Climate Change Committee

Date of Meeting	6th September 2024
Report Subject	Climate Risk – Extreme heat
Cabinet Member	Collective Responsibility
Report Author	Chief Officer (Planning, Environment & Economy)
Type of Report	Operational

EXECUTIVE SUMMARY

Climate risks are ever present and have the potential to impact not only on the Council's service provision, but the wider communities. One such climate risk is that of extreme heat.

This report summarises the risks presented by extreme heat, and considerations that need to be made in mitigating these risks.

RECOMMENDATIONS	
1	Support the work to identify the specific risks from the impact of extreme heat on the public and on services, both locally and regionally
2	Support the development of an action plan to mitigate the impact of the identified risks, both locally and regionally

REPORT DETAILS

1.00	EXPLAINING THE REPORT
1.01	The effects of a changing climate are evident across the globe as well as locally within Flintshire. We have witnessed extreme weather events including prolonged wet weather, flash flooding, wildfires, droughts and record breaking temperatures. In July 2022, the UK experienced a UK-wide heat wave with Hawarden recording the highest temperature ever recorded in Wales at 37.1C. This caused disruption to train services due to expansion of tracks, airports

	suffered with melting runways and roads were being gritted due to the tarmac melting. The next day, the highest temperature in UK of 40.3C was recorded in Lincolnshire which triggered the first ever Extreme Heat Warning with Amber alert for mid-England, Wales and Scotland. The impacts of extreme heat due to a changing climate can be severe and have significant impacts on the Council's service delivery and the wider community.
1.02	Extreme heat can have significant impacts on health. High temperatures can lead to heat-related illnesses such as heat exhaustion and heatstroke, particularly affecting vulnerable populations like the elderly, children, and those with pre-existing health conditions.[1] Heat waves can worsen air quality, leading to increased levels of air pollution and respiratory issues. It can be difficult to identify those who are particularly vulnerable to these risks. A heat wave crisis could present an entirely different scenario from that presented during the Covid-19 Lockdown. Under Covid there were a significant number of DBS-checked volunteers who had been furloughed and were able to deliver medicines and groceries to identified vulnerable residents within their own communities. These people will not be there during a heat wave. An increase in persons affected by heat waves could cause significant pressure on the national health service who already experience service pressures. It may be possible to create 'cool hubs' when it is apparent that extreme heat is a reoccurring crisis that is impacting severely upon people. This would need the input of not only the Council but other public sector organisations and third sector referral services. Ultimately there will have to be nationally agreed guidance for residents regarding extreme heat including the need to drink non-alcoholic fluids, wear a hat, stay in the shade and avoiding excessive exertion.
1.03	Dehydration: Prolonged exposure to extreme heat can cause dehydration, especially if adequate fluids are not consumed. The impact of this is unpredictable and is not confined to the most vulnerable. Literally anyone can become dehydrated if they have not had a sufficient intake of fluids. There needs to be clear guidance given to people nationally and locally in the event of a prolonged heat wave.[2] The most recent and extremely tragic example of this is the loss of Michael Mosley on a Greek island during a heat wave. However, at least 1,300 people also died making their way to Mecca as part of the Hajj Pilgrimage this summer.[3] Extreme heat is not just something that happens in other countries since we have seen recent temperature records broken in the local area.

1.04	Melanoma (skin cancer) is the fifth most common cancer and it is on the increase. This is partly due to increased public awareness which leads to more people seeing dermatologists. However, the increase in cases is also being linked to the impact of rising temperatures and exposure to more UV rays as a result of extreme heat. According to Cancer Research more than 80% of UK cases are preventable. They urge people to spend time in the shade, wear a hat and sun glasses and apply a sunscreen of at least SPF 30 and preferably SPF 50.[4]
1.05	Impact on Agriculture: Extreme heat can damage crops, reduce yields, and stress livestock, leading to economic losses in the agricultural sector. Farmers are very much at the mercy of the climate and prolonged periods of extreme heat have serious implications for the production of food. It is by no means clear that imported food would be either cheap or readily available in the event of a heat wave which impacts on other countries [5], therefore there is a potential impact on food security.
1.06	Livestock diseases: Extreme heat is likely to increase the spread of tick-borne diseases (e.g. Lyme disease, anaplasmosis and babesiosis) among livestock. Mosquito-spread diseases like the West Nile virus and Rift Valley fever are expected to extend their geographical range. Extreme heat can also cause stress in livestock which reduces productivity and makes them more prone to disease and death. There may be an increase of pathogens in drinking water which also causes disease. Changes in temperature can contribute to respiratory diseases like pneumonia and influenza in livestock. Certain types of biting midges, which give rise to the Blue Tongue virus in cattle may extend their range due to rising temperatures.[6] Animals in cars can be at risk.
1.07	Spread of vector-borne, water-borne diseases and Food-borne diseases: As in the case of livestock, humans can be impacted by insects which spread malaria, dengue fever, Zika virus and Lyme disease. There could also be an increased risk of water-borne diseases like cholera and food-borne diseases like E. coli.[7] The increase of pathogens in coastal areas and inland rivers can pose a health risk during periods of extreme heat, especially if there are sewage spills.
1.08	Water Scarcity: Drought conditions may worsen due to extreme heat, leading to water scarcity, affecting both rural, agricultural communities and those within towns and cities. It is apparent that the water level in reservoirs is falling, and work needs to be done nationally to mitigate the impact of this. Drought can impact on several businesses which rely on a water supply as well as individuals. Globally this could have very serious implications and create climate refugees which will have to go somewhere else.[8]
1.09	Infrastructure Damage: High temperatures can damage infrastructure such as roads, railways, and buildings, leading to safety hazards and costly repairs. Already some Councils have adopted the practice of gritting roads during high temperatures because the tarmac melts. High temperatures have implications for the type of building materials we use. Some of our schools currently have classrooms which become unbearably hot for teaching and learning purposes during heat waves. Consideration is

	needed of the type of building materials we use and the need for air conditioning solutions to accommodate increased temperatures.[9]
1.10	Energy Demand: Increased demand for cooling systems during heat waves can strain energy grids, leading to power outages or brownouts. Any increase in demand for energy makes it difficult to achieve targets for decarbonisation and going net zero carbon.[10]
1.11	Wildfires: Extreme heat can contribute to the spread and intensity of wildfires, posing risks to ecosystems, property, and human lives. We have already witnessed Fire & Rescue operatives being put under extreme pressure and facing exhaustion because of the impact of wildfires in parts of the country. The impact on biodiversity means that wildfires add to the Nature Emergency.
1.12	Transportation: Previous periods of extreme heat have led to the cancellation of train and bus services with concomitant impacts on the delivery of services, schools and the world of work. As a nation we need to learn from other countries that may have been able to keep these services running in spite of high temperatures.[14]
1.13	Economic Impact: Extreme heat events can disrupt economic activities, affecting industries such as tourism, outdoor recreation, and construction. Indeed many areas of economic activity can be impacted by heat waves. In some cases Councils have requested that refuse be put out earlier for collection so that operatives can complete their work before the day gets too hot. This could affect the working hours in summer periods.[15]
1.14	Biodiversity: Every aspect of biodiversity is being impacted by rising temperatures. Although there are winners and losers as a result of rising temperatures, the overall impact is detrimental to many species which continue to decline to the point of extinction. Extreme heat will impact on the wellbeing of everything from large mammals to small living organisms.[16] Unfortunately rising temperatures encourage unwelcome species, like the Asian Hornet, to thrive in the UK. This species has survived a British winter for the first time. Each wasp can devour up to 50 honey bees in a day.[17]
1.15	Plant life is especially vulnerable during heat waves. We are likely to see more cases of ‘tree drop’ during periods of extreme heat. Trees can drop their leaves, branches or even break in order to prevent dehydration. This can happen suddenly without any wind being responsible. There have been blockages of roads across the UK because of this.[18]
1.16	Extreme Heat and Flooding: Extreme heat events cause considerable evaporation from the earth’s surface leading to a loading of the atmosphere with moisture which is retained there for a while. However, once the atmosphere cools the moisture falls down dramatically. This precipitation can take the form of rain, hail or snow and it can cause serious flooding or snow incidents.[19]
1.17	It is argued that addressing these implications requires a combination of adaptation measures, such as heat wave preparedness plans, improvements in urban planning and infrastructure, water management

	strategies, and efforts to mitigate climate change by reducing greenhouse gas emissions. The May 2024 issue of the Local Government Association's Local Government First commented on the need to 'Clarify extreme weather roles'. The UK cross-party Parliamentary Public Accounts Committee (PAC) has identified the need for a 'whole society' approach to develop resilience to the national risks the UK faces. PAC found that respective roles, at all levels of government, as well as private and voluntary sectors have led to uncertainty about what actions to take. At the local level there also have to be concerns about the capacity and capability of local authorities to adequately fulfil their required functions in the event of extreme weather events.
1.18	On a local level, the Council has a responsibility to consider these impacts, and where measures are within its control, set out actions in short, medium and long term to mitigate risks. This is vital to ensuring both the safety of the community and continuity of service provision to residents. The current Climate Change strategy review provides an opportunity to identify and address these issues within a 'climate risk and adaptation' section. Arguably, there are many action areas that go beyond the control of the Council. The Public Service Boards within the region have recently agreed to a regional approach to climate risk assessment and mitigation, and the development of this will commence in the autumn. The Regional Emergency Planning Service needs to be involved in this process, and the Council will ensure that they are an active stakeholder, thereby ensuring any actions within the Council's control are identified and owned.

2.00	**RESOURCE IMPLICATIONS**
2.01	Officer time from teams across the Council to identify risks to each service area and mitigating actions. The Climate Change Strategy review over 2024-25 will require time of both officers across the Council and Elected Members, to ensure that all are engaged and take ownership of the updated strategy for the Council.

3.00	**CONSULTATIONS REQUIRED / CARRIED OUT**
3.01	Consultation is underway with each portfolio area, Members, businesses, the general public and the Public Service Board.

4.00	RISK MANAGEMENT
4.01	The recommendations will ensure that the Council addresses climate risk where it is feasible to do so.

5.00	APPENDICES
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6.00	LIST OF ACCESSIBLE BACKGROUND DOCUMENTS
6.01	1. https://www.gov.uk/government/publications/heat-mortality-monitoring-reports/heat-mortality-monitoring-report-2022 2. https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(21)01208-3/fulltext 3. https://www.theguardian.com/world/article/2024/jun/23/hajj-pilgrimage-death-toll-extreme-heat-mecca-saudi-arabia 4. https://news.cancerresearchuk.org/2024/05/27/skin-cancer-cases-reach-all-time-high/ 5. https://www.ukclimateresilience.org/news-events/extreme-weather-affecting-uk-agriculture/ 6. https://academic.oup.com/jambio/article-abstract/106/5/1409/6719806?login=false 7. https://www.nature.com/articles/nature04188 8. https://www.mdpi.com/2071-1050/16/8/3373 9. https://www.ukri.org/wp-content/uploads/2021/12/091221-NERC-LWEC-InfrastructureClimateChangeImpacts-ReportCard2016.pdf 10.https://publications.parliament.uk/pa/cm5804/cmselect/cmenvaud/279/summary.html 11. https://www.ukclimaterisk.org/wp-content/uploads/2021/06/UK-Wildfires-and-their-Climate-Challenges.pdf 12. https://www.bbc.co.uk/news/articles/c0ddlrjv7exo 13. https://neu.org.uk/advice/health-and-safety/workplace-conditions/hot-weather-and-classroom-temperature 14.https://assets.publishing.service.gov.uk/media/6569b274cd4dda000d082fa3/climate-change-and-transport-infrastructure-rapid-evidence-assessment.pdf 15. https://fortune.com/well/2022/07/30/siesta-heat-wave-strategy/ 16. https://www.woodlandtrust.org.uk/blog/2022/08/how-heatwaves-affect-wildlife/ 17. https://news.sky.com/story/asian-hornets-survive-uk-winter-for-first-time-13147773 18. https://www.observatree.org.uk/blog/2023/07/the-exceptional-summer-of-2022-extreme-heat-and-drought-and-impacts-on-trees/ 19. https://www.bbc.co.uk/news/science-environment-58073295 20. https://www.lgafirst.co.uk/news/clarify-extreme-weather-roles/

7.00	OFFICER CONTACT DETAILS
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8.00	GLOSSARY OF TERMS
8.01	**Carbon emissions**: Used interchangeably with greenhouse gas emissions; meaning emissions of carbon dioxide, methane etc from human and natural activities and sources. Wider greenhouse gas emissions are collectively calculated into a 'carbon dioxide equivalent' displayed as CO2e. **Carbon Footprint**: A measurement of the council's carbon emissions during a defined period of time, given as tonnes of carbon dioxide equivalent (tCO_2e) **Decarbonisation –** Reduction of carbon emissions that result from an activity, material or product **Greenhouse Gas/ Carbon emissions**: Emissions of carbon dioxide, methane etc from human and natural activities and sources. Wider greenhouse gas emissions are collectively calculated into a 'carbon dioxide equivalent' displayed as CO_2e. **Net Zero Carbon**: Emissions of greenhouse gases are balanced by the removal of greenhouse gases from the atmosphere such as by trees, peatland and carbon capture and storage technologies.