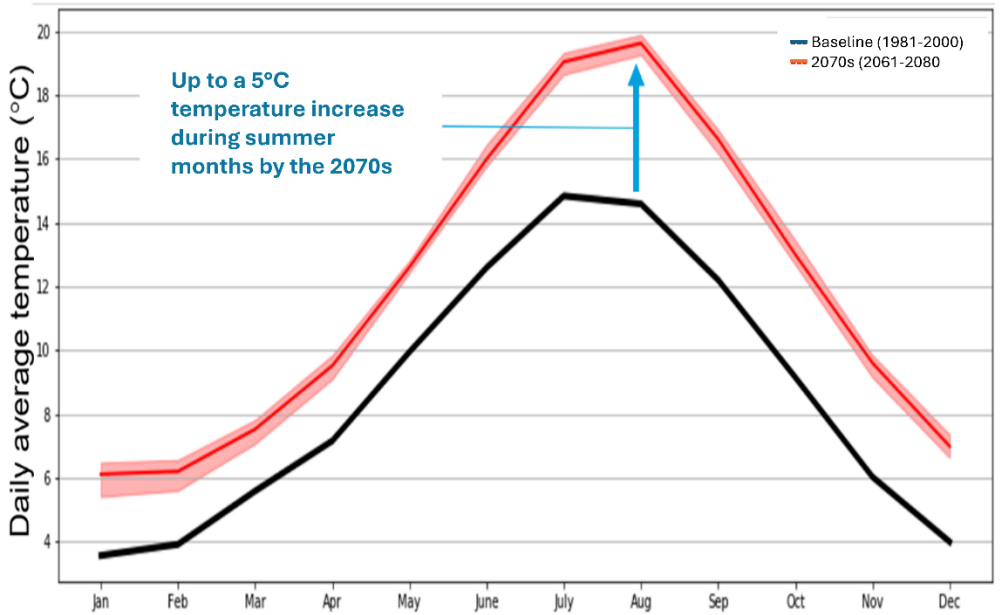
Winter frost and snowfall will reduce

Temperature

Temperatures in the 21st century are around 1°C higher than in the pre-industrial era[7] and this warming trend is projected to continue into the latter half of the century. We therefore need to be ready for:

- Average temperature increases exceeding 5°C in the summer and 3°C during winter months.
- The number of days exceeding 22°C increasing in frequency to 11 days per year by the 2070s.
- Heatwaves becoming around 4 times more frequent.
- Overnight temperatures exceeding minimum comfort thresholds for sleeping.
- The number of days below 14.4°C decreasing over the next 60 years.
- Extreme cold and snow events are likely to become less frequent, but extreme events such as the 2018 "Beast from the East" may still occur.

Figure 5 - Edinburgh average monthly temperatures for the baseline and future 2070s period under the high emissions scenario



[7] UK MET Office Climate Projections: Headline Findings

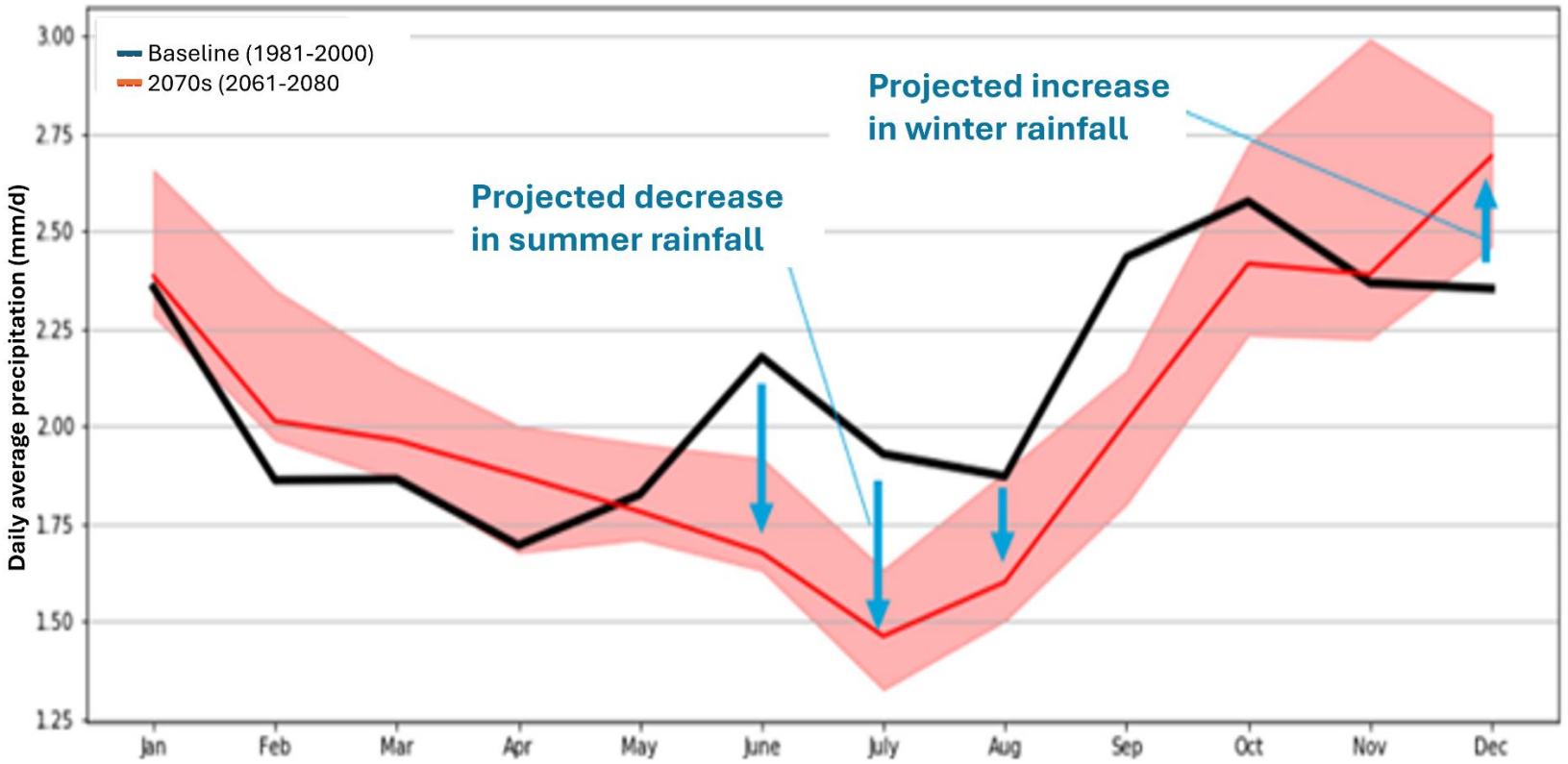
Back to contents

Rainfall

Rainfall patterns are changing and will continue to change.

- Average winters are projected to become up to 30% wetter by 2070, with more heavy rainfall and a greater number of wet days.
- Summers will become up to 60% drier by 2070.
- Summer heavy rainfall events are projected to become more extreme, with greater amounts of rain falling over a shorter period of time.
- A notable increase in storm intensity can be expected over the
- next 30 years, with further increases in the subsequent 20 years.
- Climate projections are uncertain regarding changes in wind speed. However, it is more likely that wind gust speeds and storm intensity will increase under a warming climate.

Figure 6 - Edinburgh average monthly precipitation for the baseline and future 2070s period under the high emissions scenario



Back to contents

Storms

There is uncertainty around changes in wind speed but it is more likely that wind gust speeds and storm intensity will increase under a warming climate. There is also an increased risk of summer storms linked to heavy summer rainfall.

Drought

UKCP18 projections indicate a reduction in average rainfall during summer months, while summer temperatures are expected to notably increase.

Prolonged periods of hot and dry weather will exacerbate the effect of changing rainfall patterns on loch and reservoir levels. These combined impacts are anticipated to increase the likelihood and severity of hydrological droughts.

Drought analysis undertaken using UKCP18 data has found that these changes are projected to rise in the near future, with more frequent and extreme drought events likely to occur across Scotland, with Edinburgh a potential drought hotspot.

Sea level rises

As global temperatures increase, sea levels will continue to rise along Edinburgh's 27 km of coast. This trend is projected to accelerate in the decades ahead with minimum increases of between 16-20 cm likely in the next 20 years. In the latter half of the century, sea level rise could be 30-40 cm with the possibility of up to 60 cm under a medium emissions scenario. Under a high emissions scenario, increases as high as 90 cm are possible.

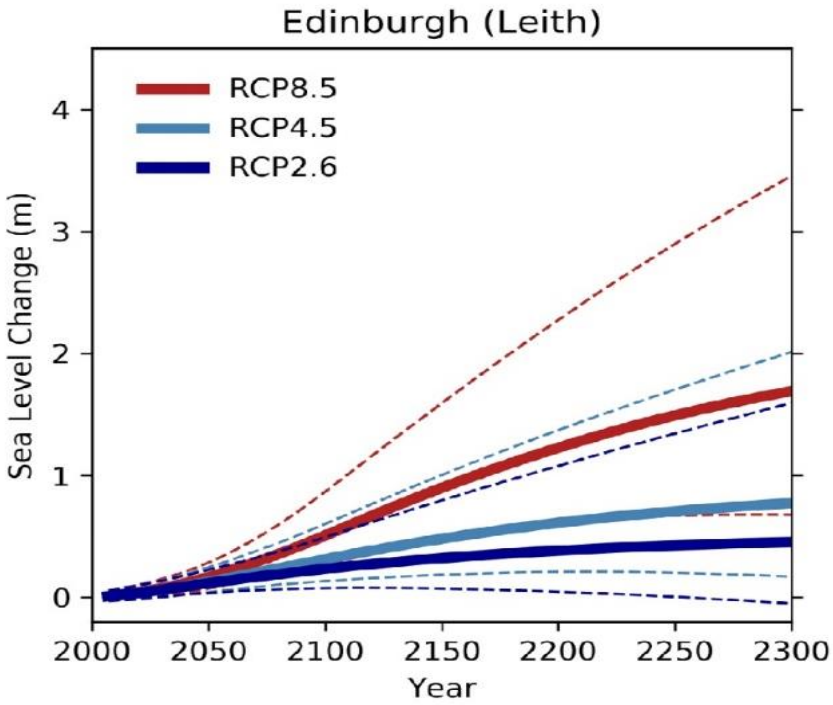
In addition, there is also a low possibility that sea level rise this century could be much greater than anticipated as a result of additional melt from the Greenland and Antarctic ice sheets. This means that a sea level rise of 2m by 2100 cannot be ruled out for the UK.

Looking further ahead, the graph in Figure 7 shows the largest values of future sea level rise, with projected ranges at 2300 of approximately 0.0 - 1.7 m, 0.2 - 2.1m and 0.7 - 3.6m for RCP2.6, RCP4.5 and RCP8.5 respectively.

While we expect these results to be qualitatively robust (e.g. in terms of spatial variations around the UK), absolute values of change should be treated with caution owing to the lower confidence in projections on these extended time horizons.

Rising sea levels will mean extreme events such as storms having a greater impact and a greater risk of flooding from wave overtopping. Sea level rise will also lead to greater erosion of our coastline and put increasing pressure on our sea defences.

Figure 7 - Sea level rise projections for Edinburgh to 2300, the bold lines show the 50th percentile projections, the dotted lines the 5th and the 95th. This is for the high (red), medium (light blue) and low (dark blue) scenarios



Back to contents

Risks and Impacts

To build Edinburgh's climate resilience we need to understand how climate change is likely to impact the city and how best to address this.

This includes:

- understanding how climate change has already and will continue to affect Edinburgh and the potential consequences of this.
- quantifying the extent to which appropriate, prompt and long-term action will bring long term savings.
- making sure that the techniques used to adapt our city create beautiful, nature positive places.

The key risks and impacts identified for Edinburgh are:

- Increased risk of river and surface water flooding. Areas with limited green and blue space are most at risk. Development and increasing urban creep are key drivers for increasing this flood risk.
- Increased transport and travel disruption, especially to key rail, tram and road routes, caused by flooding and increasing temperatures.
- A significant risk to Edinburgh's coast from sea level rise, flooding and coastal erosion especially during storm surges and high tides.
- Over-heating, currently an under-appreciated risk in Edinburgh. Temperature increases are likely to cause overheating of buildings, including hospitals and care homes, disruption to road, tram, and rail transport and pose a risk to certain groups.
- Storms and high winds, which have already caused damage to buildings and infrastructure in the city and travel disruption, delays and cancellations.
    - Risks to people's health particularly the most vulnerable, which could lead to increased demand for healthcare services.
    - Drought affecting Edinburgh's rivers, wetlands, ponds and peatbogs, with knock-on consequences for soil erosion, carbon storage and peat loss.
    - Climate change will place increasing pressure on already sensitive habitats and species, especially those susceptible to other pressures.

In terms of severity, flooding and overheating are the two key climate risks that will impact Edinburgh the most.

Surface water flooding

As with many cities, Edinburgh's land cover is dominated by impermeable surfaces, causing a large proportion of rainfall to run off into the drainage system, rather than soaking into permeable surfaces such as grasses. If drainage systems are unable to cope with the volumes of runoff being received, surface water flooding can occur. Figure 8 shows the surface water flood risk map under present day conditions.[8] At-risk areas were identified from a combination of surface water and sewer flooding modelling.[9]

Heavy rainfall events are projected to become 10% to 45% more extreme in Edinburgh, increasing the likelihood that drainage systems will be unable to cope with the increasing volumes of runoff water.

[8] https://map.sepa.org.uk/floodmap/map.htm

[9] https://www.sepa.org.uk/media/163436/how-were-the-maps-developed.pdf

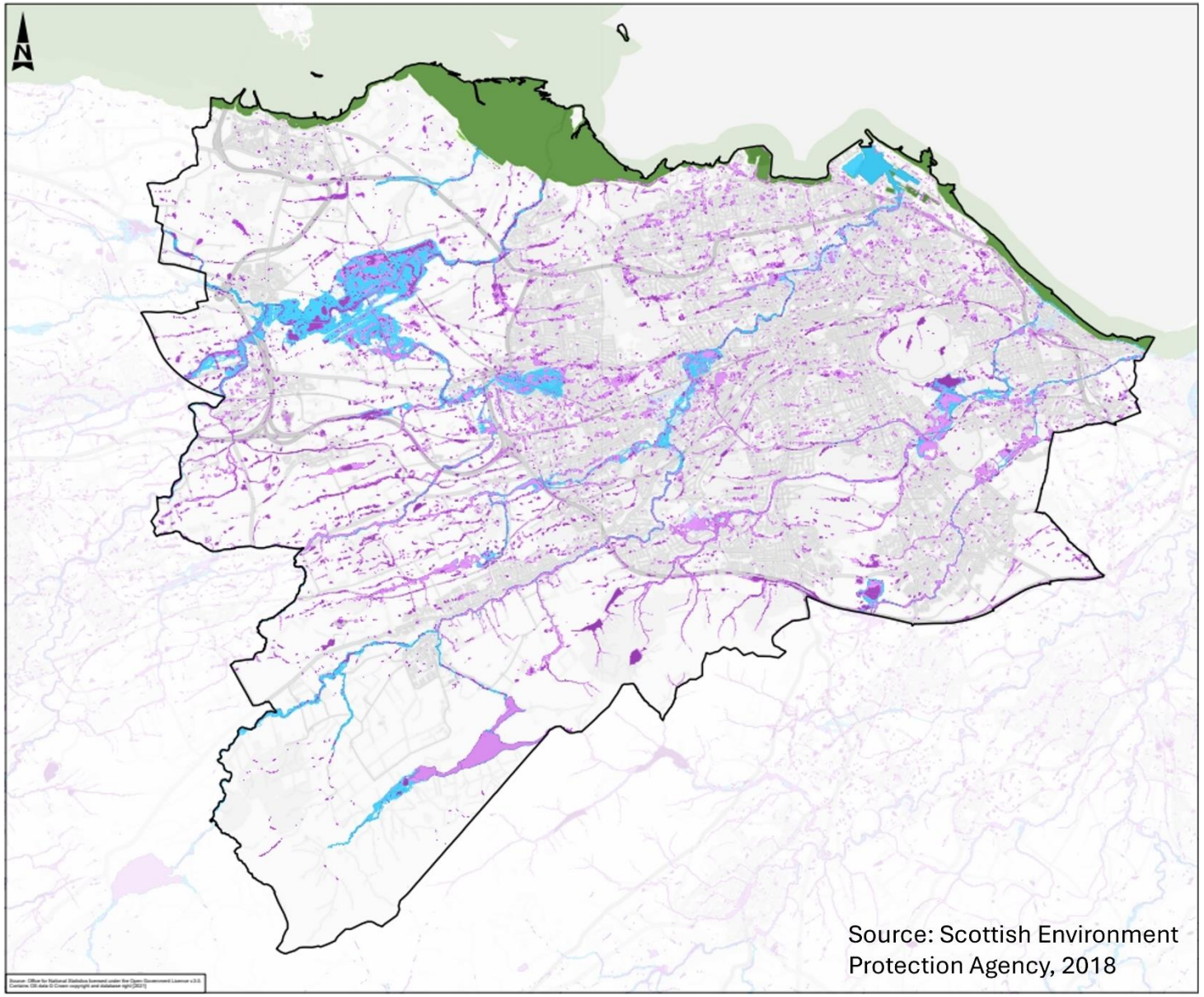
Without taking measures to manage this excess runoff, the risk of surface water flooding in Edinburgh will increase, with more areas vulnerable to flooding.

River Flooding

River flooding occurs when river levels cause bank overtopping, with water spilling out onto surrounding areas. The frequency and magnitude of river flooding will increase in the future due to climate change, with changing rainfall patterns and more intense rainfall bringing greater volumes of water into our river systems.

Edinburgh sits in the Forth basin, which SEPA has assigned a 56% climate change uplift for use when considering the impacts of climate change on peak river flows. This could lead to increased flooding of Edinburgh's Water of Leith, Braid Burn and other watercourses, flooding nearby homes, businesses and surrounding areas.

Figure 8 - Map of Edinburgh showing current flood risk



Coastal Flood Hazard Area
- High Probability
- Medium Probability
- Low Probability

River Flood Hazard Area
- High Probability
- Medium Probability
- Low Probability

Surface Flood Hazard Area
- High Probability
- Medium Probability
- Low Probability

High probability: A flood event is likely to occur in the defined area on average once in every ten years (1:10). Or a 10% chance of happening in any one year.

Medium probability: A flood event is likely to occur in the defined area on average once in every two hundred years (1:200). Or a 0.5% chance of happening in any one year.

Low probability: A flood event is likely to occur in the defined area on average once in every thousand years (1:1000). Or a 0.1% chance of happening in any one year

Data shows baseline flood risk and does not include allowances for future climate change.

Storms

In recent years, severe storms have caused the cancellation of a number of events in the city, as well as closing important infrastructure such as Edinburgh Bus Station, Forth Bridge, and the Royal Botanic Gardens.

While there is uncertainty surrounding changes in wind speed it is more likely that wind gust speeds and storm intensity will increase under a warming climate. There is also an increased risk of summer storms linked to heavy summer rainfall.

Many of the impacts from storms are interlinked with the impacts associated with flooding events. Additional risks include an increased chance of power outages during high winds and thunderstorms. Driving wind and rain can cause structural damage, and also increase damage from damp and water ingress in buildings.

Drought

Prolonged periods of hot and dry weather combined with increasing summer temperatures will increase the likelihood of drought. This could lead to reduced water availability and affect water quality at Glencourse reservoir and local wetlands and lochs such as Bawsinch and Duddingston.

Additionally, reduced river flows can cause reduced dilution of pollutants, affecting aquatic health and biodiversity in rivers such as the Water of Leith.

Sea Level Rise and Coastal Erosion

To date, coastal flooding in Edinburgh has been limited,[10] although storms coupled with high tides have caused damage to coastal defences in the past. The combination of possible increases in storm intensity in addition to projected sea level rise and a morphologically dynamic coast, means that protection in the future cannot be taken for granted.

Between 2008 and 2011, maintenance and repairs to coastal defences was estimated at £740,000. This cost is likely to increase as coastal defences are nearing or already past their design life, and defences are more frequently tested by storm events.

Scotland's Centre of Expertise for Waters (CREW) commissioned *Dynamic Coast*, a project to map the projected change in mean high water spring level and coastal erosion areas across Scotland up to 2100, using UKCP18 projections under the RCP 8.5 emissions scenario.

The study looked at selected areas along Edinburgh's coast and identified hotspots which are particularly vulnerable to coastal erosion and future sea level rise. Properties and other assets in these areas are vulnerable to coastal flooding and erosion due to climate change.

[10] There is an example from 2010:
Climate_projections_for_Scotland_summary_single_page_FINAL.pdf (adaptationscotland.org.uk)

The risks and impacts of these changes across key sectors of the city

The effects of climate change will not be felt evenly across the city and will depend on both geography and socio-economic circumstances. Climate change impacts are a threat multiplier which will affect certain groups disproportionately and could lead to increasing inequalities.

The experience of recent years has shown that global climate change and extreme weather events have already impacted many aspects of our lives locally, nationally, and globally.

The impact of these climate change risks will be wide-ranging and we need to understand the extent to which action now could bring about long-term benefit to Edinburgh. The common factor among these risks is the threat they pose to the health, safety and wellbeing of not only our people but also our natural environment. A full risk assessment for each impact can be found at the end of this section.

Public health

The greatest risks from climate change are loss of human life associated with extreme weather and climate change events such as flooding and heat waves.

There is also a risk that there will be an increase in inequality across the city. Rising temperatures, increasing rainfall and extreme weather events are likely to impact certain individuals, households and businesses.

This potentially amplifies the effects of the recent global pandemic and the cost-of-living crisis. Individuals who do not have the assets, finances and support to adapt will be impacted the hardest, making life even more challenging.

Those in low paid work may experience more challenging working conditions, which in turn will negatively impact health and wellbeing. There will also be a knock-on impact in education services, with schools and educational establishments closing for periods, widening the attainment gap for those living in poverty. There will also be increased demand on our healthcare and emergency services who will struggle to respond to growing pressures, resulting in reduced care provision and overall poorer health for our people, especially those most in need.

Housing, built environment and city landscapes

The built environment covers all infrastructure, including homes, commercial buildings, city landscapes, schools and hospitals. Our built environment is already experiencing the impacts of our changing climate in the form of flooding, storms and coastal erosion resulting in damage to buildings, the public realm and infrastructure. The risk assessment has identified flooding, heatwaves, sea level rise and both drought and subsistence as emerging risks which will grow increasingly more severe in the next few decades. Many properties and areas of townscape in Edinburgh's World Heritage Site and conservation areas in the city are particularly vulnerable to these climate impacts due to their location, construction, age and cost to adapt.

Climate change will not impact all residents equally. While those who own properties may be able to adapt them to the impacts of climate change, tenants who rent their homes will depend on landlords to improve the resilience of their buildings.

There will also be increased risk to public health and risk to life from rising temperatures and severe weather, especially as many of our buildings and city landscapes were not designed with climate resilience in mind. Whilst there is a huge pressure to reduce emissions from buildings and construction of new townscapes, it is key that this is done in tandem with future proofing the buildings

and the public realm to the shocks and stresses of climate change to ensure a resilient built environment.

Natural environment

The natural environment has already experienced major changes and losses, with the city declaring a nature emergency in 2023. We know that we must work hard to protect and restore nature and our natural environment both in the city and surrounding areas as we integrate climate adaptation measures using nature-based solutions.

Edinburgh is a place of great beauty and natural heritage. From the Pentland Hills to the Firth of Forth there is a wide diversity of habitats and natural places. This includes the Red Moss of Balerno on the edge of the Pentlands which is Edinburgh's raised peatland. Some of these places are home to rare and protected plants and animals, for example the Firth of Forth is of global and national importance for some species of birds. Added to this is habitat crucial for pollinators.

Rising temperatures, changing rainfall patterns, longer growing seasons and changes in seasonal events as well as extreme weather events will place increasing pressure on Edinburgh's unique and special natural environment, especially our sensitive habitats, species and ecosystems, as well as the ecological services they provide.

Transport Infrastructure

Our transport infrastructure is vital to Edinburgh remaining a thriving, connected and desirable place to live, work and visit. Edinburgh's transport sector has already started to face regular disruption from severe rainfall and storms. Flooding caused by severe rainfall causes the greatest disruption and this risk will increase in the future. High winds and storms have also affected transport services and caused delays and cancellations.

Disruption does not affect people and communities equally, with certain groups most likely to be impacted when transport and related infrastructure is disrupted. We must therefore ensure our transport is well protected to ensure inequalities are not further exacerbated.

Reducing emissions from transport will remain a key focus through the City Mobility Plan, but this will be further supported by embedding climate adaptation measures into key transport infrastructure and working with partners to minimise disruptions.

Climate risk across sectors

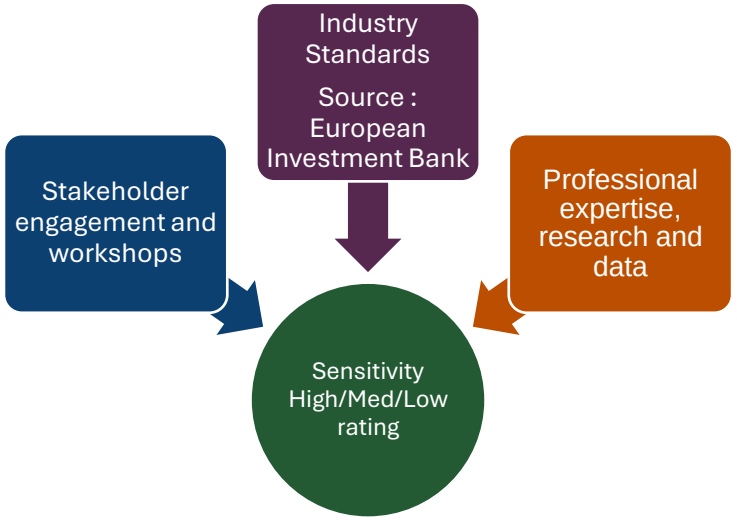
The Council commissioned consultants to assess the vulnerability of people, locations and assets in Edinburgh to the impacts of climate change. The consultants used European Investment Bank industry standards, professional judgement based on analysis of all the available data, and engagement with stakeholders to assess:

- the exposure of people, locations and assets to climate events such as flooding or storms
- the sensitivity or degree to which each would be affected by the climate event

Scoring these as low, medium or high, the vulnerability to these climate risks was worked out as shown in the table. When both the sensitivity and exposure were high, this would result in a high vulnerability score. Where there was a mixture of scorings, further work was undertaken to determine the most likely vulnerability.

This provides a starting point for informing the prioritisation of climate action and investment in adaptation in the city.

Figure 9 – The process used to assess vulnerability to climate risk



Vulnerability Assessment

	High Sensitivity	Medium Sensitivity	Low Sensitivity
High Exposure	High	High	Medium
Medium Exposure	High	Medium	Medium/Low
Low Exposure	Medium	Medium/Low	Low

Climate vulnerability of the Public Health Sector in Edinburgh

Climate Hazard	Sensitivity	Exposure	Vulnerability	Summary
Flooding	**Red**	**Red**	**Red**	Health facilities and homes are vulnerable to all types of flooding. Flooding can impact on the ability to deliver healthcare services, reduce or prevent access to medical facilities and disrupt or damage the infrastructure that the health facilities rely on, such as power and communications. It can also cause physical and mental health impacts.
Sea level rise and coastal erosion	**Amber**	**Green**	**Green**	Sea level rise and coastal erosion will impact people living or working near the coast. While physical health risks are low because measures are taken to safeguard people and homes from coastal flooding and erosion, the impacts on mental health over the long term could be higher due to anxiety and uncertainty regarding the viability of coastal communities.
Storms	**Red**	**Red**	**Red**	Increasing frequency and intensity of extreme weather events is likely to increase the demand for healthcare services due to physical and health impacts associated from injury and trauma in storms, such as from road accidents. Storms also impact critical infrastructure that health facilities rely on. Heavy rainfall could also increase damp and mould in buildings, and respiratory and related problems. Power and communications outages caused by storms can have significant impacts on certain groups.
Heatwaves	**Amber**	**Amber**	**Amber**	Climate change increases the likelihood of heatwaves which will be felt most among certain groups including older people and children. This could increase the number of heat related illnesses and is a particularly high risk in care homes. Rising summer temperatures may lead to a rise in hospital admissions and respiratory problems. Higher temperatures and longer growing seasons could also increase pollen levels in the air affecting those suffering from asthma and related conditions. Higher temperatures can also adversely affect air quality and lead to an increase in ground level ozone. Higher temperatures with periods of reduced rainfall or drought will increase the risk of wildfires, again impacting on air quality and people's health.
Drought	**Amber**	**Amber**	**Amber**	Drought impacts on public water supply would have significant consequences for hospitals, care homes, and private homes. Drought can have a significant impact on natural environments and green spaces in the city, diminishing the recreation and amenity value that these areas provide which could impact both mental and physical health. Drought can also impact the availability of food, at worst resulting in food shortages and increases in food prices, however this is considered lower risk for Edinburgh.

Climate Vulnerability of Housing and Built Environment in Edinburgh

Climate Hazard	Sensitivity	Exposure	Vulnerability	Summary
Flooding	**Red**	**Red**	**Red**	River, surface water and coastal flooding all affect Edinburgh's built environment. Flooding can cause structural damage including to the external fabric of the building and increase building dampness and mould. Flooding of basement flats is a particular issue in some areas of the city.
Sea level rise and coastal erosion	**Amber**	**Amber**	**Amber**	Edinburgh has 27km of coastline. Sea level rise will increase the risk of coastal flooding, erosion and wave overtopping during storms, damaging buildings and infrastructure situated at or near the coast.
Storms	**Red**	**Red**	**Red**	Storms pose a significant risk to Edinburgh's built environment. Driving wind and rain can cause structural damage to buildings and infrastructure and disrupt travel. This includes longer term damage to buildings through water ingress, dampness and mould. Storms can create public safety concerns from disruptions to services and the danger of falling masonry, trees and branches etc.
Heatwaves	**Amber**	**Amber**	**Amber**	Prolonged exposure to temperature extremes can cause damage to buildings. Excessive indoor temperatures can affect thermal comfort, health and productivity. In high density urban areas such as Edinburgh, the urban heat island effect can exacerbate overheating. Building materials and design can enhance or reduce this effect. Increased greening of the built environment can reduce the heat island effect, e.g. shading from trees, areas of vegetation including living roofs which cool internal spaces. The risk of heat and extreme temperatures is currently assessed as moderate but will increase as temperatures rise. This is a risk that the city has not traditionally had to manage, meaning that preparedness may be low. Historic buildings, with thick walls and high ceilings are in many cases better equipped to deal with heat than more modern buildings with limited ventilation and no air conditioning.
Drought	**Amber**	**Amber**	**Amber**	Warmer temperatures and changes to precipitation accelerate the deterioration of buildings materials. Subsidence can also occur as a result of drought which can affect building foundations and levels. Drought also impacts the built environment by increasing water shortages.

Climate vulnerability of the natural environment in Edinburgh

Climate Hazard	Sensitivity	Exposure	Vulnerability	Summary
Flooding	**Amber**	**Amber**	**Amber**	Increased frequency of flooding will lead to changes in habitat and species distribution (see below) and influencing processes of soil formation and erosion. Green spaces may be damaged or unusable during floods. Washouts can deposit sediments that overwhelm vegetation and fish species, and sewage overspills can result in the transfer of pests, diseases, and invasive non-native species. Natural assets could be lost to flood damage or their condition/quality degraded through multiple events over time. Damages caused by flood events will also place increasing pressure on already sensitive habitats and species that are also susceptible to other pressures. Natural assets located within flood zones, adjacent to watercourses, or at the coast will be most exposed. Specialised habitats and their species such as the Firth of Forth are likely to be most sensitive. Natural assets can also contribute to flood protection through investment in nature-based solutions. It is important that these solutions are designed to be resilient to flooding and other climate hazards.
Sea level rise and coastal erosion	**Red**	**Red**	**Red**	Sea level rise and coastal erosion presents a direct risk to nature with potential knock-on effects for other habitats and species that the coast provides important corridors of ecological connectivity to. Edinburgh's Firth of Forth's Site of Special Scientific Interest and beaches are particularly exposed and can be considered highly sensitive due to their national and international importance. These habitats may also be susceptible to "coastal squeeze" whereby coastal habitats are unable to retreat inland over time through natural processes due to the presence of hard infrastructure. Hazards to these assets will make Edinburgh more susceptible to sea level rise and coastal erosion given the natural protection they provide. Ensuring these assets can be resilient will contribute to mitigating this hazard.
Storms	**Amber**	**Amber**	**Amber**	Increasing frequency and intensity of extreme weather events is likely to damage natural assets and place increasing pressure on already sensitive habitats and species. Examples include wind damage to urban trees and woodland leading to losses of carbon and the amenity value of greenspaces. Increased flooding (see above) and risk of wildfires (see below) are related hazards. Woodlands, coastal habitats, and peatlands are likely to be the most exposed. Assets could be lost to storm damage reducing quantity, or their condition/quality could be degraded through multiple events over time.

Heatwaves	**Amber**	**Amber**	**Amber**	Climate change will bring heatwaves of greater duration, frequency, and intensity. This will affect the natural environment through drought and changes in habitat ranges and phenology (see below). Assets which are most sensitive will be those most dependent on stable temperature regimes, such as the peatland at Balerno Red Moss Nature Reserve as peat requires cool damp conditions for formation. This is also likely to put increasing pressure on public greenspaces as demand for outdoor space will increase. Natural assets such as urban woodland, street trees, living roofs, wetlands and ponds play an important role in urban cooling. Reduced quantity and quality of these assets due to heatwaves and other climate hazards will increase the magnitude of this risk to the natural environment and other sectors. It is important that nature-based solutions that provide urban cooling, such as increased urban tree cover, are designed to be resilient to climate change by choosing appropriate tree species.
Drought	**Red**	**Amber**	**Red**	Water can be considered a natural capital stock and drought would reduce the quantity available for public supply. Drought also poses risks for all natural assets as less water would be available in the environment for plants and animals. This increases their susceptibility to other climate hazards and non-climate related pressures. Water-based assets such as rivers, ponds, wetlands, and peatbogs would be particularly sensitive. This could have knock-on consequences for soil erosion and storage of carbon in soils and peat loss due to dependence on specific wetting regimes for their formation. These risks will particularly affect small or shallow water bodies. Damage and loss of natural assets due to drought would increase their susceptibility to drought in the future: vegetation cover promotes a more humid environment through evapotranspiration and encourages infiltration of water into soil to slow and reduce runoff. Drought risks to the natural environment pose risks to other sectors.
Wildfires	**Red**	**Amber**	**Red**	Upland habitats including peat are most exposed and most sensitive to wildfires. There are areas of peatland in the Pentland Hills, such as at Balerno Red Moss nature reserve. Due to changes in temperature and precipitation patterns and increased likelihood of heatwaves, wildfires are more likely and these habitats are particularly sensitive due to their large stores of carbon. Losses and degradation of these assets due to wildfires will increase carbon emissions and thus undermine Edinburgh's capacity to contribute to climate mitigation. Peatland restoration can increase resilience to wildfires, as well as providing carbon storage and mitigating flood impacts downstream.

Changes in habitat and species ranges, and timings	**Red**	**Red**	**Red**	Changing climate conditions alter the intricate ecological balances that let plants and animals grow and survive. Extreme events such as sea level rise, wildfires and wind damage will result in the direct damage or a total loss of some areas of habitat. These could lead to changes in habitat distribution, species ranges, and phenology (periodic events in biological life cycles which are influenced by seasonal and interannual variations e.g. bird migrations, flowering). How these changes will manifest in Edinburgh are uncertain, although there is evidence of these changes in Scotland and the rest of the UK. Due to temperature and precipitation regimes, related erosion, and wildfires it is possible that the areas of Pentland peatland may be lost, as well as beaches and coastal habitats due to sea level rise. *The effects of these in driving other climate hazards is discussed for each hazard*. Phenology changes could mean that young birds might not hatch at the same time as their prey, and flowers might not open when their pollinators are active. Relationships between pests or diseases and their hosts will also change. These impacts will further increase the sensitivity of natural assets to climate hazards and other pressures.

Appendix 3 – Strategic and Policy Drivers

Under the Public Bodies Duties requirements of the Climate Change (Scotland) Act 2009, public bodies including local authorities are required to help prepare Scotland for future changes in climate and take measures to adapt. This is an ever-changing and evolving area and the Climate Ready Edinburgh Plan will be revisited annually to ensure that its context and strategic direction remain up to date.

The Plan also builds on the work already achieved by the Edinburgh Adapts Action Plan 2016-2020, the city's first climate change adaptation plan, and Edinburgh's 2030 Climate Strategy.

The plan sets out short, medium and long-term actions, bringing together planned and ongoing actions across multiple strategies, new actions and a vision for a well-adapted city.

It embeds the seven outcomes of the Scottish Climate Change Adaptation Programme (SCCAP) which were developed by the Scottish Government. A new Scottish Adaptation Programme (SNAP3) is in development and the Climate Ready Edinburgh Plan will be revisited to ensure it continues to align with these outcomes.

This plan sits alongside other key overarching city plans bringing a focus to adaptation and our changing climate. These key city strategies include:

- **End Poverty in Edinburgh Plan 2020-2030**
- **Vision for Water Management in the City of Edinburgh**,
- **Edinburgh Biodiversity Action Plan**
- **City Plan 2030**
- **City Mobility Plan 2030**
- **Old and New Towns of Edinburgh World Heritage Site Management Plan**
- **Thriving Green Spaces Strategy**.
- **Edinburgh Biodiversity Action Plan 2022-2027**

The Plan also complements Scottish Water's **Climate Change Adaptation Plan 2024**, NHS Lothian's **Sustainable Development Framework** and **Greenspace and Health Strategic Framework for Edinburgh and Lothians**, Historic Environment Scotland's **Climate Ready Historic Environment**, the University of Edinburgh's **Adaptation Framework** and other related strategies and plans.

The Climate Ready Edinburgh Plan has been developed taking account of international, national and local drivers, including policy and legislation. This is an ever-changing and evolving area, and the plan will be revisited annually to ensure that its context and strategic direction are still correct.

International Drivers

United Nations Framework Convention on Climate Change

The **Paris Agreement**, adopted in 2015, is a legally binding international treaty that aims to strengthen the global response to the threat of climate change by keeping global temperature rise this century well below 2 degrees Celsius above pre-industrial levels. This agreement also aims to strengthen the ability of countries to deal with the impacts of climate change, through appropriate financial flows, a new technology framework and an enhanced capacity building framework.

The UN Climate Change Conference (COP26) and the **Glasgow Climate Pact**, (agreed at COP26 in November 2021) committed parties to accelerating action towards the goals of the Paris Agreement and the UN Framework Convention on Climate Change.

Climate Action is one of the **17 UN Global Goals**, encouraging urgent action to combat climate change and its impacts.

EU Adaptation Strategy

The **EU Adaptation Strategy** links directly to global agreements, such as the Paris Agreement, the Sendai Framework for Disaster Risk Reduction and the 2030 Agenda as well as the EU implementation of the UN sustainable Development Goals. It also aligns with key EU initiatives such as the Mission for a Climate Resilient Europe and the Union's sustainable finance agenda.

The Strategy was part of the EU Green Deal action plan and outlines a long-term vision for the EU to become a climate-resilient society, fully adapted to the unavoidable impacts of climate change by 2050. It aims to reinforce the adaptive capacity of the EU and the world and minimise vulnerability to the impacts of climate change, in line with the Paris Agreement.

National Drivers

The Climate Change (Scotland) Act 2009

The Act places a statutory climate change duty on public bodies.

Part 4 of the Act places duties on the public sector to act in the way best calculated to help deliver the Scottish Adaptation Programme.

The Climate Change (Duties of Public Bodies: Reporting Requirements) (Scotland) Order 2015

This places a duty on public sector bodies as 'major players' to report annually to Scottish Government through the Public Bodies Climate Change Duties (PBCCD) reporting. The reporting includes details of mitigation and adaptation action undertaken by each organisation.

Climate Ready Scotland: Scottish Climate Change Adaptation Programme (SCCAP2) (2019-2024)

SCCAP2 outlines how Scotland is preparing for the impacts of climate change until 2024. The SCCAP is updated every five years and addresses the risks identified for Scotland as set out in the UK Climate Change Risk Assessment (UK CCRA), published under section 56 of the UK Climate Change Act 2008. It follows an outcomes-based approach, informed by the UN Sustainable Development Goals and Scotland's National Performance Framework.

The next Scottish adaptation programme, called the **Scottish National Adaptation Plan 2024-2029** (SNAP3) is currently in draft form. It will respond to the priority risks identified for Scotland in the **UK Climate Change Risk Assessment 2022**, and will be published in late 2024.

Flood Risk Management (Scotland) Act 2009

The **Flood Risk Management (Scotland) Act 2009** (FRMAct) places a duty on Scottish Ministers, SEPA and responsible authorities (which includes local authorities) to adopt an integrated approach in exercising their flood risk related functions with a view to reducing overall flood risk.

Water Resilient Places: Surface Water Management and Blue-Green Infrastructure: Policy Framework

This paper outlines how surface water is currently managed in Scotland, sets out a vision for the future and describes the components that should be brought together to form a coherent framework that will support delivery of water resilient places.

Surface Water Policy

To reduce risk of flooding from the sewer network, Scottish Water will not normally accept any surface water connections into the combined sewer system. This **Surface Water Policy** reflects Scottish Water's Surface Water Management strategy, which can be summarised as:

- no new surface water draining into the combined sewer networks.
- work with developers and regulatory bodies to removing surface water from the existing combined sewer network.

National Planning Framework 4 (NPF4)

NPF4 is the national spatial strategy for Scotland. It sets out Scotland's spatial principles, regional priorities, national developments and national planning policy. This includes an overarching principle on just transition, national developments on urban sustainable, blue and green surface water management solutions, policies on tackling the climate and nature crises, climate mitigation and adaptation, biodiversity, natural places, soils, forestry, woodland and trees, historic assets and places, green belts and coastal development. NPF4 links to Scotland's Land Use, Environment, Forestry and Biodiversity strategies.

Scottish Biodiversity Strategy to 2045: tackling the nature emergency

The **Strategy** sets out the framework to address the twin crises of biodiversity loss and climate change. It articulates a vision for a future where Scotland's natural environment is restored and supporting thriving communities and wildlife alike, proposes outcomes and key actions that will set Scotland on the path to deliver this vision, and establishes the architecture needed for the cross-government delivery and the deep collaboration that will be needed with partners, stakeholders and land managers.

Regional Drivers

Forth Estuary Local Flood Risk Management Plan 2022-2028

Flood risk management plans are Scotland's route map for reducing the effects of flooding on our communities. Flood risk management plans for Scotland have been developed to ensure all efforts to reduce flood risk are coordinated. The plans outline the long term ambition by setting objectives and identifying actions. There are multiple organisations responsible for flood risk management and the plans focus their efforts to where the risk of flooding and benefits of actions are greatest.

The **Plan** sets out how and when actions to reduce the impact of flooding in the Forth Estuary will be delivered. The Plan identifies where the risk of flooding and benefit of investment is greatest and says how and when actions will be delivered. Flood Risk Management Plans are delivered over six-year cycles. This plan is for Cycle 2 and will be delivered between 2022 and 2028.

Edinburgh and Lothians Strategic Drainage Partnership (ELSDP)

Delivery of a long term and sustainable approach to water management, including by reducing flood risk and tackling drought in Edinburgh and the Lothians, is being co-ordinated by the ELSDP, comprising the Council, two neighbouring local authorities, SEPA and Scottish Water.

Climate Ready South East Scotland (CRSES)

CRSES is led by Sniffer, working in partnership with the region's six local authorities, including Edinburgh. The project is being delivered as part of the Regional Prosperity Framework, with support from Capital City Partnership.

The project is funded by the UK Shared Prosperity Fund and Scottish Government. Climate Ready South East Scotland will enable us to better understand how climate change will affect our region, the key risks and opportunities being faced, and where more action and collaboration is needed.

It builds on and complements existing local work to build climate resilience and recognises that the impacts of climate change – such as increased flood risk along our coast and across river catchments – don't follow local authority boundaries.

Local Drivers

Edinburgh City Vision 2050

The four 2050 Edinburgh City Vision principles are:

- **Fair**: creating a more inclusive, affordable and connected city where opportunities are available to all and support is given to those who need it most
- **Pioneering**: helping the local economy and society to prosper, leading the way in culture, data and business
- **Welcoming**: striving to ensure Edinburgh's citizens are happy, safe and healthy and that Edinburgh is a place where citizens belong and visitors are welcome; and
- **Thriving**: delivering a low carbon, clean, green and sustainable city

2030 Climate Strategy: Delivering a Net Zero, Climate Resilient Edinburgh

The plan outlines how Edinburgh aims to deliver a net zero, climate ready city by 2030 as well as a healthier, thriving and inclusive capital for people to live and work in. It sets out the clear and practical steps the city will take to tackle the challenge of climate change and achieve our aim of becoming a net zero city by 2030. This includes through adapting to the unavoidable impacts of our changing climate, delivery of which will be through the Climate Ready Edinburgh Plan.

Edinburgh Partnership Community Plan 2022-2028

The plan provides the framework for collaboration between city stakeholders, with a focus on joint working to reduce poverty and inequality within the city and improve the quality of life for all citizens. This framework incorporates joint action to deliver a more sustainable future for the city.

City Plan 2030

City Plan 2030 sets out how we will deliver a placed-based and sustainable approach to the development of Edinburgh over the next ten years, ensuring that the planning for housing, employment and services addresses the need for net-zero development, resilience to climate change, quality places and green spaces, delivery of community infrastructure and job opportunities where people live and embeds a 20-minute neighbourhood principle at the heart of all places in Edinburgh.

Vision for Water Management for the City of Edinburgh

The **Vision** aims to develop a long-term and sustainable approach to river, coastal and storm water management across the city and its environs, respecting our unique historic heritage.

Other key local drivers for the city include:

- **Edinburgh Green Blue Network**
- **World Heritage Management Plan for Edinburgh Old and New Towns**
- **City Mobility Plan 2030**
- **The Edinburgh Partnership: Local Outcome Improvement Plan**
- **End Poverty in Edinburgh Plan 2020-2030**
- **Equality and Diversity Framework 2021-2025**
- **THRIVE Edinburgh: A mental health and wellbeing road map for all**
- **20-minute Neighbourhood Strategy**
- **Thriving Green Spaces Strategy**
- **Edinburgh Biodiversity Action Plan**
- **Edinburgh Living Landscapes programme**
- **Edinburgh Million Tree City Initiative**
- **Edinburgh 2030 Tourism Strategy**
- **Citywide Culture Plan Edinburgh 2023-2030.**