

# Climate Adaptation and Resilience Plan

Date: 27 July 2022

Report of: Director of Resources

Report to: Executive Board

Will the decision be open for call in?  Yes  No

Does the report contain confidential or exempt information?  Yes  No

## What is this report about?

Including how it contributes to the city's and council's ambitions

- Leeds is already experiencing changes to our weather as a result of climate change. Climate related risks will continue to increase until net zero emissions is met globally. Compared to the present day, climate-related risks will increase even if the global commitments of the Paris Agreement succeed in limiting warming to well below 2°C and efforts to limit it to 1.5°C are met. Therefore, it is prudent that the council takes action to ensure that our communities, services and buildings are resilient to the impacts of current, expected and potential climate change.
- This report sets out a range of activity that has taken place to date across the council, and with our partners, to better understand and begin to deliver on the city's ambition to strengthen our resilience to the impacts of climate change locally, in line with the government's National Adaptation Programme (NAP) and the latest UK Climate Change Risk Assessment (CCRA). This report also details future work to undertake a deeper council-wide climate risk assessment to further prevent and protect against climate impacts.
- This work is complementary of the third Key Pillar of the Best City Ambition to transition to a net zero economy as quickly as possible. The need for climate adaptation underscores the importance of achieving net zero emissions as quickly as is practical.

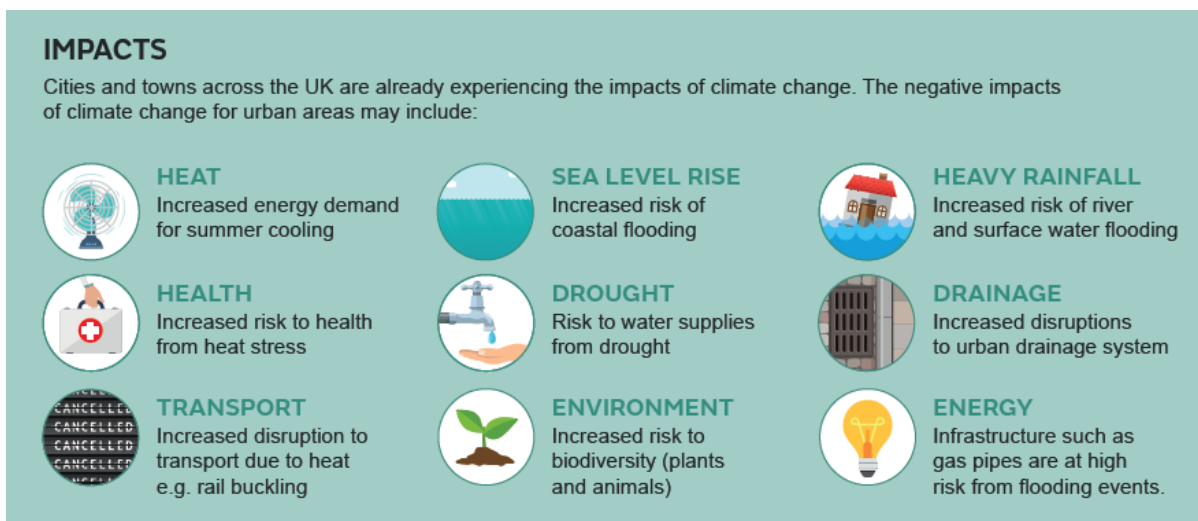
## Recommendations

- a) To approve the development of a Climate Adaptation and Resilience Plan based on the approach outlined in this report.
- b) To support enhanced city-wide engagement in Leeds over the next 12 months on the council's activity to support both climate mitigation and adaptation.

## Why is the proposal being put forward?

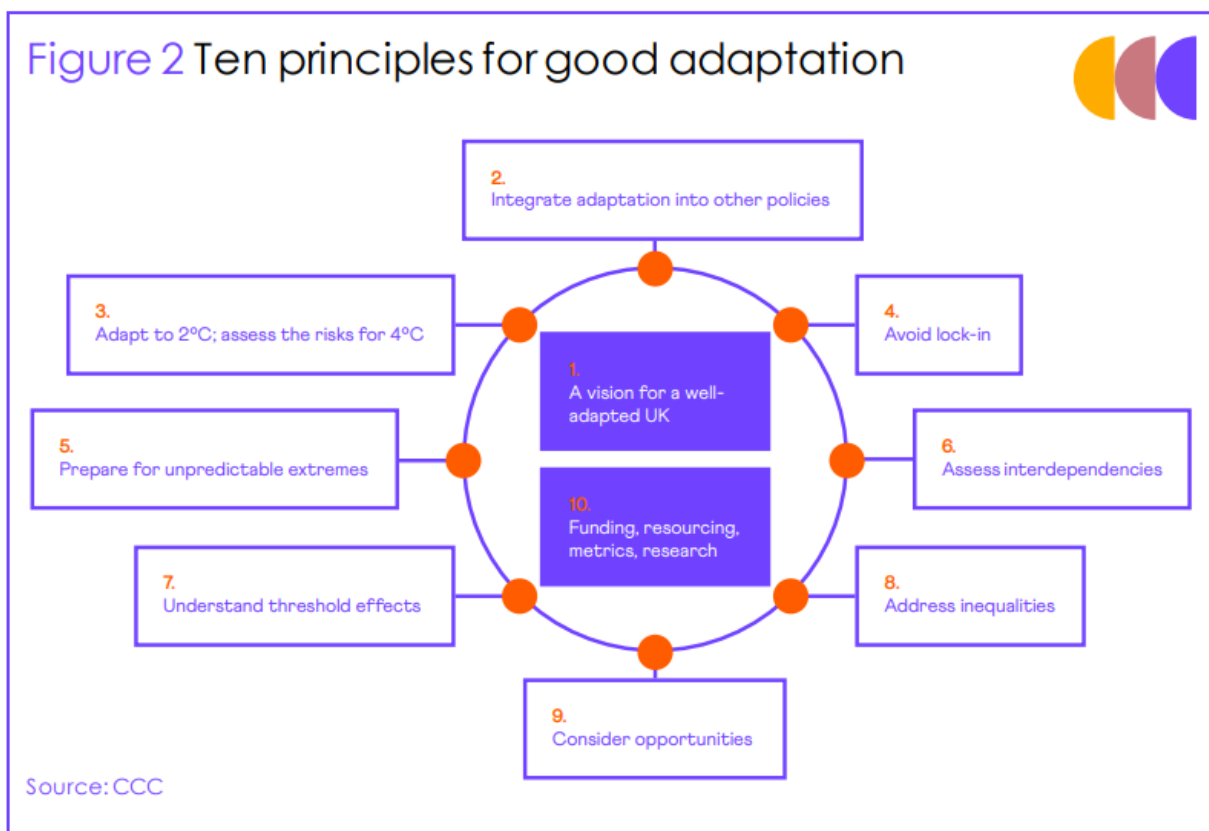
- 1 Climate adaptation is broadly defined as referring to any activity that minimises the impact of current, expected, and potential climate change and its effects. Climate change poses a threat to lives, livelihoods and the local environment. Climate related risks will continue to increase—even if the global commitments of the Paris Agreement succeed in limiting warming to well below 2°C—until global net zero carbon emissions are achieved.
- 2 The UK is already experiencing changes to its weather with a climate already 1.1°C warmer than pre-industrial levels according to NASA. Broadly speaking, climate-related hazards that Leeds is increasingly likely to experience can be grouped into four themes: extreme and prolonged **heat**, **flooding**, **drought**, and **cascading impacts** (such as trade disruption and population displacement) resulting from climate impacts elsewhere. The graphic below from the Met Office (Figure 1) shows some of the expected direct impacts of climate change to urban areas like Leeds as a result of these hazards.
- 3 There is significant work already taking place across the council to adapt to the impacts of climate change, including the recently updated Strategic Flood Risk Assessment and Heat and Heatwave Plan for Leeds, as well as ongoing work with the Centre for Progressive Policy looking at the areas of risk within the Leeds economy as a result of the transition to Net Zero. However, further work will need to be undertaken to better understand and quantify the risks to Leeds.
- 4 A table showing all the climate-related risks identified by the Committee on Climate Change (CCC) and how they will be considered within the Leeds Climate Action Plan is included as Appendix A of this report.

Figure 1



- 5 The Committee on Climate Change recommends that while the national ambition is to limit warming to 1.5°C, the 'precautionary principle' means that we should prepare for adaptation of 2° C and assess the risks of warming up to 4°C. The table in Appendix B, produced by the CCC, summarises the predicted changes to the U.K.'s weather for different warming scenarios.

- 6 Further local and international action would reduce the likelihood of a higher warming scenario. Therefore, we will continue to monitor and consider national intelligence, advice, and policy as they are updated on a regular basis. Figure 2 sets out the CCC's recommended principles for adaptation planning. As recommended within these ten principles, we should consider the potential 'opportunities' associated with changing weather patterns– including fewer winter deaths, lower energy costs, and opportunities for tourism and agriculture – alongside the risks.
- 7 The council is clear that this work is complementary of, not instead of, the council's commitment to working towards becoming a net zero carbon city as quickly as possible. Until net zero is achieved, Leeds will continue to contribute to worsening climate change and will in effect be amplifying the risks outlined in this report. Becoming a net zero city (climate change mitigation) and preparing for the predicted impacts of climate change (climate change adaptation) will going forwards be considered as equally important strategic goals of our climate action work.



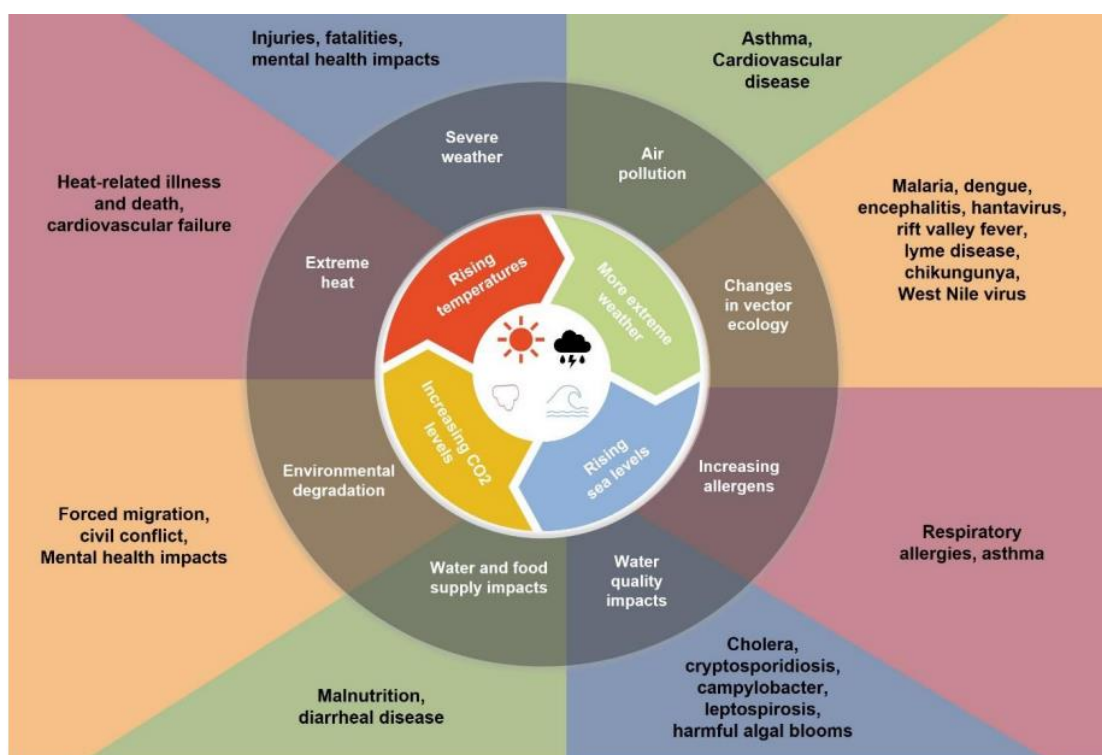
- 8 Given the risks, it is prudent to ensure that the council is doing everything it can to make informed considerations about the impact that climate change will have on our services and communities when taking decisions. We should take proportionate actions to protect lives, livelihoods and our local environment where we have the powers and/or influence to do so. This work will not only protect the city in the future but has the potential to deliver immediate benefits to Leeds residents, such as enhancing quality of life.
- 9 Regardless of the hazard, there are four general aims of climate adaptation: we can adapt our city to **prevent** some hazards from occurring; we can **protect** the city from harm and damage by mitigating exposure and vulnerability to hazards; we can effectively **respond** to hazards when they do occur; and we can plan to **recover** quickly after a hazard has

occurred. Each of these approaches will be important to a degree and so, throughout this process, the council must consider how best to balance these four aims.

### **National context and duties of local government**

- 10 The Civil Contingencies Act 2004 places duties on the local authority to respond to extreme weather events when they occur and to work in partnership with other key organisations through Local Resilience Forums. These multi-agency bodies also maintain regional Community Risk Registers and work with responders to ensure that the required level of civil protection is provided. Every Community Risk Register is informed by local insight and the U.K.'s National Risk Register 2020 (which identifies a number of climate-related risks) and is used to provide resilience guidance for the public and informs regional, industry, and local risk arrangements.
- 11 The [third Change Risk Assessment \(CCRA\)](#) is an official document assessing the ways in which climate change will impact the UK economy, environment, health and wellbeing. It informs the Government's National Adaptation Programme (NAP), last published in 2018 and due to be published in 2023. The CCRA also reviews the costs and benefits of adaptation policies and concludes that many adaptation investments would deliver good value for money as well as many co-benefits. The council's adaptation work will be informed by the CCRA and the independent advice from the Committee on Climate Change that informed it. We will undertake more work in the coming months to better understand the local implications of these risks.
- 12 The [National Adaptation Programme \(NAP\)](#) sets out the government's plan to prepare for and respond to the impacts of climate change. It also highlights the need for individuals, communities and organisations to better understand the risks from climate change and collaborate with authorities to put in place long-term plans to manage these risks. Going forward, the council's work on climate adaptation will generally seek to support the delivery of the NAP at a local level, although the council reserves the right to go further than the NAP where necessary based on the local context.
- 13 89 organisations across the UK's public and private sectors have already produced adaptation reports [under the Adaptation Reporting Power](#) considering the future risks and business continuity impacts of climate change. These include airport operators, energy generators, financial regulators, digital communications, water companies and many more. Other organisations have done so voluntarily. Locally, the council intends to regularly engage with private and public sector organisations across the city to discuss climate adaptation to better understand existing plans and facilitate shared learning.
- 14 One good example of existing adaptation planning is the UK Health Security Agency (UKHSA)'s [Third Health and Care Adaptation Report](#), published in 2021. The report summarises the current and future effects of climate change on the health and care sector and sets out practical next steps that the sector can take to build resilience. As climate change has the potential to widen existing health inequalities, the report also outlines how to support those most vulnerable to the systemic shocks associated. Figure 3 is a graphic from the report that details health impacts associated with the changing weather and increasing temperatures expected as a result of climate change.

### **Figure 3**



15 The council itself has long established risk management arrangements in place which contribute to a corporate risk register that is updated on a quarterly basis. The corporate risk register summarises the most significant, cross-cutting risks that could impact on the outcomes we aim to deliver via the Best City Ambition. An update of the corporate risk register is provided to Executive Board via the Annual Corporate Risk Management Report. Climate change – including a failure to adapt to and mitigate more extreme weather conditions brought about by climate change, resulting in an adverse impact on Leeds (its people, communities, infrastructure, economy, and natural environment) – is now one of over 20 corporate risks and is currently rated as ‘very high’ due to its current likelihood and potential impact on the city.

### **Policy Framework and Existing Plans**

- 16 This section highlights some of the key strategies and policies that exist at a local, regional and national level to respond to the impacts of climate change.
- 17 Many different adopted strategies, policies and plans relate to climate adaptation at the local, regional and national level. Each of these policies will have a key role to play in supporting efforts to prevent, protect, respond and recover from climate-related risks. The council will review and seek to update our local policies where required. Where appropriate, the council will also seek to influence regional and national policies to ensure that the future impacts of climate change are being adequately considered.

### **Preventing climate-related hazards**

- 18 HM Treasury has clearly stated within its Net Zero Review that the costs of inaction on climate change clearly outweigh the costs of action. This is relevant to both climate

mitigation and adaptation. Taking preventative action will often be the most cost-effective approach to adaptation. However, it is important to recognise that while it may be possible to prevent some hazards (e.g. some flood impacts or drought), it may not be feasible to prevent others (e.g. periods of extreme or prolonged heat).

### Flooding

- 19 The Environment Agency has a strategic overview of all sources of flooding and coastal erosion, as defined in the Flood and Water Management Act 2010. Lead local flood authorities (LLFAs) have the lead operational role in managing the risk of flooding from surface water and groundwater and ensuring that [a Local Flood Risk Management Strategy \(LFRMS\)](#) is published and regularly reviewed for their area. The council is the LLFA for Leeds, working in conjunction with the other Risk Management Authorities (RMAs) such as the Environment Agency and Yorkshire Water, who have a statutory role to manage flood risk from sewers.
- 20 The most recent update to the LFRMS incorporates preventative measures for flooding through a catchment-based approach, which uses multiple preventative interventions such as natural flood management, spatial planning, and sustainable drainage systems. The strategy considers the many sources of flooding and the impact this could have locally. The council has further related responsibilities including maintaining a register of key assets, investigating significant flood incidents, and as a statutory consultee role on all planning applications with respect to flood risk from surface and ground water.
- 21 Residents and organisations can also help prevent the risk of flooding by ensuring soakaways and drainage is properly maintained, avoiding the hard surfacing of land, and not flushing anything that contributes to blockages. Last year the council published “Don’t pave it, save it” guidance to advise residents on the impact of hard surfacing, and will continue to work with partners to improve engagement on these issues.
- 22 Complementary to the LFRMS, the council also conducts Preliminary and Strategic Flood Risk Assessments (SFRA) that identify and prioritise areas of the city in relation to flood risk. This informs the Local Plan and city planning policies, to prevent developments from being built on land vulnerable to flooding. The SFRA is currently being updated and this will provide the clearest picture we have of the flood risk across the city. By considering how future climate change will predict local flooding, the SFRA will allow better informed decisions on investment and infrastructure development and thereby support inclusive, more climate-resilient growth of the city.

### Drought

- 23 Some drought-related hazards can also be prevented with long-term action. Yorkshire Water has published a [Water Resources Management Plan](#) to outline its plans to provide a secure supply of water to customers in the region over the next 25 years, including by fixing leakage. Without the actions in the Plan, Yorkshire Water forecasts that the region’s supply of water could be less than the demand by the mid-2030s if no action is taken.
- 24 Residents and organisations also have a role to play to help prevent the future risk of drought by working to reduce water wastage and improving water efficiency of buildings, appliances and operations. Further work will be undertaken over the next 12 months to understand how Leeds City Council can lead by example—and engage others—to reduce



the city's water wastage and improve water efficiency.

- 25 Since 2019, Leeds City Council's water efficiency planning standard has exceeded the national standard and sets out that residential developments of 10 or more dwellings (including conversion), where feasible, are required to meet a maximum water consumption standard of 110 litres per person per day. This reflects the tighter optional standard in building regulations. Work is already being undertaken to develop the high-level design principles to guide a review of the council's approach to new builds to include water efficiency. Such principles will then be developed into more detailed technical guidance notes for scheme development.

### Cascading impacts

- 26 'Supply shock' due to climate-related hazards occurring elsewhere—and the cascading consequences it causes can be prevented to some extent by improving the resilience of the city's supply chains to minimise disruption and reliance on any single geographic region.
- 27 The council will review arrangements in place to ensure appropriate supply chain resilience across the local authority. This work will build on previous experience preparing the city for, and responding to, economic and supply disruptions caused by recent national and international events. The council has well-established links to economic forums and business networks and regularly discusses business intelligence with the private sector. Building resilience, including climate-related resilience, is a key aim of the Leeds Economic Recovery Framework.
- 28 A National Resilience Strategy is currently in development and is expected to provide further guidance for local authorities in relation to managing supply chain resilience and other economic disruptions, including those that caused by climate change.
- 29 The CCRA also sets out risks to finance and industry as a result of the global transition to Net Zero. Work is already being undertaken to look at areas of risk and opportunities within Leeds' economy. This will form part of a suite of policy work that will inform the refresh of the Leeds Inclusive Growth Strategy, which will be available next year. Further work will also be undertaken to understand local responsibilities to support the implementation of HM Treasury's Green Finance Strategy, which is due to be updated soon.

### **Protecting against climate-related hazards**

- 30 For climate hazards that cannot be prevented in the first instance, actions taken to mitigate the city's exposure and vulnerability to hazards can be a cost-effective way to reduce the overall harm, damage and cost of responding and recovering when they do occur. There is already widespread public awareness of some climate-related hazards and their protective measures, such as the risk from river flooding and use of flood defences, but not others.

### Flooding

- 31 Leeds City Council is working with partners across the region to install protections against flooding as part of our Flood Risk Management Strategy. A number of flood alleviation schemes—including hard engineered defences and moveable weirs—protecting thousands of homes and businesses have been completed or progressed in recent years. A public

timeline of these works is available on the [Leeds City Council Flood Resilience Commonplace website](#). Once completed, the FAS1 and FAS2 schemes will protect against flood events similar to the 2015 Boxing Day floods which cost Leeds an estimated £36.8m and the city region more than £500m.

- 32 Additional protections, such as improved drainage and property-specific protective measures, can also reduce vulnerability to flooding in support of the FRMS. The council recently consulted on proposals to strengthen local flood resilience in developments as part of the Local Plan Update.

#### *Extreme and/or prolonged heat*

- 33 The way we locate, design, and construct our built environment can mitigate the harm and damage caused by future heatwaves and extreme heat. Housing and infrastructure is often built to last for decades—the median Leeds home was built in the mid-century—yet the ‘typical’ and extreme temperatures experienced by the city have, and will continue to, change as highlighted elsewhere in this report.
- 34 Local authorities will have responsibilities to effectively enforce proposed new national building regulations set out in the Future Homes Standard and Future Buildings Standard which introduce new regulations to improve thermal efficiency as well as reduce the risk of overheating. Councils also have scope to influence local developments, and update guidance for developments procured by the council itself, to improve climate resilience using existing powers.
- 35 Retrofitting our existing building stock to improve thermal efficiency will also offer some protection against extreme heat in particular. The council has detailed its programme of work to retrofit buildings in previous reports to Executive Board—including a £100m programme to retrofit social housing and £25m programme to decarbonise public buildings—yet there remain considerable challenges to significantly scaling this work without changes to the council’s existing powers and/or resources.
- 36 Greater uptake of either active cooling measures (such as air conditioning) or passive cooling measures (such as green and blue infrastructure) can also help reduce exposure to extreme heat. However, due to the energy cost and demand on the local power network that increased use of air conditioning would cause, experts advise a ‘passive first’ approach to cooling. The council recently consulted on proposals to strengthen policies that promote heat resilience and green infrastructure in developments as part of the Local Plan Update.
- 37 The UKHSA has identified an increased risk to public health from vector-borne diseases as a result of warmer temperatures extending the season of indigenous disease-carrying insects whilst also making the UK more hospitable to disease-carrying insects new to the UK. It will be possible to protect against this risk to some extent by improving the health and wellbeing of residents (to reduce underlying vulnerabilities) and by reducing resident’s exposure to disease-carrying insects by carefully managing their potential habitats.

#### *Cascading impacts*

- 38 In addition to actions that improve supply chain resilience as outlined above, protective actions can also be taken to reduce the city’s underlying vulnerability to the cascading economic impacts of climate change. Reducing the number of residents experiencing



poverty and increasing the financial security of businesses, organisations and residents more broadly will help reduce the harm and damage that climate-related impacts can cause. Tackling poverty and reducing inequalities is a key aim of our Best City Ambition and a focus of our Inclusive Growth strategic priority.

## **Responding to and recovering from climate-related hazards**

- 39 As stated earlier in this report, local authorities have a responsibility to respond to extreme weather events and other emergencies. The extent of harm/damage that these events cause will not only be influenced by actions to prevent and protect against them, but also by the extent of our understanding of vulnerabilities and the city's preparedness to respond and recover effectively.

### *Flooding, extreme and/or prolonged heat, and drought*

- 40 The West Yorkshire Local Resilience Forum (WYLRFF) comprises the region's key emergency responders and specific supporting agencies, including the council. The partnership works to help communities prepare for, respond to and recover from emergencies and major incidents, such as severe weather events. The partnership also works to protect critical local infrastructure and share information between local, regional and national partners. The council will continue to support this work and will engage with the partnership to champion preparedness and consideration of future climate change.
- 41 The council already has robust arrangements in place for responding to local severe weather events including flooding, extreme and prolonged heat, and drought. These severe weather plans are regularly reviewed and over time have incorporated emerging insight and lessons learned from responding to incidents.
- 42 The council has business continuity plans in place which already include some arrangements for ensuring demands can be met following severe weather events. Through the 'Leeds Alert' service and online advice, the council encourages other organisations to develop business continuity plans of their own to enhance organisational preparedness and resilience.
- 43 [The Heatwave Plan for England](#) identifies actions to be taken by local authorities and partners to reduce the local impact on health from prolonged exposure to severe heat when it occurs. Locally, the implementation of the Heatwave Plan for England is reflected within two action plans. The council's public health team have recently finalised the 'Heat and Heatwave Plan for Leeds 2022' which takes a preventative approach to support those most at risk if a heatwave occurs and reflects levels 0, 1 and 2 of the national plan. Meanwhile, the council's resilience and emergency team has integrated actions that should be taken at levels 3 and 4 within its 'Severe Weather Plan'.
- 44 The council has a supporting role in responding to the increasing risk to public health from vector-borne diseases because of long-term warming temperatures. The council, working in partnership with other public health partners, supports the work of UKHSA to monitor and

contain local outbreaks of infectious diseases.

- 45 All water companies are required by Government to produce a drought plan which sets out triggers and actions to maintain water supplies to customers in the event of a prolonged period of exceptionally low rainfall. Yorkshire Water's drought plan is reviewed and updated periodically in accordance with regulatory requirements. It follows guidelines set by the Environment Agency. Leeds City Council, through its partnership with other WYLRF agencies, would have a supporting role in the implementation of this plan.

### *Cascading impacts*

- 46 The cascading hazards associated with climate change (Appendix C) are global impacts that we may not directly experience here in Leeds, but the indirect impacts have consequences for our local economy. The council's Inclusive Growth Strategy, which will be updated in the coming year, will have a role to play in ensuring robust arrangements are in place for economic recovery following major climate impacts and reducing poverty to ensure that households are resilient to any economic impacts that occur.
- 47 The Government's Integrated Review of Security, Defence, Development and Foreign Policy states that climate change has the potential to re-shape patterns of migration and displacement. The routes to migrate to UK are determined by national policies, however, the 'Migration in Leeds 2021-2025' strategy sets out the council's long-term strategic direction on migration—which aims to ensure people who migrate to Leeds can establish their lives quickly and successfully.

### **Next steps for Leeds**

- 48 There is already significant work taking place across the council to address some of the impacts of climate change and the council has previously demonstrated the robust arrangements in place for dealing with severe weather (e.g. flooding) and planning for potential economic shocks. Nevertheless, a comprehensive climate risk assessment of all council services has not yet been undertaken.
- 49 The council intends to undertake a service-led risk assessment over the next 12 months to identify any gaps and opportunities to 'future proof' and enhance existing policy. Following an initial audit of service plans, officers will deliver a series of workshops with council teams with the support of academic partners. The aim of these workshops will be to enable services to identify climate-related risks to their operations and service users, raise awareness of activity that is already taking place to address such risks, and understand how teams can build further climate resilience within their own policies and frameworks, including service level risk registers and business continuity plans.
- 50 The council's website will be updated in the coming months to better reflect, and signpost to, current plans and policies in relation to climate adaptation, along with information and guidance for residents and businesses. An online 'Climate Adaptation Plan' will summarise how we will support the National Adaption Programme and mitigate the relevant hazards identified.

- 51 Alongside work taking place to assess climate risk in Leeds, the Yorkshire and Humber Climate Commission has set up a task and finish group, led by Environment Agency and Leeds City Council representatives, to develop a programme for local authorities to support adaptation and resilience planning. This will build upon lessons learned in Leeds and ensure joined up thinking across the region. It will also allow the council to play a leading role in piloting and developing the knowledge, skills, and tools all local authorities will need to develop their own adaptation plans.

### What impact will this proposal have?

**Wards Affected:** All (City-wide)

Have ward members been consulted?      Yes      No

- 52 Climate change will continue to have many impacts over decades and will continue to do so until global net zero is achieved. The different impacts of climate change outlined in this report will affect many communities and businesses—but these impacts are highly unlikely to be felt equally. Our understanding of these impacts is also likely to involve over time.
- 53 Some communities and businesses will be more exposed and/or vulnerable to impacts. These include (but are not limited to) residents and businesses in areas at higher risk of flooding, residents and businesses with worse financial security, residents and users of thermally inefficient buildings, and operations with insufficiently resilient supply chain arrangements. This report only intends to provide a high-level overview of these impacts however more detailed, hazard-specific analyses of the impacts will be undertaken as this work progresses. The impact of adaptation actions will be incorporated within existing strategies and/or future decisions.

Equality impact assessments will be taken at the appropriate stage following identification of actions arising from this work.

### What consultation and engagement has taken place?

- 54 The Climate Emergency Advisory Committee were provided with an update on the plans for climate adaptation and resilience at the meeting held 23<sup>rd</sup> June 2022 and were supportive of the approach. The Committee approved a recommendation for its working groups to play a role in developing and reviewing the climate risk assessments across the council.
- 55 Within the next 12 months, a city-wide public engagement exercise will take place to seek the views of residents and businesses on our climate action plan, including the adaptation and resilience plan.

### What are the resource implications?

- 56 There are no direct resource implications as a result of this report.
- 57 Future workshops with services will identify if there are any resource implications associated with embedding climate adaptation and resilience into existing schemes and policies. In the short term, plans and policies may need to be reviewed and revised. Longer term resources, practices and processes may also need to change to reflect the measures needed to mitigate the risks identified and to support adaptation measures. Equally,

infrastructure projects may need to be revised or specifically implemented to support adaptation.

### **What are the legal implications?**

58 There are no legal implications as a result of this report.

### **What are the key risks and how are they being managed?**

59 Corporate and service level risk registers will be amended where appropriate to reflect the climate risks identified through the workshops with individual services. 'Climate change' is already identified as a risk within the corporate risk register, including the risk from insufficient adaptation.

### **Does this proposal support the council's 3 Key Pillars?**

Inclusive Growth

Health and Wellbeing

Climate Emergency

60 Responding to climate change is central to our overall vision for the future of Leeds, as set out in the Best City Ambition. This initial plan sets out how we will intend to approach adapting to the hazards of climate change and protecting our most vulnerable residents. The council intends to adapt in a fair way that improves standards of living in all of the city's communities and is supportive of our economy. Reducing poverty and improving the health and wellbeing of residents is key to reducing vulnerability of climate-related hazards. Some of the specific impacts on health and wellbeing and inclusive growth are also highlighted throughout this report.

### **Options, timescales and measuring success**

#### **a) What other options were considered?**

61 This approach has been informed by the Local Partnerships Climate Adaptation Toolkit, a resource specifically designed for local authorities to use to develop a climate adaptation and resilience plan.

#### **b) How will success be measured?**

62 Key risks identified through the climate risk assessment will be monitored through the Corporate Risk Register and other existing risk arrangements.

#### **c) What is the timetable for implementation?**

63 Workshops are expected to take place from Autumn 2022, with further action developed, including a city-wide public engagement exercise, over the next 12 months.

### **Appendices**

64 Appendix A – List of climate risks for Leeds (UKCCRA)

65 Appendix B – Observed and projected changes to UK hazards due to climate change (UKCCRA)

66 Appendix C – Cascading impacts of climate change

## **Background papers**

67 None.