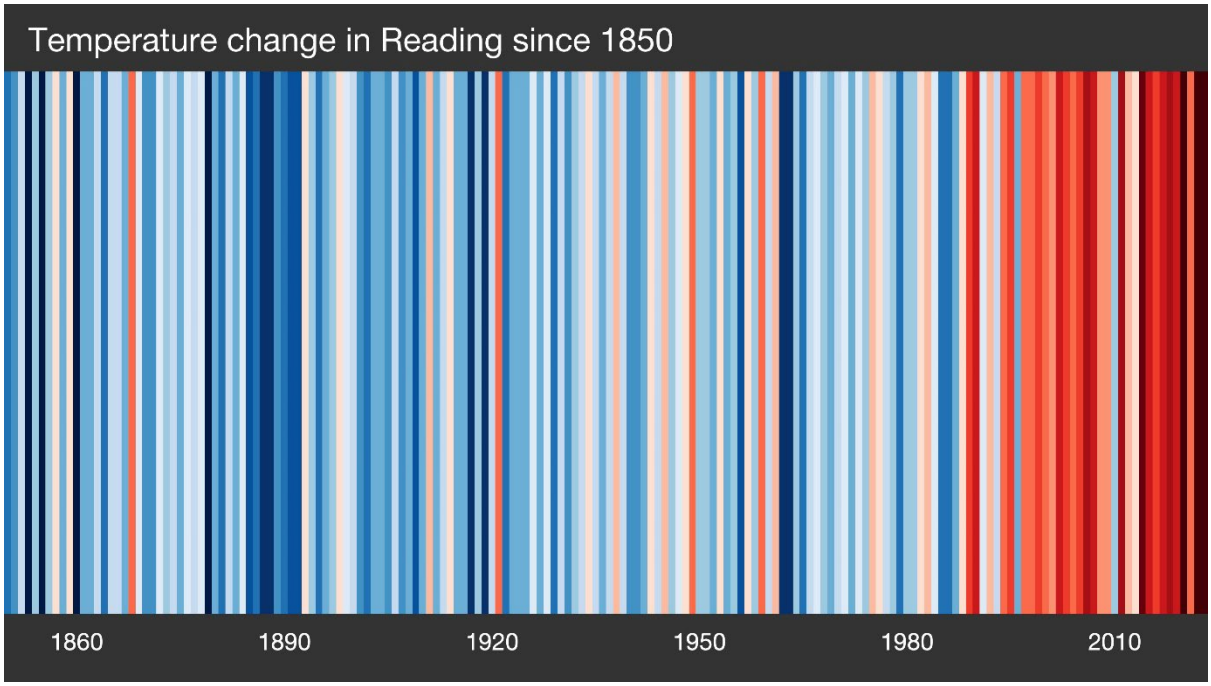
READING BOROUGH COUNCIL

Climate Change Adaptation Framework



November 2024

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Defining adaptation

- There are two related dimensions of climate change policy: action to reduce the *causes* of climate change (mainly by reducing carbon emissions) which is known as climate mitigation; and action to deal with the *consequences* (mainly by improving our resilience to climate impacts) which is known as climate adaptation
- The Council's Carbon Plan sets out its approach to climate mitigation; and this Climate Adaptation Framework sets out its approach to climate adaptation
- Climate adaptation is broadly defined as any activity which minimises the impact of current, expected, and potential climate change and its effects

Why do we need to adapt?

- Further warming is already 'dialled in' to the climate system, driving significant changes which require us to adapt to improve our resilience
- If done well, there are numerous co-benefits which arise form adaptation
- The statutory Committee on Climate Change (CCC) has advised that the UK is poorly prepared to deal with climate impacts, and that these need to be be better integrated into policy, planning, emergency planning and business continuity frameworks
- The CCC has also advised that local authorities have a key role to play in adaptation

The Council's adaptation objectives

- A more climate resilient organisation and Borough, achieved through good management of climate risk
- Better protection from climate impacts for Council infrastructure, services, residents, particularly the most vulnerable, and staff
- Effective and efficient responses to climate impacts which are consistent with our efforts to reduce Reading's emissions – crucial to avoid making the problem worse
- These three objectives should be applied as the key 'tests' against which the suitability of adaptation action taken by the Council should be judged

All Council strategies and services need to integrate climate adaptation

- Some adaptations – e.g. plans for extreme weather events such as heatwaves, floods and drought - are already in place, so we are not starting from a zero base
- Similarly, some parts of the organisation are already engaged in planning to adapt or build resilience to individual climate impacts directly or indirectly
- Developing this Framework, however, provides the opportunity to identify new and emerging issues, priorities and adaptive responses across a wider range of the Council's activity, as well as codifying existing adaptations which are being implemented in a structured or more dynamic way
- The key point is that the process of identifying and preparing for climate-related risks will need to become more comprehensive and systematic across the full range of the Council's services in view of the wide range of escalating risks and impacts going forward - hence this Adaptation Framework as a starting point

- This document can only, however, set out a *framework* for action as the title suggests – the detailed actions themselves need to be identified, implemented and updated by individual services as they are best placed to understand and address their specific vulnerabilities, risks and how best to adapt to these as climate impacts become more apparent. It should therefore be considered a Framework to support services in developing and embedding adaptation to climate risk going forward.
- All services and staff will therefore need to take responsibility for ensuring that they understand and have plans in place to manage climate risk in their different contexts
- Adaptation needs to be considered as a process, not an event, and further work will be needed to develop the Council's approach over time

Key climate impacts and risks

- The main impacts can be summarised as: warmer, wetter winters; hotter drier summers; and more extreme weather events (in terms of both frequency and intensity)
- The likelihood and impact of these changes will increase unless or until 'net zero' emissions is reached – and we are some way from that goal at present
- Individually and collectively, these escalating risks will have very significant implications for physical and mental health, infrastructure, supply chains, social cohesion, food security and economic security
- Climate risks will hit the most vulnerable the hardest, and will also compound or magnify other risks
- Ultimately climate risk threatens the fundamentals and stability of civilisation as we know it

Adaptation priorities for the Council

- **Embedding climate risk, resilience and adaptation** throughout the Council's strategic policy framework
- Improving the **resilience of buildings** (residential, corporate and commercial) and **infrastructure** to climate impacts
- Managing the increased **risk of flooding** (river flooding and surface water flooding) associated with the changing climate
- Maintaining the **social, environmental and economic health and wellbeing** of residents, particularly vulnerable residents, in the face of climate impact
- Protecting the **natural environment** against climate impacts and, by doing so, ensuring that it can help protect us
- **Building understanding** of climate impacts and how we can adapt to them internally and externally
- Reflecting these priorities, potential adaptation actions are outlined in the Priority Action Tables at section 7 of this Framework document

1. INTRODUCTION

1.1 The global context

1.1.1 In March 2023 The UN Intergovernmental Panel on Climate Change (IPCC) published the final part of the world's most comprehensive assessment of climate change, completing its 6th assessment cycle. The headlines from the report were:

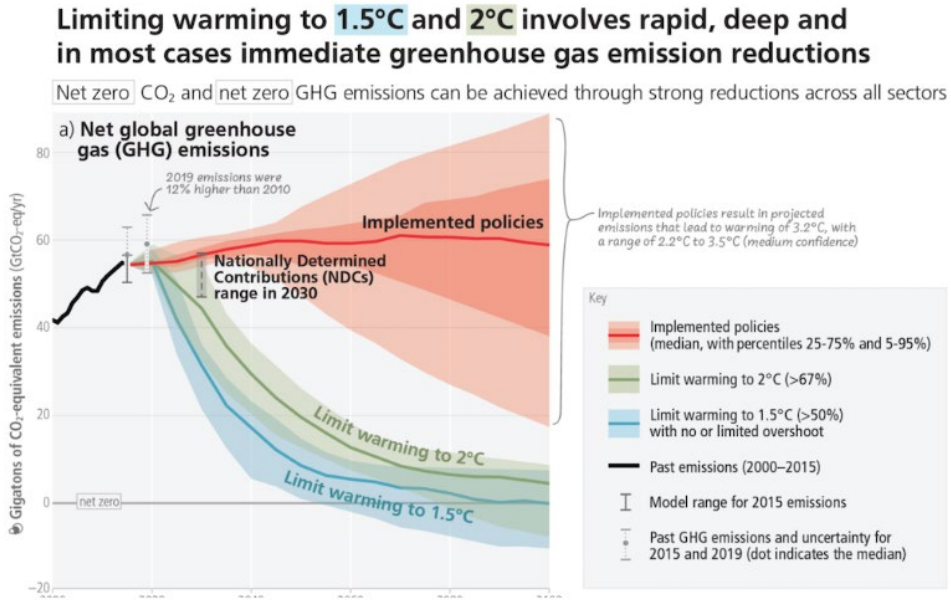
- The role of human activity in changing the climate is 'unequivocal'
- Global average temperatures have risen by 1.1°C since the start of the industrial era as a result of this activity
- The impacts of this warming are already having 'deadly' effects which are borne disproportionately by the most vulnerable
- If emissions are reduced to a very low level, warming would likely see temperatures temporarily overshoot 1.5°C (generally considered to be the 'safe' limit) this century before returning to 1.4 °C by 2100
- Current policies (even if delivered) would likely lead to 3.2°C warming by 2100
- Humans and ecosystems will be unable to adapt to this amount of warming, with loss and damage escalating with every increment of temperature rise
- If emissions are very high warming could reach 4.4°C by 2100

1.1.2 The report concluded:

'There is a rapidly closing window of opportunity to secure a liveable and sustainable future for all…The choices and actions implemented in this decade will have impacts now and for thousands of years'.

1.1.3 Figure 1 illustrates the gap between the current trajectory of global emissions and the trajectory needed to limit warming to 1.5°C, the objective set in the 2015 Paris Agreement, based on currently implemented policies.

Figure 1: Emissions scenarios from the 2023 IPCC 6th assessment cycle



Expected warming in 2100 from policies implemented by the end of 2020 (red), compared with emissions cuts needed to limit warming to 1.5C (blue) or 2C (green). Source: IPCC (2023) SPM.5

1.1.4 Some of the key impacts identified by the IPCC (with associated levels of confidence) are as follows:

- More very wet and very dry weather (high confidence)
- Further global sea level rise (virtually certain), increasing ocean acidity (high confidence) and decreasing oxygen availability in the oceans (virtually certain)
- Heatwave and drought extremes becoming more frequent (high confidence)
- Storm surges and flooding which currently occur once every 100 years expected at least annually in over half all measurable locations by 2100 (high confidence)
- Increases in wildfire risk (high confidence)
- Carbon sinks will be less able to absorb emissions (high confidence)

1.1.5 In the near term:

- Every region is expected to face rising risk (very high confidence)
- Increase in heat-related deaths (high confidence)
- Increases in food-borne and vector-borne diseases (high confidence)
- More flooding in coastal and low-lying cities (high confidence)
- A decrease in food production in some regions (high confidence)
- Poor mental health (very high confidence)

1.1.6 The report also says that:

- At 1.5^{o}C, risks will increase for 'health, livelihoods, food security, water supply, human security and economic growth'
- At 2^{o}C risks will transition to 'very high', with changes in food availability/quality which could affect 'hundreds of millions'
- At 3^{o}C many sectors/regions will be see 'widespread and systemic impacts'
- At 4^{o}C around 4 billion people could face water scarcity and the area burned by wildfires could increase by 50-70%
- Climate change is likely to compound other social challenges including food shortages, conflicts, pandemics and competition over land

1.1.7 The report warns that the impacts of warming on some ecosystems – retreating glaciers, Arctic and montane ecosystems - are already 'approaching irreversibility', and the risks associated with these and other 'tipping points' transition to 'high risk' between 1.5^{o}C-2.5^{o}C and 'very high risk' at 2.5^{o}C-4^{o}C.

1.1.8 A more recent analysis of global temperature data by NASA suggests that:

- The last 10 years have been the warmest since records began in 1880
- Global surface temperature was 1.17 ^{o}C higher compared to the long-term average from 1951-1980
- In 2023, the earth was about 1.36 ^{o}C warmer compared to the pre-industrial average (1850-1900)

1.1.9 Other estimates (e.g. Berkeley Earth) have put the figure for 2023 as high as 1.54 ^{o}C above the pre-industrial average.

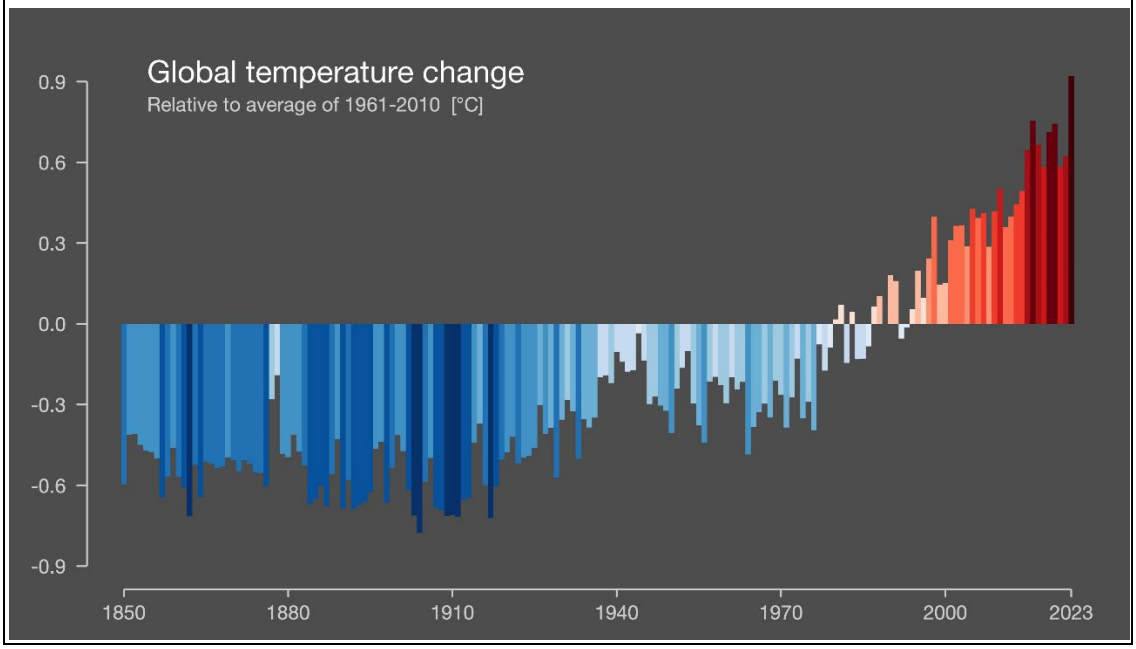
1.2 The national and local context

1.2.1 The changes in average global temperatures (see figure 2) are reflected in average temperature changes for the UK.

1.2.2 Evidence of climate change can also be seen in the weather patterns being experienced in Reading:

- 11 of the hottest UK summers have occurred in the last 12 years
- Reading was hit by flooding in summer 2007, and the winters of 2013/14, 2019/20 and 2023/24
- The summers of 2018, 2019 and 2022 all saw record breaking temperatures

Figure 2: rise in global temperature since 1850 (Source: University of Reading)



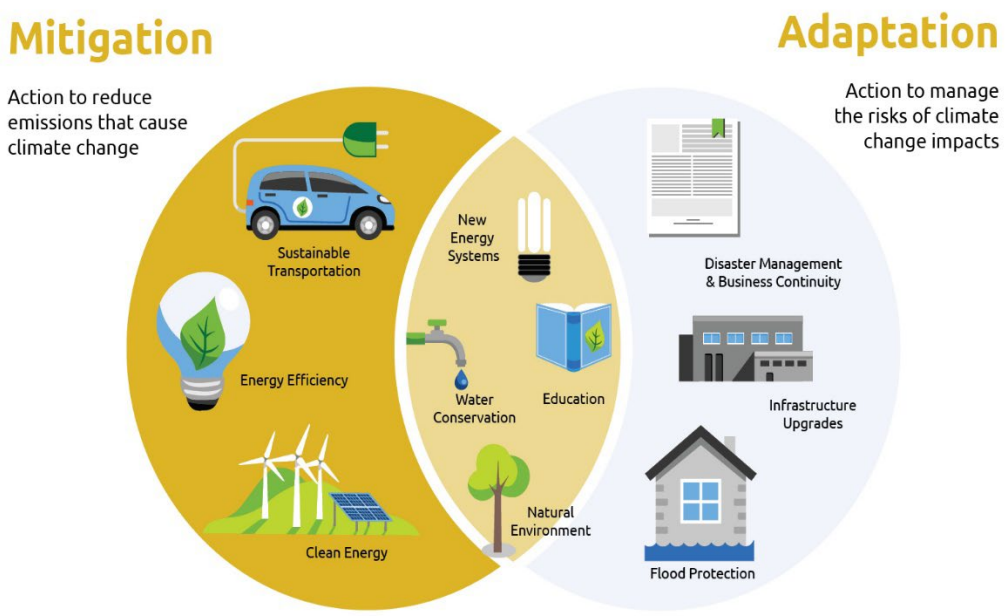
1.2.3 The pace of climate change is such that documenting weather conditions is itself becoming a challenge as records are being broken so regularly. For example, as recently as 2019 the Reading Climate Change Adaptation Plan commissioned by the Reading Climate Change Partnership (RCCP) reported that the hottest day on record in Reading was 36.4°C on 10th August 2003. But this has since been exceeded in the heatwave of 2022 with a temperature of 37.6°C recorded on 19th July at the University of Reading, breaking the previous record by over a degree. This is itself a notable occurrence given the historic tendency for temperature records to be broken by only fractions of a degree rather than whole degrees.

2. DEFINING CLIMATE ADAPTATION

2.1 Climate mitigation versus climate adaptation

2.1.1 There are two related dimensions of climate change policy: action to reduce the *causes* of climate change (mainly by reducing carbon emissions) which is known as climate mitigation; and action to deal with the *consequences* (mainly by improving our resilience to climate impacts) which is known as climate adaptation (see figure 3). This framework is concerned with climate adaptation.

Figure 3: climate mitigation and adaptation explained



2.2 Definitions of adaptation

2.2.1 Climate adaptation is broadly defined as any activity which minimises the impact of current, expected, and potential climate change and its effects. Some impacts of climate change may also be positive and create new opportunities, if only in the short-medium term. This is reflected in the following definition of adaptation:

> *'Adaptation is the process of adjustment to the actual or expected climate and climate hazards, seeking to reduce the negative impacts or exploit beneficial opportunities. Adaptation covers all the ongoing activities and initiatives that are helping Reading to prepare for the unavoidable impacts of climate change.'*
>
> Definition of climate change adaptation from 'Reading Climate Change Adaptation Plan' 2019 (Mott Macdonald, commissioned by Reading Climate Change Partnership)

2.3 Benefits of adaptation

2.3.1 As set out above, further warming is already 'dialled in' to the climate system, requiring us to adapt to improve our resilience – but there are numerous other reasons why we need to adapt, and benefits which arise, as set out in table 1.

Table 1: benefits of adapting to climate impacts

Better protection of people, particularly vulnerable people	Flooding, heatwaves and other weather events could affect the health and wellbeing of all who live, work and visit Reading. Vulnerable people will be most exposed to these impacts and least able to adapt.
Safeguarding of assets and infrastructure	Climate impacts will result in damage to Reading's buildings and infrastructure, affecting their ability to provide their basic functions. The value of assets at risk and insurance costs can be expected to rise over time.
Reduction or control of costs	Under current policies, the total cost of climate change damages to the UK are projected to increase from 1.1% of GDP at present to 3.3% by 2050 and 7.4% by 2100 (source: LSE/Grantham Institute). Taking timely action now can mitigate these costs and enable us to identify low cost/no cost adaptation options.
Improved use of resources	Climate impacts will affect all sectors, organisations and communities – co-operating with partners to adapt will avoid duplication, enhance business continuity and make more efficient use of local resources.
Harnessing co-benefits	Adaptation can deliver co-benefits such as reduced energy costs, improved health and wellbeing and improved access to nature.
Compliance with national policy expectation/regulation/ legislation	While the statutory requirements in relation to climate resilience are limited, they are expected to increase over time and become a stronger thread of statutory requirements, including in civil contingency and emergency planning.
Better decisions which stand the test of time	Decisions about what and where we build, how and where we invest, when and how to change service delivery models all need to be 'climate proof'. Climate impacts are wide-ranging and will increase during the design life of infrastructure. There is also growing demand from lenders, insurers and investors for climate-related financial and performance information which will impact our commercial partners if not the Council itself.
Supporting inclusive growth	Adaptating to climate impacts will bring opportunities for innovation, research, retrofit and skills development and employment
Supporting place-based outcomes	Embedding adaptation into revised and emerging strategies and plans will help strengthen Reading's resilience. Adaptation can help deliver the aims of, and needs to become an integral part of: • The Corporate Plan • The Local Plan • The Local Transport Strategy • Town Centre Strategy • Assets Strategy • Flood Risk Management Plans • Social Value policy • Strategic infrastructure plans • Commissioning and procurement plans • Tackling inequalities strategy • Economic development strategies

3. THE NATIONAL CLIMATE ADAPTATION FRAMEWORK

3.1 UK climate change adaptation policy framework

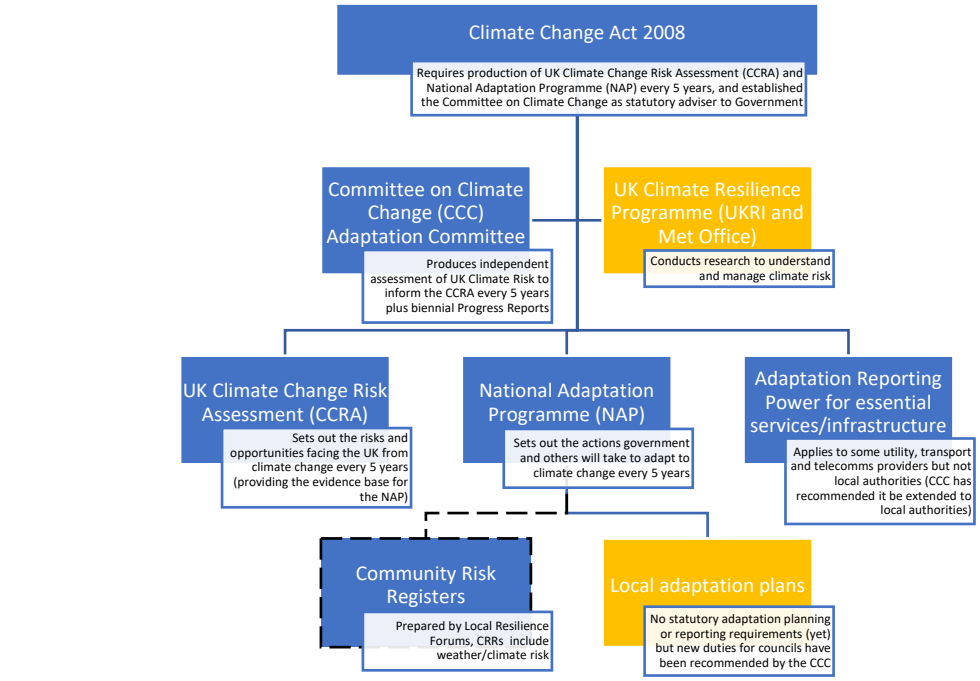
3.1.1 Figure 4 summarises the statutory basis for climate change adaptation policy in the UK, differentiating between the statutory and non-statutory elements of the adaptation policy framework. This illustrates that while there are currently no specific statutory obligations/expectations on local authorities for climate change adaptation, this may change in future, particularly as the impacts become more apparent. Moreover, adaptation will be increasingly necessary to protect our communities, particularly the most vulnerable, whether or not required by statute.

Figure 4: UK climate change adaptation policy framework

Key:

= Statutory process/body

= Non-statutory process



3.1.2 The 3rd national Climate Change Risk Assessment (CCRA3) was published in 2022 and identified priority risks facing the UK as a whole. These are summarised in section 3.2 below. The 3rd National Adaptation Plan (NAP3) was published in July 2023 and sets out key actions to be taken at national level. Key actions from the Plan, and their relevance to RBC services, are summarised in 3.3 below.

3.2 The latest national Climate Change Risk Assessment

3.2.1 As per figure 4 above, the national climate risk management framework comprises a 5-yearly statutory Climate Change Risk Assessment, which in turn informs a 5-yearly National Adaptation Plan. The UK's 3rd national Climate Change Risk Assessment was published in 2022 and identified 8 priority risks facing the UK as a whole. Table 2 summarises how these might apply to Reading and the significance of each.

Table 2: priority risk areas from CCRA3 and implications for Reading

Priority Risk Area	Magnitude of Risk	Implications and significance for Reading
Risks to supply of food, goods and services due to collapse of supply chains/ distribution networks	Medium increasing to high by 2050	Direct and significant implications for all sectors and particuarly the most vulnerable
Risks to people and the economy from climate-related failure of the power system	High	Direct and significant implications for housholds and businesses
Risks to human health, wellbeing and productivity from increased exposure to heat in homes and other buildings	High	Direct and significant implications, particularly for the most vulnerable
Risks to the viability and diversity of terrestrial and freshwater habitats and species	High	Direct and significant implications for natural habitats (rivers, woodlands and greenspaces)
Risks to soil health from increased flooding and drought	Medium increasing to high by 2050	Direct and significant implications from flooding and drought, indirect but significant implications arising from reduced soil health locally and elsewhere
Risks to natural carbon stores and sequestration from multiple hazards	Medium increasing to high by 2050	Direct but limited implications given relatively limited carbon stores in a predominantly urban borough
Risks to crops, livestock and commercial trees from multiple hazards	Medium increasing to high by 2050	Indirect but significant implications in view of reliance on imported food, direct impacts on our tree stock
Multiple risks to the UK from climate change impacts overseas	High	Indirect but potentially significant implications for import-dependent sectors, and for our cultural ties and relationships overseas

3.3 The Committee on Climate Change's independent asessment of UK preparedness

3.3.1 In March 2023 the Committee on Climate Change published its latest biennial Adaptation Progress Report to Parliament as required under the Climate Change Act 2008. It provided an assessment of progress at the end of two National Adaptation Programmes, the statutory programme required from Government to help prepare the country for climate change every 5 years. The second National Adaptation Programme (NAP2) covered the period of 2018–2023 and the third National Adaptation Programme (NAP3) was published in July 2023. In its 2023 Annual Report to Parliament, published shortly before the release of NAP3, the Committee concluded:

- **NAP2 did not adequately prepare the UK for climate change.** The assessment found very limited evidence of the implementation of adaptation at the scale needed to fully prepare for climate risks facing the UK across cities, communities, infrastructure, economy and ecosystems.

- **The impacts from extreme weather in the UK seen in 2022/23 highlighted the urgency of adapting to climate change.** The record-breaking temperatures seen in summer 2022 brought unprecedented numbers of heat-related deaths, wildfire incidents and significant infrastructure disruption.

- **NAP3 must make a step change.** The assessment concluded that NAP3 must be much more ambitious than its predecessors and lead to a long overdue shift in focus towards the delivery of effective adaptation.

3.3.2 The report argued that preparing for climate shocks requires good adaptation planning at local authority level, in co-ordination with other actors, and makes specific recommendations in respect of:

- **Local authority functions:** the Committee argued that local authority roles and responsibilities for adaptation should be clearly defined to reduce duplication and encourage bottom-up action towards national adaptation programmes.

- **Local Resilience Forums (LRFs)**: the Committee argued that LRFs should facilitate strong relationships between incident responders to ensure coordinated responses to extreme weather events and that local public services and institutions should be 'stress-tested' for climate impacts.

- **Social care:** the Committee recommended that DHSC work with DLUHC and local authorities to develop a 'long-term cross-sector approach to address risks in the social care sector, including using appropriate levers to accelerate adaptation action and ensuring that monitoring of overheating occurrences and air quality in care homes is undertaken frequently'.

- **Local Plans:** the Committee argued that the potential for increased frequency and intensity of extreme weather events should be factored into Local Plans.

- **Information and reporting**: the Committee argues that local authorities should be required to report on local adaptation actions. The Committee noted that mandatory reporting by local authorities, public information and engagement and support for vulnerable groups are not yet in place and called for Government to extend the scope of the fourth round of the Adaptation Reporting Power (ARP4) to include local authorities.

3.3.3 The Committee's conclusions imply that local authorities can not rely on Government action alone to prepare for the impacts of climate change, and need to take action themselves; but also suggest that local authorities could face new requirements on planning and reporting from Government as the risks become more apparent.

3.4 The latest National Adaptation Plan (NAP3)

3.4.1 The UK's 3rd National Adaptation Plan (NAP3) was published in July 2023. Key actions from the Plan, and their relevance to RBC, are summarised in table 3.

3.4.2 With specific reference to the role of local government, NAP3 says:

'Local government has responsibility for ensuring that the delivery of services locally is resilient to the impacts of the changing climate…Local authorities have an important role in raising awareness and involving local communities by sharing information to explain local climate changes, how they can be managed and what households and businesses can do to help.'

Table 3: key actions from National Adaptation Plan 3 (July 2023)

KEY ACTIONS FROM NAP3	RBC SERVICES AFFECTED
Infrastructure	
A 'strategic, whole of society approach to resilience, including new commitments on resilience standards'	All services, esp. Assets, Highways, Planning, Capital Projects
Investment in water quality and resilient supply through the Plan for Water	Planning
Consultation on a new transport adaptation strategy	Transport, Planning
Local Nature Recovery Strategies to take account of climate trends/hazards	Planning, greenspace
Incorporate adaptation into the design of Environmental Land Management schemes (ELMS) to promote resilient and sustainable land management	Assets (e.g. if land has potential for ELMS income)
Health, communities and the built environment	
Investment in flood & coastal erosion	Flood risk management
UK Health Security Agency to deploy the Adverse Weather & Health Plan alongside the UK weather health alerting systems to protect lives and wellbeing	Risk Management, Emergency Planning Public Health
Update the National Planning Policy Framework to support adaptation and mitigation, plus recent updates to Building Regs to reduce excess heat and unwanted solar gains in all new residential buildings	Planning, Housing
Dedicated local climate projections service to upper tier local authorities to support adaptation planning for heatwaves and localised heavy rainfall	Risk Management, Emergency Planning Public Health; business continuity in all services
Business and industry	
Government to work with industry, regulators and public finance institutions to deliver the Green Finance Strategy 2023 (sets out actions to protect the financial system from climate-driven impacts and to attract private investment into adaptation)	Finance
New strategy on supply chains and imports (autumn 2023), to respond to threats to key imports	Economic development, REDA
Survey business readiness for climate impacts and provide info/support to businesses on adapting to higher temps, water scarcity, storms and flooding	Economic development, REDA
Governance	
Pilot an approach to extend the adaptation reporting duty to local authorities	Corporate reporting/ compliance issue

4. AN ADAPTATION FRAMEWORK FOR READING BOROUGH COUNCIL

4.1 The need for an adaptation framework for the Council

4.1.1 Key to understanding the need to adapt is the fact that further warming is 'dialled in' to the climate system for decades to come as a result of past emissions, regardless of the success of efforts to reduce emissions. This means that adapting to current and predicted changes to the climate is a necessity for public services, with action required across central government, local government and beyond. With this in mind, the Council's Climate Programme Board commissioned the development of a corporate Adaptation Framework for RBC, the need for which had previously been highlighted in an internal audit recommendation.

4.1.2 In 2019 the Reading Climate Change Partnership commissioned Mott Macdonald to produce the first Climate Change Adaptation Plan for Reading. Whilst not a detailed action plan, this document provided a high-level assessment of the risks, adaptation options and case studies of adaptation already in action at Borough level. As such it provides a useful input to this Adaptation Framework as it collated a range of information on key risks facing Reading and highlighted the need for further action which have been used to inform this Framework.

4.1.3 Some adaptations – e.g plans for extreme weather events such as heatwaves, floods and drought - are already in place within or beyond the Council, so we are not starting from a zero base. Similarly, parts of the organisation are already engaged in planning to adapt or build resilience to climate impacts directly or indirectly. In addition to the work commissioned by the Reading Climate Change Partnership, there are, for example, already a number of policies in the Reading Local Plan and other policy documents, and various actions underway by virtue of our statutory status as Lead Local Flood Authority, responsibilities for public health, or as a first responder for civil emergencies e.g. via Emergency Plans, Business Continuity Plans or Heatwave Plans).

4.1.4 This Framework, however, highlights the opportunity to identify new and emerging issues, priorities and adaptive responses across a wider range of the Council's activity, as well as codifying existing adaptations which are being implemented in a structured or more dynamic way. The key point is that the process of identifying and preparing for climate-related risks will need to become more comprehensive and systematic across the full range of the Council's services in view of the wide range of escalating risks and impacts going forwards.

4.2 Relationship with other plans and strategies

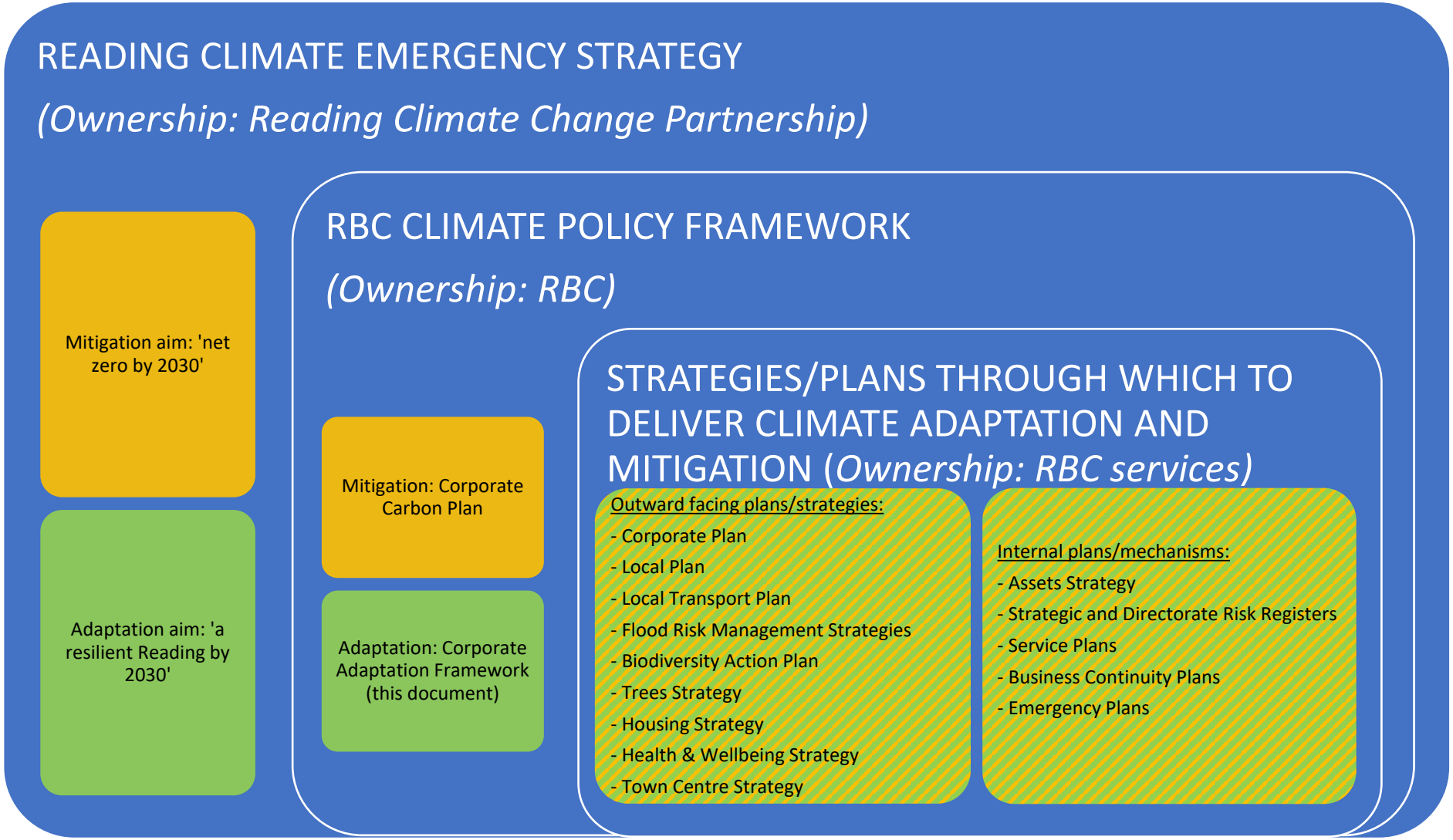
4.2.1 The overarching strategy for responding to climate change in Reading is set out in the Reading Climate Emergency Strategy 2020-25. The Council has endorsed the Strategy, which was produced by the Reading Climate Change Partnership, and is identified as a delivery partner for numerous actions within it. The Strategy covers both mitigation (addressing the causes of climate change) and adaptation (dealing with the consequences of climate change), though a recent 'gap analysis' suggested that mitigation was addressed more comprehensively than adaptation.

4.2.2 Within this overarching Strategy, the Council has its own plans for tackling climate change. For mitigation, these are set out in the Corporate Carbon Plan 2020-25, which sets out how the Council plans to reduce emissions from its own operations. For adaptation, this Adaptation Framework fills a gap which has hitherto existed.

This document can only, however, set out a *framework* for action as the title suggests – the detailed actions themselves need to be identified, implemented and updated by individual services as they are best placed to understand and address their specific vulnerabilities, risks and how best to adapt to these as climate impacts become more apparent. It should therefore be considered a Framework to support services in developing and embedding adaptation to climate risk going forward.

4.2.3 The relationship between the Reading Climate Emergency Strategy, the Council's corporate Carbon Plan and Adaptation Framework, and the various strategies and plans through which the Council's climate policy aims can be taken forward is illustrated in figure 5.

Figure 5: relationship between this Adaptation Framework and other related plans and strategies



5. SCOPE AND OBJECTIVES OF THE ADAPTATION FRAMEWORK

5.1 Scope

5.1.1 This document does not seek to set out adaptation action for every organisation and sector in Reading, but to set out key impacts and a framework for developing adaptive responses in key areas of the Council's responsibility and/or influence.

5.1.2 Development of the Framework has also been informed by the ADEPT Good Practice Guidance for Local Government on 'Preparing for a changing climate', Local Partnerships climate adaptation toolkit for Local Authorities among other resources (see section 7.2).

5.2 Principles and Objectives for the Adaptation Framework

5.2.1 The starting point for the corporate Adaptation Framework is a set of principles commonly used elsewhere in adaptation planning:

- Prevent: by building adaptation into existing plans, policies and ways of working we can reduce and avoid the need for remedial action and more expensive responses
- Protect: by identifying early interventions we can take the most appropriate and cost-effective protecting measures
- Inform: by research, awareness raising, communications and engagement we can build understanding of what adaptation and resilience mean in practice for residents, communities and businesses
- Collaborate: very few climate impacts can be responded to by the Council alone so working with partners to co-ordinate, exchange knowledge and skills will be important

5.2.2 The policy basis for the corporate Adaptation Framework is within the vision set out in the Reading Climate Emergency Strategy for 'a net zero, resilient Reading by 2030'. While the focus of this Adaptation Framework is on the 'resilience' part of this vision, it is important to ensure that action to adapt aligns with, and does not undermine, efforts to reduce emissions. The key objectives of the Adaptation Framework identified by the Council's Climate Programme Board are therefore:

- A more climate resilient organisation and Borough, achieved through good management of climate risk
- Better protection from climate impacts for Council infrastructure, services, residents, particularly the most vulnerable, and staff
- Effective and efficient responses to climate impacts which are consistent with our efforts to reduce Reading's emissions

5.2.3 These three objectives should be applied as the key 'tests' against which the suitability of adaptation action taken by the Council should be judged.

5.2.4 The key to building resilience to climate impacts will be to recognise and treat it as a mainstream policy and risk management issue, and to integrate our responses into existing policy and risk management frameworks. With this in mind, table 4 sets out how climate adaptation already relates to the priorities set out in the Council's Corporate Plan.

Table 4: how climate adaptation relates to corporate plan priorities

CORPORATE PLAN PRIORITY	**ADAPTATION ISSUES**
'Healthy environment'	• The natural environment is being affected by changes in climate and impacts such as the spread of pests and diseases • Healthy natural systems and areas (rivers, woodlands, green and blue spaces) can help people and places adapt to climate change – e.g. by providing flood mitigation or urban cooling • Existing natural areas need to be protected, and their management improved, to perform these functions, and new areas of green and blue space created to build resilience • Our efforts to reduce emissions to net zero, if mirrored globally, will reduce the extent of the changes to which we will need to adapt
'Thriving communities'	• People and communities experiencing multiple causes of vulnerability are most exposed to the impacts of climate change and have fewer resources to adapt - climate impacts are likely to further expose these vulnerabilities • Understanding how climate impacts may affect vulnerable groups can help make action to reduce poverty and inequalities more effective • The impacts of climate change and our action to adapt has the potential to have negative and positive impacts on health
'Inclusive economy'	• Investment in new/existing infrastructure needs to factor in future as well as present climate conditions • Planning and investment in community regeneration presents an opportunity to implement measures that will enable these locations to adapt • Supply chains, assets and infrastructure will be increasingly vulnerable to climate change with impacts on businesses and consumers • New community or business facilities need to be designed with future climate in mind to be resilient to flood risk, overheating or damage from severe weather

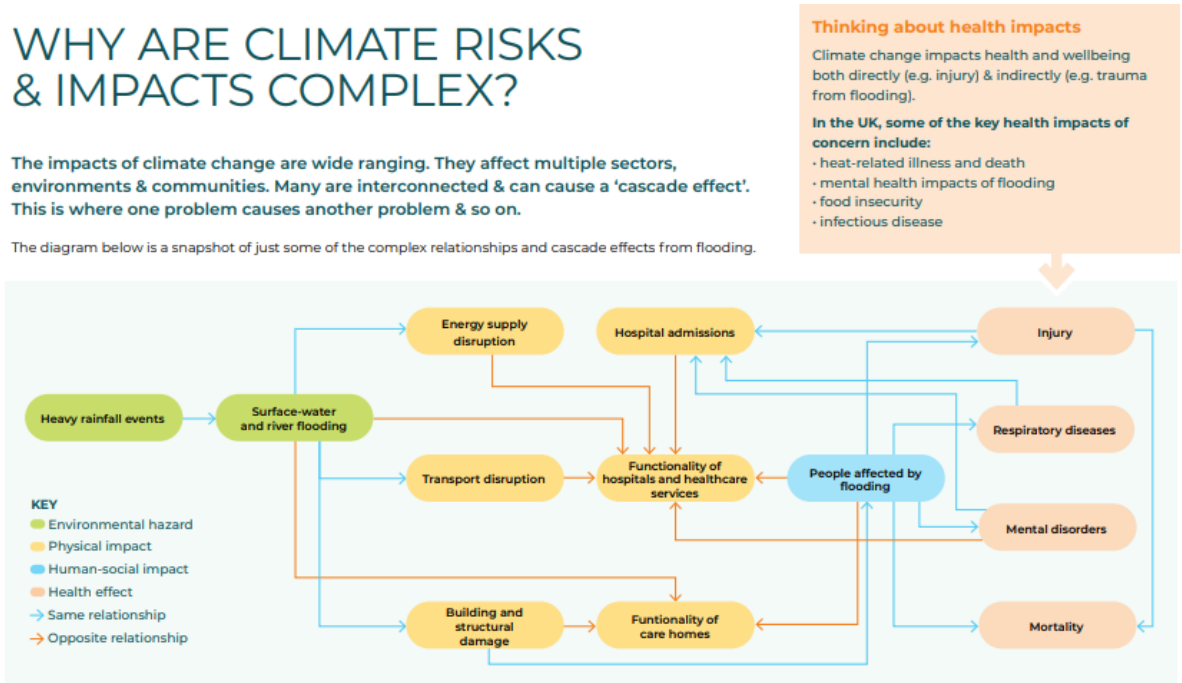
6. CLIMATE RISK AND VULNERABILITY IN READING

6.1 Climate adaptation and the Council's risk management framework

6.1.1 Climate adaptation is fundamentally a risk management issue. A particularly important relationship is therefore that between this Adaptation Framework and the Council's risk management framework. Since 2022, the need to adapt to climate impacts has been recognised as a high-level risk in the Council's Strategic Risk Register and is identified separately from the need to reduce carbon emissions. Planning to adapt to these impacts is necessary to reduce this risk.

6.1.2 It is important to note that climate impacts represent risks in and of themselves but also act as 'risk multipliers', compounding the likelihood and/or impact of other risks – for example, some existing health conditions may be exacerbated by extreme heat events which are more likely in future. It is therefore essential that planning for climate risk be integrated into Directorate Risk Registers, Service Plans, Emergency Plans, Business Continuity Plans, as is done for other risks. The complexity of climate risk, and how it can compound other risks, is illustrated in figure 6, taken from the Local Climate Action website.

Figure 6: climate risks and complexity



6.2 Key climate risks and existing vulnerabilities for Reading

6.2.1 In 2022, the Council worked with the Met Office and University of Reading to produce a City Pack for Reading. This set out key parameters which partners will need to take into account when planning to adapt to climate change. The City Pack also highlighted Reading's key vulnerabilities to climate impacts as follows:

- HEALTH: increased risk to health from a range of climate impacts – warmer, wetter winters could affect those with health conditions if they increase damp and condensation in homes. Overheating in homes could do likewise. Poor air

quality episodes would affect people with respiratory illness and flooding could impact both physical and mental wellbeing. More generally patterns of disease could change and new diseases could emerge.

- HEAT: there will be increased risks to people's health and wellbeing for the reasons mentioned above, and to the resilience of critical infrastructure from high temperatures.

- TRANSPORT: Reading is well connected by rail and road links but also affected by congestion and pollution – climate impacts could mean increased disruption e.g. due to heat impacts and flooding, and a worsening of air quality e.g. from hot, still weather conditions

- DROUGHT: increases in the frequency and severity of drought conditions will increase risks to water supplies, both in terms of water availability and water quality. Growth in housing stock to meet demand will increase the challenge of managing these pressures.

- ENVIRONMENT: climate change will affect both habitats and species with some native species threatened and/or non-native species thriving. Degradation of habitats may inhibit their ability to provide wider societal benefits.

- HEAVY RAINFALL: increased risk of surface water flooding and flash floods, more sediments, erision and pollution to watercourses. This will create new pressures for infrastructure design and maintenance.

- DRAINAGE: more intense periods of rainfall will likely lead to increased disruption and over-loading of urban drainage systems, with implications for transport infrastructure, health and wellbeing.

- UTILITIES: infrastructure such as gas and water pipes are at risk from the combination of hot, dry spells followed by wet weather and flooding. There may also be issues arising from additional demand for cooling in summer which could put pressure on energy systems.

6.2.2 Whilst not exhuastive, this list points to some of the priority areas for adaptation action. A more detailed set of risks facing Reading Borough Council, with an indication of the services which may be affected, and some potential adpative responses, is included at Annex 1 to this Framework (separate Excel spreadhseet).

6.3 The key changes we can expect in future

6.3.1 To understand our future vulnerability to climate change in Reading specifically, we need to understand what changes, and how much change, we can expect. The main changes we can expect in Reading as a result of climate change can be summarised as:

- Warmer, wetter winters

- Hotter, drier summers

- Increased frequency and intensity of extreme weather events

6.3.2 While these changes may sound 'manageable', the impacts in isolation and/or in combination with other risks could have very significant consequences, up to and including loss of life, disruption to critical services and community-wide disruption and damage. Climate impacts will increase over time, and it is important to note that a '1 in 1,000 year event' is as likely to happen next year as in 1,000 years time.

6.3.3 The City Pack for Reading sets out detailed changes in temperature and precipitation which might be expected in different emissions scenarios through different periods of time. These parameters can be used to inform long-term planning of all infrastructure investment and development of service delivery models, noting that two key features of future climate impacts are (i) inherent uncertainty (ii) the impacts will get progressively more significant in terms of scale of impact and frequency of occurrence.

6.3.4 The precise extent of climate change we experience will be determined by:

- The impacts of past emissions that have already changed the climate
- Global action to reduce emissions now and into the future
- Exactly how strongly greenhouse gases affect temperature and other variables such as rainfall and sea level rise

6.4 The extent of future change

6.4.1 It is important to understand that the increase in global average temperatures seen in recent decades will continue unless or until the aim of 'net zero' emissions is reached at global level, and even beyond that some additional warming may occur due to the lag in the climate system. At this point in time, emissions globally continue to rise despite international commitments to reduce them. Combining the latest science from the Intergovernmental Panel on Climate Change (IPCC) and the UK's Met Office, the Committee on Climate Change has attempted to define the amount of change which can be considered inevitable over different time periods under different scenarios (see table 5).

6.4.2 Three key conclusions emerge from analysis of table 5:

- **It is likely that the UK will experience at least another half a degree of warming by 2050.** Even with immediate and very rapid reductions in emissions globally, the UK will experience additional warming of around 0.6°C between now and 2050. This is due to the fact that it will take time for the world to reduce emissions even under the most optimistic scenarios. Along with this rise in temperature, by the middle of the century we can also expect a 10% increase in heavy rainfall, and a 50% chance of each summer being hotter than 2018. These are the minimum levels of change to which we must plan to adapt, and recent evidence of an acceleration in warming suggests that it would be prudent to plan for more than this.

- **In the absence of large-scale actions to reduce global emissions, considerably more changes in the UK's climate will be seen beyond this 'inevitable' level.** For futures consistent with current global emissions trajectories through to a 'high-end' scenario (columns E and F), UK annual mean temperatures would likely increase by a further 2 to 3°C from today by the end of the century, with very serious consequences.

- **Reducing global emissions rapidly can still prevent further warming in the UK beyond this 'inevitable' level.** If global greenhouse gas emissions are brought rapidly to Net Zero in the second half of this century (expected to keep global temperatures below 2°C), UK temperatures (and rainfall) in 2100 could be kept close to their level in 2050.

Table 5: impacts which can be considered inevitable (UK Committee on Climate Change)

A	B	C	D	E	F
Measure	**What has happened so far?**	**What is likely to be inevitable by mid-century under most global emissions pathways?[i]**	**What could be the change by the end of the century and beyond, based on a low emissions pathway estimated to be consistent with keeping global warming 'well-below' 2°C?[ii]**	**What could be the change by the end of the century and beyond based on an emissions scenario broadly consistent with current global emissions trends?[iii]**	**What could happen by the end of the century and beyond in a very severe future climate change scenario?[iv]**
Time period	Present day	Mid-century	End-century	End-century	End-century
Global average surface temperature[v]	Over 1°C above pre-industrial levels.[vi]	By 2041-2060, +0.2-0.9°C over present levels.	By 2081-2100, -0.1–+1.1°C above present levels.[vii]	By 2081-2100, +1.2-2.5°C above present levels.	By 2081-2100, +2.4-4.2°C above present levels.
UK annual average temperature [viii]	About +1.2°C above pre-industrial levels.[ix] We have experienced a +0.8°C increase since 1961-1990.	Around +0.6°C from present level by the mid-2050s.	Around +0.7°C from present level by the mid-2080s.	Around +1.9°C from present level by the mid-2080s.	Around +3.0°C from present level by the mid-2080s.
Global mean sea level rise[x]	~21 cm increase from 1900.	+10–25 cm over present levels by 2050.	+22–52 cm over present levels by 2100 and 53–103 cm by 2300.	+26–56 cm over present levels by 2100.	+54–103 cm over present levels by 2100 and 220–530 cm by 2300.
UK mean sea level rise	~16cm since 1900.[xi]	+3 to +37 cm from present levels by 2060.[xii]	+5 to +67cm from present levels by 2100.	[Not available]	+27 to +112cm from present levels by 2100.
UK heavy rainfall[xiii]	Some indications of increasing heavy rain but difficult to quantify.[xiv]	+10% increase from today by 2050.[xv]	+20% increase from today by 2100.	[Not available]	+50% to +70% increase from today.
UK heatwaves – 'like 2018 summer'[xvi]	Now a 10 – 25% chance each year, compared to <10% chance each year a few decades ago.	50% chance each year by 2050.	50% chance each year by 2100.	[Not available]	90% chance each year by 2100.

7. ADAPTATION PRIORITIES

7.1 Identifying priorities for adaptation

7.1.1 In the context of limited resources and competing priorities, the wide range of risks presented by climate change need to be prioritised for local action according to accepted risk management processes, based on an assessment of impact and likelihood. Combining the main risks identified in the CCRA (table 2), the key local impacts identified in the City Pack for Reading (para 6.2.1), likely changes in climate variables anticipated over different time periods (table 5), and feedback gathered in internal workshops (Team Talk, SLG and elsewhere), the following issues may come to the fore as potential priorities for action in Reading:

- PRIORITY 1: **Embedding climate risk, resilience and adaptation** throughout the Council's strategic policy framework
- PRIORITY 2: Improving the **resilience of buildings** (residential, corporate and commercial) and **infrastructure** to climate impacts
- PRIORITY 3: Managing the increased **risk of flooding** (river flooding and surface water flooding) associated with the changing climate
- PRIORITY 4: Maintaining the **social, environmental and economic health and wellbeing** of residents, particularly vulnerable residents, in the face of climate impacts
- PRIORITY 5: Protecting the **natural environment** against climate impacts and, by doing so, ensuring that it can help protect us
- PRIORITY 6: **Building understanding** of climate impacts and how we can adapt to them internally and externally

7.1.2 The Priority Action tables below set out the following for each of these priority areas:

- Objectives for each priority
- Potential actions and, where relevant, measures, for each priority
- Services affected and/or responsible for implementation of potential adaptation actions
- Further sources of advice and guidance to support services in integrating adaptation to their work

PRIORITY 1: Embedding climate risk, resilience and adaptation in the Council's strategic policy framework

A review of existing corporate plans and strategies (see table 6) suggests that while adaptation to climate impacts is already well integrated into some, there is scope to do so more effectively in the case of others:

Table 6: review of how climate adaptation is addressed in key Council plans and strategies

CORPORATE & SERVICE PLANS		
Outward-facing strategies/plans	**Policy content/intent**	**Future action required**
Corporate Plan	Corporate Plan acknowledges Climate Emergency Strategy vision for a 'net zero, resilient Reading by 2030' and refers to aim of making infrastructure and communities 'greener and more resilient'. However, 'adaptation' is not referred to explicitly nor is it embedded in the wider policy framework of the Corporate Plan. Key climate risks are not referred to despite significant recent events which caused widespread disruption with negative public health and other outcomes (e.g. winter 2024 floods, 2022 heatwave).	The forthcoming review of Corporate Plan presents an opportunity to better embed climate adaptation in the corporate policy and performance management framework e.g. there is scope to (i) be more explicit about the need to adapt to climate impacts (which should not be restricted to the 'environment' sphere) (ii) extend reference to 'making communities feel safer and more resilient against risk or harm' to include climate risks specifically (iii) make stronger links between public health and climate to reflect significant overlap between both the challenges and solutions (iv) acknowledge climate risk as a threat to an 'inclusive economy' as the costs of damage/disruption increase and as impacts hit the most vulnerable the hardest.
Local Plan	Local Plan contains clear policies designed to ensure development takes account of need to adapt to climate impacts and includes a detailed policy (CC3) to ensure all new develpoment considers the need to adapt in terms of building orientation, design, landscaping and water attenuation.	The review of the Local Plan provides an opportuinty to re-visit and strengthen the policies designed to promote climate adaptation and resilience, reflecting the increasing evidence on the range and urgency of the risks facing the built environment. Ambiguities in some policies could be removed and the list of adaptation options listed in policy CC3 could be converted into clearer expectations rather than a menu of options as at present.
Local Transport Strategy	Vision acknowledges need to 'adapt to meet future challenges and opportunities', later explcitly highlighting climate-related risks to infrastructure and transport users from floods, excess heat as well as air quality impacts from hot/dry weather. Need to adapt is embedded well in other areas of the Strategy.	The Strategy is one of the better examples of how climate adaptation is embedded in both the strategic vision and the detailed policy framework. Ensuring that this remains at the forefront during implementation is now the priority, particularly as increasing transport disruption is one of the most likely and visible impacts associated with climate change.

Flood Risk Management Strategies	Clearly all flood risk management strategies addresses climate risk directly/indirectly but RBC's Local Flood Risk Management Strategy dates from 2015 and the evidence on flood risk, and nature of flood risk has developed substantially since then. Similarly, since the abandonment by EA of the Reading and Caversham Flood Alleviation scheme there has been no substantive alternative proposal.	The framework of local flood risk management planning and the way in which the Council discharges its responsibilities for surface water flooding as Lead Local Flood Authority (and the anticipated new statutory duties in relation to sustainable drainage systems), might benefit from being reviewed and updated to reflect the latest understanding of current and future flood risk and how this will be affected by climate change. The lessons from the floods in winter 2023/24, as summarised in a recent Committee Report, also need to be applied.
Biodiversity Action Plan (BAP)	The Reading BAP highlights the need to make Reading's biodiversity resilient to climate impacts and the role nature can play in helping people adapt.	The BAP integrates climate adaptation as a core driver. Resources for implementation are, however, limited which risks undermining the policy intent. Mechanisms such as Biodiversity Net Gain could help address this by generating new income streams to deliver enhancements, which would serve to improve the resilience of both people and widlife to climate impacts – but the Council needs to put mechanisms in place to make it so.
Trees Strategy	Climate adaptation and resilience are an explicit objective of the Strategy and are also reflected in the action plans.	The Trees Strategy integrates climate adaptation as a core driver. The latest science and evidence, however, need to be taken into account in implementation and future iterations of the Strategy.
Health & Wellbeing Strategy	Climate risk is acknowledged at high level but not in detail.	In view of the significant overlap between climate impacts and public health issues, there may be scope for closer integration of climate adaptation policies into health and wellbeing strategies and vice-versa.
Housing Strategy 2020-25	The need to adapt is acknowledged at a high level but not reflected in the detail of the strategy. Key issues for housing include hotter, drier summers, higher winter rainfall and more extreme storms which could increase risks to building fabric and occupiers.	Future reviews of the Strategy provide an opportunity to better embed climate risk and resilience at all levels of the strategy, recognising that the most vulnerable residents will be the most exposed to potentially damaging impacts of climate change. Risks like over-heating, mould and damp, physical damage have significant implications for housing design and management.
Assets Strategy (draft)	The draft Assets Strategy gives prominence to making RBC assets more resilient to climate impacts. However, it will be vital to ensure that adaptation and resilience are considered in all future asset decisions as the Strategy is put into practice.	All asset decisions will in future need to be 'tested' against the key criteria of how/whether they will make the Council and service users more resilient to climate impacts. The costs of making assets more resilient also needs to be considered as this could inform decisions about whether assets should be retained, invested in or disposed of.

Informed by the review summarised in table 6, Priority Action Table 1 below identifies objectives for this priority, potential actions and, where relevant, measures for each priority, the services responsible for implementation of potential actions, and further sources of advice and guidance to support services in integrating adaptation into their work.

PRIORITY ACTION TABLE 1: embed climate risk, resilience and adaptation in the Council's strategic policy framework

Objective	Potential actions	Measures (if appropriate)	Relevant services
To ensure the Council's high level policy commitments address the need to adapt to climate impacts Further information: • Good Practice Guide for Local Government on Preparing for a Changing Climate (ADEPT, includes chapter on corporate plans, policies and performance)	Ensure review of Corporate Plan better integrates climate adaptation as per recommendations in table 6	Incorporation of adaptation in policy	DoR (Corporate Policy and other plan authors)
	Ensure Local Plan review reflects best available science and evidence, and specific policies for new development, on climate adaptation	Incorporation of adaptation in policy	DEGNS (Planning)
	Clarify timetable for review of local flood risk management strategy and ensure this reflects latest science and evidence on climate impacts	Incorporation of adaptation in policy	DEGNS (Lead Local Flood Authority role)
	Ensure review of Health and Wellbeing Strategy better integrates climate adaptation as per table 6.	Incorporation of adaptation in policy	DCASC (Public Health)
	Ensure next review of Housing Strategy better integrates climate adaptation as per table 6	Incorporation of adaptation in policy	DCASC (Housing)
	Ensure Assets Strategy principles of climate adaptation are followed through in practice.	Implementation of adaptation actions	DEGNS (Assets)
	Emerging strategies: Town Centre Strategy, Public Realm Strategy, economic strategies developed via Prosperity Board – all need to be 'climate proofed' to ensure climate risk and resilience are addressed	Incorporation of adaptation in policy	Various

PRIORITY ACTION TABLE 2: Improving the resilience of buildings and infrastructure

Objective	Potential actions	Measures (if appropriate)	Relevant services
Protect buildings and their occupants from climate impacts and maintain critical transport, utility and other networks Further information: • Climate impacts on Housing (Committee on Climate Change) • Good Practice Guide for Local Government on Preparing for a Changing Climate (ADEPT, includes chapters on Infrastructure, planning and built environment) • Climate Resilience Roadmap for the built environment (UK Green Building Council) • Climate impacts on the Historic Environment and Heritage Assets (Historic England)	Assess and monitor climate related risks to the built environment	No. of climate risk assessments	All services responsible for buildings and/or infrastructure DEGNS (e.g. Planning, Property & Assets, Culture)
	Embed climate resilience into planning, design and retrofit policy and programmes for buildings and infrastructure	Building condition	All services responsible for buildings and/or infrastructure e.g. DEGNS (Property & Assets, Transport) and DCASC (Housing)
	Ensure climate resilience is considered in maintenance and inspection schedules for buildings (including historic buildings) and infrastructure	Data from inspections	All services managing buildings and/or infrastructure e.g. DEGNS (Property & Assets, Transport) and DCASC (Housing)
	Incorporate adaptation into new development, upgrades and retrofit including: • Location, grounds conditions and orientation • Energy and water efficiency • Use of resilient materials • Use of permeable surfaces • Overheating risk management measures • Whole life costing • Integration of green infrastructure	Inclusion in design specifications	All services commissioning/designing buildings and/or infrastructure e.g. DEGNS (Property & Assets, Transport) and DCASC (Housing)

PRIORITY ACTION TABLE 3: Flood risk

Objective	Potential actions	Measures (if appropriate)	Relevant services
Manage and minimise flood risk, deploying 'nature-based solutions' where possible, and protecting the water environment and watercourses in the process Further information: - Prepare for flooding (residents, communities and businesses) (HMG) - The Property Flood Resilience Action Plan (Defra) - Thames River Basin Flood Risk Management Plan 2021 to 2027 (Environment Agency) - Thames river basin management plan 2022 (Environment Agency) - Future water availability projections HR Wallingford (for the CCC) - Draft Water Resources Management Plan 2024 (Thames Water)	Engage with the Environment Agency and other stakeholders to update Reading's flood risk management planning framework, particularly the Local Flood Risk Management Strategy (2015) and Surface Water Management Plan (2013)	Timetable for review agreed	DEGNS (Lead Local Flood Authority role)
	Explore the potential of grey and green flood protection measures (e.g. Kennet Meadows) to reduce flood risk in Reading		DEGNS (Lead Local Flood Authority role)
	Ensure the potential of green infrastructure to manage flood risk is harnessed in new development and regeneration projects	Monitoring of compliance with Local Plan policies	DEGNS (Planning, Regeneration, Lead Local Flood Authority role)
	Work with the Environment Agency to understand future fluvial flood risk and options available now following the abandonment of the Reading and Caversham Flood Alleviation Scheme	Data from inspections	DEGNS (Lead Local Flood Authority role)
	Ensure 'lessons learnt' from 2023/24 winter floods and other flood events are applied to improve the resilience of communities at risk, and the ability of the Council to respond effectively		DoR (Emergency planning), DEGNS (Lead Local Flood Authority role)

PRIORITY ACTION TABLE 4: social, environmental and economic wellbeing

Objective	Potential actions	Measures (if appropriate)	Relevant services
Maintain healthy, resilient communities, businesses, residents (particularly vulnerable residents), and staff, improving their knowledge and capacity to adapt Further information: - The UK Government Resilience Framework (Cabinet Office) - Community resilience development framework (Cabinet Office) - Community Emergency Plan Toolkit (HMG) - Community resilience planning toolkit (example from Kent CC) • Good Practice Guide for Local Government on Preparing for a Changing Climate (ADEPT, includes advice on health, care & community resilience)	Support development of community resilience plans for communities most at risk (e.g. those facing high risk of flooding)	No. of community resilience plans	DoR (Emergency Planning)
	Improve information for residents on climate adaptation in proactive and reactive communications, signposting to sources of advice and support	Media coverage, social media engagement	DoR (Comms), DCASC (public health)
	Explore with health and social care providers how to make facilities and service users more resilient to climate impacts e.g. by: • Embedding climate change in health and social care planning and business continuity arrangements • Increasing understanding on the risks of overheating from high indoor temperatures, especially in institutional care facilities • Promote information on climate risks to health to raise awareness		DCASC (social care, public health)
	Raise awareness of climate impacts on key business sectors and their supply chains and encourage forward planning to improve resilience e.g. by: • signposting to reliable sources of information on the challenges and opportunities of climate change • encouraging adaptation in business resilience plans • exploring opportunities for business growth through innovation, technology and skills development to support adaptation	No. of businesses with resilience plans in place	DEGNS (Infrastructure, economy and regeneration), REDA
	Review HR policies and operational practises to ensure staff exposure to climate impacts is minimised (e.g. reviewing shift patterns or start times to avoid the hottest times of day, as has been done with waste crews)		DoR (HR&OD), all services where staff work outdoors

PRIORITY ACTION TABLE 5: Natural environment

Objective	Potential actions	Measures (if appropriate)	Relevant services
Improve the quality and extent of natural habitats to make them more resilient, thus enhancing the ability of the environment to help people and communities adapt Further information: - Climate impacts on biodiversity (JNCC) - Nature-based solutions for climate (IUCN) - Nature-based solutions for flood risk management (HMG) - Berkshire Local Nature Recovery Strategy (RBW&M on behalf of all Berkshire Councils) - Good Practice Guide for Local Government on Preparing for a Changing Climate (ADEPT, includes chapter on natural environment)	Work with partners through the Berkshire Local Nature Partnership, and via the development and implementation of the Berkshire Local Nature Recovery Strategy, to better understand climate impacts on the natural environment, and how best to deploy 'natural solutions' to climate challenges		DEGNS (Planning)
	Ensure the review of the Local Plan, the emerging Local Nature Recovery Strategy for Berkshire and other relevant strategies reinforce the importance of helping nature adapt, and harness the ability of nature to help us adapt		DEGNS (Planning)
	Protect Reading's greenspaces and ensure new development incorporates appropriate greenspace which supports adaptation objectives for people and nature	Via Local Plan monitoring process	DEGNS (Planning)
	Ensure continued implementation of Reading's Biodiversity Action Plan and Trees Strategy, both of which highlight the importance of adaptation to climate impacts	% of tree canopy cover Delivery of BAP targets	DEGNS (Planning, greenspace management)
	Ensure Local Plan policies on protection of soils are implemented during planning, development and construction processes, to maintain soil quality and function		DEGNS (Planning, greenspace management)
	Work with Berkshire Fire & Rescue Service and other partners to monitor and respond to increasing wildfire risk, in ways which are consistent with nature recovery objectives	Incidence of wildfires	DoR (Emergency planning), DEGNS (Greenspace management)

PRIORITY ACTION TABLE 6: Building understanding

Objective	Potential actions	Measures (if appropriate)	Relevant services
Building understanding and awareness of climate impacts, and how we can adapt to them, among residents, communities, businesses and other organisations Further information: - Climate change in the UK explainer (Met Office) - UK Climate Risk Sector Briefings (Climate Change Committee) - Communicating Climate Risk (handbook) (UCL) - Engaging the public on climate risk and adaptation (Climate Outreach) - Delivering climate action with community partners (Ashden)	Collaborate with University of Reading and other research institutes to identify adaptation issues, gaps and solutions		DEGNS (Sustainability) in partnership with Reading Climate Action Network
	Encourage service and partners to monitor and record weather related impacts and use this to adapt their strategic planning and operational practices		All services
	Engage communities, businesses and schools through adaptation education and information campaigns (e.g. ensuring adaptation is a theme in the annual Schools Climate Conference and including adaptation content in the annual Reading Climate Festival)		DEGNS (Sustainability), DoR (Comms) in partnership with Reading Climate Action Network
	Continue to roll out the Council's Carbon Literacy training programme for officers and members	No. of certifications; achievement of further Carbon Literate Organisation standards (Silver, Gold, Platinum)	DEGNS (Sustainability, New Directions)
	Explore the scope to roll out Carbon Literacy training to residents, communities, partners and businesses	No. of certifications	DEGNS (Sustainability, New Directions), REDA, in partnership with Reading Climate Change Partnership
	Consider creation of a climate adaptation information hub on the RBC website highlighting key risks and sources of help and advice (and/or similar content on RCAN website)		DEGNS (Sustainability), DoR (Comms, Web Team) in partnership with Reading Climate Action Network

7.2 Further information and resources

7.2.1 In addition to the sources of 'further information' included in column 1 of the Priority Action Tables above, the following resources may be helpful to services as they seek to integrate climate risk, adaptation and resilience into their strategic and operational planning going forward:

- The Local Climate Adaptation Tool (lcat.uk): a comprehensive guide for organisations and individuals providing information on adaptation, examples and case studies, guidance for all sectors, disciplines and positions. Includes:

  - An introductory guide to Local Climate Adaptation

  - A user guide explaining how to use the Local Climate Adaptation Tool

  - The Local Climate Adaptation Tool itself – within this the user can select a geographical area ('Berkshire' for Reading) which enables the user to explore local climate variables (temperature, rainfall, cloudiness and windiness); review climate hazards and risks (heatwave, wildfire, air quality, flooding); view summary impacts (on health, communities, personal/social vulnerabilities); and receive recommended adaptations in relation to each of the above variables. The user can select an impact category (say 'Flooding and drought') and filter and thematic policy area (say 'Transport') and the Tool will recommend, in this case, 10 potential climate adaptation actions for consideration. Further layers of detail can be explored for each adaptation action.

- The Carbon Disclosure Project (CDP) produces guidance for UK local authorities on Adapting to Climate Change. This guidance has been used to inform this framework.

- Local Partnerships produces a climate adaptation toolkit for Local Authorities. This has been used to inform this framework though resource constraints mean it has not been possible to follow the Local Partnerships approach in full.

- ADEPT produces a Good Practice Guide for Local Government on Preparing for a Changing Climate. This guidance has been used to inform this framework.

- The Thames Valley Local Resilience Forum is obliged by law to produce a community risk register. The key climate and weather related risks within this risk register are referenced within this Framework.

- The Met Office produced the City Pack for Reading in partnership with the Council and the University of Reading, setting out key climate variables and future scenarios which Reading can expect in future.

- Many professional bodies and institutes have developed positions or guidance on climate change (mitigation and adaptation) which officers would be advised to review.

[BACK COVER]

Front cover: image illustrating the reality of climate change in Reading over the last 150 years. Created by Professor Ed Hawkins MBE at the Unviersity of Reading, the 'climate stripes' show the change in temperature (for Reading in this case) over the past 150 years. Each stripe represents the temperature averaged over a year (colder years are blue, warmer years are red). This imagery has been used around the world to illustrate the reality of global warming (see #ShowYourStripes).