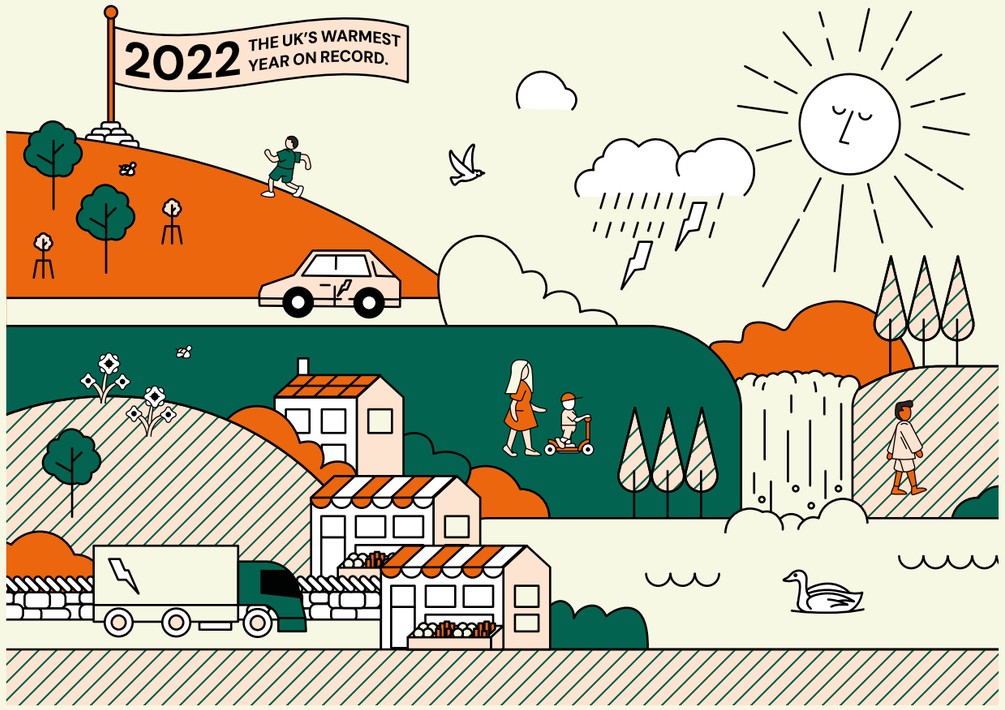
We are already experiencing the impacts of climate change – to our health, to property, to infrastructure, to agriculture and to nature. We need to do all we can to become adaptive so we are ready and resilient as our weather becomes less predictable and extreme events become more frequent and severe in our changing climate.

CLIMATE ADAPTATION & RESILIENCE



The challenge

Yorkshire and the Humber's weather and climate is changing. The year 2022 was the warmest on record in the UK, with temperatures topping 40°C in the July heatwave, bringing unprecedented heat-related deaths, infrastructure disruption and wildfire incidents to our region. The year 2023 was the second warmest on record[25] and globally, 2014-2023 was the warmest ten-year period on record[26]. In 2015 world leaders agreed that to limit the most dangerous impacts of climate change, actions must prevent global warming beyond 1.5 degrees above pre-industrial levels. But in January 2024, the average global temperature for the preceding 12 months breached the 1.5 degree threshold[27] and global carbon emissions continue to rise – therefore it is essential we rapidly adapt to a two-degree level of change, and start planning and preparing for what four degrees could mean.

As a result of these changes to our climate, we are already experiencing wetter, hotter and stormier weather than the 20th century. It is predicted that as the weather and climate continue to change the UK will experience:

- more frequent and intense storms and other extreme weather events throughout the year
- longer, hotter, drier summers with more frequent heatwaves and droughts
- milder, wetter winters with less snow and ice but more intense rainfall and flooding
- rising sea levels and increased coastal erosion[28].

Climate change impacts, risks and opportunities

The impacts from changing weather and climate patterns in Yorkshire and the Humber are wide ranging. As well as risks, where the occurrence of the impact is likely to cause negative or harmful outcomes, there are opportunities, such as potentially longer growing seasons due to warmer and drier weather. On balance there are far more risks than opportunities – and even the opportunities will require us to adapt.

Every five years, the UK's Climate Change Committee publishes an updated summary of the climate change risks and opportunities facing the UK. In 2021[29], of the 61 risks and opportunities identified, the eight most urgent were threats to:

- the viability and diversity of terrestrial and freshwater habitats and species from multiple hazards
- soil health from increased flooding and drought
- natural carbon stores and sequestration from multiple hazards leading to increased emissions
- crops, livestock and commercial trees from multiple hazards
- supply of food, goods and vital services due to climate-related collapse of supply chains and distribution networks
- people and the economy from climate-related failure of the power system
- human health, wellbeing and productivity from increased exposure to heat in homes and other buildings
- the UK from climate change impacts overseas.

We know that climate change will cause our weather to change, to be become more severe and more unpredictable. In response, we must become more adaptive, with a range of developed options in place to respond and be resilient to what comes. This is a big societal shift and fundamentally challenges how we view our lifestyles and livelihoods. It requires everyone to become comfortable with and plan for uncertainty. Becoming 'climate ready' is achievable – it is critical that we all understand this. Many of the solutions are known and proven, whether physical infrastructure, or management and organisational approaches.

What needs to happen?

We all need to understand the risks that we face and work together to reduce the likelihood and severity of harm caused by climate change. We need to invest time considering what the future might hold for where we live, where and how we work, and what we do. Then, at an individual, household, community, business and organisational level, we can constructively develop approaches that help us become more resilient.

We need to ensure that all physical infrastructure investments 30 plan for and can accommodate increasingly extreme weather events, so that we increase resilience whilst reducing our retrofit burden. We need to expand and improve our collective adaptive capacities to become more resilient, so that we, and our communities and businesses, can survive long-term challenges and extreme weather events.

There are two approaches to adaptation planning that each have merit and need to be used appropriately [31]. The first is a 'predict and plan' approach, where people work to understand what the future will look like and develop appropriate adaptation strategies to implement in both the short and medium term. There is also the more flexible 'adaptation pathways' approach, that is useful when considering how to adapt across sectors and systems with complex interdependencies. This method enables people to develop plans that allow decision-makers to build adaptation capacity, prioritise, plan investment and maintain flexibility, while responding to change.

Adaptation measures aim to reduce both the likelihood and severity of harm caused by climate change. Examples of physical adaptation actions include flood risk reduction schemes; softening the urban landscape by creating green sustainable urban drainage systems; planting trees and vegetation in our cities to help keep them cooler when it's hot; adapting our buildings, both residential and commercial; reducing water usage; and working with nature to reduce flood risk and improve biodiversity and soil health. Examples of organisational adaptation actions include incorporating climate impacts into the strategic risk management processes; embedding risk mitigation actions across supply chains, services, and functions; and building capacity through training programmes.

Are we making progress with adaptation?

In 2008 the UK government adopted the Climate Change Act 32. The act requires the government to produce five-yearly climate change risk assessments, which feed into national adaptation programmes (NAPs) for each part of the UK. In England, the latest NAP (NAP3) was published in 2023 33.

The Climate Change Committee has assessed that NAP3 falls far short of what is needed, lacking the pace and ambition to address growing climate risks and failing to set out a compelling vision for a 'well adapted UK' [34]. The committee concluded that the UK is not adequately prepared for climate change [35], with limited evidence of action at the scale required to fully prepare for climate risks facing cities, communities, infrastructure, economy and ecosystems. It calls for a new vision, greater ambition and a clear focus on delivery across government and the public sector, establishing the enabling conditions needed for others to deliver adaptation.

This includes UK residents, who have a crucial role to play in protecting themselves and their homes from extreme weather. The need to become adaptive must become a priority for the whole of society, and working together we need to ensure this becomes a top priority for government and key institutions.

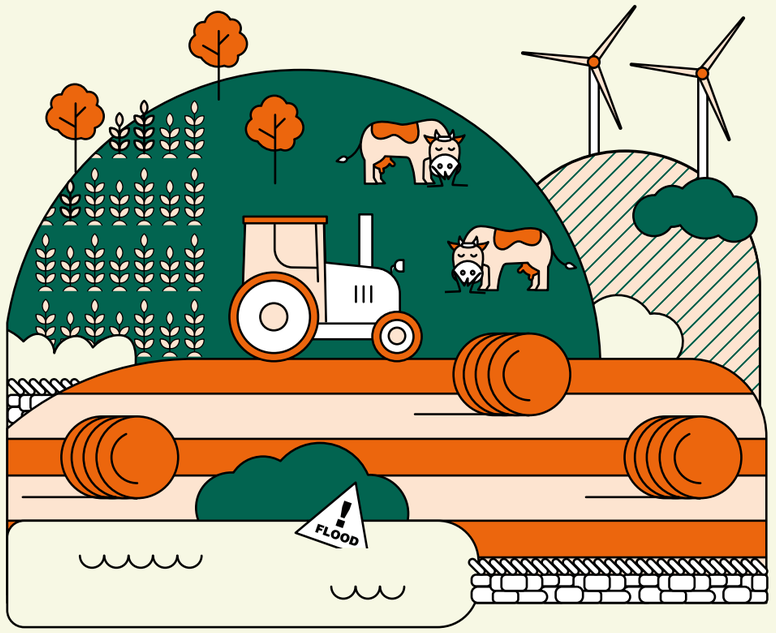
Progress in Yorkshire and the Humber

The Yorkshire & Humber Climate Commission has brought together all 15 local authorities within the region to accelerate adaptive action. This collaboration and opportunity to share learning has enabled local authorities to start to embed climate adaptation in their decision-making and develop and monitor their local adaptation plans and strategies.

The region has also made great progress in preparing for and managing flood risk through partnership working. The Leeds Flood Alleviation Scheme, Hull's Living with Water partnership, South Yorkshire's Connected by Water alliance and the Calderdale Flood Partnership are all excellent examples of adaptive action being implemented in our region to cope with increasing and varied flood risks. When three named storms hit the region in February 2022, whilst unfortunately 500 homes were flooded, a further 50,000 were spared as a result of the ongoing work by the Environment Agency and local authorities to manage flood risk collaboratively. Adaptation works.

The region now needs to urgently build on these successes and to do more to be ready for repeated periods of intense hot weather, as experienced in 2022, and increases in infectious diseases for both people [36] and livestock [37].

As stressed by the most recent climate change risk assessment [38], we already know a huge amount of what we need to do and how. Adapting now will be much more cost effective than delaying and will limit the harm caused.



"Adapting now will be much more cost effective than delaying and will limit the harm caused."