

Cambridge City Council

Climate Change Adaptation Plan

2018

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1. Introduction

1.1 Climate change adaptation and why is it important

- 1.1.1 The global climate is changing, with greenhouse gas emissions from human activity the dominant cause. The global increase in temperature of 0.85°C since 1880 is mirrored in the UK climate, with higher average temperatures and some evidence of more extreme weather events.¹
- 1.1.2 Climate change adaptation is a term that describes measures that can be put into place to help us adapt the changes in our climate that are now inevitable. These changes range from increased temperatures and drought conditions to extreme weather events such as intense periods of rainfall and subsequent flash flooding.
- 1.1.3 In addition to efforts to reduce greenhouse gas emissions which contribute to climate change, local authorities have an important role to play in managing the risks and preparing and adapting to the impacts of severe weather and our changing climate. Climate change will impact council services, from the buildings that we manage through to open spaces and our role in emergency planning, as well as impacting on Cambridge residents, particularly those who are most vulnerable.
- 1.1.4 Action to manage the unavoidable impacts of climate change will deliver wide ranging benefits, from safeguarding Council finances and contributing to wider savings for partners, communities and businesses. Action to develop climate resilience can also deliver wider environmental benefits, including protecting and enhancing landscapes and biodiversity and providing open space, which can support the delivery of health and wellbeing objectives.
- 1.1.5 This plan has been developed as part of one of the actions identified in the Council's [Climate Change Strategy](#). Action 5.10 calls for the development of an 'Evidence base on climate change adaptation developed and further actions identified to manage climate change risks'. In the light of the recent 2017 Climate Change Risk Assessment (CCRA), this plan will help us to have a better understanding of the climate risks facing the city and the adaptation actions that will have the greatest benefit across the city.

1.2 Policy context for climate change adaptation

National policy – Climate Change Risk Assessment

- 1.2.1 The UK Government is required under the 2008 Climate Change Act to publish a UK-wide CCRA every five years. The Act stipulates that the Government must assess 'the risks for the United Kingdom from the current and predicted impacts of climate change'.

¹ Committee on Climate Change (2016). *UK Climate Change Risk Assessment 2017 Synthesis report: priorities for the next five years*.

- 1.2.2 To underpin the UK Climate Change Risk Assessments, the Government commissioned independent expert studies of the available evidence. [The UK Climate Change Risk Assessment 2017 Evidence Report](#), published in January 2017, was commissioned from the Adaptation Sub-Committee, which was asked to address the following question: ‘Based on the latest understanding of current, and future, climate risks/opportunities, vulnerability and adaptation, what should the priorities be for the next UK National Adaptation Programme and adaptation programmes of the devolved administrations?’.
- 1.2.3 The Adaptation Sub-Committee’s full Evidence Report comprises an overarching [Synthesis Report](#), which summarises the conclusions of eight technical chapters and highlights six groups of priority risks where additional action is recommended in the next five years:

Figure 1: The Adaptation Sub-Committee’s assessment of the top six areas of inter-related climate change risks for the UK².



- 1.2.4 The [UK Climate Change Risk Assessment 2017](#) endorses the six priority risk areas identified in the evidence report by the Adaptation Sub-Committee:
- from flooding and coastal change
 - to health and well-being from high temperatures
 - due to water shortages
 - to natural capital
 - to food production and trade
 - from pests and diseases and invasive non-native species

² Image replicated from Committee on Climate Change (2016). *UK Climate Change Risk Assessment 2017 Evidence Report: Synthesis Report*

National policy – National Adaptation Programme (NAP)

- 1.2.5 The National Adaptation Programme (NAP) is the Government’s strategy to address the main risks and opportunities identified in the risk assessment for England, and is also produced every five years, as a response to the UK Climate Change Risk Assessment.
- 1.2.6 The [second National Adaptation Programme \(2018 to 2023\) and the Third Strategy for Climate Adaptation Reporting](#) was published in July 2018 and addresses the priority risks identified in the UK Climate Change Risk Assessment 2017.
- 1.2.7 The NAP sets out the actions that government is taking, outcomes the government wants to achieve, and the means by which the government will be measuring the progress made towards achieving the objectives.

National guidance for local authorities

- 1.2.8 In 2015, the Environment Agency’s Climate Ready team, in partnership with Climate UK and the Local Government Association produced the publication: [Climate Ready Councils: The business case for managing the impacts of severe weather and a changing climate](#) which sets out a council business case for managing the cross-cutting impacts of severe weather and a changing climate, including the impacts of:
- flooding, storms and erosion
 - heat waves and extreme cold
 - water stress or drought
- 1.2.9 The report makes the case for developing climate resilience to be seen as a core council responsibility as councils are directly affected by severe weather events and will be increasingly affected by changes in our climate. The impacts of severe weather and a changing climate are so wide-ranging that developing climate resilience needs to be incorporated in all decision making, policy development and service delivery.
- 1.2.10 Action to develop climate resilience, managing the unavoidable impacts of climate change, delivers multiple benefits across different council service areas. The key benefits to councils include:
- **Avoiding costs and making savings.** Developing greater resilience to climate impacts can help to avoid costs to councils and lead to savings in the costs of service provision. At one development site in Cambridge, sustainable drainage measures are projected to avoid costs to council services, homeowners and industry of £5.8m through measures costing £2.1m³.
 - **Supporting economic growth.** Climate-related risks to sites and infrastructure can hinder economic growth but a focus on climate resilience can generate economic opportunities.

³ Environment Agency (2015). *Climate Ready Councils: The business case for managing the impacts of severe weather and a changing climate*. www.local.gov.uk/sites/default/files/documents/climate-ready-councils-bu-351.pdf

- **Safeguarding vulnerable residents.** It is often the most vulnerable in society who are most affected by climate impacts and who will, therefore, most benefit from council action to develop climate resilience.
- **Protecting and enhancing the natural environment.** The natural environment can play a key role in developing resilience, e.g. through improving air quality or providing flood or drought alleviation, and significant environmental benefits can be delivered by initiatives to develop climate resilience.

1.2.11 The Committee on Climate Change, an independent advisory body to the Government on climate change identified adaptation as one of the areas where local authorities have scope to influence by using planning policies to ensure that new development is located in low flood risk areas and that new buildings and infrastructure are resilient to heat stress; and managing natural resources to promote biodiversity and reduce the risk of flooding.

Local policy – Cambridge City Council Climate Change Strategy 2016-21

1.2.12 The Council’s Climate Change Strategy 2016-21 includes an objective on adaptation to climate change – Objective 5: ‘Supporting Council services, residents and businesses to adapt to the impacts of climate change’. Appendix 1 details the first year of progress towards the actions included in Objective 5.

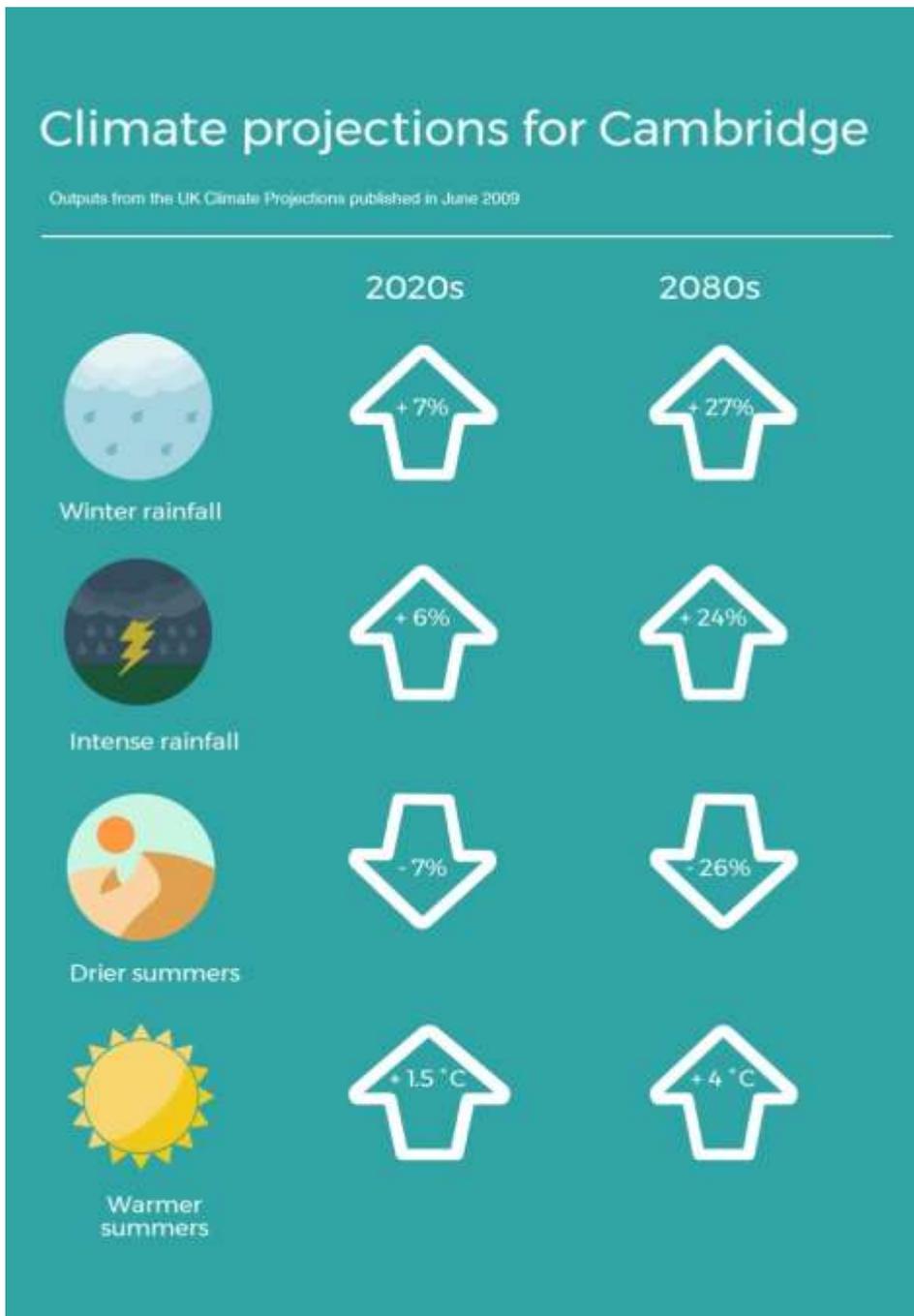
1.2.13 Cambridge City Council has a vision of “One Cambridge – Fair for all” in which economic dynamism and prosperity are combined with social justice and equality. This vision is particularly important from a climate risks perspective as climate change will disproportionately affect disadvantaged communities.

1.2.14 A further vision of Cambridge City Council is “Cambridge - caring for the planet”: A city that takes robust action to tackle the local and global threat of climate change, both internally and in partnership with local organisations and residents, and to minimise its environmental impact by cutting carbon, waste and pollution.

1.3 The risks for Cambridge

1.3.1 While it is difficult to accurately project exactly how the climate in Cambridge will change, in 2009 the UK Climate Projections programme (UKCP09) provided projections of how the climate will change in the East of England, based on low, medium and high emissions scenarios. The data for Cambridge is illustrated in Figure 2 on the next page.

Figure 2: Climate Projections for Cambridge⁴



1.3.2 There are a number of climate risks associated with these projections that will impact on Cambridge from increasing flood risk to the impact of warmer temperatures on health and wellbeing. Some of these risks are illustrated in Figure 3 on the next page.

⁴ Data adapted from Cambridge City Council (2009). Climate Change Risk Assessment and Management Plan.

Figure 3: Climate risks for Cambridge⁵



1.3.3 Cambridge is in the top 2% of settlements at risk of surface water flooding in England with around 11,000 properties at risk across Cambridge. Climate change is likely to increase this number as the latest predictions are for a 40% increase in rainfall for the region.

⁵ Data taken from Cambridge Water Cycle Strategy Phase 1 (2008) and Phase 2 (2011); Cambridge and Milton Surface Water Management Plan 2011

- 1.3.4 Increases in the amount of rainfall in the winter are predicted to increase the area of severe flood risk in Cambridge from the River Cam. Intense rainfall in short periods could lead to flash flooding, with recent experience of flooding in other regions suggesting that rainfall exceeding the local drainage capacity can be as great a risk as rivers bursting their banks. A predicted increase of 65% in river flows will mean more areas of Cambridge will be at risk of flooding from rivers and those affected could double.
- 1.3.5 Both surface water flooding and river flooding will become more frequent and more damaging. The key impacts of any flooding would be:
- Public health and safety risks for residents
 - Long-term physical and mental health impacts for residents
 - Damage to buildings and infrastructure
 - Disruption of the local economy through lost work days, disruption of transport and supplies and insurance and repair costs
 - Habitat changes and restoration costs
- 1.3.6 Increased summer temperatures could lead to summer heat waves and the exceptionally hot years experienced in 2003, 2006 and this summer could become the norm by the 2050s. This would have significant impacts on people, the economy and the environment. The 2012 CCRA⁶ and the Government's Heatwave Plan⁷ identify the following potential risks from increased summer temperatures:
- Increased incidence of heat-related illnesses including heat stroke, exhaustion, and cramps, and an increased risk of heat-related deaths.
 - An increased health risk from water, vector and food borne diseases
 - An increased risk in the number of skin cancer cases and deaths
 - A loss of productivity for businesses due to overheating.
 - Increased energy consumption from cooling and refrigeration
 - Subsidence and heat-related damage or disruption to buildings, energy and transport networks
 - Increased risk of wildfires
 - Threat of extinction to some species, and the migration of some species, including the invasion of non-native species, pests and diseases for which we may not be prepared
- 1.3.7 However, it is important that we do not focus solely on the geographical risks to different communities from climate change. Recent research by the Joseph Rowntree Foundation found that poverty can increase the vulnerability of individuals and communities to climate impacts. The extent to which individuals are able to cope with the impacts of climate change is influenced by the interaction between personal factors (e.g. health, age), social factors (e.g. income, neighbourhood cohesion, isolation), and environmental factors (e.g. building quality, green space).

⁶ DEFRA (2012). *UK Climate Change Risk Assessment*. www.gov.uk/government/publications/uk-climate-change-risk-assessment-government-report

⁷ Department of Health (2007). *Heatwave Plan for England*. www.gov.uk/government/publications/heatwave-plan-for-england

- 1.3.8 It is important therefore for local authorities to consider the vulnerability of individuals and communities to climate change risks, and to focus on building the long-term resilience of vulnerable people and communities to climate change risks, rather than short-term disaster responses.
- 1.3.9 Trees play an important role in the setting of Cambridge, and also have a range of environmental benefits including providing evaporative cooling and helping to reduce atmospheric pollution. However, climate change poses a range of threats to trees⁸. It is likely that climate change will adversely affect the impact of existing pests and diseases on trees. Hotter, drier summers for example, may stress individual trees making them more susceptible to infection. Increased storm frequencies and summer drought will lead to tree losses⁹.

1.4 The risks to Council services

- 1.4.1 The council has already taken action to manage some of the predicted risks facing Cambridge, to mitigate the impacts on council services and to support residents and communities who are most vulnerable and least able to take steps to manage risks themselves. These 10 actions are detailed under Objective 5 of the [Climate Change Strategy 2016-21](#): 'Supporting Council services, residents and businesses to adapt to the impacts of climate change'.
- 1.4.2 This plan has been developed as part of one of the actions identified: 5.10: 'Evidence base on climate change adaptation developed and further actions identified to manage climate change risks'. In the light of the recent 2017 CCRA, this plan will help us to have a better understanding of the climate risks facing the city and the adaptation actions that will have the greatest benefit across the city.

Flooding and coastal change risks to communities, businesses and infrastructure.

- 1.4.3 The issue of increased flood risk has implications for a range of council services, notably Emergency Planning, Planning and Building Control, Housing and Streets and Open Spaces. Flooding of council owned and managed buildings also has the potential to impact on the delivery of council services.
- 1.4.4 It will also be important to ensure that consideration to all forms of flood risk are given to projects delivered via partnership working on projects such as the transport infrastructure projects being delivered by the Greater Cambridge Partnership.

⁸ Cambridge City Council (2015). *Why Trees Matter*. www.cambridge.gov.uk/sites/default/files/why-trees-matter.pdf

⁹ Cambridge City Council (2015). *Tree Strategy 2016 to 2026: Part 1*. www.cambridge.gov.uk/sites/default/files/tree-strategy-2016-part-1.pdf

Risks to health, well-being and productivity from high temperatures.

- 1.4.5 Overheating may also become an issue for Council tenants in existing housing and in the future there may be a need to retrofit measures to reduce the risk and occurrence of overheating. Overheating in Council buildings also has the potential to impact on the health and wellbeing and productivity of staff.
- 1.4.6 With regards to mitigating the impact of the Urban Heat Island Effect, there are close links with the work of the Streets and Open Spaces service (e.g. the Tree Strategy and the work of the Environmental Projects team) as well as Planning.
- 1.4.7 The Council may also see greater demand for council services such as outdoor pools and splash pads and an increase in outdoor activities and active transport.
- 1.4.8 Overheating also has the potential to cause damage to infrastructure including transport infrastructure and as such, consideration should be given to the impact of future climate scenarios as part of designing new infrastructure.

Risks of shortages in the public water supply, and for agriculture, energy generation and industry.

- 1.4.9 Water supply shortages also have the potential to impact on other Council services such as Streets and Open Spaces and Emergency Planning as well as impacting on our residents and businesses. Water supply is also an important consideration for the growth of the city, with Planning having a role to play in ensuring the implementation of water efficiency measures in all new development.

Risks to natural capital, including terrestrial, coastal, marine and freshwater ecosystems, soils and biodiversity.

- 1.4.10 In terms of Council services, Streets and Open Spaces are most involved in natural capital in terms of the role of tree, biodiversity and drainage officers and the Environmental Projects team and management of open spaces and the network of wildlife sites in the city. There is also a role for Planning in mitigating the impacts of development on protected species and utilising the opportunities that new development offers to enhance biodiversity.

2. Managing the Risks – Climate Change Adaptation Actions

2.1 Current Adaptation Actions

2.1.1 The council aims to improve the resilience of the Council and the city to extreme weather events through the actions detailed under Objective 5 of the Council's Climate Change Strategy 2016-21: 'Supporting Council services, residents and businesses to adapt to the impacts of climate change' (see Appendix 1). The projects that are being delivered against each action have been grouped below, under the most relevant of the six priority areas identified by the Adaptation Sub-Committee in the UK Climate Change Risk Assessment 2017 Evidence Report.

Flooding and coastal change risks to communities, businesses and infrastructure

2.1.2 **Action 5.1: Including policies in the Local Plan which will support residents to adapt to the impact of Climate Change, including policies on:**

- **Designing buildings which are simple to keep cool and do not overheat in hotter weather;**
- **Requiring applications to include Sustainable Drainage Systems (SuDS) and ensuring that development is not at risk from flooding and that it does not increase the risk of flooding elsewhere;**
- **Requiring new domestic properties to meet high water efficiency standards (no more than 110 litres of water to be consumed per day) along with standards for non-domestic properties**

2.1.3 The emerging Local Plan includes a range of policies linked to climate change adaptation. Consideration is given to the need to design out the risk of overheating in new buildings, policies related to flood risk and the use of SuDS and water efficiency standards for all new development. Local Plan hearing sessions closed on 20 July 2017 and following consultation on proposed modifications, the Inspectors' will then issue their report. Assuming that the report finds that the local plan is sound, the Council can then adopt the Local Plan. Many planning applications for new homes are already meeting the 110 litres/person/day standard and in some cases this standard is being required through the use of planning conditions. Some developments are going beyond this standard utilising rainwater harvesting systems to further reduce potable water use.

2.1.4 **Action 5.2: Exploring opportunities to install Sustainable Drainage Systems (SuDS) on Council property and open spaces as part of new City Council developments:** Surface water flooding and river flooding is a significant risk for Cambridge and will become more frequent and more damaging. The Council is working with developers to secure installation of sustainable drainage systems to mitigate the impacts of new developments and is retrofitting property level flood protection at some properties. For example, in the Nine Wells residential development a number of SuDS features have been installed such as, filter drains, swales, wet ponds and dry ponds. They have been carefully designed so that the SuDS form part of a multifunctional space. Any proposed new City Council developments will also contain SuDS, such as the

proposed Mill Road development, in line with planning policy and guidance contained in the [Cambridge Sustainable Housing Design Guide](#).

2.1.5 To promote the use of sustainable drainage systems (Suds) within Cambridge, the council has taken the decision to adopt Suds that are located within public open space and produced the [Cambridge Sustainable Drainage Design and Adoption Guide](#), which sets out the council's requirements. In 2010 this was given two awards by the Landscape Institute, winning top spot in the landscape policy category and the president's award for best landscape architecture scheme of the year.

2.1.6 Action 5.3: Working with Cambridgeshire County Council and other partners in the Cambridgeshire Flood Risk Management Partnership to manage climate change-related flood risks:

The Council continues to work with partners in the Cambridgeshire Flood Risk management partnership to manage climate change-related flood risks. Key actions have included:

- Including a policy on flood risk management and the role of Sustainable Drainage Systems (SuDS) in the Cambridge Local Plan, due to be adopted in 2018
- Production of the Cambridgeshire Flood and Water Supplementary Planning Document (SPD), to provide guidance to developers. This document was approved as a material consideration in December 2016 and will be adopted as an SPD on adoption of the new Local Plan.

2.1.7 Action 5.4: Contributing to Cambridgeshire-wide planning advice on minimising flood risk and incorporating this into local planning policy through the new Local Plan:

- Flood risk policies to minimise flood risk included within the Local Plan.
- Cambridgeshire Flood and Water SPD approved as a material consideration on 6 December 2016 and will be adopted as an SPD on adoption of the new Local Plan.

Risks to health, wellbeing and productivity from high temperatures

2.1.8 Action 5.5: Providing advice for residents on how to reduce health risks during heat waves and minimise risks of surface water flooding, including via the Council's website and the Cambridge Matters residents' magazine. Promotion of advice to be linked to specific climate events (e.g. heat wave guidance to be published in spring ahead of possible heat-wave events):

Addressing the issue of overheating has been included in the Cambridgeshire Sustainable Housing Design Guide, developed for the Greater Cambridge HDA and will be included in the forthcoming update to the Council's Sustainable Design and Construction SPD.

2.1.9 The Council has provided advice to residents in Cambridge Matters on how to cope in extreme weather events such as heat waves, with links to further advice on the NHS heatwave website.

Risks of shortages in the public water supply, and for agriculture, energy generation and industry

- 2.1.10 Water efficiency requirements, including the potential use of communal water harvesting/reuse schemes have been included in the Cambridgeshire Sustainable Housing Design Guide. Water efficiency policies for all types of development have also been included in the emerging Local Plan, and in many cases are already being achieved in new developments. The Council is also currently running a series of pilot projects to switch residents onto water meters. Monitoring of these projects has shown that estimated average annual savings can be made of between £130 and £250 by households of one and two people: www.cambridge.gov.uk/reducing-water-use.
- 2.1.11 The Council is also working closely with Anglian Water and Cambridge Water to identify infrastructure requirements needed to support the growth agenda in Greater Cambridge and to better align the Council's strategic planning with the Water Companies Business Plans and Water Resource Management Plans. Case studies – North West Cambridge non potable water network/drainage projects/Virido rainwater harvesting

Risks to natural capital, including terrestrial, coastal, marine and freshwater ecosystems, soils and biodiversity.

- 2.1.12 In terms of Council services, Streets and Open Spaces are most involved in natural capital in terms of the role of tree, biodiversity and drainage officers and the Environmental Projects team and management of open spaces and the network of wildlife sites in the city.
- 2.1.13 **Action 5.6: Implementing the City Council's new tree strategy, which sets out the Council's policies for managing and increasing the city's tree stock:**
In 2016/17 we planted 220 new trees on our land and our 'Free Trees for Babies' scheme provided 230 trees in the year to new parents. 211 trees were removed in 2016/17. A new tree strategy was produced in July 2016 which details how we will manage the 30,200 council-owned and managed trees and protect and enhance the rest of the urban forest. An action plan to implement the Strategy was completed in January 2017. 56 actions relate to protection, management and enhancement of the urban forest and are on-going. Funding was secured in 2017 to plant 250 trees on council-owned and managed land, making the tree population sustainable.
- 2.1.14 **Action 5.7: Ensuring that planting in open spaces owned or managed by the City Council is drought resistant and requires less watering:**
As of 2017 there is currently 4,000 m² (almost 1 acre) of annual meadow (pictorial meadows) - which are re-sown every year but do not require watering or cutting. We are looking to increase the area including a move to using perennial mixes which will take longer to establish but will then require less maintenance long term.

2.1.15 Action 5.8: Working with members of the Cambridgeshire and Peterborough Local Resilience Forum to ensure that plans are in place to respond to climate change risks (including issuing alerts in the event of severe weather, increased temperatures and flooding) and that these are regularly tested and reviewed.

Plans are in place to respond to severe weather, heatwaves and flooding emergencies and are regularly reviewed and tested

2.1.16 Action 5.9: Management of watercourses to enhance their flow and storage capacity and deliver wider biodiversity benefits:

A project to control an invasive weed (*Crassula*) in Cherry Hinton Brook commenced in August 2017. A watercourse restoration project at Sheep's Green local nature reserve was completed in June 2017. The project, to bring the watercourse back into use will enhance biodiversity and habitats for plant and animal life, including a number of fish species and also provide a natural flood storage area. In conjunction with the Environment Agency the sluice gate on the reserve was replaced with one that would improve the flow of water on Sheep's Green allowing fish to move up the watercourse to higher river levels and by allowing the river to flow naturally onto areas of Sheep's Green providing natural flood storage capacity during extreme weather events, preventing flooding downstream.

2.1.17 Action 5.10: Develop an evidence base for climate change adaptation to enable us to have a better understanding of the climate risks facing the city and the adaptation actions that will have the greatest benefit across the city.

A number of documents have already been produced including:

- Cambridge City Council Climate Change Risk Assessment and Management Plan (2009);
- [Cambridge City Council Climate Change Strategy and Action Plan 2016 – 2021](#);
- [Cambridgeshire Green Infrastructure Strategy \(2011\)](#);
- Cambridge Water Cycle Strategy [Phase 1 \(2008\)](#) and [Phase 2 \(2011\)](#);
- [Cambridge and Milton Surface Water Management Plan \(2011\)](#).
- [Cambridge and South Cambridgeshire Level 1 Strategic Flood Risk Assessment \(2010\)](#);

This Adaptation Plan is the Council's response to the evidence of our changing climate contained within these and other documents.

2.2 Partnership approaches to climate change adaptation

- 2.2.1 Our climate is changing and the impacts from it are likely to affect most of us in some way during our lifetimes. It is therefore vital that we work with local partners and communities in Cambridge to ensure that we are prepared for likely changes and are able to adapt to them as far as possible. Partners include the Environment Agency, Cambridgeshire County Council, The Greater Cambridge Partnership, Cambridgeshire and Peterborough Combined Authority, Cambridge Water and academic partners such as the University of Cambridge and the Global Sustainability Institute at Anglia Ruskin University.

- 2.2.2 The Council is also a member of the Local Adaptation Advisory Panel Steering Group, which works with DEFRA to integrate climate change adaptation into national policy and the work of local authorities including informing the National Adaptation Programme.

2.3 New adaptation actions

- 2.3.1 As detailed in Appendix 2, new actions to further address the priority risk areas identified in the UK Climate Change Risk Assessment 2017 have been developed for Objective 5 of the Climate Change Strategy 2016-21 – ‘Supporting Council services, residents and businesses to adapt to the impacts of climate change’.

Flooding and coastal change risks to communities, businesses and infrastructure.

- 2.3.2 Action 5.14: Ensuring that measures to help adapt to climate change are included, where possible, in car park refurbishments. The following measures will be carried out, included in specifications and installed where possible during refurbishments of car parks: drainage reviews to reduce flooding, rainwater harvesting to utilise rainwater and reduce use of potable water, reduction in heat from mechanical equipment to reduce overheating.

Risks to health, well-being and productivity from high temperatures.

- 2.3.3 Additional performance measure/ outcome for Action 5.5: Providing advice for residents on how to reduce health risks during heat waves and minimise risks of surface water flooding, including via the Council’s website and the Cambridge Matters residents’ magazine. Information and advice provided to residents and tenants of Sheltered Housing on how to stay cool in hot weather, and stay warm in cold weather. Information also included in publications including Open Door, the council’s resident’s magazine.
- 2.3.4 Action 5.16: Consideration given to the impacts of extreme weather in the management of outdoor events. Inclusion of consideration of impact of extreme weather on outdoor events within information and training programme for community event organisers, delivered through the Festivals and Events Liaison Group.

Risks of shortages in the public water supply, and for agriculture, energy generation and industry

- 2.3.5 Action 5.13: The implementation of an Environmental Management System (EMS) is in the Streets and Open Space Operational Plan for 2018/19. An EMS will address resource use by the service, including water consumption; the use of potable water will be reduced. This can be done through the use of rainwater harvesting, where possible, for watering planting, and for flushing toilets if appropriate to install as part of future refurbishments of WCs. Rainwater harvesting equipment installed and

utilised for watering planting, and other functions, reducing the use of potable water.

- 2.3.6 Action 5.14: The following measures will be carried out, included in specifications and installed where possible during refurbishments of car parks: drainage reviews to reduce flooding, rainwater harvesting to utilise rainwater and reduce use of potable water, reduction in heat from mechanical equipment to reduce overheating.
- 2.3.7 Action 5.15: Promotion of the use of council pools/ paddling pools/ splash pads in the event of hosepipe bans in conjunction with the local water company, to encourage residents to utilise council facilities instead of using water to fill up garden paddling pools etc. Messages in conjunction with the local water company promoting use of citywide paddling pools and splash pads. Use of council communication channels and social media to promote indoor and outdoor swimming and paddling pools at times of low rainfall/ and times when hosepipe bans are enforced.

Risks to natural capital, including terrestrial, coastal, marine and freshwater ecosystems, soils and biodiversity.

- 2.3.8 Action 5.11: Ensuring that the city's nature reserves and city wildlife sites are being managed favourably for biodiversity. To assist species adaptation and dispersal. Number of active management plans in place for biodiversity at designated nature conservation sites.
- 2.3.9 Action 5.12: Enhancing the city's parks and open spaces to increase biodiversity. To assist species adaptation and dispersal. Increase in meadow, wetland and scrub areas in the city's parks and opens spaces.

Appendix 1				
Current actions in Climate Change Strategy 2016-21 to deliver Objective 5 – ‘Supporting Council services, residents and businesses to adapt to the impacts of climate change’:				
Activity	Service	Performance measures/outcomes	2017-18 Progress	Expected completion date
5.1 Including policies in the Local Plan which will support residents to adapt to the impact of Climate Change, including policies on:	Planning	Local Plan adopted, including policies on heat management, SuDS and water efficiency in new buildings and developments	Awaiting Inspector's Report. Overheating is an issue that is now discussed as part of pre-application discussions and is also raised in comments on applications where the risk of overheating is a concern. A planning condition has been developed for outline applications requiring the submission of Overheating Analysis and use of the cooling hierarchy as part of subsequent reserved matters applications. Further guidance will be developed as part of the update to the Sustainable Design and Construction SPD.	Autumn 2018
Designing buildings which are simple to keep cool and do not overheat in hotter weather;				
Requiring applications to include Sustainable Drainage Systems (SuDS) and ensuring that development is not at risk from flooding and that it does not increase the risk of flooding elsewhere;	Planning, Environmental Services	Policies on heat management, SuDS and water efficiency in new buildings and developments implemented	Awaiting Inspector's Report. Planning conditions are already being used to ensure housing schemes meet water efficiency requirements of no more than 110 litres/person/day, and to date have been recommended for 22 schemes.	On-going from 2017 onwards
Requiring new domestic properties to meet high water efficiency standards (no more than 110 litres of water to be consumed per day) along with standards for non-domestic properties				

5.2 Exploring opportunities to install Sustainable Drainage Systems (SuDS) on Council property and open spaces as part of new City Council developments	Environmental Services	SuDS to be installed on any new City Council developments - target 100%	Meeting held to discuss detailed design of SuDS for discharge of condition on Mill Rd. Other smaller CIP sites are including some SuDS provisions such as permeable paving.	On-going to March 2021
5.3 Working with Cambridgeshire County Council and other partners in the Cambridgeshire Flood Risk Management Partnership to manage climate change-related flood risks	Environmental Services	Attendance at Cambridgeshire Flood Risk Management Partnership quarterly meetings. Target 100%	Attended 100% for 2017/18	On-going to March 2021
5.4 Contributing to Cambridgeshire-wide planning advice on minimising flood risk and incorporating this into local planning policy through the new Local Plan	Environmental Services	Cambridgeshire-wide planning advice on minimising flood risk written. Local Plan submitted for examination, including policies on minimising flood risk	Awaiting Inspector's Report. On receipt of this, the SPD will be taken to committee for adoption as an SPD alongside the new Local Plan.	Autumn 2018
	Planning			
5.5 Providing advice for residents on how to reduce health risks during heat waves and minimise risks of surface water flooding, including via the Council's website and the Cambridge Matters residents' magazine. Promotion of advice to be linked to specific climate events (e.g. heat wave guidance to be published in spring ahead of possible heat-wave events).	Planning	Information for residents on how to reduce health risks during heat waves and minimise risks of surface water flooding published in Cambridge Matters and regularly updated on the Council's website	During this year's heatwave the Council has used its social media outlets to warn residents of the risks associated with heatwaves and to point them to further advice on the NHS heatwave website.	On-going to March 2021, with timing linked to specific weather events
5.6 Implementing the City Council's new tree strategy, which sets out the Council's policies for managing and increasing the city's tree stock	Environmental Services	New tree strategy completed	<ul style="list-style-type: none"> • Since 2017 and for this year we have simplified, streamline and invested in the online process. • We have delivered x170 'Free Trees for Babies' in 17/18, the administration of the scheme now largely automated, with a web 	Completed – July 2016
		Tree strategy reviewed, including assessment of numbers of trees in Cambridge		On-going to March 2021

		Increase tree canopy cover across the city centre by 2%	<p>form. It is the intention to increase take up in 2018/19 to x400 trees.</p> <ul style="list-style-type: none"> • Tree cover also called tree canopy cover, has been defined as the area of leaves, branches, and stems of trees covering the ground as viewed from above. It is an easily accessible measure that can be used to estimate the percentage of tree cover that a city enjoys. Tree cover in Cambridge was last assessed in 2013 and stood at 17%. • We have produced a 10 year strategy and action plan to raise tree cover to 19% by the 2030s. • We have revised our own management procedures to ensure that all publically accessible areas are routinely inspected and worked upon and a record is kept. • We have set up an annual ash tree survey using a randomised and statistically valid sample of own ash trees to inform us about the impact of Chalara ash decline. • We now monitor how many trees we remove and plant to ensure sustainability. We currently plant slightly more than we remove thus increasing our stock. • We now review species profiles in areas targeted for planting to see if we can improve species 	On-going to March 2030
5.7 Ensuring that planting in open spaces owned or managed by the City Council is drought resistant and requires less watering	Environmental Services	Percentage of planting in open spaces owned or managed by the City Council that is drought resistant and requires less watering	1200 sq. m of perennial turf meadow laid at Cherry Hinton Hall, 4 additional perennial meadows (which are re-sown every year but do not require watering or cutting) planned for autumn 2018.	On-going to March 2021

5.8 Working with members of the Cambridgeshire and Peterborough Local Resilience Forum to ensure that plans are in place to respond to climate change risks (including issuing alerts in the event of severe weather, increased temperatures and flooding) and that these are regularly tested and reviewed	Estates and Facilities	Plans are in place to respond to severe weather, heatwaves and flooding emergencies and are regularly reviewed and tested	The plans have recently been updated in 2018 in light of recent flood map changes and severe weather events.	On-going to March 2021
5.9 Management of watercourses to enhance their flow and storage capacity and deliver wider biodiversity benefits	Environmental Services	Annual maintenance undertaken based on watercourse maintenance schedule – target 100%	Maintenance schedule completed 100%.	On-going to March 2021
		Projects undertaken to increase flow, storage capacity and /or biodiversity benefits – target 2 per year	Crassula in check, clearance continues in 2018. Awaiting grant fund decision on project to install a fish pass at Jesus Green weir. Restoration of Snobbs Mill Race complete, along with sensitive dredging of ditches on Sheep's Green & Coe Fen. Further creation of gravel riffles along Cherry Hinton Brook	On-going to March 2021
5.10 Develop an evidence base for climate change adaptation to enable us to have a better understanding of the climate risks facing the city and the adaptation actions that will have the greatest benefit across the city.	Corporate Strategy Planning Environmental Services	Evidence base on climate change adaptation developed and further actions identified to manage climate change risks	Climate Change Adaptation Plan was produced using the findings of the UK Climate Change Risk Assessment 2017. The document, which was presented to Environment Policy Group, consists of an evidence base of risks for Cambridge based on the information in the assessment and a summary of current adaptation actions. Additional adaptation actions have been identified and developed with council service areas.	October 2018

Appendix 2

New actions to deliver Objective 5 of the Climate Change Strategy 2016-21 – ‘Supporting Council services, residents and businesses to adapt to the impacts of climate change’:

Activity	Service	Performance measures/outcomes	Expected completion date
Additional performance measure/ outcome for Action 5.5 Providing advice for residents on how to reduce health risks during heat waves and minimise risks of surface water flooding, including via the Council’s website and the Cambridge Matters residents’ magazine.	Housing	Information and advice provided to residents and tenants of Sheltered Housing and city residents supported via the council’s Visiting Support Service on how to stay cool in hot weather, and stay warm in cold weather. Information also included in publications including Open Door, the council’s resident’s magazine.	On-going to March 2021
5.11 Ensuring that the city’s nature reserves and city wildlife sites are being managed favourably for biodiversity. To assist species adaption and dispersal.	Environmental Services	Number of active management plans in place for biodiversity at designated nature conservation sites.	On-going to March 2021
5.12 Enhancing the city’s parks and open spaces to increase biodiversity. To assist species adaptation and dispersal.	Environmental Services	Increase in meadow, wetland and scrub areas in the city’s parks and opens spaces.	On-going to March 2021
5.13 The implementation of an Environmental Management System (EMS) is in the Streets and Open Space Operational Plan for 2018/19. An EMS will address resource use by the service, including water consumption; the use of potable water will be reduced. This can be done through the use of rainwater harvesting, where possible, for watering planting, and for flushing toilets if appropriate to install as part of future refurbishments of WCs.	Environmental Services	Rainwater harvesting equipment installed and utilised for watering planting, and other functions, reducing the use of potable water.	On-going to March 2021

5.14 Ensuring that measures to help adapt to climate change are included, where possible, in car park refurbishments	Commercial Services	The following measures will be carried out, included in specifications and installed where possible during refurbishments of car parks: drainage reviews to reduce flooding, rainwater harvesting to utilise rainwater and reduce use of potable water, reduction in heat from mechanical equipment to reduce overheating.	<i>On-going to March 2021</i>
5.15 Promotion of the use of council pools/ paddling pools/ splash pads in the event of hosepipe bans in conjunction with the local water company, to encourage residents to utilise council facilities instead of using water to fill up garden paddling pools etc.	Customer and Community Services	Messages in conjunction with the local water company promoting use of citywide paddling pools and splash pads. Use of council communication channels and social media to promote indoor and outdoor swimming and paddling pools at times of low rainfall/ and times when hosepipe bans are enforced.	On-going to March 2021
5.16 Consideration given to the impacts of extreme weather in the management of outdoor events	Customer and Community Services	Inclusion of consideration of impact of extreme weather on outdoor events within information and training programme for community event organisers, delivered through the Festivals and Events Liaison Group.	On-going to March 2021