

Thurrock Council

Thurrock Local Plan

Climate Change Strategy

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Notice

In preparing this report we have used climate model outputs obtained from external sources including the Met Office UK Climate Projections 2018. Such models can help consider possible future climate scenarios or outcomes, but no model that attempts to project the future can do so with certainty. Actual events may not occur as projected, and the differences may be material. As such, Arup cannot and does not make any representation or warranty, express or implied, regarding the accuracy or completeness of any such forward-looking advice, or any models, projections, forecasts, opinions or estimates, and Arup accepts no responsibility for the realisation or non-realisation of the same.

Any advice, including forward-looking advice, is time-sensitive at the time of writing. Climate models are constantly updated and there may be material differences between climate models used at the time of writing and climate models generated later. We will not be under any obligation to update our work to address changes in facts or circumstances or modelling techniques that occur after the date of our deliverables, which might affect the contents of such deliverables or any of the conclusions.

1. Introduction

1.1 Purpose of this strategy

Thurrock Council is updating its Local Plan, which is scheduled for Regulation 19 consultation in 2026. As part of this Local Plan development process, Thurrock Council is working with Arup to produce a Climate Change Strategy.

The aim of this strategy is to provide an evidence base for Local Plan policy development, including a borough-wide carbon emissions Baseline Analysis and a Climate Change Risk and Vulnerability Screening Assessment.

Additionally, this strategy provides a Climate Change Action Plan, guiding how Thurrock Council will work with stakeholders in Thurrock to deliver action to reduce carbon emissions and adapt the borough to current and future climate change risks.

1.2 History of climate action in Thurrock

In 2019, Thurrock Council declared a Climate Emergency, highlighting the need for urgent action. To reflect this need for urgent action, Thurrock Council set an ambition to reduce its own organisational carbon emissions to net zero by 2030.

A Climate Change Scoping Report was published in 2022 which provides a high-level baseline assessment of Thurrock's current climate impact (carbon emissions) and risk from climate change (climate change risk assessment).

1.3 Approach

This Climate Change Strategy aligns with up to date national and regional legislation, policy and guidance, in addition to data describing Thurrock's current climate impact (carbon emissions) and risk from climate change (climate change risk assessment).

A key step in developing this Climate Change Strategy has been engagement with officers across Thurrock Council to gain cross-department support, and to undertake a briefing session with Thurrock CVS, to gather feedback from Thurrock's voluntary sector.

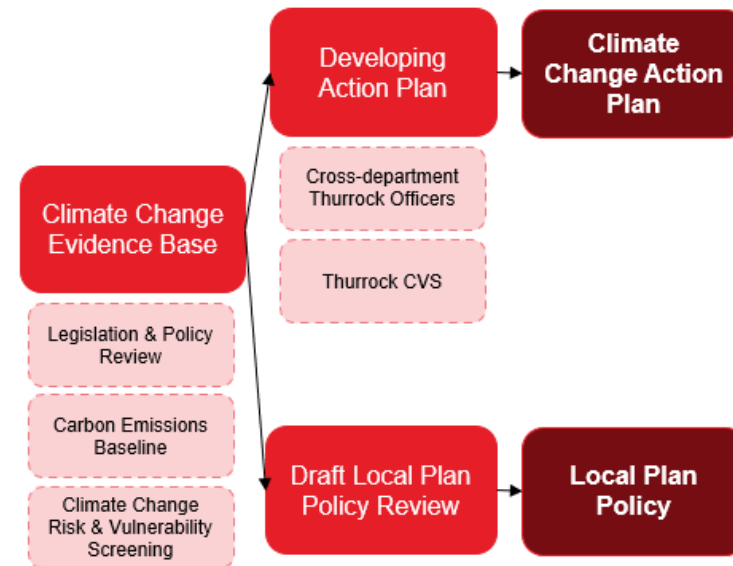


Figure 1: Summary of steps undertaken to develop Thurrock's Climate Change Strategy

2. Legislation, Policy and Guidance Summary

2.1 Introduction

This section summarises national and regional planning legislation and policy related to climate change. It summarises developments since 2021, providing analysis of changes since the preparation of Thurrock's Climate Change Scoping Report (2022). A full summary of legislation, policy and guidance reviewed can be found in Appendix A.

As material considerations for formulating Local Plan policy, the summary has regard for updates to statutory requirements, the National Planning Policy Framework (NPPF), Planning Practice Guidance (PPG) and 'other statements of government policy' (NPPF, 2024, paras 2 and 6).

2.2 Reducing the carbon emissions of development

The UK Government is required to set legally binding carbon budgets, as prepared by the Climate Change Committee (CCC), in order to meet the statutory national target for net zero carbon emissions by 2050 (Climate Change Committee, 2023).

The latest and Seventh Carbon Budget (2025) stipulates significant building emission reductions – by 2040, residential and non-residential buildings must reduce emissions by 66% and 87% respectively (Climate Change Committee, 2025a, Table 3.4).

Updates to statutory requirements

In Building Regulations, updates were made in 2021, coming into force in 2022, to:

- Increase energy efficiency standards for new homes and buildings, through Approved Document F (Ventilation) (MHCLG, 2022a) and Approved Document L (Conservation of fuel and power) (MHCLG 2022b).
- Establish standards for electric vehicle charging and cable route requirements for new development, major refurbishment schemes and changes of use, through Approved Document S (Infrastructure for charging electric vehicles) (MHCLG, 2022c).

More stringent standards are anticipated through the Future Homes and Future Buildings Standard, expected by the end of 2025. The Government recently indicated that the Future Homes Standard would favour low carbon heat (such as heat pumps) and solar panel requirements (UK Government, 2025).

Updates to NPPF

Since the NPPF (2021), the latest NPPF (2024) has not added specific advice for local policymaking on decarbonising buildings, only strengthened the language. It makes direct reference to the statutory 2050 net zero target, as part of meeting the challenge of climate change (NPPF, 2024, para. 161). Planning decisions should also grant significant weight to support energy efficiency and low carbon heating improvements to existing buildings, alongside renewable and low carbon energy generation (NPPF, 2024, paras 165, 167 and 168).

Updates to PPG

No updates between 2021 and 2025 related to building decarbonisation.

Other Statements of Government Policy

The most significant change since 2021 is the issuing of a Written Ministerial Statement (WMS) on Local Energy Efficiency Standards (December 2023) (UK Parliament, 2023). The WMS stipulates that local energy efficiency standards can only go beyond Building Regulations Part L if they have a “well-reasoned and robustly costed rationale” that address development viability, housing supply and affordability and express standards as percentage Target Emissions Rates.

On the WMS’ interpretation, there have been two notable cases:

- Judicial Review of WMS (Rights Community Action Ltd v Secretary of State for Levelling Up, Housing and Communities, 2024a)

Rights Community Action (a not-for-profit organisation) challenged the basis of the WMS in February 2024. As one of the grounds, RCA considered that the WMS unlawfully restricted LPA powers including the duty to address climate change in the Development Plan. The judge disagreed, concluding that the setting of standards as a “policy choice”, rather than a matter for the Court.

- Examinations and High Court Judgement of Policy 2 of Salt Cross Garden Village Area Action Plan

At the Area Action Plan Examination in 2022, Inspectors concluded that Policy 2, with ambitious energy efficiency standards, was inconsistent with national policy and was unjustified (Planning Inspectorate, 2022).

Rights Community Action successfully challenged this decision in the High Court, albeit the hearing predated the WMS (2023) (Rights Community Action Ltd v Secretary of State for Levelling Up, Housing and Communities, 2024b). Nonetheless, the ambitious standards in Policy 2 have now

received indicative support from the new Planning Inspector for the Area Action Plan. This is following their consideration of scheme viability evidence and the anticipated Future Homes Standard (Inspector Hockenhall, 2025).

In addition to the above, Essex County Council (Essex County Council, 2025a) have published Open Legal Advice regarding the interpretation of the 2023 WMS:

- The advice, commissioned from Estelle Dehon KC (Cornerstone Barristers), confirms that local planning authorities retain the ability to set planning policies requiring new development to achieve higher building fabric and energy efficiency standards than those set out in Building Regulations, provided these policies are robustly justified and evidenced.

The advice also addresses the ability for authorities to require higher standards on new development proposals prior to the formal adoption of local plan policy, including through Supplementary Planning Documents, Design Guides, and other non-statutory policy statements.

Essex Evidence Base

The Essex Net Zero Policy - Technical Evidence Base (July 2023) sets out a county-wide framework for achieving net zero carbon buildings, applying to all Essex local authorities, including Thurrock. It suggests that all new buildings should be net zero in operation, fossil fuel-free, and powered by on-site renewable energy (primarily solar PV) to match annual energy use.

Key performance targets include best practice limits on space heating demand and energy use intensity (EUI), with post-construction monitoring to ensure the targets have been achieved.

An offset mechanism is included for developments unable to meet on-site energy targets, collecting contributions to fund local renewable energy projects. These measures aim to reduce emissions, improve energy efficiency, and support Essex's broader climate resilience and carbon reduction goals.

The Essex Guide is not a mandatory requirement for Site Developments, but it provides guidance for the definition of 'Net Zero Carbon Development' in Greater Essex.

The Policy outlines that all development must be fossil fuel-free, with on-site renewable generation and low Energy Use Intensity limits for residential buildings. It also requires all development proposals to demonstrate measures to minimise embodied carbon and embed circular economy principles in the design.

The current draft update requires new major developments, major renovation and rebuild developments to achieve low embodied carbon limits or follow NZCBS limits when available.

2.3 Delivering climate change adaptation

The Government are required to produce a Climate Change Risk Assessment and a 5-yearly National Adaptation Programme (NAP) to demonstrate how risks will be addressed (Climate Change Act 2008, Part 4).

In the 2025 Report to Parliament on 'Progress in Adapting to Climate Change', the CCC highlighted that the UK's preparations for climate change are inadequate. While some policies and plans are improving, the NAP3 has not yet been effective in driving crucial delivery of adaptation measures (Climate Change Committee, 2025b).

Updates to statutory requirements

In Building Regulations, Approved Document O (Overheating) was introduced in 2022 for new residential buildings. This seeks to restrict solar gain by limiting glazing, stipulates requirements for shading in locations at high risk of overheating and introduces standards for cross ventilation.

Additionally, there is anticipated strengthening of water efficiency standards in Building Regulations Part G2. A consultation (hosted by Defra and MHCLG) is open on this matter until December 2025 (Defra, 2025).

Updates to NPPF

Since the NPPF (2021), the latest NPPF (2024) now requires strategic planning to address climate resilience, as a "key spatial issue" (NPPF, 2024, para. 24). The Framework goes on to clarify how the planning system should account for "all climate impacts including overheating, water scarcity, storm and flood risks and coastal change" (NPPF, 2024, para. 161). This requirement is reiterated for the preparation and assessment of planning applications (NPPF, 2024, para. 165).

Additionally, climate change is maintained as a consideration when applying the sequential test to locate development in areas at lowest risk of flooding (NPPF, 2024, para. 172). It has also been added as a consideration for Sustainable Drainage Systems (NPPF, 2024, p. 79).

Updates to PPG

No updates between 2021 and 2025 related to climate adaptation.

Other Statements of Government Policy

No known Written Ministerial Statements or other statements of Government policy released on climate adaptation between 2021 and 2025.

Essex Evidence Base

The Essex Local Nature Recovery Strategy (LNRS) (Essex County Council, 2025b), which was formally endorsed by Thurrock cabinet in September 2025 (Thurrock Council, 2025a), identifies several priorities for Thurrock. The Essex LNRS encourages the delivery of regional nature-based solutions relevant to Thurrock that support carbon sequestration and climate resilience. These include restoring grasslands and wetlands to enhance carbon storage, soil health, and flood mitigation; promoting diverse plant communities to regulate water cycles and buffer against extreme weather; and implementing urban greening measures like green roofs and rain gardens to manage surface water and reduce urban heat.

It highlights the restoration of Thames Terrace and clay slope grasslands, distinct habitats found in Thurrock and Basildon, as key interventions due to their ecological value and vulnerability to scrub encroachment.

The strategy also includes enhancing brownfield grasslands along the sea wall on the Essex side of the Thames Estuary. Additionally, Chafford Gorges Nature Park in Thurrock is recognised for its geological significance, comprising seven sites with exposed chalk cliffs and glacial deposits, contributing to biodiversity and soil health.

3. Thurrock Borough-wide Carbon Emission Analysis

3.1 Introduction

This section provides a borough-wide carbon emissions analysis for Thurrock. The analysis draws on the latest officially reported territorial GHG emissions at local authority level, published in 2025 for the reporting year 2023.

3.2 Thurrock's boroughwide carbon emissions

Borough-wide emissions in Thurrock have shown a declining trend to 2023 since 2019 when the Council declared a climate emergency. Total emissions, including Land Use, Land Use Change and Forestry (LULUCF), have reduced from 926 ktCO₂e in 2019 to 836 ktCO₂e in 2023 (DESNZ, 2025) (Figure 2).

The main drivers for this change were reductions in the industrial, domestic and commercial sectors emissions, partially achieved through grid decarbonisation.

In 2023, the main source of emissions within the built environment was domestic gas use, followed by commercial electricity consumption (Figure 3).

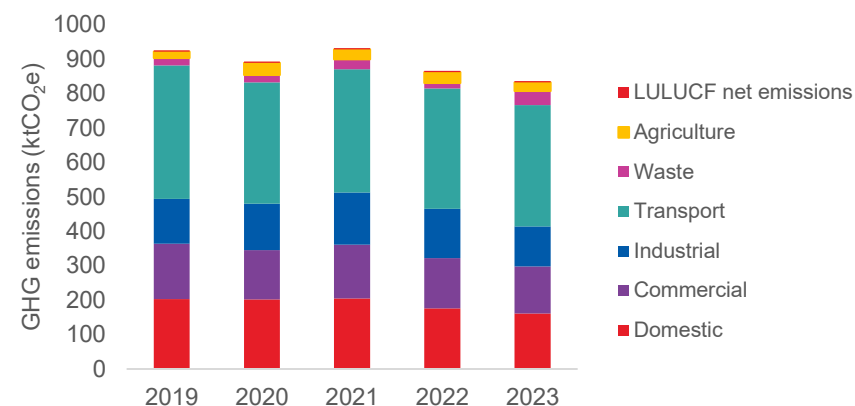


Figure 2: Thurrock boroughwide emissions progress since 2019. Data Source: DESNZ (2025).

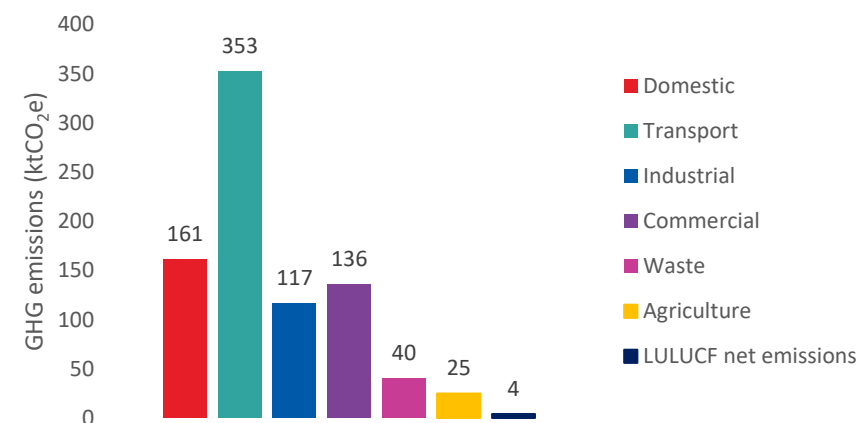


Figure 3: Breakdown of emissions in 2023 by end-use.

Overall, the sector with highest GHG emissions in 2023 was transport (353 ktCO₂e), particularly A-roads. The second largest source of emissions was energy use in homes (161 ktCO₂e), followed by commercial energy use (136 ktCO₂e) (Figure 3).

3.3 Analysis of the results

It is difficult to distinguish the rate of change in emissions that can be attributed back to local policies and climate action, against what is due to national policy and systemic change in production, grid emissions and fuel mix changes in transport and buildings.

It is likely a combination of national policy and local action, along with geopolitical influences that shape the trajectory of the borough-wide emissions. To some extent these effects are part of the national energy and emissions projections (EEP), the latest being for the period from 2023 to 2050. The EEP accounts for any policies that have been implemented or agreed with secured funding by June 2024. These projections provide the baseline to assess future climate and energy policy proposals, such as the Climate Change Committee (CCC) Carbon Budgets.

This analysis has scaled the 2023 emissions reported in Thurrock with the annual percentage changes from the EEP 2023-2050, the 6th and 7th Carbon Budgets “Balanced scenario” trajectories. The results are shown Figure 4.

The Baseline and Carbon Budget (CB) projections for Thurrock assume that all existing and planned national policy will apply proportionally to the borough. This approach is likely to overestimate LULUCF emissions reductions in Thurrock, and for this reason, LULUCF has been excluded.

The Baseline indicates that under current policy ambition, GHG emissions reduction only continues to the mid-2030s, leading emissions to plateau around 340 – 350 ktCO₂e, before they increase again in the period 2040 – 2050.

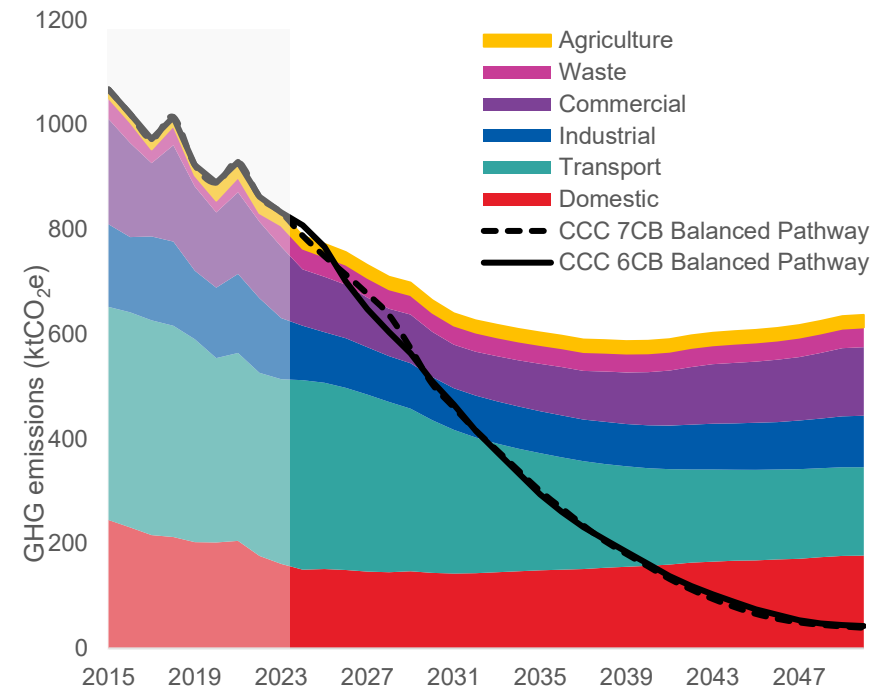


Figure 4: Thurrock boroughwide emissions projection following the latest EEP baseline compared with the 7th and 6th Carbon Budgets trajectories

The largest reductions are achieved in the Transport sector emissions whereas emissions are harder to abate in the Domestic, Industrial and Commercial sectors. This is indicative of the lack of direct control of emissions from these sectors and the limited opportunities to influence sustained carbon abatement through behavioural changes and private investment. The Carbon Budget projections align well with each other, and they are descriptive of the scale and pace needed for action compared to existing policy to achieve net zero carbon emissions by 2050. This is a gap that local policy and planning will need to cover in Thurrock in ways that will not compromise growth targets.

4. Climate Change Risks and Vulnerability Screening

4.1 Introduction

Global climate change resulting from increasing greenhouse gas emissions influences the frequency and intensity of these events, along with average temperature and precipitation trends. The UK is experiencing warmer and wetter winters, and hotter, drier summers, due to climate change, with these trends projected to continue throughout the 21st century. Thurrock experiences climate hazard events such as heatwaves, storms and flooding.

Therefore, it is important Thurrock takes a 'twin-track' approach to climate action, considering both how to manage the impacts of climate change, as well as reduce its own emissions contribution. This section considers Thurrock's current climate and hazards, how these are changing, the resulting risks to the council, residents, businesses and natural environment, and how certain residents are particularly vulnerable to these risks.

4.2 Thurrock's current climate

Thurrock's climatology is considered to be temperate maritime, influenced by its location in south-east England, on the Thames Estuary and on the outskirts of London.

Thurrock's location on the north bank of the Thames Estuary elevates its exposure to the impacts of tidal flooding and storm surge, when compared to other parts of London and Essex.

key climate hazards currently facing Thurrock are:

- **Extreme heat and heatwaves:** Thurrock experiences hot conditions and frequent heatwaves in summer months. Since the 1981–2000 baseline, the annual average temperature has increased by 0.8°C, and summer maximums have risen by over 2°C. Recent heatwaves, including the July 2022 Red Warning event, have caused adverse impacts on health including elevated mortality rates, infrastructure damage and disruption, wildfires and water stress.
- **Extreme cold:** cold spells occur in Thurrock, albeit are becoming less frequent due to ongoing climate change. A notable example is the "Beast from the East" (Feb–Mar 2018), when a Sudden Stratospheric Warming event led to Arctic air sweeping across the UK. The Met Office issued two Red Warnings for snow, and temperatures were 8-12°C below average, with wind chills below -10°C and widespread disruption to transport, schools, and power supplies. The UK experienced 16% fewer air frost days in 2011–2020 compared to 1981-2010, and 25% fewer than in 1961-1990 (Met Office, 2025).
- **Heavy rainfall and surface water flooding:** a key risk in Thurrock at present, which is exacerbated by the presence of impermeable surfaces and built-up areas. Key at-risk areas include in Grays, Tilbury, and Stanford-le-Hope, particularly near the River Thames and Mar Dyke (see maps presented in Appendix B1.2.2). Analysis from the Environment Agency indicates that 47% of properties are at some degree of surface water flood risk (Environmental Agency, 2025). Of these, 30% are at high risk (>3.3% chance of flooding each year), with these properties located across Thurrock.

- **Tidal and river flooding:** this risk is concentrated in the areas of Thurrock closest to the River Thames and Mar Dyke. Around 18% of properties are at some level of risk from flooding caused by rivers and the sea, with Thurrock benefitting from existing flood defences such as the Thames Barrier. While most properties fall into the very low risk category, over 470 buildings are at medium or high risk (Environment Agency, 2025).
- **Water scarcity and drought:** water in Thurrock is supplied by Essex and Suffolk Water (ESW). As per the Environment Agency's classification of water stressed areas, the ESW supply region is currently under water stress (Environment Agency, 2021).
- **Storms:** Thurrock has experienced several impactful storms in recent years, including Storm Eunice (2022), Storm Babet (2023), and Storm Bert (2024), which caused wind damage, flooding, and widespread disruption.

A timeline of major extreme weather events in Thurrock is presented in Appendix B.1. Maps showing the present flood risk is presented in Appendix B.1.2, to be read in conjunction with Thurrock Council's Local Flood Risk Management Strategy (Thurrock Council, 2015) and Strategic Flood Risk Assessment (Scott Wilson Ltd, 2009).

4.3 The changing climate in Thurrock

The Met Office provides the country's climate projections, using climate models to quantify potential future changes in climate variables such as temperature, precipitation and wind. The latest iteration of these climate model outputs, UK Climate Projections 2018 (UKCP18), has been summarised for Thurrock via the Met Office's Local Authority Climate Services toolkit. The Environment Agency also use UKCP18 to inform future flood

models, to understand how the at-risk area and flood depths may change in future (Environment Agency, 2022). It is important to recognise that there is a significant degree of uncertainty with future climate models, as well as limitations in the present-day scientific understanding of the climate systems.

These future climate datasets have informed Thurrock's climate risk screening. In this report, unless otherwise stated, the future trends described are based on a 2°C global warming level, aligning with a medium emissions scenario for the 21st century. This is defined as a future scenario in which global average temperatures are 2°C higher than pre-industrial levels. For reference, the present-day estimate from 2024 is 1.34°C to 1.41°C higher than pre-industrial levels (Met Office, 2025).

Table 1 provides an overview of the key future climate trends in Thurrock. Extreme heat and heavy rainfall/surface water flooding are the two key increasing climate hazards. Water scarcity and tidal flooding are also increasing, although these are in part managed by other local actors (Essex and Suffolk Water, and Environment Agency respectively).

A more detailed overview of how the climate is projected to change in Thurrock, both in terms of average climate as well as the frequency and/or magnitude of extreme events, is presented in Appendix B.1.3.

Table 1: Summary of future climate trends in Thurrock.

Climate hazard	Future trend (↑↑,↑, ~, ↓,↓↓)	Description
Extreme heat	↑↑	Temperatures are rising, with more frequent and intense heatwaves expected across the borough. For example, the average annual number of days above 30°C is projected to increase from 1 days/year to 7 day/year under 2°C warming.
Extreme cold	↓↓	Cold extremes are expected to continue becoming less frequent. For example, the annual average number of icing days is projected to decline from 2 days/year to 1 day/year under 2°C warming.
Heavy rainfall and surface water flooding	↑↑	An increase in winter rainfall and more intense heavy rainfall events is expected; surface water flood risk is projected to intensify in low-lying areas.
Tidal and river flooding	↑	Future flood maps indicate that slight increases in flood extents and depths are expected in Thurrock, near major rivers and coastal areas. It is expected that the Environment Agency's flood risk programme will continue to manage this risk, for example through its TE2100 programme to evolve the Thames Barrier for the changing climate (Environment Agency, 2023).
Water scarcity and drought	↑	Climate change modelling conducted by Essex and Suffolk Water indicate that Essex will be a seriously water stressed area in future (East Suffolk and North Essex Water, 2024).
High winds	-	Global climate models indicate a UK-wide increase in near surface wind speeds in winter months from 2050 onwards, however this increase is modest compared with inter-annual variability (Met Office Hadley Centre, 2021).

4.4 The impacts of climate change to Thurrock Council

This climate risk screening looks to cover both the ways in which Thurrock Council may be affected by climate risks and impacts, as well as impacts to its residents, communities, businesses and infrastructure beyond the council's control. It is based on the UK's Third Climate Change Risk Assessment (CCRA3), published in 2021 (Climate Change Committee, 2021). The CCRA3 identified 61 climate risks and opportunities; this screening has evaluated which of these are of relevance to Thurrock, based on its geographic location and role as a local authority. This has resulted in a total of 34 risks being screened in, as presented in Table 2. The full screening, with justifications provided for those which have been screened out, is provided in Appendix B.1.3. The full version in the appendix also identifies which risks are specifically relevant to the Planning and Development council department.

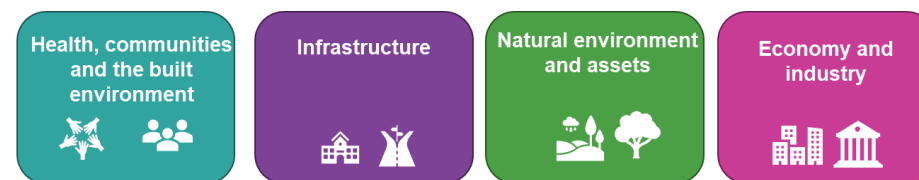


Figure 5: The four key thematic areas to Thurrock's climate risk screening.

Table 2: Relevant climate risks and opportunities for Thurrock. The urgency rating is taken from the UK Climate Change Risk Assessment 3 and is not Thurrock-specific.

Risk Type	Risk ID	Risk / Opportunity	Urgency
Business and Industry	B01	Risks to businesses from flooding	HIGH
	B03	Risks to business from water scarcity	MED
	B05	Risks to business from reduced employee productivity due to infrastructure disruption and higher temperatures in working environments	MED
	B06	Risks to business from disruption to supply chains and distribution networks	HIGH
	B07	Opportunities for business from changes in demand for goods and services	MED
Health, Communities and the Built Environment	H01	Risks to health and wellbeing from high temperatures	HIGH
	H02	Opportunities for health and wellbeing from higher temperatures	MED
	H03	Risks to people, communities and buildings from flooding	HIGH
	H05	Risks to building fabric	MED
	H06	Risks and opportunities from summer and winter household energy demand	HIGH
	H07	Risks to health and wellbeing from changes in air quality	MED
	H09	Risks to food safety and food security	MED
	H10	Risks to water quality and household water supplies	MED
	H11	Risks to cultural heritage	HIGH
	H12	Risks to health and social care delivery	HIGH
	H13	Risks to education and prison services	HIGH
Infrastructure	I01	Risks to infrastructure networks (water, energy, transport, ICT) from cascading failures	HIGH
	I02	Risks to infrastructure services from river, surface water and groundwater flooding	HIGH
	I04	Risks to bridges and pipelines from flooding and erosion	MED
	I05	Risks to transport networks from slope and embankment failure	HIGH
	I07	Risks to subterranean and surface infrastructure from subsidence	MED
	I08	Risks to public water supplies from reduced water availability	HIGH
	I10	Risks to energy from high and low temperatures, high winds, lightning	MED
	I12	Risks to transport from high and low temperatures, high winds, lightning	HIGH
	I13	Risks to digital from high and low temperatures, high winds, lightning	MED

Risk Type	Risk ID	Risk / Opportunity	Urgency
Natural Environment and Assets	N01	Risks to terrestrial species and habitats from changing climatic conditions and extreme events, including temperature change, water scarcity, wildfire, flooding, wind, and altered hydrology (including water scarcity, flooding and saline intrusion).	HIGH
	N02	Risks to terrestrial species and habitats from pests, pathogens and invasive species	HIGH
	N03	Opportunities from new species colonisations in terrestrial habitats	MED
	N04	Risk to soils from changing climatic conditions, including seasonal aridity and wetness.	HIGH
	N05	Risks and opportunities for natural carbon stores, carbon sequestration from changing climatic conditions, including temperature change and water scarcity	HIGH
	N11	Risks to freshwater species and habitats from changing climatic conditions and extreme events, including higher water temperatures, flooding, water scarcity and phenological shifts.	HIGH
	N12	Risks to freshwater species and habitats from pests, pathogens and invasive species	HIGH
	N13	Opportunities to freshwater species and habitats from new species colonisations	LOW
	N18	Risks and opportunities from climate change to landscape character	MED

4.5 The impacts of climate change to Thurrock's vulnerable populations

While climate-related events such as flooding and heatwaves may affect Thurrock's population, or certain areas within Thurrock, the impacts of these events are not equal and can disproportionately affect certain demographic groups. For example, those who are more able to quickly respond during an event, have been informed on how to respond or have the financial capacity to recover are considered to be less vulnerable than those who cannot.

This is commonly considered when climate risk assessments are undertaken, as risk is considered a function of hazard, exposure and vulnerability.

This section outlines the key climate-related risks that intersect with social vulnerability, as considered in three steps:

1. **Individual factors that contribute to vulnerability:** the CCRA3 risks that were screened in for Thurrock's in section 4.4 were evaluated to see which are important to consider through a socio-economic vulnerability lens. These risks were identified; a literature review was then undertaken to understand what demographics can be particularly vulnerable to these climate risks. The key demographic groups considered were those defined as having protected characteristics, as per the Equality Act 2010. This includes children, the elderly, low-income households, and individuals with pre-existing health conditions. In addition, those who are sleeping rough or homeless, those living in temporary accommodation, and Traveller, Roma and Gypsy Communities should also be considered, as these groups

may be more susceptible to climate impacts due to the potentially poorer quality of their housing or lack of housing provision.

2. **Summarise Thurrock’s socio-demographic profile:** this relates to factors that have a link to vulnerability to climate change as identified in step (1).
3. **How social vulnerability can vary geographically across Thurrock:** the factors considered in step (1), along with others as determined by the Climate Just study, are considered in a composite index, to identify social vulnerability ‘hotspots’ across Thurrock.

Individual factors that contribute to vulnerability

The output of the first step is summarised in Table 3. The five risks outlined in the table highlight how vulnerable groups such as older adults, low-income households, and children are more exposed to climate-related hazards and often have fewer resources to adapt.

Table 3: How vulnerable populations may be additionally at-risk from certain climate risks facing Thurrock.

Risk ID	Risk/ Opportunity	Vulnerable population affected	Urgency (CCRA defined)
H01	Risks to health and wellbeing from high temperatures	Older adults, children, and those with chronic illnesses are at higher risk of heat-related illness and death, especially in poorly ventilated homes (such as those living/ staying in temporary accommodation, care homes, and hospitals), or those without homes (UK Health Security Agency, 2025).	HIGH
H03	Risks to people, communities and buildings from flooding	Low-income and elderly residents in flood-prone areas face displacement, property damage, and long-term mental health impacts such as anxiety and PTSD (Bloomer, E., Landeg, O. and Le Polain De Waroux, O., 2019).	HIGH

Risk ID	Risk/ Opportunity	Vulnerable population affected	Urgency (CCRA defined)
H06	Risks and opportunities from summer and winter household energy demand	Fuel-poor households may struggle to afford heating or cooling, increasing risks of cold- and heat-related illness. Poor insulation (such as those living/ staying in temporary accommodation, care homes, and hospitals), or those without homes and low incomes worsen exposure (Centre for Research into Energy Demand Solutions, 2022).	HIGH
H07	Risks to health and wellbeing from changes in air quality	Children, older adults, and people with asthma or heart disease are more affected by air pollution, which worsens during heatwaves and in urban areas (Defra, 2025).	MED
H13	Risks to education and prison services	Rising temperatures, flooding, and water scarcity can disrupt learning by affecting attendance, concentration, and the physical usability of school buildings, posing particular challenges for children who are less able to adapt to environmental stressors (Department for Education, 2025).	HIGH

Summary of Thurrock’s socio-demographic profile

Thurrock’s population profile, shown in Table 4, shows notable differences compared to the regional (Essex) and national (England) profile. With a population of around 176,000, Thurrock has a younger age structure, with 22.7% aged 0-15 compared to 18.7% in Essex and 17.7% nationally. Despite this younger profile, life expectancy in Thurrock is slightly lower than both Essex and England averages. The borough is also more densely populated (1,074 people per km² compared to 435 in Essex), and has a more diverse population, with 76.7% noted as White compared to 90.4% in Essex. Levels of long-term illness or disability (19.9%) and unemployment (3.2%) are slightly below national averages, but educational attainment is lower, with 21.6% having no qualifications (ONS, 2021).

Table 4: Thurrock's socio-demographic profile

Categories	Thurrock	Essex	England
Population	176,000	1,503,521	56,490,048
% aged 0–15	22.7	18.7	17.7
% aged 16–64	63.8	60.5	61.4
% aged 65+	13.6	20.8	20.2
Healthy life expectancy, years (male/female)	59.3/59.4	63.0/63.3	60.6/60.7
Life expectancy at birth, years (male/female)	78.9/82.7	80.4/84.0	79.5/83.3
% White	76.7	90.4	81.0
% with long-term physical or mental health condition	19.9	23.8	24.1
% Unemployment rate	3.2	2.5	2.9
% with no qualifications	21.6	18.9	18.1
Population density (per km ²)	1074	435	433

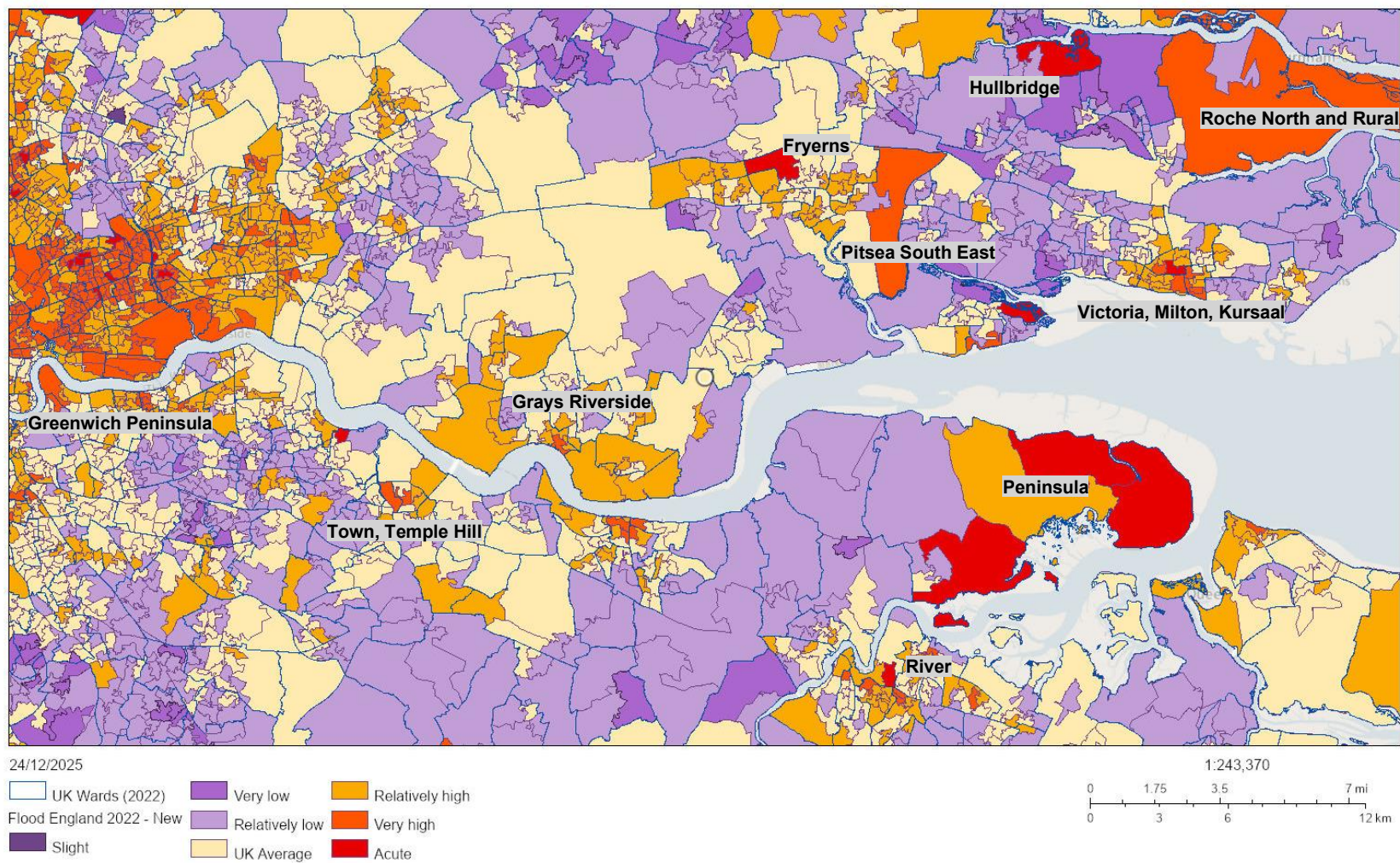
Thurrock has several areas that fall within the 10% most deprived locations in the country and additionally has areas that fall within the most affluent in the country. The more deprived areas are mainly located in and around Tilbury, with further areas in South Ockendon, Grays and areas of Corringham also suffering from higher levels of deprivation. Less deprived areas are generally located in Thurrock's more rural locations, around South Chafford, and in some areas to the north of Grays (Thurrock Council, 2023).

How social vulnerability can vary geographically across Thurrock

It is also important to understand how various aspects of vulnerability combine, as this can help to identify where across Thurrock is most vulnerable to climate hazards. Climate Just have produced composite social-spatial vulnerability maps for England, that provide relative vulnerability ratings at the

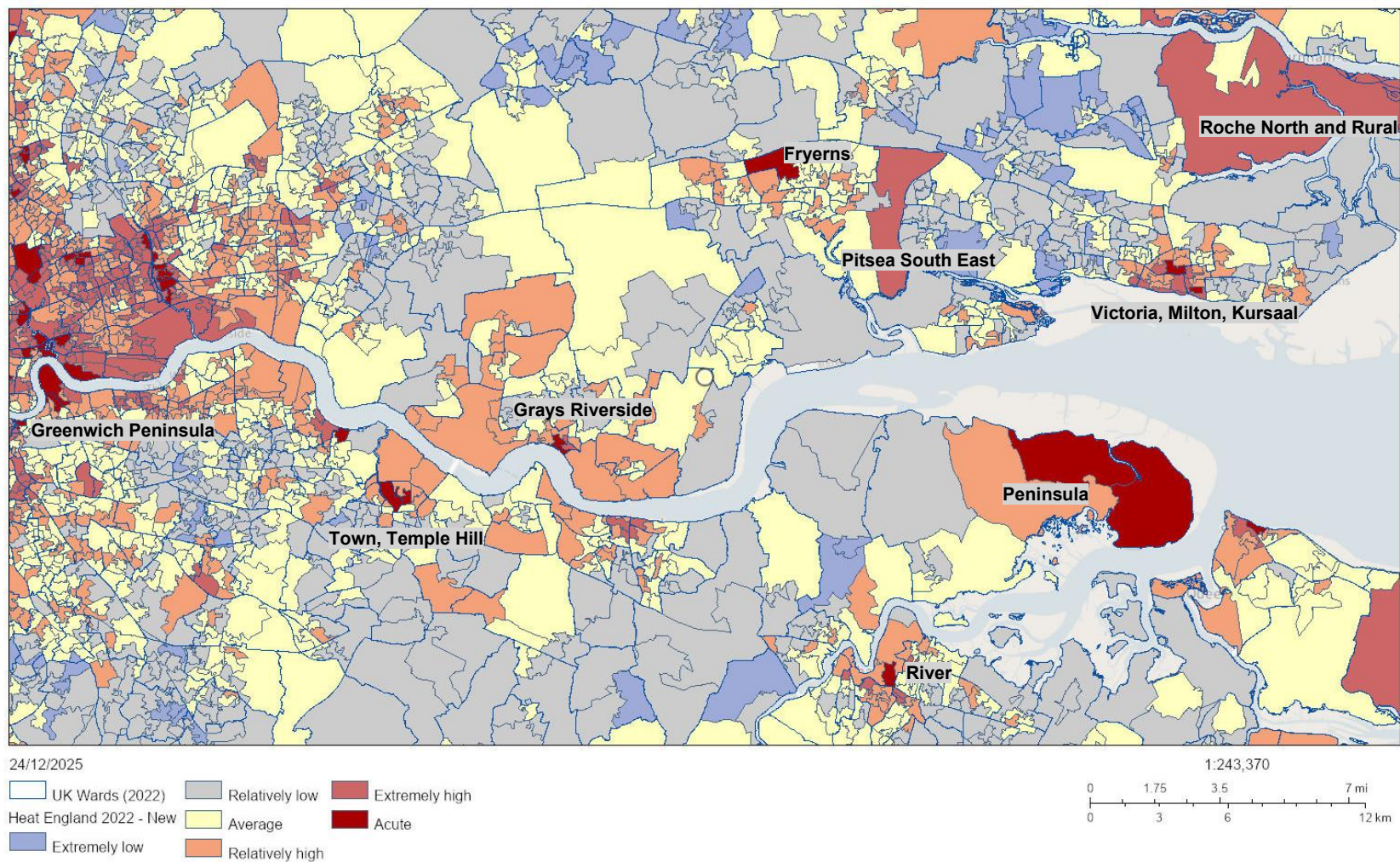
neighbourhood scale (Figure 6 and Figure 7). Separate maps have been produced for flooding and extreme heat, as there are some differences in the contributing socio-economic factors to vulnerability for these two types of climate hazard events, as found in step (1).

While differences in social vulnerability factors do exist between the two hazards, for Thurrock the two maps do show very similar geographic trends, with Grays at particularly high levels of vulnerability to both flooding and extreme heat, followed by Tilbury and South Ockendon. This closely aligns with those areas which are identified as experiencing the highest levels of deprivation in Thurrock. Areas at lowest levels of vulnerability in Thurrock are in the east of the area, including Corringham, Fobbing, Horndon on the Hill and Stanford-le-Hope.



Climate Just: www.climatejust.org.uk
Contains Open Government Data | Contains OS data © Crown copyright and database rights 2024

Figure 6: Flood socio-spatial vulnerability in Thurrock (from Climate Just, 2025).



Climate Just; www.climatejust.org.uk
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Figure 7: Heat socio-spatial vulnerability in Thurrock (from Climate Just, 2025).

5. Climate Change Action Plan

5.1 Introduction

This Climate Change Action Plan outlines how Thurrock Council will lead and support on the delivery of action to reduce the boroughs carbon emissions and increase the boroughs adaptation to current and future anticipated climate change.

The challenge to address climate change is significant and requires coordinated action across Council operations and across the borough, with Thurrock Council playing an important role in convening action by Thurrock's residents, businesses and voluntary sector organisations.

This plan includes actions that relate to both Thurrock Council's own operations, in addition to boroughwide actions.

This plan has been developed in collaboration with Thurrock Council Officers and represent a range of actions that cut across department responsibilities across Thurrock, to ensure delivery is embedded within cross-department plans, strategies and activities.

5.2 Overview of the Action Plan

This plan contains 38 actions, cutting across 8 topic areas as outlined in Figure 8. Each of the following pages provides a table of the actions, complete with information such as lead delivery team, key partners, related strategies and examples of actions taken by Thurrock Council and local community groups in delivering against the actions to date. Appendix C provides a more detailed table of the actions included in the action plan.

It should be noted that health and wellbeing is not an individual topic within the action plan but features as a golden thread running through all the actions listed within the plan. This means that delivery of all actions within the plan must consider maximising health and wellbeing benefits for Thurrock residents.



Figure 8: Action plan themes topics



Prioritise Active & Sustainable Travel

Vision

The transport system in Thurrock is efficient, resilient and sustainable. It prioritises people's health and well-being through making provision for comfortable and convenient active and sustainable travel journeys. The system reduced demand for high-emissions vehicles that pollute the air and cause detrimental health impacts.

Delivery - Lead Team(s)

- Transport Team, Local Plan Team.

Key Partners

- Local transport providers, Connected_kerb.

Related Strategies

- Thurrock Emerging Transport Strategy, Thurrock Emerging Local Plan, Thurrock EV strategy (in consultation), Thurrock Bus Service Improvement Plan, Thurrock Local Cycling and Walking Infrastructure Plan (LCWIP)

Example: Roll out of on street electric vehicle charging

Thurrock Council has partnered with Connected Kerb, a national provider of Electric Vehicle (EV) charging points, to roll out smart charging points on streets in Thurrock. As of December 2024, there have been 66 charge points put in place across the borough. More information can be found on [Thurrock Council's website](#)

ID	Summary	Action
T1	Deliver streets that prioritise safe and comfortable cycling and walking journeys	Design safe and attractive streetscapes that encourage the use of active travel methods, including provision of well-connected cycle lanes, 20 mph zones and public realm enhancements.
T2	Reduce dependency on car travel for residents' daily needs	Through spatial planning and development management decisions, encourage intensification of mixed -uses in or within close proximity to town centres and locations connected to sustainable and active transport options, reducing the prevalence of cars and the burden of travel for everyday needs
T3	Increase provision of electric vehicle charging points across Thurrock	Deliver electric vehicle charging points on streets across Thurrock, prioritising areas where there is the greatest need for electric vehicle charging points.
T4	Encourage shift away from cars and towards sustainable and active travel	Encourage uptake of electric vehicles and cycling with behavioural incentives, including trialling an EV car club scheme. Increase accessibility and inclusivity of electric vehicles and bicycle adoption through schemes focused on provision for vulnerable groups
T5	Enable efficient and convenient interchange between different forms of sustainable travel	Deliver better transport interchange facilities that enable efficient and convenient multi-modal sustainable travel, such as provision of cycle facilities at train stations.
T6	Deliver enhancement to bus service quality, reliability and convenient	Improve the number and convenience of bus routes and explore the potential of community-led services, especially for rural communities.



Deliver Sustainable Buildings

Vision

Thurrock's buildings are designed and constructed to be energy-efficient, low-carbon and future-ready. New developments meet high standards for sustainable design, accurately measure and monitor energy performance, and minimise embodied carbon. Residents are supported to improve energy efficiency in their homes through accessible guidance and retrofit opportunities, ensuring that buildings contribute to achieving a net zero Thurrock.

Delivery - Lead Team(s)

- Local Plan Team, Climate & Energy Team.

Key Partners

- Greater South East Net Zero Hub, Thurrock CVS, Thurrock Well Homes Team

Related Strategies

- Thurrock Emerging Local Plan, Thurrock Emerging Energy Strategy.

Example: Well Homes energy efficiency advice service

Thurrock Well Homes team provides energy saving advice to vulnerable adults in private housing. The service offers help to make homes safer by reducing the risk of ill health, such as due to poor heating systems. The service provides free home visits to eligible households, checking if homes are eligible for funding for energy improvement measures such as boiler replacements. More information is available on [Thurrock Council's website](#).

ID	Summary	Action
B1	Measure and monitor energy performance in new developments	Mandate for new developments to accurately predict and monitor their actual energy performance, adopted in local planning policy.
B2	Requirement for embodied carbon assessment and targets for new development	Require an assessment of and compliance with targets to limit embodied carbon in new development, adopted in local planning policy.
B3	Requirement for sustainable building design in new developments	Adopt local planning policy for sustainable building design in line with existing standards, setting requirements that are proportionate to the scale of development
B4	Encouraging residents in private homes to deliver energy efficiency improvements	Providing guidance and support to residents across Thurrock relating to improving energy efficiency in homes through retrofit activities, such as raising awareness of digital energy advice services.



Decarbonise Public Estates

Vision

Thurrock's public estate leads by example in the transition to net zero. Council buildings and social housing are energy efficient and powered by renewable energy, supported by proactive planning for future funding opportunities. Procurement practices embed decarbonisation action, driving sustainability across Thurrock's supply chain.

Delivery - Lead Team(s)

- Transport Team, Procurement Team, Housing Team

Related Strategies

- Thurrock Emerging Local Plan, Thurrock Emerging Energy Strategy.

Example: Retrofit at Chadwell St Mary's

Thurrock Council secured £3.2 million from wave one of the government's Social Housing Decarbonisation Fund to retrofit three tower blocks – Gooderham House, Poole House and George Tilbury House – with networked ground source heat pumps, replacing inefficient night storage heaters.

The retrofit programme is expected to reduce Chadwell St Mary's carbon emissions by over 70% and to provide residents with 66% in savings on their heating and hot water bills. More information can be found on Thurrock's project partner website.



© Chadwell St Mary's Retrofit Project (Kensa, 2023)

ID	Summary	Action
P1	Decarbonising Council owned HGV fleet	Develop a baseline of carbon emissions from Council's own HGV fleet, to inform future target setting in reduction in carbon emissions.
P2	Expand renewable energy generation across council owned estate	Roll out renewable power generation across Thurrock Council's estate, including building rooftops and council-owned land, and adopt renewable PPAs to meet remaining power demand for council buildings.
P3	Embed decarbonisation action into Thurrock public procurement	Set a requirement within procurement policy for suppliers to audit and report on the carbon impact, demonstrating steps to reduce associated emissions over time.
P4	Prepare public buildings for decarbonisation funding	Develop a prioritised list of 'shovel-ready' carbon emissions reduction projects across Thurrock public sector buildings to be prepared for submissions to future grant schemes, including the Public Sector Decarbonisation Fund.
P5	Improve energy efficiency in social housing through retrofit delivery and monitoring	Apply for funding from the Social Housing Decarbonisation Fund and successor schemes to improve energy efficiency in social housing, with post-occupancy reviews to improve project implementation over time.



Build a Renewable & Resilient Energy System

Vision

Thurrock's energy system is secure, sustainable and adaptable to future needs. It fosters community-led initiatives that empower residents to take part in the transition to clean energy. The system is integrated and aligned with regional planning, ensuring coordinated delivery across Essex. Large-scale renewable generation is supported through proactive planning, enabling solar and wind projects that reduce emissions and strengthen energy resilience.

Delivery - Lead Team(s)

- Climate & Energy Team

Key Partners

- Essex County Council, Thurrock CVS

Related Strategies

- Essex-wide Area Energy Planning, Thurrock Emerging Energy Strategy.

Example: Essex Local Area Energy Plan

Thurrock Council is providing data to Essex County Council as it develops a Local Area Energy Plan (LAEP) for Essex. The LAEP is being developed to provide a data driven, collaborative and whole systems approach to decarbonising the energy system within Essex. The results of the LAEP will help inform energy system planning within Thurrock.

ID	Summary	Action
E1	Support community energy and climate action initiatives	Provide support to community energy and local climate action groups to enable delivery of community energy initiatives, through provision of technical, logistical or resource support.
E2	Contribute to and align with regional level energy system action planning and delivery	Contribute to the development of the Essex-wide Local Area Energy Plan (LAEP), ensuring Thurrock's local energy system actions are reflected and aligned with the emerging regional plan
E3	Support utility-scale renewable energy generation	Support utility-scale renewable energy generation within Thurrock, including exploring options for large-scale solar and wind projects, through proactive planning support



Adapt to Climate Change

Vision

Thurrock is prepared for the challenges of a changing climate. Risks to communities, businesses and natural assets are understood and addressed through proactive planning. Adaptation measures strengthen resilience to flooding, overheating and other climate impacts, while nature restoration delivers co-benefits for long-term sustainability. Collective action with residents, businesses and regional partners ensures that Thurrock remains safe and adaptable in the face of future climate risks.

Delivery - Lead Team(s)

- Climate & Energy Team, Lead Local Flood Authority Team.

Key Partners

- Thurrock CVS, Essex County Council.

Related Strategies

- Thurrock Climate Change Strategy

Example: Adoption of live surface water flood risk alerts

Thurrock Council have partnered with Zurich Municipal to adopt a new flood warning software which provides 24/7 analysis of rainfall forecasts and provides alerts to property managers about upcoming flood risks in specific areas such as roads and parks. This provides live data for Thurrock Council to use in informing the mobilisation of emergency response teams. More information can be found on project partners [Zurich's website](#).

ID	Summary	Action
C1	Climate change risks and their impacts on Thurrock's local community and businesses are identified	Undertake a full climate risk and vulnerability assessment (CRVA) for the risks identified in the initial screening, considering Thurrock borough wide risks and risks to Thurrock owned assets. Collaborate with Thurrock's vulnerable populations and Voluntary Community Services groups in the development of the CRVA
C2	Adaptation and resilience measures are identified and delivered	Develop a Climate Adaptation and Resilience Plan, in collaboration with local businesses, land owners and residents, to address the key climate risks facing Thurrock,
C3	Nature restoration plans are designed to deliver climate change resilience	Ensure that delivery of Essex Nature Recovery Strategy actions in Thurrock maximise potential to deliver climate change adaptation co-benefits, particularly in relation to working with landowners on adaptive land management practices,
C4	Measures are delivered to reduce the risk of overheating for Thurrock local communities	Implement no regret adaptation measures to deliver overheating prevention for communities, such as promoting and protecting Thurrock's cool spaces, including blue-green spaces and publicly accessible facilities (e.g. public libraries)
C5	Collective action is convened for flood risk mitigation	Convening collective action around flood risk, linking Thurrock residents and businesses into programmes with regional and local flood risk management stakeholders to deliver better flood resilience across the borough,



Nature Recovery

Vision

Thurrock's natural environment is resilient and flourishing. New development actively enhances biodiversity and integrates sustainable urban drainage systems that deliver multiple benefits. Green and blue spaces are created and restored to support wildlife and community wellbeing. This approach ensures that growth contributes to ecological health, climate resilience and peoples physical and mental wellbeing.

Delivery - Lead Team(s)

- Local Plan Team, Ecology Team.

Partners

- Essex County Council.

Related Strategies

- Essex Nature Recovery Strategy, Thurrock Emerging Local Plan.

Example: Kinetika's T100 programme

Kinetika is a charity that unites communities within Thurrock through design and public events that inspire social action. This includes T100, which is a programme of free walks, allowing participants to experience Thurrock and surrounding areas through exploration and conversation. The walks help communities connect the Thurrock's public realm, green and blue spaces. More information can be found on [Kinetika's website](#).



© T100 2025

ID	Summary	Action
N1	Improve biodiversity in new development	Requirement for a 20% Biodiversity Net Gain within new developments, adopted within local planning policy.
N2	Develop local Biodiversity Net Gain offsetting sites	Establish a policy and procedure for utilising council land holdings for habitat banking to support delivery of local Biodiversity Net Gain (BNG) offsetting.
N3	Deliver SuDS in new developments	Requirement to integrate multi-benefit and nature-based SuDS in all new developments, adopted within local planning policy.
N4	Support regional nature recovery strategy	Support delivery of the Essex regional nature recovery strategy by delivering new and improved green and blue spaces in Thurrock, such as supporting the South Essex Estuary Park
N5	Establish annual habitat restoration targets and track delivery	Define an annual nature restoration target for identified habitats and monitor and report on progress annually.
N6	Explore nature-friendly green space initiatives	Explore the potential for nature-friendly management, habitat creation and initiatives in our green spaces such as a pond programme, woodland, wetland, grassland creation programmes.
N7	Adopt no-mow summer for biodiversity	Altered mowing regime on Council owned verges with no mow summer to support wildflowers, invertebrates and pollinators.



Just Transition of Skills & Industry

Vision

Thurrock's economy is inclusive, innovative and aligned with a net zero future. Local businesses are supported to improve energy efficiency and adopt renewable solutions, while industrial spaces are utilised for clean energy and sustainable practices. Residents access green skills and employment opportunities through collaboration with industry, education providers and regional partners. Research, development and training drive a skilled workforce and resilient supply chain.

Delivery - Lead Team(s)

- Economic Development Team, Employability & Skills Team

Partners

- Mayor's Growth Plan Team, Greater Essex Business Board (GEBB), Greater South East Net Zero Hub

Related Strategies

- Thurrock Emerging Local Plan.

Example: Thurrock Storage

Sitting adjacent to the former Tilbury coal power station, the Thurrock Storage site plays a significant role in maintaining the UK's energy security. The site enhances national grid resilience through providing up to 600MWh of back up energy storage. This project, which opened in 2025, continues to provide local employment opportunities, signifying Thurrock's commitment to unlocking new green employment opportunities.



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ID	Summary	Action
I1	Support small & medium sized business to improve energy efficiency and shift to renewable energy	Work with local and regional partners to support small & medium sized businesses to improve energy efficiency and shift to renewable energy such as awareness raising of digital energy advice services, providing guidance on transition to renewable energy, including Power Purchase Agreements (PPAs)
I2	Support residents to move into net zero aligned jobs	To hold two green skills events per year to engage with the support of industry, training providers for residents
I3	Support SMEs in re-skilling and up-skilling in construction and installation sectors	Collaborate with the forthcoming Mayor's Office, the FSB and the Chambers led Local Skills Partnership Plan (LSIP) to provide support to re-skill and up-skill the local supply chain (focusing on SMEs) in construction and installer sectors
I4	Support research and development opportunities for sustainable industry	Scope, with partners, best ways to support low carbon R&D and innovation within Thurrock in the context of the region
I5	Identifying most at-risk jobs from Green Transition and support routes into new work opportunities	Work with partners to identify, locally, the jobs most at risk from the Green Transition, including the specific workforce and identifying green jobs or jobs in other sectors that these workers could do and collaborating with partners and industry to provide a clear bridge to aid rebalancing the workforce



Reduce Waste

Vision

Thurrock embraces a circular economy where waste is minimised and resources are valued. Communities and businesses adopt positive waste behaviours supported by accessible reuse and upcycling opportunities. Recycling provision is efficient and inclusive, ensuring all households can participate. Grassroots initiatives are encouraged, creating a culture of sustainability that reduces environmental impact and strengthens local resilience.

Delivery - Lead Team(s)

- Waste Team, Community Development Team

Related Strategies

- Thurrock Waste and Recycling Collection Policy, Thurrock Emerging Waste Behavioural Change Communication Strategy.

Example: Men's Shed

The opening of the Men's Shed initiative in Essex is an example of a community group working to reduce waste and promote circular economy principles, whilst also providing wellbeing benefits to local communities. The project creates spaces where people can come together to learn new skills, repair, reuse and upcycle products, whilst connecting with others in the community ([BBC News, 2024](#)).



© TOM LARSEN-WRIGHT/BBC

ID	Summary	Action
W1	Promote positive waste behaviours and improve reuse and upcycling provision	Deliver a behavioural change campaign that promotes positive waste behaviours across households and businesses, linked to increase in reuse and upcycling facilities, such as launching reuse shop, recycling doorstep collections, and upcycling workshops.
W2	Support grassroots circular economy initiatives	Explore opportunities to support grassroots and community based circular economy initiatives, such as through the provision of training and resources.
W3	Improve recycling provision in flats and efficiency in waste collection services	Continue to expand recycling and food waste services for all households living in communal buildings within Thurrock, both council owned and private ownership. Improve operational efficiency of waste collection through route optimisation and integration of flats and trade waste.

6. Summary and Next Steps

6.1 Summary

This strategy provides a climate change evidence base for informing emerging Thurrock Local Plan policy development and informing Thurrock Council's action plan for minimising carbon emissions and delivering adaptation to climate change within the borough.

Legislation, policy and guidance review

The evidence base is informed by a review of national legislation, policy and guidance. The review highlights that energy efficiency and renewable energy generation requirements within new development have been strengthened in the NPPF and through Building Regulations, with the delivery of these changes notably culminating in the publication of a Written Ministerial Statement (WMS) (2023), providing guidance on the setting of local energy efficiency standards which go beyond Building Regulations. In addition, the urgency to adapt to climate change impacts has increased, with stronger requirements in the NPPF for strategic planning to consider potential climate impacts, and the introduction of overheating assessments for buildings into Building Regulations.

Thurrock boroughwide carbon emissions analysis

This evidence base also includes an analysis on Thurrock's boroughwide carbon emissions. This analysis outlines that boroughwide emissions in Thurrock have shown a declining trend to 2023 since 2019, when the Council declared a climate emergency, with total emissions reducing from 926 ktCO₂e in 2019 to 836 ktCO₂e in 2023. Transport remains the sector with the highest GHG emissions (at 39%), with energy use by homes

being second (at 28%), followed closely by commercial energy use (at 18%). Whilst the analysis indicates a declining trend in emissions in Thurrock, emissions projections demonstrate a significant gap between current adopted policies and the decarbonisation required under the 6th and 7th Carbon Budget trajectories. Some of this will be delivered through grid electricity decarbonisation, but it indicates that a significant push is needed from local policy and action to drive the necessary emissions reductions.

Climate change risk and vulnerability screening

A climate change risk and vulnerability screening has been completed, which outlines current and future climate hazards facing Thurrock, and the associated risks that this will bring for Thurrock. The analysis highlights extreme heat and heatwaves, extreme cold, heavy rainfall and surface water flooding, tidal and river flooding, water scarcity and drought and storms as key current climate hazards facing Thurrock. Analysis of climate change projections highlights that extreme heat and heavy rainfall and surface water flooding are the key hazards that are predicted to change the most in the future, in terms of frequency and / or magnitude of extreme weather events. In addition, the screening provides an overview of the impacts of climate change on Thurrock's vulnerable populations, highlighted older adults, children, those with chronic illness, with lower-income and living in fuel-poor households as being additionally at risk from certain climate change risks facing Thurrock. As such, Local Plan policy and council-led action should seek to address these current and future climate hazards.

Thurrock Climate Change Action Plan

This report brings together information from the evidence base summarised above, along with feedback collected from Thurrock Council Officers, to produce a Climate Change Action Plan for

Thurrock. The action plan contains 38 actions, cutting across 8 topic areas, which outline how Thurrock Council will lead and support on the delivery of action to reduce borough-wide carbon emissions and increase borough-wide adaptation to current and future climate change. The plan summarises Thurrock delivery teams, key partners, and related Thurrock Council strategies.

6.2 Next Steps

Following publication of this report, it is recommended that the following steps be taken:

- Completion of a full climate change risk and vulnerability assessment, following on from the screening analysis completed in this report,
- Delivery of the Climate Change Action Plan, with mechanisms set up for collaboration between Thurrock Council teams to deliver on these cross-cutting actions, and Council governance in place to approve these actions,
- Development of closer ties with Thurrock's community groups, through working with organisations such as Thurrock CVS, to accelerate action in areas where Thurrock Council can provide support to achieve this.

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Appendix A Legislation, Policy and Guidance Review

A.1 National Legislation, Policy and Guidance Review

Table 5: National Legislative and Policy Context

Name	Author and Dates	Summary of Key Relevant National Legislation and Policy
The Climate Change Act 2008	UK Government, 2008	The Climate Change Act (2008) makes it the duty of the Secretary of State to reduce net greenhouse gas emissions to avoid dangerous climate change and make provision for adaptation to climate change. The Climate Change Act 2008 (2050 Target Amendment) Order 2019, SI 2019/1056 (the order), came into force on 27 June 2019 amended the legally binding target to reduce greenhouse gas (GHG) emissions set in section 1 of the Climate Change Act 2008 (CCA 2008) from 80% to 100% (net zero) relative to 1990 levels by 2050. This target is supported by a system of legally binding five-year 'Carbon Budgets' that restrict the amount of GHG emissions the UK can legally emit. Climate Change Act 2008 Section 56 commits the Secretary of State to assess the risks to the United Kingdom from the current and predicted impacts of climate change. The Act legally requires HM Government to produce a five-yearly Climate Change Risk Assessment (CCRA), with CCRA3 (2022) presenting the UK's most recent assessment. The Act also mandates the development of a National Adaptation Programme to address the risks identified, with the third programme (NAP3) published in 2023.
The Seventh Carbon Budget - Climate Change Committee 2038-2042	Climate Change Committee, 2025	In February 2025, the Climate Change Committee (CCC) published its advice on the seventh carbon budget (2038–2042), which outlines the recommended emissions limits for that period (Climate Change Committee, 2025). However, this seventh budget has not yet been ratified by the UK government, meaning it is not yet legally binding. Once ratified, the budget would set a legally binding emissions limit of 535 MtCO₂e for the period 2038–2042. It outlines a Balanced Pathway to net zero by 2050 and it provides a detailed emissions trajectory that meets the requirements of each carbon budget period, including the sixth and proposed seventh budgets. The pathway incorporates widespread electrification, deployment of low-carbon heating systems, expansion of renewable energy, and nature-based solutions. The CCC also emphasises the integration of climate adaptation into mitigation delivery to ensure long-term resilience.
Carbon Budget Delivery Plan (revised plan due October 2025)	UK Government, 2023	The Carbon Budget Delivery Plan, published in March 2023, sets out the UK Government's strategy to meet Carbon Budgets 4, 5, and 6, covering emissions reductions through to 2037. It builds on the Net Zero Strategy and outlines sector-specific policies across energy, transport, buildings, and industry. However, the plan was ruled unlawful in 2024 due to its reliance on unproven technologies and lack of transparency in delivery. A revised plan is legally required by 29 October 2025, following a High Court ruling. This update is expected to include clearer, actionable policies to meet near-term carbon targets and address delivery risks. It is anticipated that the revision will strengthen public accountability and ensure the benefits of climate action - such as lower bills, warmer homes, and better transport - are shared fairly across society

Name	Author and Dates	Summary of Key Relevant National Legislation and Policy
Accelerating to Net Zero" is the UK government's response to the <u>Climate Change Committee</u> (CCC)'s 2024 Progress Report	UK Government, 2024	Accelerating to Net Zero outlines the UK Government's response to the CCC's warning that only a third of the emissions reductions needed by 2030 were backed by credible plans. The document sets out immediate actions taken to get climate policy back on track, including lifting the onshore wind ban, expanding solar and carbon capture, and launching the Warm Homes Plan. It frames net zero as a national mission to deliver clean energy, economic growth, and improved quality of life, while committing to publish a detailed plan for Carbon Budget 7 by June 2026
National Climate Change Risk Assessment (CCRA3)	Department for Environment, Food & Rural Affairs, 2022	The third Climate Change Risk Assessment (CCRA3), published in 2022, identifies 61 climate risks and opportunities facing the UK. These are grouped under five categories: Natural Environment & Assets, Infrastructure, Health, Communities & the Built Environment, Business & Industry, and International Dimensions. The assessment provides the evidence base for national adaptation planning and informs the development of NAP3.
National Adaptation Programme 3 Third National Adaptation Programme (NAP3)	Department for Environment, Food & Rural Affairs, 2023	The third National Adaptation Programme (NAP3), published in 2023, sets out the UK Government's actions to adapt to climate change between 2023 and 2028. It responds to the findings of CCRA3 and highlights the role of local authorities in ensuring service resilience, raising public awareness, and engaging communities. NAP3 includes cross-sectoral measures to improve national preparedness and climate resilience. However, the Climate Change Committee's 2025 progress report found that the UK's preparations remain inadequate. Adaptation delivery is limited, with most outcomes rated poorly and no evidence of 'good' progress. The report warns that planning continues to be piecemeal and disjointed, and that NAP3 has not yet driven the critical shift towards effective adaptation needed to protect communities and infrastructure.
National Planning Policy Framework (NPPF) 2024	Ministry of Housing, Communities & Local Government, 2024	Since the NPPF (2021), the latest NPPF (2024) now requires strategic planning to address climate resilience, as a "key spatial issue" (NPPF, 2024, para. 24). The Framework goes on to clarify how the planning system should account for "all climate impacts including overheating, water scarcity, storm and flood risks and coastal change" (NPPF, 2024, para. 161). This requirement is reiterated for the preparation and assessment of planning applications (NPPF, 2024, para. 165). Additionally, climate change is maintained as a consideration when applying the sequential test to locate development in areas at lowest risk of flooding (NPPF, 2024, para. 172). It has also been added as a consideration for Sustainable Drainage Systems (NPPF, 2024, p. 79). Since the NPPF (2021), the latest NPPF (2024) has not added specific advice for local policymaking on decarbonising buildings, only strengthened the language. It makes direct reference to statutory 2050 net zero target, as part of meeting the challenge of climate change (NPPF, 2024, para. 161). Planning decisions should also grant significant weight to support energy efficiency and low carbon heating improvements to existing buildings, alongside renewable and low carbon energy generation (NPPF, 2024, paras 165, 167 and 168).

Table 6: Summary of Relevant National Guidance

Guidance	Summary
UK Net Zero Carbon Buildings Standard (UK NZBS) Pilot (2025) – Final version expected in 2026.	The UK NZB Standard is an effort of key stakeholders in UK built environment industry, aiming to provide a definition for 'Net Zero Carbon Aligned Buildings'. This is achieved with the introduction of mandatory (in order to conform with the Standard) requirements across a range from topics such as upfront embodied carbon, operational energy use, fossil fuel-free on site, renewable generation and refrigerants. The Standard outlines the process to assessment, verification and conformity, and it also sets the limits/targets for the Energy Use Intensity (EUI) and upfront embodied carbon (but not Whole Life Carbon) for future 'Net Zero' buildings. The targets will apply to new build and retrofits with an adjustment for the date of commencement on site from 2025 to 2050. The Standard is still in Pilot version. It is expected that when final (c. January 2026) it will set a unified approach and limits to net zero carbon aligned buildings. The Standard addresses only residential and non-residential buildings requirements, without including nature, resilience and social parameters of a net zero transition. Concerns from industry have been around the use of upfront embodied carbon and not WLC and the lower embodied carbon limits for retrofit than in new build, that in cases could be interpreted into favouring demolitions indirectly instead of retrofits¹.
Learning from Local Authorities: Embodied Carbon Policy²	The authors of this research publication have identified and discussed the approach and challenges Local Planning Authorities (LPAs) are facing in the UK. The findings highlight the variation in assessment and reporting of results that turns into inefficient processes for LAs and applicants. The Planning teams are in favour of unified approaches with a digital tool that would automate verification and clearly present information to enable discussions with applicants. The findings also suggest that utilisation of existing buildings, reclaim and reuse of materials all have crucial role in reducing embodied carbon. The paper concludes with recommendations for national policy. The recommendations include 1) the introduction of national thresholds for a mandatory assessment of embodied carbon, with building control used for data collection and accountability of information, 2) setting regulatory embodied carbon limits with a timeframe for their reduction, 3) standardisation of national reporting templates with material quantities and carbon factors, and 4) a central repository to collect and analyse assessments for future limits and policy.

¹ Architects' Journal (2025) *Experts slam 'serious flaws' with Net Zero Carbon Buildings Standard*. By Will Ing, 25 April 2025. Available at: <https://www.architectsjournal.co.uk/news/experts-slam-serious-flaws-with-net-zero-carbon-buildings-standard> . Last Accessed : 10/10/2025

² Graham, Miriam & Gillott, Charles & Giesekam, Jannik & Saxton, Georgie & Densley Tingley, Danielle. (2025). Learning from Local Authorities: National Recommendations to Overcome Fragmentation in Embodied Carbon Policy. 10.13140/RG.2.2.35011.72485.

A.2 Regional Context Review

The Essex Net Zero Policy Technical Evidence Base³ defines 'Net Zero Carbon' considering the whole life cycle of assets from upfront embodied carbon, through operational and in-use stages (i.e. retrofit, maintenance, operation) to the end of life of the assets. The main policy recommendation focuses on Net Zero Carbon New Buildings in Operation that does not include the embodied carbon requirements. Based on that approach, the offsetting policy recommendation is also about the shortfall in renewable energy generation on-site to match the operational energy use – as calculated with the EUI for the buildings that is only one source of the whole life cycle emissions.

The Embodied Carbon Policy GE2 complements the local planning requirements towards net zero carbon buildings by introducing policies that promote the carbon management hierarchy and circular economy principles. For major residential (≥100 dwellings) and non-residential (≥5,000m²) developments the Policy introduces specific limits for upfront embodied carbon. The relevant evidence to support the Policy considered industry guidance and standards, analysed the design and planning implications, and reviewed current embodied carbon policies from other local authorities. The 'West of England evidence-base for embodied carbon policy' and the 'Westminster City Council: embodied carbon evidence base' had been examined in the Policy study and showed that the studied typologies, in most cases, could achieve LETI Band C upfront embodied carbon limits without further measures and additional significant cost uplifts.

All the technical pieces of evidence presented in the Essex Policy studies are expected to be valid for Thurrock. The evidence captures best practice in the UK. The upfront embodied carbon will mainly be affected by national supply chains and common construction practices that would apply to every authority in Essex. The Essex Policy studies have been re-issued in 2025, and it is expected that cost and viability implications have been updated as part of the latest issue changes. Policy GE2 introduces upfront embodied carbon limits for major development applications that align with LETI Band C recommendations, but it also mentions the Net Zero Carbon Buildings

³ Introba, Currie & Brown, Etude (2023) Report 1. Essex Net Zero Policy – Technical Evidence Base. Updated September 2025. Available at:

Standard (NZCBS) as an alternative pathway. The comparison of the upfront embodied carbon limits as referenced for the Baseline, 2025 (LETI Best practice 2020 – Band C) and 2030 (LETI Band A) is shown in the tables below.

Table 7: Upfront embodied carbon limits (modules A1-A5) for new residential buildings.

Residential	Baseline (kgCO ₂ e/m ² GIA)	2025 (kgCO ₂ e/m ² GIA)	2030 (kgCO ₂ e/m ² GIA)
Essex Policy GE2		≤500 (homes) ≤500 (flats)	
LETI	~800	<500 (homes + flats)	<300 (homes + flats)
NZCBS		≤430 (homes) ≤565 (flats)	≤290 (homes) ≤380 (flats)

Table 8: Upfront embodied carbon limits (modules A1-A5) for new non-residential buildings.

Non - Residential	Baseline (kgCO ₂ e/m ² GIA)	2025 (kgCO ₂ e/m ² GIA)	2030 (kgCO ₂ e/m ² GIA)
Essex Policy GE2		≤600 (offices) ≤550 (retail) ≤500 (educ.)	
LETI	~1000	≤600 (offices) ≤550 (retail) ≤500 (educ.)	≤350 (offices) ≤300 (retail) ≤300 (educ.)
NZCBS		≤735 (offices) ≤715 (retail) ≤530 (educ.)	≤550 (offices) ≤535 (retail) ≤395 (educ.)

For residential buildings, the limits in Table 7 indicate that Thurrock should consider different limits for med-, high-rise residential buildings (flats) than single houses. The NZCBS limits for new build houses in 2025 suggest that

<https://www.essexdesignguide.co.uk/media/3175/report-1-essex-net-zero-policy-study-technical-evidence-base-july-2023-updated-sept-2025.pdf> .

upfront embodied carbon <500 kgCO₂e/m² GIA is realistic for single houses but may be ambitious to achieve that level for flats currently.

For non-residential buildings, the comparison indicates that NZCBS takes a more conservative approach (whole-building upfront carbon shown in Table 8) than LETI previous recommendations. The 2025 upfront carbon limits are higher for all three building uses, and the projection to 2030 is less ambitious, with the NZCBS 2030 limits for offices and retail being comparable with the LETI 2025 – Band C levels respectively.

It should be noted that LETI have been consulted and reviewed the NZCBS and they support it as a truly cross-industry development. Whereas LETI provides recommendations, the NZCBS has introduced a methodology, and it is expected that it will become a widely accepted certification for 'net zero' buildings in the UK. As it is still in pilot version, the absolute limit values should be considered as indicative only. The comparison provides insights into the trajectory of the upfront embodied carbon limits and the 'baseline' expectations in 2025. The Essex Policy wording refers to the NZCBS as an alternative option. If the final NZCBS limits are still higher than the current Policy, then developers will be able to follow the NZCBS limits instead. The subsequent recommendation to Thurrock would be to align with the Essex Policy and review the limits when the final version of the NZCBS comes to force.

Based on recent research findings⁴ Local Planning Authorities face challenges due to the variation in assessment and reporting of results that turns into inefficient processes for LAs and applicants. To overcome such issues Thurrock could consider how the verification of results could be facilitated through digital tools/platform that would clearly present information and enable discussion with the applicants.

⁴ Graham, Miriam & Gillott, Charles & Giesekam, Jannik & Saxton, Georgie & Densley Tingley, Danielle. (2025). Learning from Local Authorities: National Recommendations to Overcome Fragmentation in Embodied Carbon Policy. 10.13140/RG.2.2.35011.72485.

Table 9: Regional Legislation and Policy Context Review

Name	Author and Date	Summary of Key Relevant Information
Essex Net Zero Policy - Technical Evidence Base (July 2023)	Essex County Council, 2023	The Essex Net Zero Policy - Technical Evidence Base (July 2023) sets out a county-wide framework for achieving net zero carbon buildings, applying to all Essex local authorities, including Thurrock. It suggests that all new buildings should be net zero in operation, fossil fuel-free, and powered by on-site renewable energy (primarily solar PV) to match annual operational energy use. Key performance targets include best practice limits on space heating demand and energy use intensity (EUI), and post-construction monitoring to ensure the targets have been achieved. Local authorities such as Thurrock are authorised to adopt planning policies that exceed national building regulations, with legal advice confirming their ability to do so. An offset mechanism is included for developments unable to meet on-site energy targets, collecting contributions to fund local renewable energy projects. These measures aim to reduce emissions, improve energy efficiency, and support Essex's broader climate resilience and carbon reduction goals.
Uttlesford District Council Net Zero Evidence Base ⁵	Uttlesford District Council, Bioregional, 2024	Uttlesford's policy follows recent trends in "pioneering" Local Plans that specify best practice limits for energy performance to achieve "net zero carbon" development. The requirements go beyond current Buildings Regulations to achieve "True Net Zero", with low space heat demand and energy use intensity (EUI) limits for different building types, a requirement to match total annual energy use with onsite renewables generation (or offset payments £1.35/kWh), energy monitoring in the operational phase, and embodied carbon limits for large developments. The policy is likely to exceed the ambition of the Future Homes Standard when introduced in 2026 – aiming for higher fabric standards and onsite solar PV generation. New development will be required to be fossil-fuel free, utilising low carbon heat systems. It will become important to consider appropriate passive design measures in the site design to optimise rooftop solar PV, heat gains and daylighting, while mitigating overheating risks and avoiding mechanical cooling systems.
Essex Local Nature Recovery Strategy, 2025	Essex County Council, 2025	The Essex Local Nature Recovery Strategy identifies several priorities for Thurrock. It highlights the restoration of Thames Terrace and clay slope grasslands, distinct habitats found in Thurrock and Basildon, as key interventions due to their ecological value and vulnerability to scrub encroachment. The strategy also includes enhancing brownfield grasslands along the sea wall on the Essex side of the Thames Estuary. Additionally, Chafford Gorges Nature Park in Thurrock is recognised for its geological significance, comprising seven sites with exposed chalk cliffs and glacial deposits, contributing to biodiversity and soil health. The Essex LNRS embeds regional nature-based solutions relevant to Thurrock that support carbon sequestration and climate resilience. These include restoring grasslands and wetlands to enhance carbon storage, soil health, and flood mitigation; promoting diverse plant communities to regulate water cycles and buffer against extreme weather; and implementing urban greening measures like green roofs and rain gardens to manage surface water and reduce urban heat.

⁵ Bioregional, Uttlesford District Council (2024) Uttlesford Local Plan Review: Climate Change Evidence Base Addendum, Regulation 19 Evidence Base. Available at: <https://www.uttlesford.gov.uk/article/9395/Regulation-19-Evidence-Base> . Last Accessed: 20/10/2025.

Name	Author and Date	Summary of Key Relevant Information
The Essex Design Guide – Planning Policy Position for Lower Embodied Carbon ⁶	Essex Planning Officers Association (EPOA), 2025	The Essex Guide is not a mandatory requirement for Site Developments, but it provides guidance for the definition of 'Net Zero Carbon Development' in Greater Essex. The Policy outlines that all development must be fossil fuel-free, with on-site renewable generation and low Energy Use Intensity limits for residential buildings. It also requires all development proposals to demonstrate measures to minimise embodied carbon and embed circular economy principles in the design. The current draft update requires for new major developments, major renovation and rebuild developments to achieve low embodied carbon limits or follow NZCBS limits when available.

Table 10: Local Action Plan Review

Name	Author and Date	Summary of Key Relevant Information
Newham Just Transition Plan ⁷	London Borough of Newham, 2023	The Newham Just Transition Plan, approved in December 2023, is the UK's first local authority-led strategy focused on delivering climate action through a lens of social equity. It builds on Newham's 2019 Climate Emergency declaration and reframes climate policy to address not only emissions reduction but also the wider social and economic challenges facing the borough, including inequality, air pollution, and the cost-of-living crisis. The plan aims to deliver a fair and inclusive transition to net zero by 2045, ensuring that climate action improves the lives of all residents. It seeks to increase equity across communities, improve health and well-being, create good green jobs, make neighbourhoods more liveable and resilient, and reduce emissions and environmental harm. Newham is one of the UK's most climate-vulnerable areas, with residents already experiencing extreme heat, flooding, and cost-of-living pressures. The plan responds to these risks by embedding climate resilience and social justice into local policy. The plan is structured around a 3-6-5 framework: Three guiding principles: Increase equity, reduce emissions, build long-term resilience. Six desired futures: These include healthy homes and workplaces, resilient and equitable energy systems, sustainable transport, circular economy practices, healthy diets, and green, connected neighbourhoods. Five enablers: These include growing the council's climate action capacity, increasing investment, partnering with Newham's anchor institutions, enabling civic and place-based action, and working beyond borough boundaries The plan integrates climate action with broader social goals, ensuring that environmental improvements also support economic opportunity, community cohesion, and public health.

⁶ Essex Climate and Planning Unit, Essex Planning Officers Association (EPOA), (2025) Planning Policy Position for Lower Embodied Carbon Homes and Buildings in Greater Essex. Draft version, July 2025. Available at: [essex-embodied-carbon-planning-policy-position-draft-july-2025.pdf](#) . Last Accessed 10/10/2025.

⁷ London Borough of Newham (2023) *Our Just Transition Plan – Our Climate Action Strategy*. Available at: <https://www.newham.gov.uk/downloads/file/6800/newham-just-transition-plan-december-2023> (Accessed: 15 September 2025).

Appendix B Climate Change Risk

B.1 Climate Change Hazards and Impacts Facing Thurrock

This appendix section provides supporting evidence for Thurrock's climate risk profile, summarising the borough's exposure to key hazards and the methods used to assess their impacts. Each subsection introduces the approach taken to collate and analyse relevant data.

B.1.1 Past extreme weather events and their impacts

This subsection presents a timeline of significant extreme weather events that have affected Thurrock in recent years. Events are identified using local authority records, national datasets, and published sources, with each entry summarising the type, timing, location, and observed impacts. The table provides a factual basis for understanding the range and severity of climate hazards experienced locally.

Thurrock has experienced a range of extreme weather events in the past, with adverse impacts to the borough's residents, businesses, built assets and natural environment. A timeline of these events is presented in Table 11.

Table 11: Past extreme weather events in Thurrock.

	Date	Event Type	Location	Impacts
Flooding	31 Jan – 1 Feb 1953	Tidal Flooding	Tilbury	Sea walls overtopped; homes, businesses, and infrastructure flooded; 307 lives lost across region. Driver for building the Thames Barrier. (Thurrock Council, n.d.)
	2012/3	Surface Water and Sewage Flooding	Tilbury (Quebec Road)	Formal flood investigation - "surface water as the main source of flooding as the local drainage system surcharged" - factors include a "blocked surface water sewer outfall" (Thurrock Council, 2013)
	2023	Surface/Sewer Flooding	Stanford-le-Hope	Homes and vehicles damaged; sewer systems overwhelmed (Nub News Reporter, 2023)
	2021	Localised flooding (River Mardyke)	Thurrock	Flooding in the Mardyke Valley led to greenspace inundation, damage to stables with horses reportedly suffering foot rot, and transport disruption. (Speight, 2021) (Previsico, 2023)
Storm	18-Feb-22	Storm Eunice	Essex-wide	Wind damage, power outages, transport disruption - fallen trees (BBC News, 2022)
	18–21 Oct 2023	Storm Babet	Eastern England	Exceptional rainfall; regional flooding (Met Office, 2023a)
	6–7 Apr 2024	Storm Kathleen	Southern England	Damaging winds and heavy rain (Met Office, 2023b)

	Date	Event Type	Location	Impacts
	23–24 Nov 2024	Storm Bert	Thurrock	High winds caused 23 road and footpath obstructions: trees and branches cleared by council teams (PA News Agency, 2024)
Heatwave	16–19 July 2022	Heatwave (Red Warning)	UK-wide	Temps >40°C; health services overwhelmed; transport and energy infrastructure strained (Met Office, 2022)
	4–10 Sept 2023	Heatwave	Essex	Daily highs >30°C; increased health risks, water stress, reduced productivity (Met Office, 2023c)
Drought	Summer 2022	Drought	Essex (Thurrock)	Essex officially declared in drought; rainfall deficits; hosepipe bans introduced; pressure on agriculture and water supply systems (Day-Parker, 2022)
Extreme	Feb 2018	Beast from the East	UK-wide	Temperatures were 8–12°C below average, with wind chills below –10°C. The Met Office issued two Red Warnings for snow (Met Office, 2018a; Met Office, 2018b).

B.1.2 Flood risk in Thurrock

This section summarises the current flood risk across Thurrock, highlighting the proportion of properties exposed to river, sea, and surface water flooding. For a fuller understanding of flood risk, refer to Thurrock Council's Local Flood Risk Management Strategy (Thurrock Council, n.d.) and Strategic Flood Risk Assessment (Scott Wilson Ltd, 2009).

Flood risk from river and sea

Figure 9 shows the current yearly chance of flooding from rivers and the sea across Thurrock. Areas shaded in dark blue represent a high risk (greater than 3.3% chance per year), medium blue indicates medium risk (1%–3.3%), and light blue shows low risk (0.1%–1%). These maps reflect a defended scenario, so considers the flood risk reduction provided by existing defences such as the Thames Barrier. This map has been used here, as a future comparative dataset is available that helps demonstrate the change in risk associated with climate change.

Flooding from the River Thames and Mar Dyke presents a risk in Thurrock, with 18.22% of properties identified as being at some level of risk from river and sea flooding (Environment Agency, 2025). While the majority of these (16.25%) fall into the very low risk category, there are still 209 properties at high risk and 269 at medium risk.

The highest flood risk zones are concentrated along the River Thames. Additional high-risk areas are visible near the Mar Dyke.

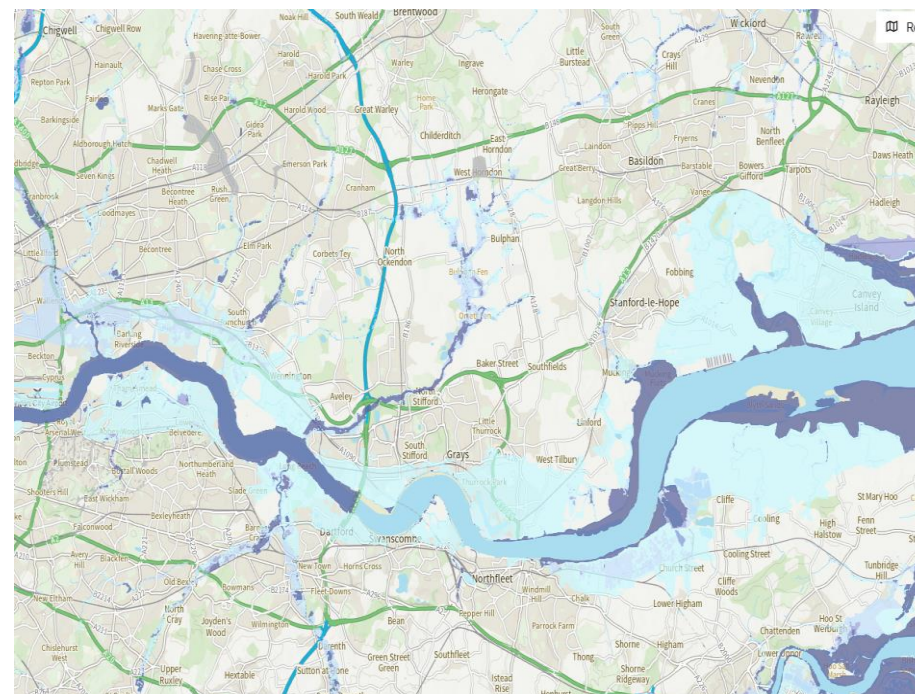


Figure 9: Current River Flood Risk in Thurrock (to 30cm depth)

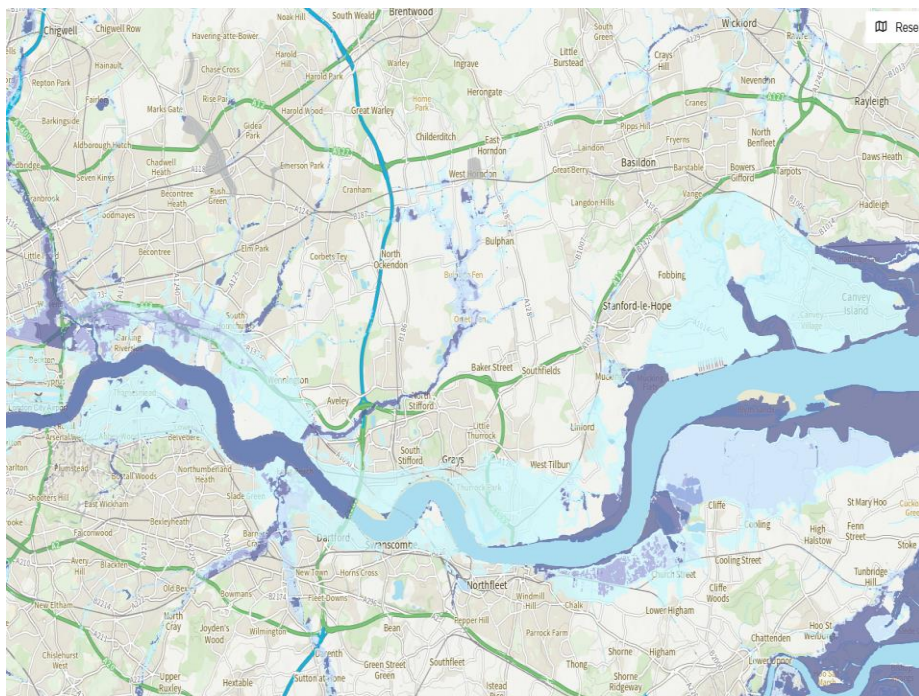


Figure 10: Projected Future River and Sea Flood Risk in Thurrock (2040–2060, to 30cm depth)

Figure 10 shows the projected flood risk from rivers and the sea between 2040 and 2060. While the overall distribution of flood-prone areas remains broadly like current conditions, there is a slight increase in risk, particularly along the River Thames and near the Mar Dyke. The extent of blue shading appears more widespread and darker in some regions, suggesting a gradual intensification of vulnerability in low-lying and river-adjacent areas.

Flood risk from surface water

Figure 11 shows the current yearly chance of surface water flooding to a depth of 30cm across Thurrock. Areas shaded in dark blue represent a high risk (greater than 3.3% chance per year), medium blue indicates medium risk (1%–3.3%), and light blue shows low risk (0.1%–1%). Key locations such as Grays, Tilbury, and Stanford-le-Hope show concentrated areas of flood risk, particularly near the River Thames and Mar Dyke.

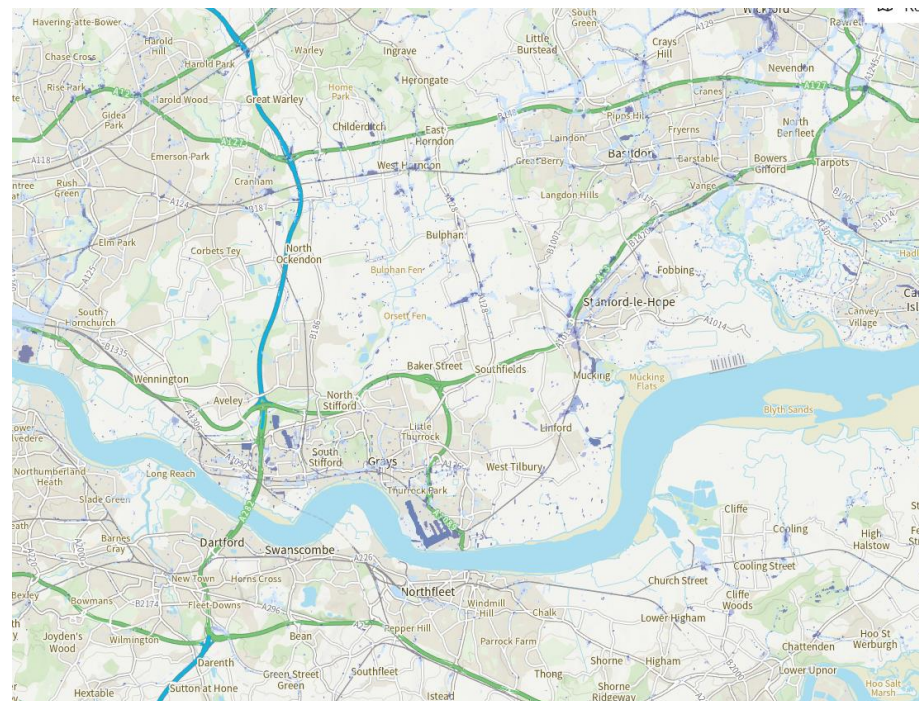


Figure 11: Current Surface Water Flood Risk in Thurrock (to 30cm depth)

Surface water flooding presents a major risk in Thurrock, with 47.46% of properties, equating to 40,321 homes and buildings, identified as being at risk. Of these, 30.99% (26,330 properties) are at high risk, with an additional 5,791 properties (6.82%) at medium risk, and 8,200 (9.65%) at low risk. This level of exposure far exceeds that of river and sea flooding, underscoring the urgency for local flood mitigation strategies.

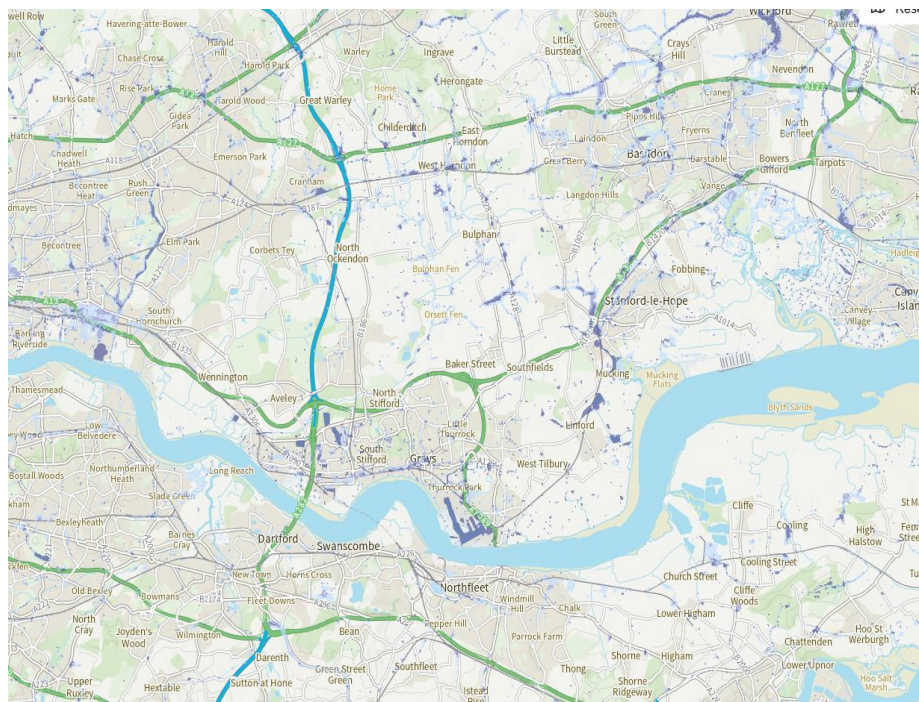


Figure 12: Projected Surface Water Flood Risk in Thurrock (2040–2060, to 30cm depth)

Figure 12 shows the projected surface water flood risk between 2040 and 2060, with the same depth threshold of 30cm. While the overall pattern of flood-prone areas remains broadly similar to current conditions, the map suggests a slight intensification in some zones, particularly near low-lying and river-adjacent areas. The consistency between the two maps indicates that existing flood risk areas are likely to persist.

B.1.3 The changing climate in Thurrock

This section presents a detailed overview of how Thurrock's climate is projected to change in future, under both 2°C and 4°C global warming scenarios. Projections are presented as an increase from the 1981–2000 baseline climatic period. In each case there is a central projection (the Median) and an uncertainty range (the Lower and Upper values are the 10th and 90th percentiles).

The data has been sourced from the latest UK Climate Projections 2018 (UCKP18), produced by the Met Office and calculated at the borough scale using their Local Authority Climate Services (LACS) tool.

Increasing average temperature

Annual average temperature refers to the mean air temperature recorded across all days of the year. It indicates long-term warming trends that affect seasonal patterns, biodiversity, and energy demand. In Thurrock, rising average temperatures may increase the frequency of heat-related health issues, reduce winter heating demand, and alter local ecosystems.

The annual average temperature in Thurrock is expected to increase under a 2°C global warming scenario to 12.4°C (range: 11.9°C to 12.5°C), and under a 4°C scenario to 14.1°C (range: 13.7°C to 14.6°C), relative to the 1981–2000 baseline of 10.6°C.

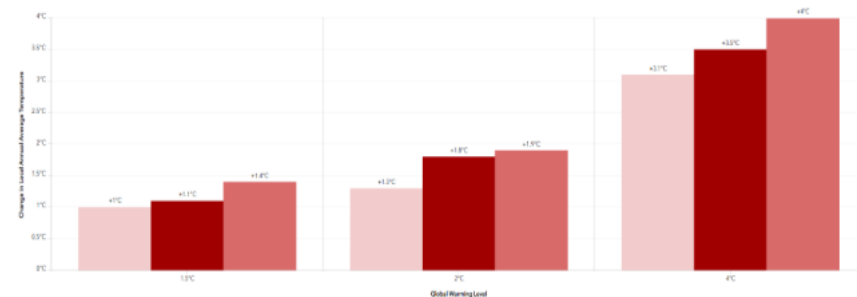


Figure 13: Change in Annual Average Temperature in Thurrock

Increased summer temperatures

Summer maximum temperature refers to the highest daytime temperatures recorded during summer months (June, July, August). These extremes are key indicators of heatwave intensity and urban heat island effects. In Thurrock, higher summer temperatures increase the risk of overheating in homes and public buildings, especially for vulnerable populations, and may reduce outdoor work productivity.

Summer maximum temperature in Thurrock is expected to increase under a 2°C global warming scenario to 33.0°C (range: 31.9°C to 34.5°C), and under

a 4°C scenario to 36.4°C (range: 35.5°C to 38.1°C), relative to the 1981–2000 baseline of 29.9°C.

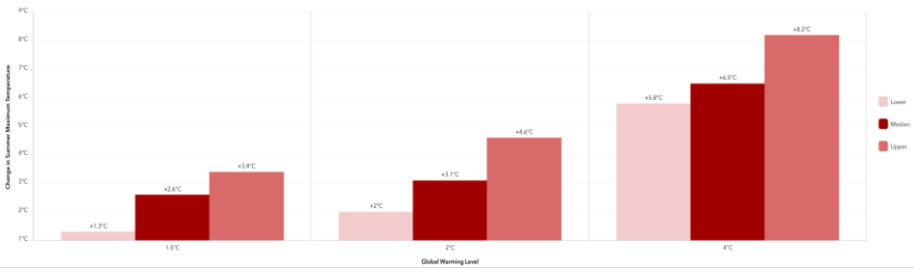


Figure 14: Change in Summer Maximum Temperature in Thurrock

Hot summer days are defined as days when the maximum temperature exceeds 30°C. Very high daytime temperatures pose serious health risks, especially for vulnerable populations, increasing the likelihood of hospital admissions and heat-related deaths. Transport infrastructure is also at risk, with potential for rail track buckling, road surface melting, and reduced efficiency of overhead power lines, affecting mobility and energy reliability.

The frequency of these events in Thurrock are projected to increase under a 2°C global warming scenario to an average of 7 days per year (range: 4 to 9 days), and under a 4°C scenario to 23 days per year (range: 19 to 32 days), compared to the 1981–2000 baseline of 1 day per year.

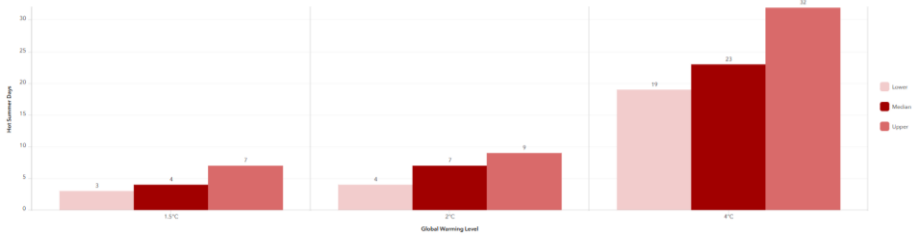


Figure 15: Average number of Hot Summer Days in Thurrock

Tropical nights are defined as nights where the daily minimum temperature is above 20°C. High night-time temperatures can lead to heat stress, especially when cooling is limited. Vulnerable populations, including the elderly and those with pre-existing health conditions, face increased risks of hospital admission or death

Tropical nights in Thurrock are projected to increase under a 2°C global warming scenario to an average of 1 night per year (range: 0 to 1 nights), and under a 4°C scenario to 7 nights per year (range: 3 to 8 nights), compared to the 1981–2000 baseline of 0 nights per year.

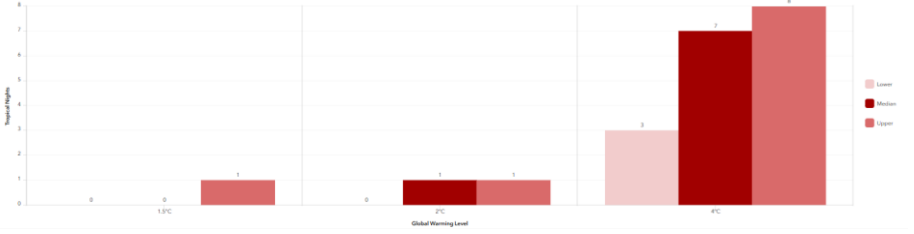


Figure 16: Average number of Tropical Nights in Thurrock

Cooling degree days are defined as the cumulative number of degrees the daily mean temperature exceeds 22°C over a year. Cooling degree days indicate rising energy demand for cooling, which may strain local electricity systems and require infrastructure planning to protect vulnerable residents during hotter conditions.

In Thurrock, cooling degree days are projected to increase under a 2°C global warming scenario to an average of 89 days per year (range: 69 to 108), and under a 4°C scenario to 194 days per year (range: 172 to 244), compared to the 1981–2000 baseline of 34 days per year.

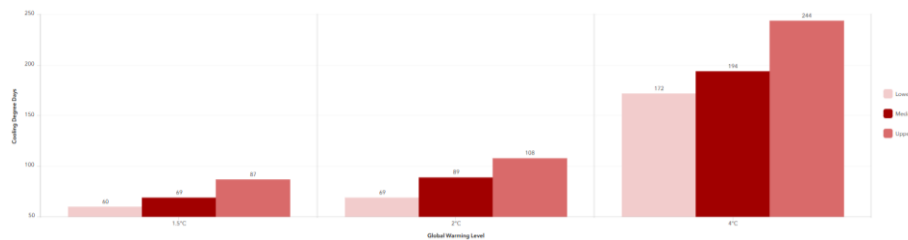


Figure 17: Average number of Cooling Degree Days in Thurrock

Increased winter temperatures

Icing days are defined as days when the maximum temperature remains below 0°C. Icing days represent more extreme cold weather events than frost days, with greater potential for health risks, especially among vulnerable groups. A reduction in icing days may lessen the burden on local services such as road gritting, emergency response, and infrastructure maintenance.

Icing days in Thurrock are projected to decline from an average of 2 days per year during the 1981–2000 baseline to 1 day per year under a 1.5°C and 2°C global warming scenario suggesting a decreasing risk of icy conditions.

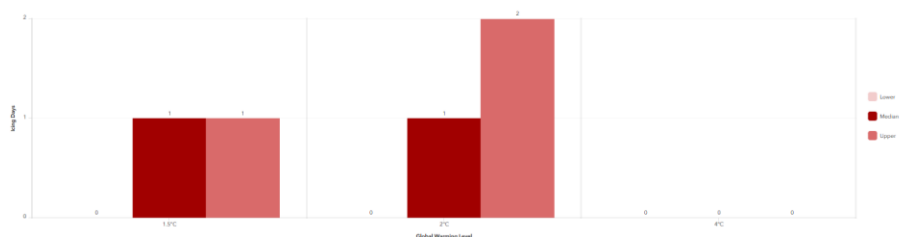


Figure 18: Average number of Icing Days in Thurrock

Heating degree days are defined as the cumulative number of degrees the daily mean temperature falls below 15.5°C over a year. A reduction in heating degree days suggests lower energy demand for space heating but also increased cooling needs.

In Thurrock, heating degree days are projected to decrease under a 2°C global warming scenario to an average of 1741 days per year (range: 1636 to 1812), and under a 4°C scenario to 1326 days per year (range: 1234 to 1436), compared to the 1981–2000 baseline of 2073 days per year.

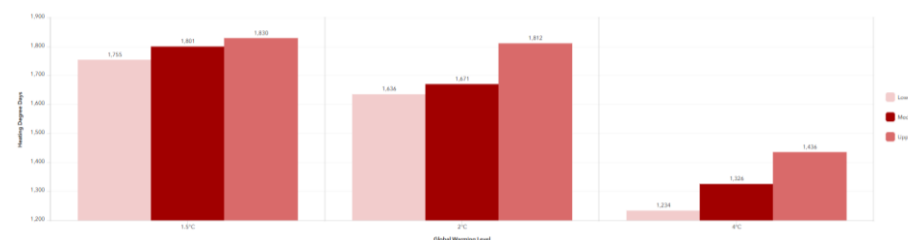


Figure 19: Average number of Heating Degree Days in Thurrock

Changing precipitation patterns

Summer precipitation refers to total rainfall during summer months. It influences water availability, drought risk, and flood potential. In Thurrock, reduced summer rainfall may increase drought risk and pressure on water supply systems, particularly affecting green spaces, agriculture, and local water infrastructure.

Summer precipitation in Thurrock shows uncertainty in trend under a 2°C global warming scenario, with projected changes ranging from –25% to +2%. Under a 4°C scenario, there is greater confidence in a decrease, with projections consistently ranging from –42% to –22%, relative to the 1981–2000 baseline.

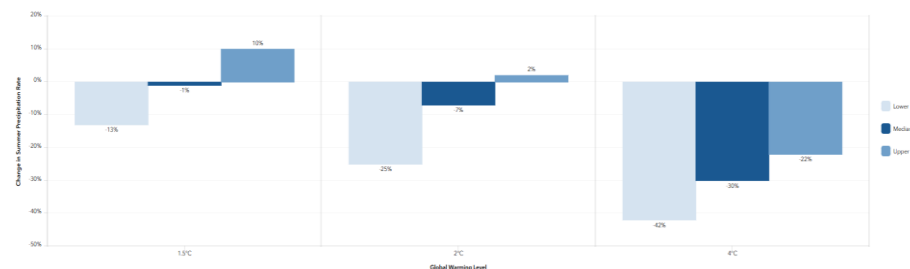


Figure 20: Change in Summer Precipitation Rate in Thurrock

Winter precipitation includes rainfall and snowfall during colder months. It affects flood risk, water resource replenishment, and seasonal infrastructure planning. In Thurrock, increased winter rainfall raises the risk of surface water and river flooding, particularly in low-lying areas.

Winter precipitation in Thurrock shows uncertainty in trend under a 2°C global warming scenario, with projected changes ranging from –3% to +12%. Under a 4°C scenario, there is greater confidence in an increase, with projections consistently ranging from +9% to +21%, relative to the 1981–2000 baseline.

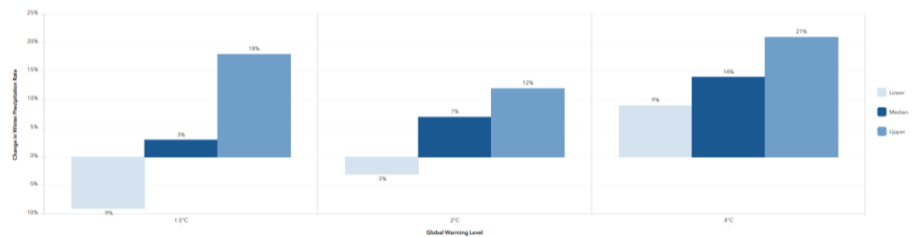


Figure 21: Change in Winter Precipitation Rate in Thurrock

B.2 Climate Change Risk Screening

This section presents the results of the climate risk screening undertaken for Thurrock, as part of the initial stage of the Climate Change Risk Assessment (CCRA) process. The screening exercise draws on evidence from both past and projected climate trends and impacts, identifying which risks from the national CCRA3 long list are relevant to Thurrock's local context. Each risk is assessed for its significance to the borough and its relevance to the Local Plan, with justifications provided for those screened out. The table below summarises the outcomes of this process, indicating which risks have been prioritised for further consideration and mapping their relevance to the planning department.

Risk Type	Risk ID	Risk / Opportunity	Urgency (CCRA defined)	Screened in or out for Thurrock?	Justification for screening out	Planning and development
Business and Industry	B01	Risks to businesses from flooding	HIGH	In		x
	B02	Risks to businesses and infrastructure from coastal change from erosion, flooding and extreme weather events	HIGH	Out	Thurrock is not exposed to open coast so there is no significant risk of coastal erosion	x
	B03	Risks to business from water scarcity	MED	In		x
	B04	Risks to finance, investment and insurance including access to capital for businesses	LOW	Out	National-level risk, not within Thurrock's sphere of control or influence	x
	B05	Risks to business from reduced employee productivity due to infrastructure disruption and higher temperatures in working environments	MED	In		x
	B06	Risks to business from disruption to supply chains and distribution networks	HIGH	In		x
	B07	Opportunities for business from changes in demand for goods and services	MED	In		x
Health, Communities and the Built Environment	H01	Risks to health and wellbeing from high temperatures	HIGH	In		x
	H02	Opportunities for health and wellbeing from higher temperatures	MED	In		x
	H03	Risks to people, communities and buildings from flooding	HIGH	In		x
	H04	Risks to the viability of coastal communities from sea level rise	HIGH	Out	Thurrock is not exposed to open coast so no direct sea level rise threat	x
	H05	Risks to building fabric	MED	In		x
	H06	Risks and opportunities from summer and winter household energy demand	HIGH	In		
	H07	Risks to health and wellbeing from changes in air quality	MED	In		
	H08	Risks to health from vector-borne disease	HIGH	Out	No current risk in Thurrock but may become relevant in the future	
	H09	Risks to food safety and food security	MED	In		
	H10	Risks to water quality and household water supplies	MED	In		
	H11	Risks to cultural heritage	HIGH	In		
	H12	Risks to health and social care delivery	HIGH	In		
	H13	Risks to education and prison services	HIGH	In		
Infrastructure	I01	Risks to infrastructure networks (water, energy, transport, ICT) from cascading failures	HIGH	In		x
	I02	Risks to infrastructure services from river, surface water and groundwater flooding	HIGH	In		x
	I03	Risks to infrastructure services from coastal flooding and erosion	MED	Out		x
	I04	Risks to bridges and pipelines from flooding and erosion	MED	In		
	I05	Risks to transport networks from slope and embankment failure	HIGH	In		
	I06	Risks to hydroelectric generation from low or high river flows	MED	Out		x
	I07	Risks to subterranean and surface infrastructure from subsidence	MED	In		x
	I08	Risks to public water supplies from reduced water availability	HIGH	In		
	I09	Risks to energy generation from reduced water availability	MED	Out		
	I10	Risks to energy from high and low temperatures, high winds, lightning	MED	In		x
	I11	Risks to offshore infrastructure from storms and high waves	LOW	Out		
	I12	Risks to transport from high and low temperatures, high winds, lightning	HIGH	In		
	I13	Risks to digital from high and low temperatures, high winds, lightning	MED	In		

International Dimensions	ID01	Risks to UK food availability, safety, and quality from climate change overseas	HIGH	Out	National-level risk, Thurrock will feel effects but captured under risk H09	
	ID03	Risks and opportunities to the UK from climate-related international human mobility	LOW	Out	National-level risk, Thurrock may experience indirect effects, but migration policy and response are national	x
	ID04	Risks to the UK from international violent conflict resulting from climate change overseas	HIGH	Out	National-level risk	x
	ID06	Opportunities from climate change (including Arctic ice melt) on international trade routes	LOW	Out	Not relevant to Thurrock	x
	ID07	Risks associated with international trade routes	HIGH	Out	National-level risk, Thurrock may be indirectly affected, but cannot manage this locally.	x
	ID08	Risk to the UK finance sector from climate change overseas	LOW	Out	National-level risk	x
	ID10	Systemic risk arising from the amplification of named risks cascading across sectors and borders	HIGH	Out	National-scale risk, outside of Thurrock's sphere of control or influence. Impacts can be picked up against other risks	x
Natural Environment and Assets	N01	Risks to terrestrial species and habitats from changing climatic conditions and extreme events, including temperature change, water scarcity, wildfire, flooding, wind, and altered hydrology (including water scarcity, flooding and saline intrusion).	HIGH	In		x
	N02	Risks to terrestrial species and habitats from pests, pathogens and invasive species	HIGH	In		x
	N03	Opportunities from new species colonisations in terrestrial habitats	MED	In		x
	N04	Risk to soils from changing climatic conditions, including seasonal aridity and wetness.	HIGH	In		x
	N05	Risks and opportunities for natural carbon stores, carbon sequestration from changing climatic conditions, including temperature change and water scarcity	HIGH	In		x
	N06	Risks to and opportunities for agricultural and forestry productivity from extreme events and changing climatic conditions (including temperature change, water scarcity, wildfire, flooding, coastal erosion, wind and saline intrusion).	HIGH	In		
	N07	Risks to agriculture from pests, pathogens and invasive species	HIGH	In		x
	N08	Risks to forestry from pests, pathogens and invasive species	HIGH	Out	Forestry is a very small industry in Thurrock	x
	N09	Opportunities for agricultural and forestry productivity from new/alternative species becoming suitable.	MED	In		x
	N10	Risks to aquifers and agricultural land from sea level rise, saltwater intrusion	MED	In		
	N11	Risks to freshwater species and habitats from changing climatic conditions and extreme events, including higher water temperatures, flooding, water scarcity and phenological shifts.	HIGH	In		x
	N12	Risks to freshwater species and habitats from pests, pathogens and invasive species	HIGH	In		x
	N13	Opportunities to freshwater species and habitats from new species colonisations	LOW	In		
	N14	Risks to marine species, habitats and fisheries from changing climatic conditions, including ocean acidification and higher water temperatures.	HIGH	Out	Thurrock is not a marine area	x
	N15	Opportunities to marine species, habitats and fisheries from changing climatic conditions	MED	Out	Thurrock is not a marine area	x
	N16	Risks to marine species and habitats from pests, pathogens and invasive species	HIGH	Out	Thurrock is not a marine area	x
	N17	Risks and opportunities to coastal species and habitats due to coastal flooding, erosion and climate factors.	HIGH	Out	Thurrock is not a coastal area	x
	N18	Risks and opportunities from climate change to landscape character	MED	In		

B.3 Climate Change Risk Impacts to Vulnerable Populations

Table 12 presents the findings of a literature review undertaken to better understand the climate-related impacts to individuals with protected characteristics

Table 12: Impact assessment of climate risks facing individuals with protected characteristics in Thurrock.

Characteristics	Sub-groups	Thurrock profile	Hazard-agnostic impacts	Heat-specific impacts	Flood-specific impacts
Age	Babies	In 2021, there were approximately 2,330 births in Thurrock (Office for National Statistics, 2022)		Babies are vulnerable to heatwaves in a similar manner to young children – <i>see narrative for young children below</i> .	
	Children	27.1% of Thurrock's population are aged 0–19, with 7.7% aged 0–4 (Thurrock Council, 2021a).	Children face high climate anxiety, with 81% of children in the UK feeling like they are not being listened to (UNICEF, 2021).	Heatwaves affect cognitive function and therefore learning (World Health Organisation, 2024). Young children (and babies) are particularly at risk as they create more heat energy, sweat less and experience dehydration quicker. Young children additionally rely on adults for care and struggle to understand or communicate when they are hot (Climate Just, 2022). They are also particularly vulnerable to developing respiratory issues. There are increased hospital emergency admission rates for heat-related illness in children under five during hot weather (Climate Just, 2022).	School closures impacting childcare, food provision, education and support systems. Flooding has been associated with increased mental health and behavioural difficulties in children, as well as increases in the incidence rates of a range of diseases (Climate Just, 2022).
	Under 21s	Beyond the information regarding impacts to children above, there is a lack of research on whether this protected characteristic exacerbates individuals' vulnerability to the impacts of climate change.			
	Over 65s	14% of Thurrock's population are aged 65 and over (Office for National Statistics, 2022).		Most excess heat related deaths in the UK occur to people over the age of 65 (UK Health Security Agency, 2024). High temperatures increase heart attacks and respiratory complications among older people (World Health Organisation, 2024) Heatwaves worsen air quality, which raises risks of respiratory illness among older people, who also face greater risks of cancer, cardiovascular disease, and pneumonia (World Health Organisation, 2024).	Older adults may face challenges accessing healthcare, transportation, and emergency services during floods (Prina et al. 2024) .
Disability	Individuals with physical, learning and mental disabilities	In 2017, 6,158 adults over 65 in Thurrock had limiting long-term illnesses; projected to rise to 6,698 by 2021 (Thurrock Council, 2017).	Disruptions caused by extreme weather events hinder ability to receive necessary medical attention. Barriers during evacuation and lack	Some people with disabilities are especially at risk from heat-related illness and death. These include individuals with mental health issues, those who depend on others for assistance in daily living, and those with limited mobility or access to transportation (United States Environmental Protection Agency, 2023).	Flooding can damage infrastructure, affecting accessibility for people with disabilities. For example, flooding can render wheelchair ramps unusable (Stein and Stein, 2021).

Characteristics	Sub-groups	Thurrock profile	Hazard-agnostic impacts	Heat-specific impacts	Flood-specific impacts
			of accessible transportation put disabled individuals at risk. Disasters disrupt social networks, making it harder for isolated disabled individuals to access assistance (Stein and Stein, 2021).	Some people with disabilities are more likely to have health conditions or use medication that can affect the body's ability to respond to heat. Having to stay home due to the heat can also lead to social isolation (Reuters, 2023). The decreased mobility experienced by individuals with physical disabilities during heatwaves significantly hampers their body's natural cooling mechanisms (e.g. sweating and vasoconstriction), resulting in difficulties regulating body temperature. This impairment makes them more susceptible to heat-related health issues, including heat exhaustion, dehydration, and heatstroke. The prolonged exposure to extreme heat due to their limited ability to move or change positions also heightens discomfort and intensifies pain sensitivity (Eztia, 2023). Moreover, the limited mobility of individuals with physical disabilities poses challenges in accessing cooler environments, as they are unable to leave their immediate surroundings easily, such as to shift positions to find relief from high temperatures or seek a public cooling centre. This restricted mobility can lead to prolonged exposure to extreme heat, amplifying the risk of heat-related health complications. And for those who rely on assistive devices or equipment, such as wheelchairs or orthotics, the heat generated by these aids adds to their discomfort during hot weather, compounding the challenges they face during heatwaves (Eztia, 2023).	It can be much more difficult for people with physical disabilities to evacuate during a flood event.
Individuals undergoing gender reassignment		There is a lack of research on whether this protected characteristic exacerbates individuals' vulnerability to the impacts of climate change.			
Marriage or civil partnership		There is a lack of research on whether this protected characteristic exacerbates individuals' vulnerability to the impacts of climate change.			
People affected by pregnancy/maternity		In 2021, there were approximately 2,330 births in Thurrock (Office for National Statistics, 2022).	Pregnant individuals may experience heightened climate anxiety as they consider the future their children are likely to experience	High temperatures are linked to adverse birth outcomes, including preterm birth and stillbirth. Each additional 1°C in minimum daily temperature over 23.9°C increases the risk of infant mortality by up to 22.4%. (World Health Organisation, 2024)	

Characteristics	Sub-groups	Thurrock profile	Hazard-agnostic impacts	Heat-specific impacts	Flood-specific impacts
			(Potter and Jonker, 2023).		
Race	People of the Global Majority	33.8% of Thurrock residents identify as an ethnicity other than White British (Thurrock Council, 2021b).	Ethnic minority children make up the highest number of hospital admissions from air pollution (London Assembly, 2021). In general, people of the global majority are more likely to suffer from deprivation which exacerbates climate vulnerability – see <i>'Socio-economic disadvantage'</i> below.	People of colour are four times more likely to live within one of the priority neighbourhoods for adaptation than white people, and Westminster has 34 priority neighbourhoods for adaptation (Friends of the Earth, 2022)	
	Refugees and asylum seekers	Thurrock supports 43 unaccompanied asylum-seeking children currently in care (Thurrock Council, 2024).	Nearly a fifth (17%) of people seeking asylum struggle with homelessness (Refugee Council, 2022) – see <i>'Homeless or unhoused populations'</i> below.	Narrative for migrants is also applicable here – see <i>below</i> .	
	Migrants	he majority of migrants in Thurrock originate from Eastern Europe and Africa, with top countries including Poland, Romania, Nigeria, Slovakia, and Lithuania (Thurrock Council, 2021b).	On a global level, climate migration has already begun. The UK can expect to welcome more migrants and see internal migration as people and their families move away from areas becoming uninhabitable (for example due to coastal erosion, flooding, and maybe also heat). Where people from ethnic minority communities have family overseas in climate vulnerable areas, they may be more likely to experience emotional, financial, or practical challenges in supporting their families in moving away from climate risks (Gadd et al., 2023).		
	Travellers	Thurrock manages 3 Traveller sites with a total of 65 plots (Thurrock Council, 2021c).	Traveller communities living in caravans are at risk of climate impacts as caravans are not well adapted for climate change and sites are often placed on land deemed unsuitable for housing (for example due to flood risk, and often in areas of high air pollution). They also may struggle to get insurance so are at greater financial risk (Gadd et al., 2023)		

Characteristics	Sub-groups	Thurrock profile	Hazard-agnostic impacts	Heat-specific impacts	Flood-specific impacts
Religion and belief		There is a lack of research on whether this protected characteristic exacerbates individuals' vulnerability to the impacts of climate change.			
Sex	Women	Women make up 51% of Thurrock's population (Thurrock Council, 2021a).	Women and girls are more likely to experience gender-based violence during extreme climate events (Van Daalen, 2022). Climate change can lead to higher workloads and responsibilities for women. (UNFCCC, 2023).	Women are more likely to die than men in heatwaves (D'Ippoliti et al., 2010)	
Sexual orientation		No specific data available for Thurrock	Sexual minority populations are more likely to experience gender-based violence during extreme climate events (Van Daalen, 2022).		
Socio-economic disadvantage	People with low incomes	More than 1 in 5 children under 16 in Thurrock live in poverty (21.2%), with rates as high as 56.4% in parts of Tilbury (Thurrock Council, 2021a).		People on lower incomes are disproportionately affected by a lack of cooling near their homes (Friends of the Earth, 2023).	The average cost of flooding to a home is around £30,000 and to a business £82,000 (Thames Valley, 2024)
	Homeless or unhoused populations	Thurrock experienced a 22% increase in homelessness in 2023, with rising demand for temporary accommodation (Thurrock Council, 2024)		Homeless individuals were around 35% more likely to be admitted to hospital when daily temperatures were 25°C compared to 6°C (London School of Hygiene & Tropical Medicine, 2023). They may sit or sleep in direct sunlight or on hot surfaces such as tarmac and have limited access to air-conditioned spaces. They also tend to be concentrated in urban settings and are therefore exposed to the urban heat island effect (Leggat et al., 2024).	Homeless people face further displacement during floods if shelters are damaged, leaving them unprotected. They are also at higher risk of waterborne diseases, hypothermia and infections from exposure to floodwaters (BBC, 2021).
	Those living in crowded or inadequate housing	Thurrock's Household Support Fund provides £2.28 million in aid for low-income households struggling with essentials (Thurrock Council, 2025b).	Damp issues are likely to be exacerbated by projected warmer wetter winters.	Crowded or poorly designed housing exacerbates indoor heat during heatwaves, affecting health and well-being. Overcrowded spaces amplify health risks during extreme temperatures (Braithwaite, Adamson and Petrou, 2023).	Damp issues are likely to be exacerbated by warmer wetter winters.

Appendix C Climate change action plan

ID	Summary	Action	Level of Ambition	Action Owner	Impact Boundary	Related Strategy or Plan	Thurrock Council Action Owner	Related Planning Policy (if applicable)
Prioritise Active & Sustainable Travel								
T1	Deliver streets that prioritise safe and comfortable cycling and walking journeys	Design safe and attractive streetscapes that encourage the use of active travel methods, including provision of well-connected cycle lanes, 20 mph zones and public realm enhancements.	Core	Council-led	Boroughwide	Emerging Transport Strategy	Transport Team	Yes
T2	Reduce dependency on car travel for residents' daily needs	Through spatial planning and development management decisions, encourage intensification of mixed -uses in or within close proximity to town centres and locations connected to sustainable and active transport options, reducing the prevalence of cars and the burden of travel for everyday needs	Core	Council-led	Boroughwide	Updated Local Plan	Local Plan Team	Yes
T3	Increase provision of electric vehicle charging points across Thurrock	Deliver electric vehicle charging points on streets across Thurrock, prioritising areas where there is the greatest need for electric vehicle charging points.	Core	Council-led	Boroughwide	EV Strategy (in consultation)	Transport Team	No
T4	Encourage shift away from cars and towards sustainable and active travel	Encourage uptake of electric vehicles and cycling with behavioural incentives, including trialling an EV car club scheme. Increase accessibility and inclusivity of electric vehicles and bicycle adoption through schemes focused on provision for vulnerable groups	Stretch	Council-led	Boroughwide	Emerging Transport Strategy	Transport Team	No

ID	Summary	Action	Level of Ambition	Action Owner	Impact Boundary	Related Strategy or Plan	Thurrock Council Action Owner	Related Planning Policy (if applicable)
T5	Enable efficient and convenient interchange between different forms of sustainable travel	Deliver better transport interchange facilities that enable efficient and convenient multi-model sustainable travel, such as provision of cycle facilities at train stations.	Core	Council-led	Boroughwide	Emerging Transport Strategy	Transport Team	Yes
T6	Deliver enhancement to bus service quality, reliability and convenient	Improve the number and convenience of bus routes and explore the potential of community-led services, especially for rural communities.	Core	Council-led	Boroughwide	Thurrock Bus Service Improvement Plan	Transport Team	No
Deliver Sustainable Buildings								
B1	Measure and monitor energy performance in new developments	Mandate for new developments to accurately predict and monitor their actual energy performance, adopted in local planning policy.	Core	Council-led	Boroughwide	Updated Local Plan	Local Plan Team	Yes
B2	Requirement for embodied carbon assessment and targets for new development	Require an assessment of and compliance with targets to limit embodied carbon in new development, adopted in local planning policy.	Core	Council-led	Boroughwide	Updated Local Plan	Local Plan Team	Yes
B3	Requirement for sustainable building design in new developments	Adopt local planning policy for sustainable building design in line with existing standards, setting requirements that are proportionate to the scale of development	Core	Council-led	Boroughwide	Updated Local Plan	Local Plan Team	Yes
B4	Encouraging residents in private homes to deliver energy efficiency improvements	Providing guidance and support to residents across Thurrock relating to improving energy efficiency in homes through retrofit activities, such as raising awareness of digital energy advice services.	Stretch	Council-led	Boroughwide	New Energy Strategy	Climate & Energy Team	No

ID	Summary	Action	Level of Ambition	Action Owner	Impact Boundary	Related Strategy or Plan	Thurrock Council Action Owner	Related Planning Policy (if applicable)
Decarbonise Public Estate								
P1	Decarbonising Council owned HGV fleet	Develop a baseline of carbon emissions from Council's own HGV fleet, to inform future target setting in reduction in carbon emissions.	Stretch	Council-led	Council operations	None identified	Transport Team	No
P2	Expand renewable energy generation across council owned estate	Roll out renewable power generation across Thurrock Council's estate, including building rooftops and council-owned land, and adopt renewable PPAs to meet remaining power demand for council buildings.	Core	Council-led	Council operations	None identified	Climate & Energy Team	No
P3	Embed decarbonisation action into Thurrock public procurement	Set a requirement within procurement policy for suppliers to audit and report on the carbon impact, demonstrating steps to reduce associated emissions over time.	Stretch	Council-led	Council operations	None identified	Procurement team	No
P4	Prepare public buildings for decarbonisation funding	Develop a prioritised list of 'shovel-ready' carbon emissions reduction projects across Thurrock public sector buildings to be prepared for submissions to future grant schemes, including the Public Sector Decarbonisation Fund.	Core	Council-led	Council operations	None identified	Climate & Energy Team	No
P5	Improve energy efficiency in social housing through retrofit delivery and monitoring	Apply for funding from the Social Housing Decarbonisation Fund and successor schemes to improve energy efficiency in social housing, with post-occupancy reviews to improve project implementation over time.	Core	Council-led	Council operations	None identified	Housing Team	No

ID	Summary	Action	Level of Ambition	Action Owner	Impact Boundary	Related Strategy or Plan	Thurrock Council Action Owner	Related Planning Policy (if applicable)
Build a Renewable and Resilient Energy System								
E1	Support community energy and climate action initiatives	Provide support to community energy and local climate action groups to enable delivery of community energy initiatives, through provision of technical, logistical or resource support.	Core	Council-supported	Boroughwide	Energy Strategy	Climate & Energy Team	No
E2	Contribute to and align with regional level energy system action planning and delivery	Contribute to the development of the Essex-wide Local Area Energy Plan (LAEP), ensuring Thurrock's local energy system actions are reflected and aligned with the emerging regional plan	Core	Council-supported	Boroughwide	Energy Strategy	Climate & Energy Team	No
E3	Support utility-scale renewable energy generation	Support utility-scale renewable energy generation within Thurrock, including exploring options for large-scale solar and wind projects, through proactive planning support	Stretch	Council-led	Boroughwide	Energy Strategy	Climate & Energy Team	Yes
Adapt to Climate Change								
C1	Climate change risks and their impacts on Thurrock's local community and businesses are identified	Undertake a full climate risk and vulnerability assessment (CRVA) for the risks identified in the initial screening, considering Thurrock borough wide risks and risks to Thurrock owned assets. Collaborate with Thurrock's vulnerable populations and Voluntary Community Services groups in the development of the CRVA	Core	Council-led	Boroughwide	Climate Change Strategy	Climate & Energy Team	No
C2	Adaptation and resilience measures are identified and delivered	Develop a Climate Adaptation and Resilience Plan, in collaboration with local businesses, land owners and residents, to address the key climate risks facing Thurrock,	Core	Council-led	Boroughwide	Climate Change Strategy	Climate & Energy Team	No

ID	Summary	Action	Level of Ambition	Action Owner	Impact Boundary	Related Strategy or Plan	Thurrock Council Action Owner	Related Planning Policy (if applicable)
C3	Nature restoration plans are designed to deliver climate change resilience	Ensure that delivery of Essex Nature Recovery Strategy actions in Thurrock maximise potential to deliver climate change adaptation co-benefits, particularly in relation to working with landowners on adaptive land management practices,	Core	Council-led	Boroughwide	Climate Change Strategy	Climate & Energy Team	No
C4	Measures are delivered to reduce the risk of overheating for Thurrock local communities	Implement no regret adaptation measures to deliver overheating prevention for communities, such as promoting and protecting Thurrock's cool spaces, including blue-green spaces and publicly accessible facilities (e.g. public libraries)	Stretch	Council-led	Boroughwide	Climate Change Strategy	Climate & Energy Team	No
C5	Collective action is convened for flood risk mitigation	Convening collective action around flood risk, linking Thurrock residents and businesses into programmes with regional and local flood risk management stakeholders to deliver better flood resilience across the borough,	Stretch	Council-supported	Boroughwide	Climate Change Strategy	Climate & Energy Team	No
Nature Recovery								
N1	Improve biodiversity in new development	Requirement for a 20% Biodiversity Net Gain within new developments, adopted within local planning policy.	Core	Council-led	Boroughwide	Local Plan	Local Plan Team	Yes
N2	Develop local Biodiversity Net Gain offsetting sites	Establish a policy and procedure for utilising council land holdings for habitat banking to support delivery of local Biodiversity Net Gain (BNG) offsetting.	Core	Council-led	Council operations	None identified	Ecology Team	No
N3	Deliver SuDS in new developments	Requirement to integrate multi-benefit and nature-based SuDS	Core	Council-led	Boroughwide	Local Plan	Local Plan Team	Yes

ID	Summary	Action	Level of Ambition	Action Owner	Impact Boundary	Related Strategy or Plan	Thurrock Council Action Owner	Related Planning Policy (if applicable)
		in all new developments, adopted within local planning policy.						
N4	Support regional nature recovery strategy	Support delivery of the Essex regional nature recovery strategy by delivering new and improved green and blue spaces in Thurrock, such as supporting the South Essex Estuary Park	Core	Council-led	Boroughwide	Essex Nature Recovery Strategy	Ecology Team	Yes
N5	Establish annual habitat restoration targets and track delivery	Define an annual nature restoration target for identified habitats and monitor and report on progress annually.	Stretch	Council-led	Boroughwide	None identified	Ecology Team	No
N6	Explore nature-friendly green space initiatives	Explore the potential for nature-friendly management, habitat creation and initiatives in our green spaces such as a pond programme, woodland, wetland, grassland creation programmes.	Core	Council-led	Boroughwide	None identified	Ecology Team	No
N7	Adopt no-mow summer for biodiversity	Altered mowing regime on Council owned verges with no mow summer to support wildflowers, invertebrates and pollinators.	Core	Council-led	Boroughwide	None identified	Ecology Team	No
Just Transition of Skills & Industry								
I1	Support small & medium sized business to improve energy efficiency and shift to renewable energy	Work with local and regional partners to support small & medium sized businesses to improve energy efficiency and shift to renewable energy such as awareness raising of digital energy advice services, providing guidance on transition to renewable energy, including Power Purchase Agreements (PPAs)	Stretch	Council-supported	Boroughwide	None identified	Economic Development Team	No

ID	Summary	Action	Level of Ambition	Action Owner	Impact Boundary	Related Strategy or Plan	Thurrock Council Action Owner	Related Planning Policy (if applicable)
I2	Support residents to move into net zero aligned jobs	To hold two green skills events per year to engage with the support of industry, training providers for residents	Core	Council-led	Boroughwide	None identified	Employability & Skills Team	No
I3	Support SMEs in re-skilling and up-skilling in construction and installation sectors	Collaborate with the forthcoming Mayor's Office, the FSB and the Chambers led Local Skills Partnership Plan (LSIP) to provide support to re-skill and up-skill the local supply chain (focusing on SMEs) in construction and installer sectors	Stretch	Council-supported	Boroughwide	None identified	Economic Development Team	No
I4	Support research and development opportunities for sustainable industry	Scope, with partners, best ways to support low carbon R&D and innovation within Thurrock in the context of the region	Stretch	Council-supported	Boroughwide	None identified	Economic Development Team	No
I5	Identifying most at-risk jobs from Green Transition and support routes into new work opportunities	Work with partners to identify, locally, the jobs most at risk from the Green Transition, including the specific workforce and identifying green jobs or jobs in other sectors that these workers could do and collaborating with partners and industry to provide a clear bridge to aid rebalancing the workforce	Stretch	Council-supported	Boroughwide	None identified	Economic Development Team Employability & Skills Team	No
Reduce Waste								
W1	Promote positive waste behaviours and improve reuse and upcycling provision	Deliver a behavioural change campaign that promotes positive waste behaviours across households and businesses, linked to increase in reuse and upcycling facilities, such as launching reuse shop, recycling	Core	Council-led	Boroughwide	Emerging Waste Behavioural Change Communication Strategy Waste	Waste Team	No

ID	Summary	Action	Level of Ambition	Action Owner	Impact Boundary	Related Strategy or Plan	Thurrock Council Action Owner	Related Planning Policy (if applicable)
		doorstep collections, and upcycling workshops.				Enforcement Policy		
W2	Support grassroots circular economy initiatives	Explore opportunities to support grassroots and community based circular economy initiatives, such as through the provision of training and resources.	Stretch	Council-supported	Boroughwide	None identified	Community Development Team	No
W3	Improve recycling provision in flats and efficiency in waste collection services	Continue to expand recycling and food waste services for all households living in communal buildings within Thurrock, both council owned and private ownership. Improve operational efficiency of waste collection through route optimisation and integration of flats and trade waste.	Core	Council-led	Boroughwide	Thurrock Waste and Recycling Collection Policy	Waste Team	No

