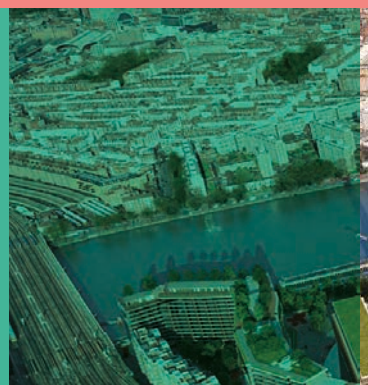
WANDSWORTH

ADAPTATION AND RESILIENCE STRATEGY 2025-2035



Wandsworth

Contents

Foreword

The London Borough of Wandsworth is unique, celebrated for its history, diversity, and culture. Indeed, Wandsworth is the Mayor of London's Borough of Culture for 2025, providing a chance to celebrate the rich culture of the people of Wandsworth. The borough also benefits from numerous green and blue spaces, which provide havens for people and nature in a busy inner-London borough. Wandsworth is vibrant and dynamic, with a third of its 300,000 residents moving every year and new people being constantly welcomed to the borough. The borough has also seen a surge in development, including new homes, and is a hub for growth and change. It also benefits from excellent transport links, including cycle networks, buses, tubes, and trains.

Yet many of the things that make Wandsworth the borough it is are threatened by climate change. Globally, temperatures have now risen by over 1.5°C compared with pre-industrial levels. This is already changing the climate of Wandsworth, with rising temperatures and changing rainfall patterns observed, as well as extreme weather events, from heatwaves to flooding, affecting the borough. The climate will change further in future, with more frequent and severe weather events expected. New and emerging risks also pose a threat to the borough, including sea level rise and infectious and vector borne diseases. These impacts threaten our health, nature, buildings, infrastructure, and economy.

Action is needed now to address the impacts of climate change.

Wandsworth Council has made great progress in doing its part to tackle the climate crisis. Since declaring a climate emergency in 2019, the council has set targets to be carbon neutral as an organisation by 2030 and net zero as a borough by 2043. A range of policies and projects have been put in place to work towards meeting these targets. Yet despite efforts in Wandsworth and globally to reduce greenhouse gas emissions, our climate will still change. Therefore, we must be prepared and put in place measures now to protect the people, nature and places of Wandsworth.

The Wandsworth Adaptation and Resilience Strategy has been published by Wandsworth Council to address the risks climate change poses to the borough. The Strategy puts the people of Wandsworth at its heart. In doing so, we will make sure that all measures taken will benefit the people of Wandsworth today and in the future. Adapting to climate change and increasing our resilience is about so much more than climate change alone. By tackling climate change now, future generations will reap the benefits of growing up in Wandsworth and live in a safer, healthier and greener borough where people, nature and places thrive.

Councillor Judi Gasser
Cabinet Memeber for Environment

Executive Summary

Why this strategy is needed

The year of 2024 is on track to be the warmest year on record and the first in which global temperatures exceed 1.5C° above pre-industrial levels. [ref] A survey of nearly half of the scientists who contribute to the United Nation's Intergovernmental Panel on Climate Change (IPCC) found that 77% of climate scientists expected global temperatures to rise by at least 2.5°C by 2100. [ref] The Paris Agreement commits nations to limit "the increase in the global average temperature to well below 2°C above pre-industrial levels" and pursue efforts "to limit the temperature increase to 1.5°C above pre-industrial levels." [ref]

As a result of globally rising temperatures, extreme weather events have been increasing in frequency and intensity, including heatwaves, floods, droughts, wildfires, and storms. These extreme events have significant impacts on local communities, including the loss of human life, homes, and livelihoods. An analysis of 185 extreme events globally over the last 20 years estimated that the costs of extreme events attributable to climate change equates to US$143 billion annually. Sixty three percent of this cost is associated with the loss of human life, with a net of 60,951 deaths globally attributable to climate change during this 20-year period. [ref]

Extreme weather is already affecting Wandsworth, with severe surface water flooding in 2021 and extreme heat in the summer of 2022. During the 2022 heatwave, temperatures exceeded 40°C for the first time in London and there were an estimated 387 excess deaths across the city. [ref] With temperatures projected to continue rising, this poses further threats to Wandsworth borough, including more intense and frequent occurrences of existing risks and the emergence of new risks associated with climate change.

Wandsworth Council has a statutory duty to deliver its public services, many of which are vulnerable to climate change. This Adaptation and Resilience Strategy has therefore been developed to ensure Wandsworth Council is:

- Helping the borough adapt and increase its resilience to the impacts of climate change.
- Able to continue delivering its services, despite the impacts of climate change.
- Using a robust and consistent approach to climate adaptation and resilience across all council teams to reduce the impacts of climate change.

In doing so, this Adaptation and Resilience Strategy will support Wandsworth Council's pledge of delivering a fairer, more compassionate and more sustainable borough.

What this strategy aims to do

The Adaptation and Resilience Strategy has four primary aims:

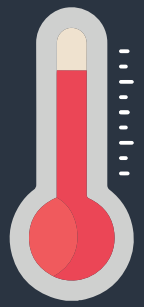
1. Present the climate risk and vulnerability assessment conducted for Wandsworth.
2. Provide an Adaptation and Resilience Framework, to be used by all council teams to ensure a robust and consistent approach.
3. Set long-term priorities to guide and inform Wandsworth Council's work on adaptation and resilience.
4. Inform local stakeholders of climate risk in Wandsworth and the role of the council in addressing these risks to help identify opportunities for collaboration.

Climate Risk and Vulnerability Assessment

A climate risk and vulnerability assessment was conducted for Wandsworth. Climate risk baselining was undertaken, including an analysis of observed climate trends and projections of future climate trends under different emissions scenarios. The key findings of the climate risk assessment are summarised right.

The results of the vulnerability assessment highlight that extreme heat and flooding pose the greatest overall threat to the sectors included in the analysis, with every sector having a high vulnerability to extreme heat and flooding. Furthermore, a number of gaps and challenges were identified, including challenges around funding, knowledge, understanding and expertise, collaboration, short-term costs versus long-term savings, infrastructure, and engagement. These gaps and barriers at best reduce the effectiveness of the work the council is doing on adaptation and resilience (for example, lack of collaborative working), and at worst prevent the council from being able to do work on adaptation and resilience (for example, lack of funding).

Average annual Temperature



- has **increased** from **8.7˚C** in 1890 to **11.5˚C** in 2022
- could **increase** by **5˚C** by 2099

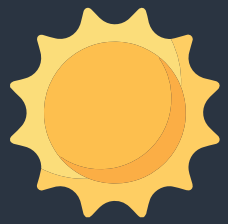
Maximum summer temperature
could reach **41.2˚C** by 2099

Summer precipitation

- has **decreased** overall since 1890
- could **decreased** by up to **55.4%** by 2099

Winter precipitation

- has **increased** overall since 1890
- could **increase** by up to **26.1%** by 2099



Humidity

could increase by up to **26.1%** by 2099

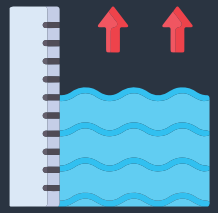
Fire danger days

could increase to **82** fire danger days a year by 2086

Growing risk of **Subsidence,** with up to **57.3%** of houses potentially at risk by 2070

Increased risks

from infections and vector borne diseases to public health and invasive and non-native species to nature



Sea levels

could rise in London by **0.8m** by 2100

Global shocks

associated with climate change (e.g. disruptions to supply chains, tipping points and economic insecurity)

Adaptation and Resilience Framework

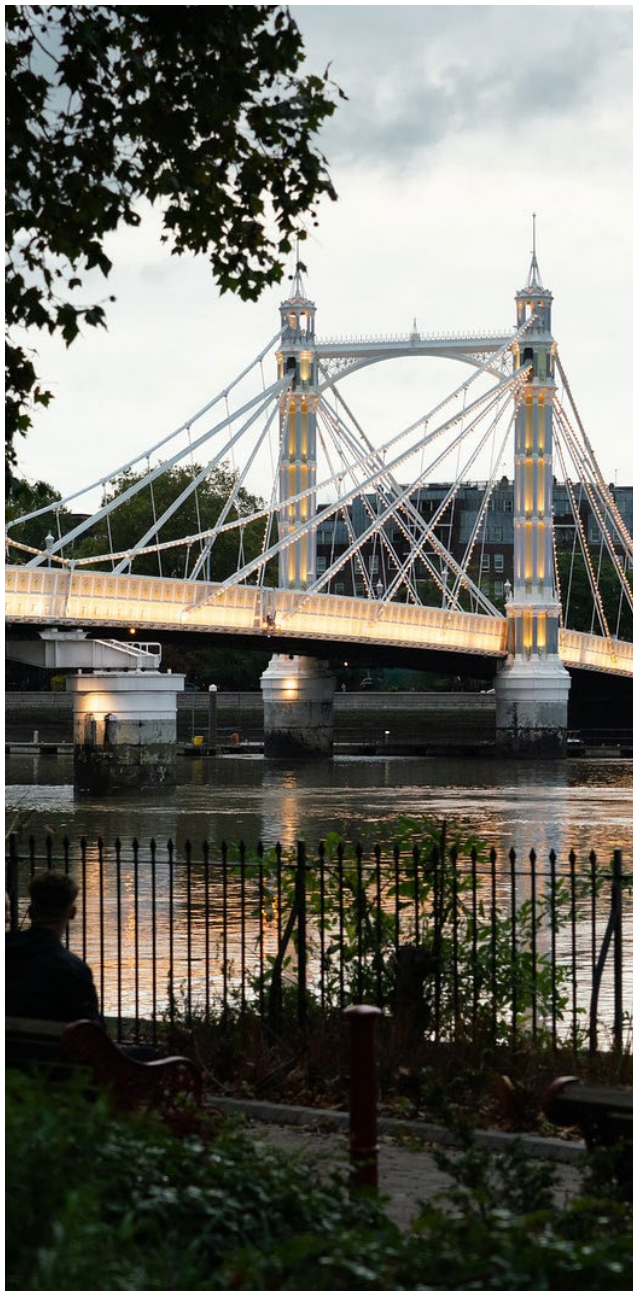
To ensure a robust and consistent approach to its work on adaptation and resilience, Wandsworth Council has developed an Adaptation and Resilience Framework. Importantly, this framework builds on the work that has been done regionally, aligning the work Wandsworth Council is doing with that being done across London and beyond.

Wandsworth Council's Adaptation and Resilience Framework embeds the five principles identified in the London Climate Resilience Review. These will guide the council's work on climate adaptation and resilience:

1. Adaptation must take a **people-centred approach,** be locally led, strive to reduce vulnerability, and address socio-economic inequality.
2. Adaptation must be **embedded across decision-making and organisations,** ensuring measures are owned at the strategic level and responsibility assigned.
3. Adaptation must be integrated with work to meet **net zero** to ensure coherent climate action.
4. **Adaptive pathways** approaches should be used to account for uncertainties and be flexible.
5. **Nature-based solutions** must be considered and prioritised. [ref]

While embedding the five principles outlined above, Wandsworth Council's Adaptation and Resilience Framework has three key components:

1. **Climate risk and vulnerability assessment:** All projects will need to do a high-level climate risk and vulnerability assessment at the planning phase, with a tool being made available to all council teams.
2. **Monitoring and evaluation:** As part of its adaptive pathways approach, all adaptation and resilience projects will be reviewed every five years to imbed flexibility and allow for adjustments to programmes of work as the impacts of climate change become clearer.
3. **A council-wide approach:** An Adaptation and Resilience Board will be established under Wandsworth Council's Climate Change Steering Group to ensure the Adaptation and Resilience Framework is being used by all council teams working directly and/or indirectly on adaptation and resilience and to monitor progress being made in this space.



Priorities

Wandsworth Council has identified 5 overarching priorities on adaptation and resilience. These are long-term strategic priorities, which will guide the work undertaken on adaptation and resilience. The priorities are designed to be complemented by Wandsworth Council's annual Climate Action Plans, which commit to short- and medium-term actions.

The priorities represent a complementary and phased approach to adaptation and resilience, with each priority being necessary in order for them all to be successful:

1. Embed adaptation and resilience across the organisation.
2. Ensure a joined-up approach to adaptation and resilience to maximise the impact of the work done and increase the capacity of the council to build a more resilient borough.
3. Compile and analyse the data required to effectively adapt to climate change and increase the resilience of the borough.
4. Implement effective adaptation and resilience measures across the borough.
5. Ensure formal monitoring and evaluation of adaptation and resilience.

Introduction

"Human activities, principally through emissions of greenhouse gases, have unequivocally caused global warming". [ref] As a result, global temperatures have now risen by more than at any point since the industrial revolution. Indeed, 2024 is on track to be the hottest on record, with warming exceeding 1.5°C compared with pre-industrial temperatures (figure 1). [ref] Whilst this is data for a single year, this new record is extremely concerning. Under the 2015 Paris Agreement, countries around the world agreed to limit "the increase in the global average temperature to well below 2°C above pre-industrial levels" and pursue efforts "to limit the temperature increase to 1.5°C above pre-industrial levels." [ref] The limit of 1.5°C was set, as risks and impacts associated with climate change increase substantially above 1.5°C, and even more so above 2°C. [ref]

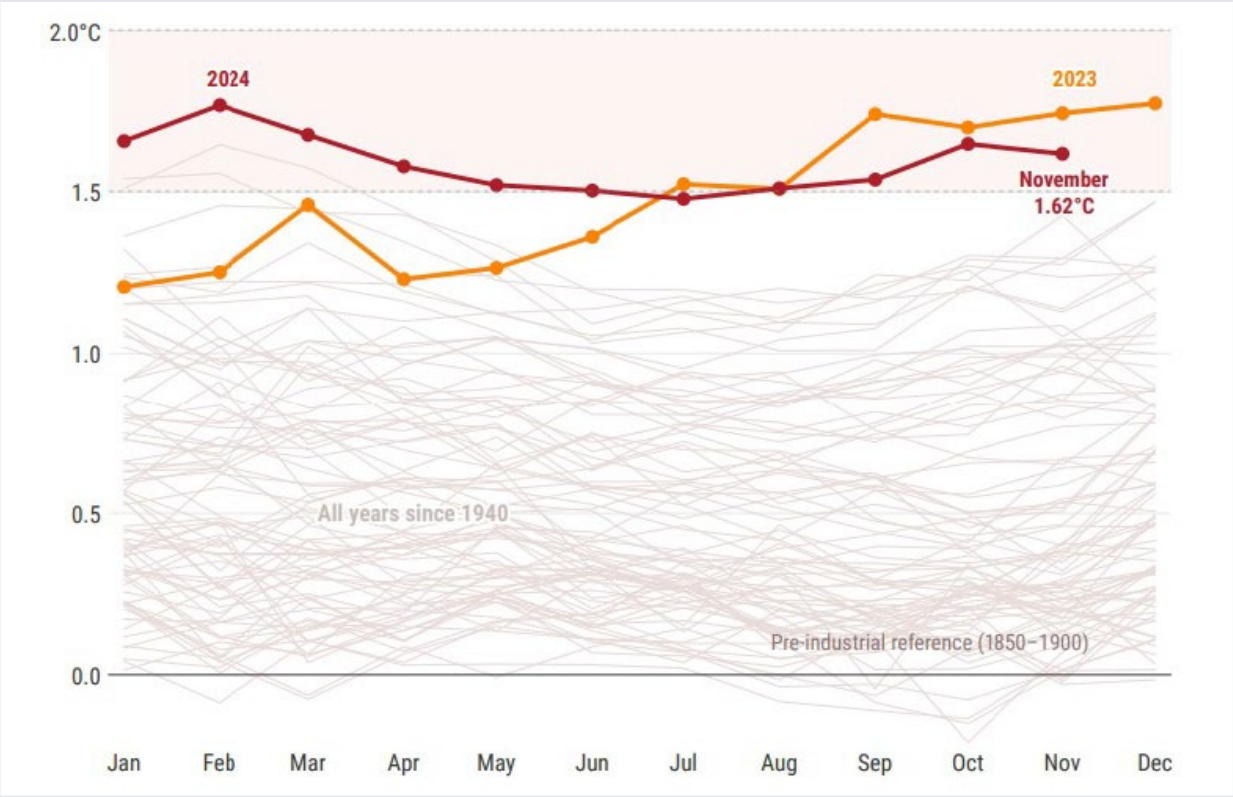


Figure 1: Monthly global surface air temperature anomalies (°C) relative to 1850–1900 from January 1940 to November 2024, plotted as time series for each year. 2024 is shown with a thick red line, 2023 with a thick orange line, and all other years with thin grey lines. [source]

Already, the impacts of climate change are being felt around the world, with extreme weather events becoming more frequent and severe. Such events are also affecting Wandsworth, including the breaching of 40°C for the first time during the 2022 heatwave (box 1) and flash flooding in 2021 (box 2). These threats require adaptation and resilience measures to be implemented, to ensure people are protected from the impacts of climate change.

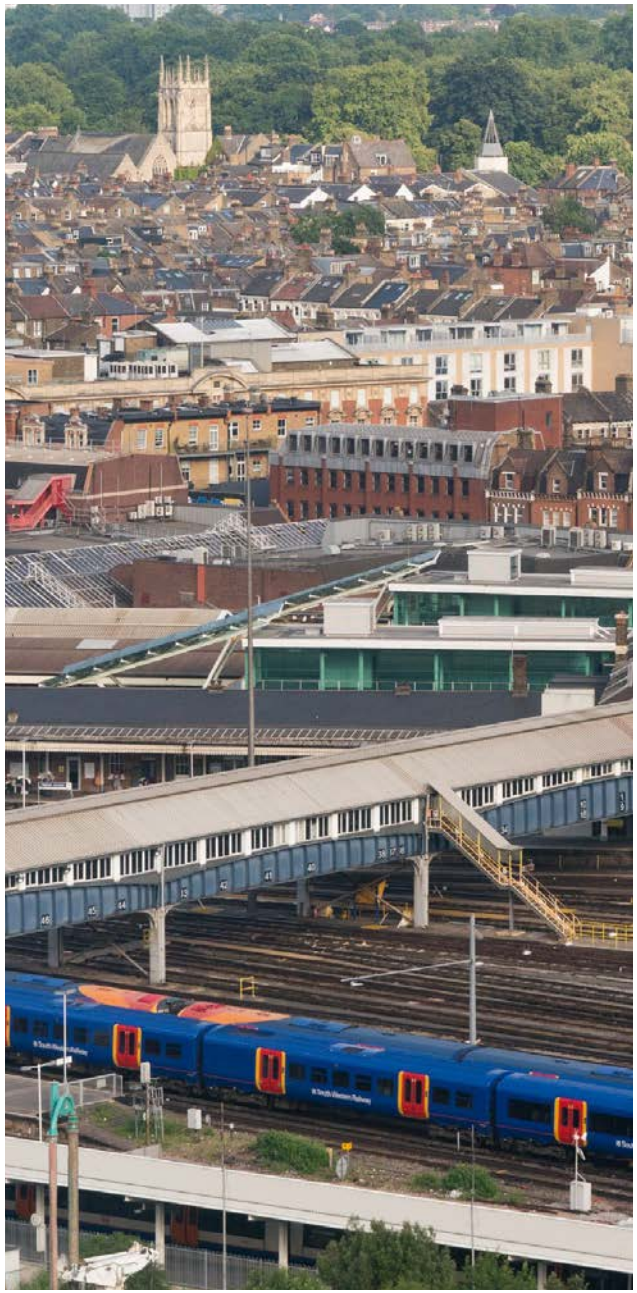
Wandsworth Council declared a climate emergency in 2019, is committed to being a sustainable borough, and has made significant progress in reaching its ambitions. The Wandsworth Environment and Sustainability Strategy (WESS) was published in 2019 and sets the vision and strategy for the council's role in mitigating and adapting to climate change. [**ref**] The WESS is complemented by annual Climate Action Plans, which ensure the council is advancing on tackling climate change, by regularly reporting on progress and raising the level of ambition of the council's work on climate change.

Wandsworth Council has already delivered a range of projects contributing to the adaptation of the borough to climate change, including the following examples:

- Programmes of work to install sustainable drainage systems (SuDS) and parklets to address environmental risks.
- Publication of Wandsworth Climate Risk Map, Local Flood Risk Management Strategy, Surface Water Management Plan, and drafting of Public Health Action Plan on Climate Change, and multiple event specific plans.
- Multi-agency Flood Response Plan and launch of public flood reporting tool.
- Severe weather advice and Heat Health Needs Assessment.
- Gully sensors to alert high water levels in problem areas for highway flooding.
- Adaptation measures for John Burns Primary School, including green roofs, shading and SuDS.
- Establishment of warm/cool community spaces for vulnerable residents.
- Free water refill stations.
- Tree planting.

As such, this Adaptation and Resilience Strategy is not a starting point, but rather another step in ensuring progress in Wandsworth Council's work on climate change. Wandsworth Council's Adaptation and Resilience Strategy is a commitment to ensuring that a more effective, robust and consistent approach to adaptation and resilience is deployed across all council teams. In doing so, the council will maximise the effectiveness of its role in adapting to climate change and increasing the resilience of the borough.

A climate risk and vulnerability assessment was undertaken as part of the development of the Adaptation and Resilience Strategy. Furthermore, internal and external engagement and consultation were undertaken, as well as a detailed literature review, which together have informed the outcomes and proposed actions of this Strategy. The Adaptation and Resilience Strategy is designed to be complemented by the WESS and annual Climate Action Plans.



2. Climate risk assessment

This section presents data to show the impact of climate change in Wandsworth. Observational data is used to show historic changes in Wandsworth's climate up to the present (section 2.1). Climate projections are used to show the expected changes in Wandsworth's climate up to 2100 (section 2.2).

2.1 Current Climate Risk

This section presents observational data on the climate in Wandsworth from the late 19th century to the present day. It is necessary to understand the current state of the climate, what climate-related impacts have already happened, and if there are any trends associated with the changing climate in Wandsworth. Understanding the baseline climate in Wandsworth is essential in order to assess the projected changes in the climate, the impacts associated with these changes, and what measures will need to be taken to reduce these impacts.

Using climate hazard and social vulnerability data, climate risks across Wandsworth borough have been mapped. Social vulnerabilities significantly affect the impacts associated with climate hazards, due to vulnerabilities either limiting the adaptive capacity of affected groups and/or vulnerabilities exacerbating climate impacts. Table 1 shows the full list of risks, exposures and vulnerabilities included in the Climate Risk Map. Full details can be found on the Climate Risk Map page. [ref] The vulnerabilities included in Climate Risk Map were selected for their proven link in exacerbating exposures to the environmental hazards included in the Climate Risk Map. For example, the young and elderly are particularly vulnerable to extreme heat, as their bodies are less efficient at regulating core temperatures. Another example is those with asthma being more affected by high levels of air pollution, with potentially catastrophic consequences for their health and wellbeing. The vulnerabilities included are not necessarily comprehensive, and Wandsworth Council is undertaking a review of the Climate Risk Map to assess if other datasets should be included. Figure 2 shows the current overall climate risk across the borough, accounting for exposures and vulnerabilities.

Table 1: Risks, exposures, and vulnerabilities included in the Wandsworth Climate Risk Map.

Risks
Overall
Overheating
Flooding
Air Pollution

Exposures
Land Surface Temperature
Blue Space Accessibility
Green Space Accessibility
Tree Canopy Cover
Surface Water Flood Risk
River and Sea Flood Risk
NO2
PM2.5
PM10

Vulnerabilities
Age 0-4 years
Age 75+ years
English Language Proficiency
Social Renting
Income Deprived
Asthma Prevalence
COPD Prevalence

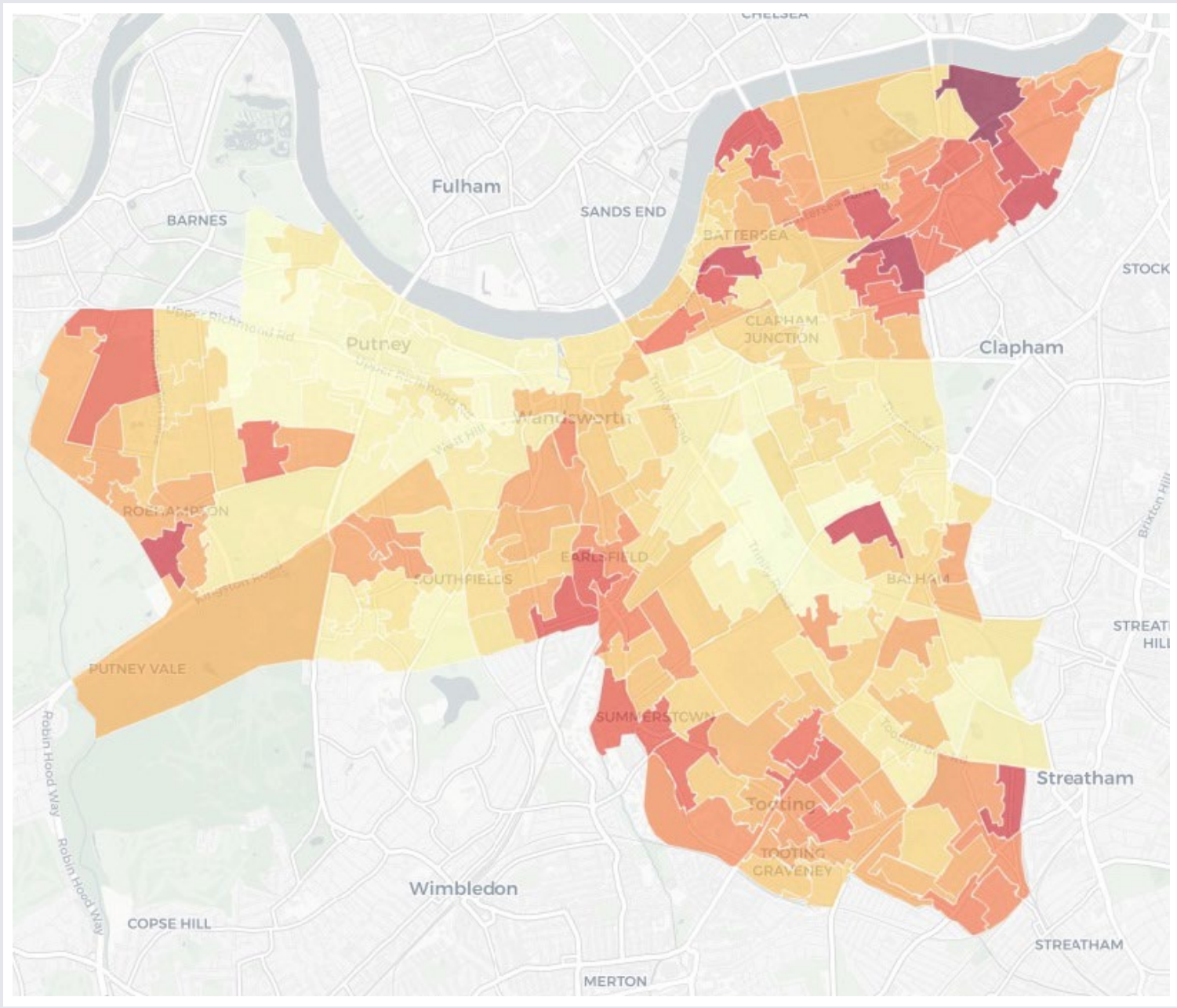


Figure 2: Overall climate risk across the London Borough of Wandsworth. [Source]

2.1.1. Temperature

Annual mean air temperature has increased in Wandsworth since 1890 (figure 3). In 1890, the average annual temperature in Wandsworth was 8.7°C, whilst in 2022 it was 11.8°C. This trend is particularly strong over the summer months, with summer temperatures increasing by 4°C (figure 4) between 1890 and 2022 and winter temperatures by 2.6°C over the same period (figure 5).

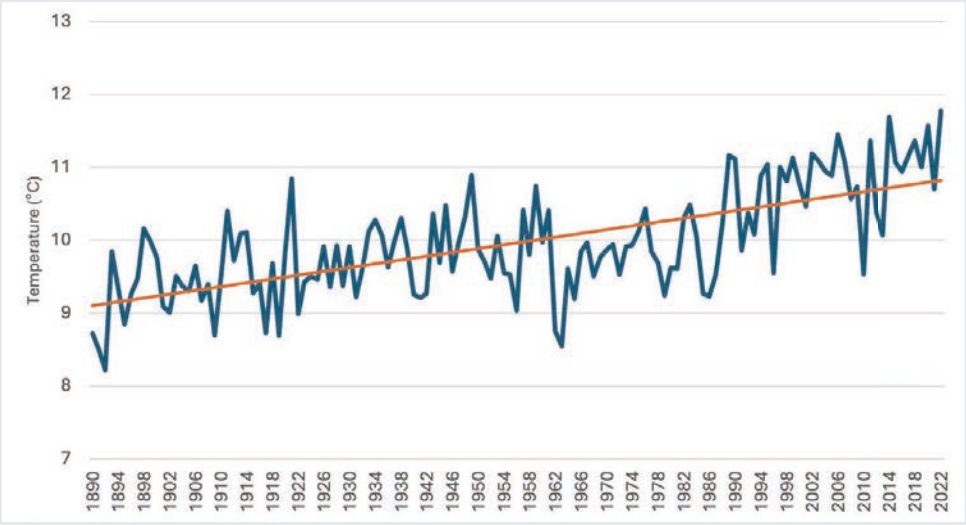


Figure 3: Observed mean annual air temperature at 1.5m in 25km grid square including Wandsworth (1890-2022). [Source]

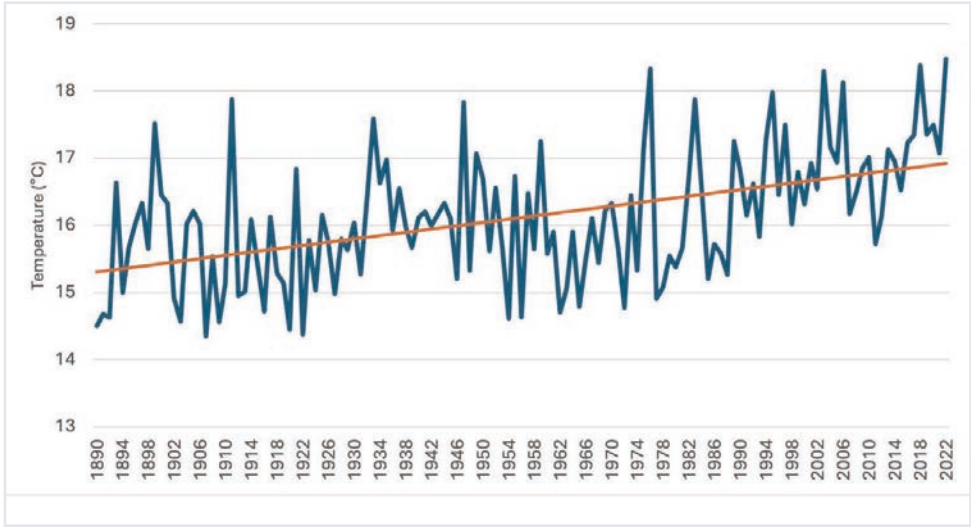


Figure 4: Observed mean summer air temperature at 1.5m in 25km grid square including Wandsworth (1890-2022). [Source]

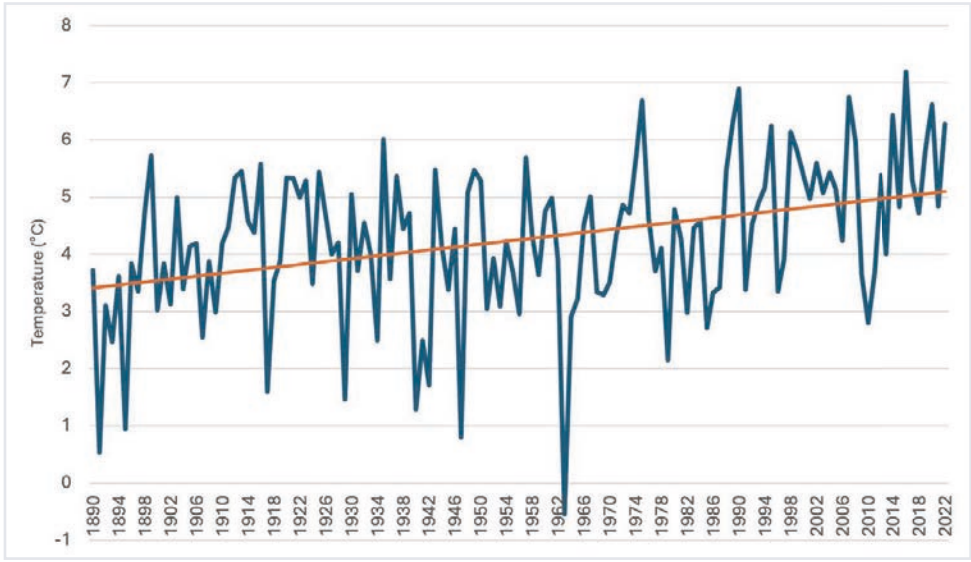
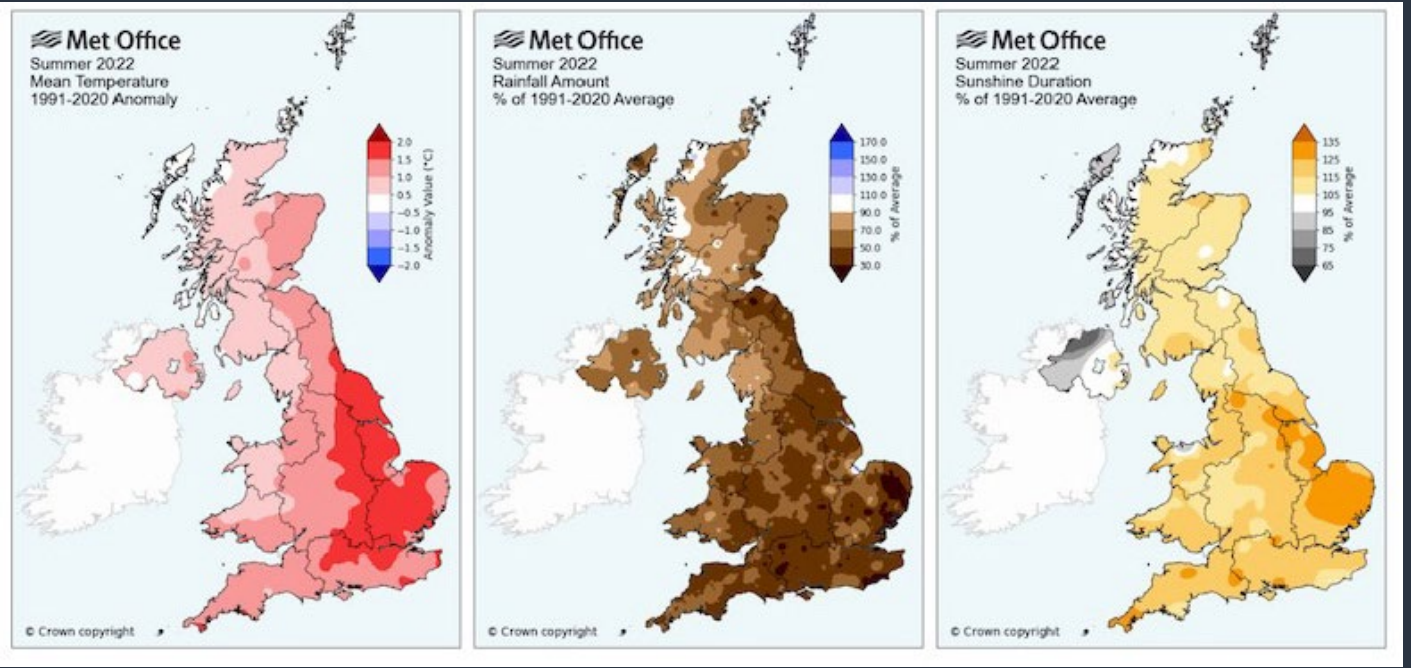


Figure 5: Observed mean winter air temperature at 1.5m in 25km grid square including Wandsworth (1890-2022). [Source]

BOX 1: 2022 Heatwave

During the summer of 2022, London experienced a severe heatwave. Daily maximum temperatures exceeded the London threshold of 28°C for extended periods. [ref] Five extreme heat episodes were recorded between June and August 2022, the highest number in any given year. The July 2022 heatwave was extremely rare, equating to a 1-in-1000-year event and was made ten times more likely due to human-induced climate change. [ref] During this heatwave, there was a record number of Heat-Health Alerts (HHAs) issued since their introduction in 2004 and 387 excess deaths in London. [ref] [ref] Furthermore, there was a 50% increase in water consumption and UK reservoirs were at their lowest levels for 30 years. [ref] The heatwave also had economic impacts for the city. For example, the number of visitors and workers in central London in July 2022 dropped to 74% below the previous month's levels, and TfL lost £8.4 million in revenue across their operations during the week of the July heatwave. [ref] [ref]



UK summer 2022 climate anomalies, relative to 1991-2020, for average temperature (°C), rainfall (%), and sunshine (%). Darker shading indicates larger anomalies. Credit: **Met Office**

Record-breaking temperatures were recorded in London at 40.2°C on 19 July 2022. These extreme temperatures on 19 July resulted in the first ever Level 4 Heat Health Alert and Red National Severe Weather Warning Service. On 19 July 2022, this extreme heat resulted in 683 excess deaths across England and more than 40 houses and shops across London were destroyed by fires.[ref] Furthermore, the London Fire Brigade declared a Major Incident, as several fires broke out in and around the Capital; they experienced their busiest day since the Second World War. [ref] The IT systems of London's largest NHS hospital trust failed, with impacts on healthcare in three hospitals and operations having to be cancelled due to the extreme heat. The trust incurred £1.4m out-of-plan spending on technology services to respond to the incident. [ref]

Using heat-related data and social vulnerability data, figure 6 shows the current overall risk of overheating across the borough. In terms of the health impacts of heat waves, groups that are particularly vulnerable are the elderly, children, and those with preexisting health conditions. Extreme heat events are becoming more frequent, long-lasting and intense due to climate change that can be attributed significantly to human influence. [ref]

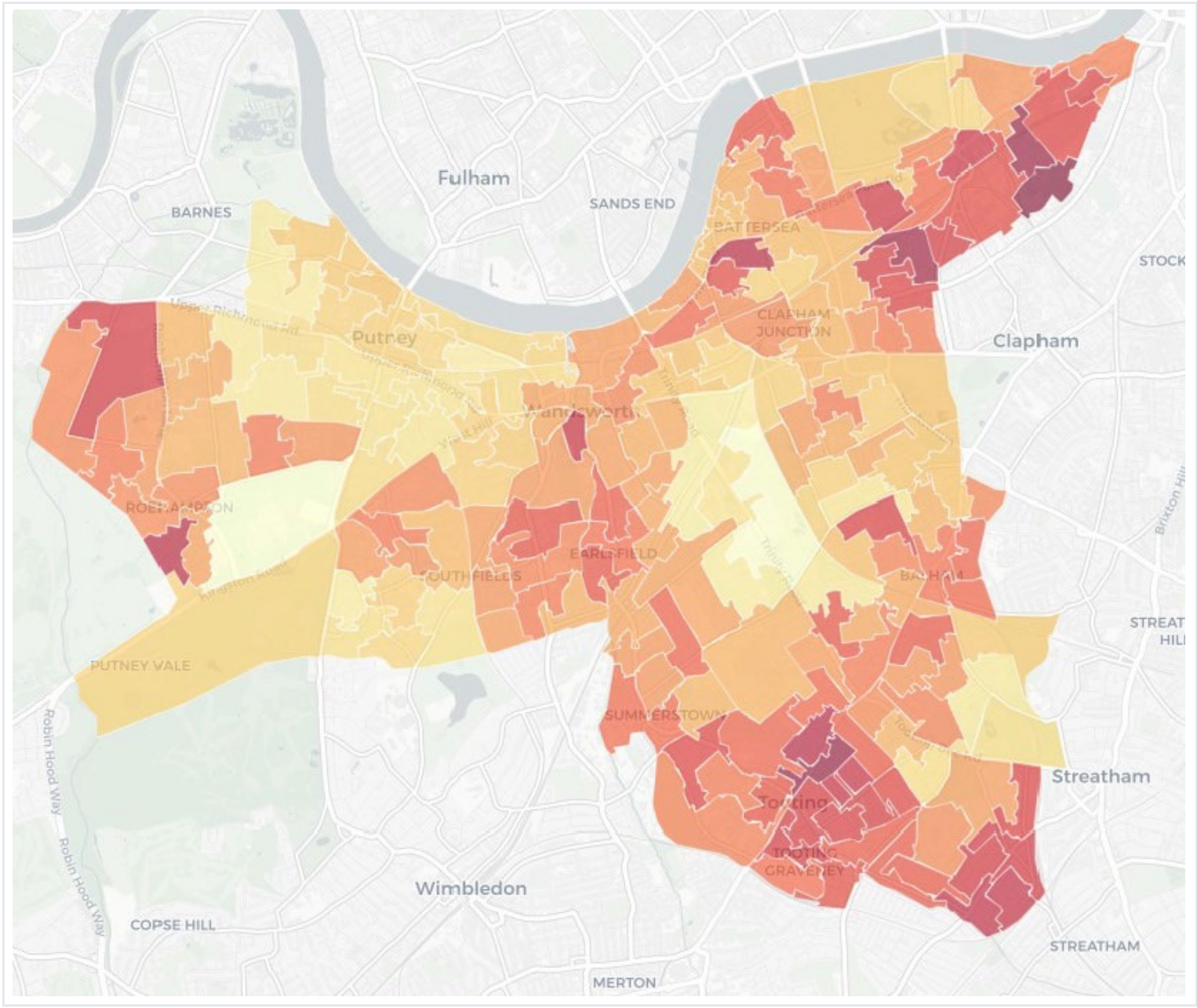


Figure 6: Overall overheating risk across the London Borough of Wandsworth. [Source]

2.1.2. Precipitation

The overall trend in annual rainfall in Wandsworth has remained fairly consistent since 1890, although there has been significant year-on-year variability (figure 7). However, while the annual average has not changed significantly, there is an observed decrease in summer rainfall (figure 8) and an increase in winter rainfall (figure 14) between 1890 and 2022.

2.1.2.1. Drought

Drought most commonly occurs during the summer months, when rainfall is typically lower and temperatures higher. Summer rainfall has decreased overall in Wandsworth since 1890 (figure 8), whilst summer temperatures have increased (figure 4). Whilst the overall trend of summer precipitation is a decrease, there is significant annual variability in precipitation.

Figure 9 shows the Standard Precipitation Index (a strong indicator of drought occurrence and risk) recorded each July in Wandsworth since 1921, with each stripe representing one year. The observations highlight the strong annual variability in Standard Precipitation Index and a generally drying trend during the early 21st century. This highlights the already growing risk of drought in July in Wandsworth.

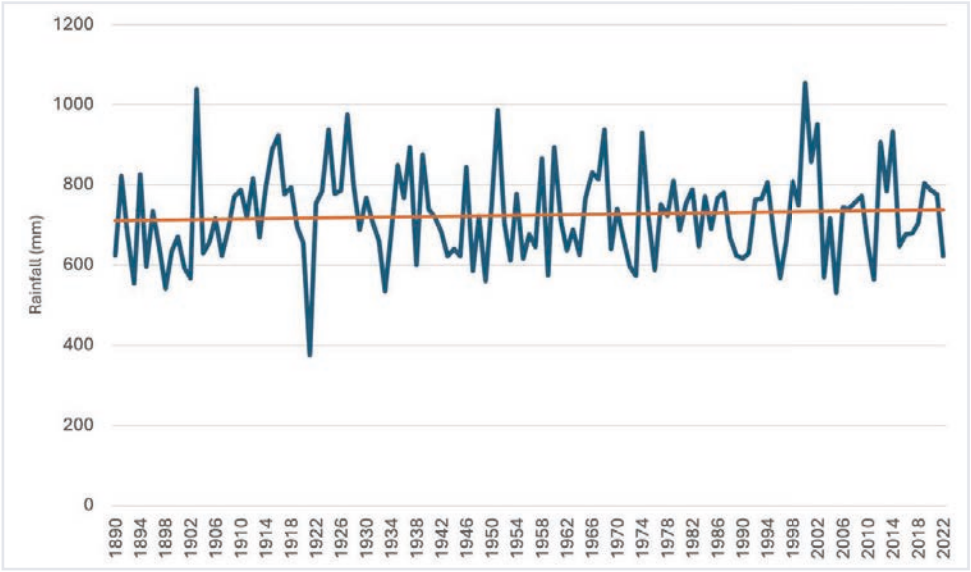


Figure 7: Observed total annual rainfall in 25km grid square including Wandsworth (1890-2022). [Source]

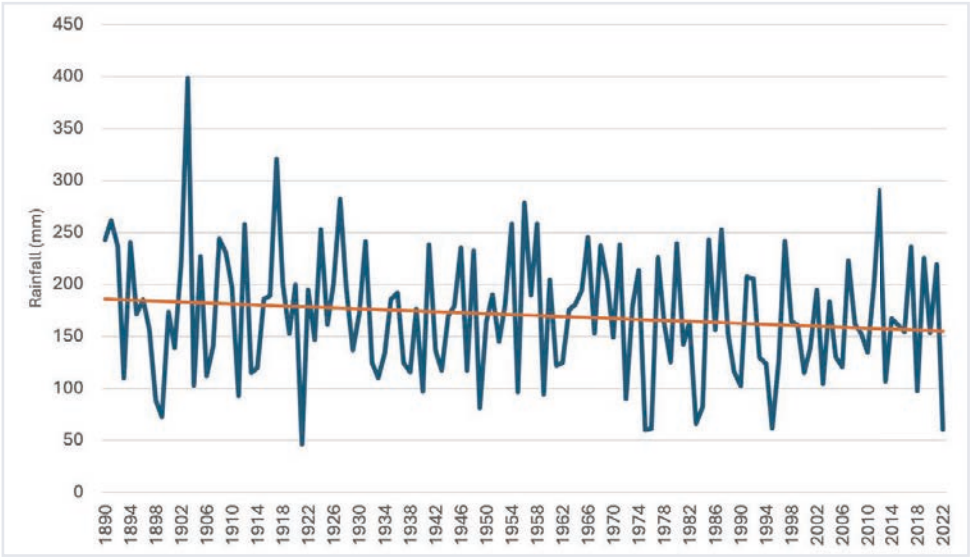


Figure 8: Observed total summer rainfall in 25km grid square including Wandsworth (1890-2022). [Source]

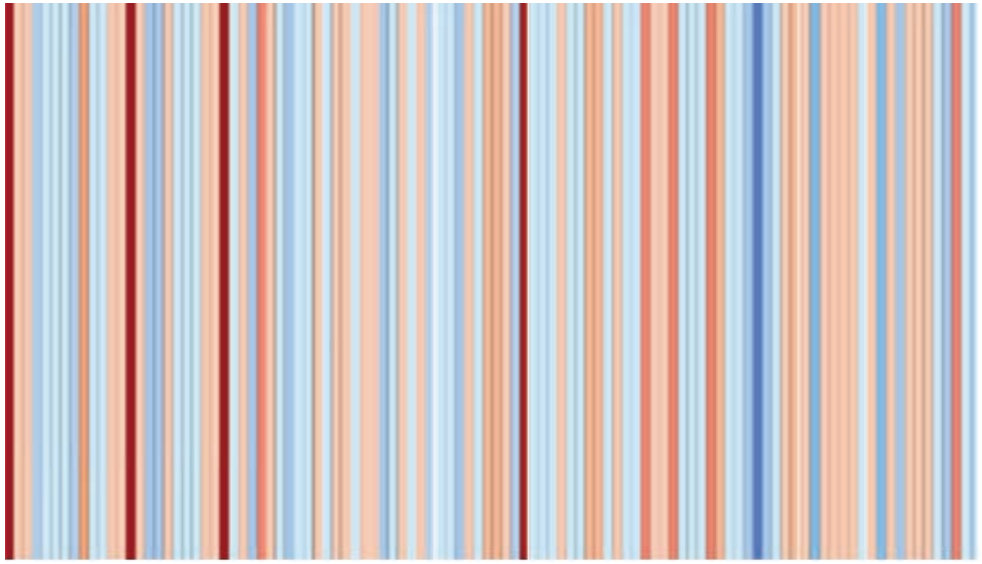


Figure 9: Standard Precipitation Index in Wandsworth 1921-2024. [Source]

Key

Each bar represents one year

The bar colour represents the precipitation level:

Extremely wet (above 2.0)
Severely wet (1.5 to 2.0)
Moderately wet (1.0 to 1.5)
Mildly wet (0.0 to1.0)
Mildly dry (-1.0 to 0.0)
Moderately dry (-1.5 to -1.0)
Severely dry (-2.0 to -1.5)
Extremely dry (below -2.0)

The indices are dimensionless, meaning they lack any specific units. Negative values suggest that rainfall, flows or levels are below the average, whereas positive values indicate that conditions exceed the average. Values above 2 represent extremely wet conditions, while those below -2 indicate extremely dry conditions. The greater the deviation from zero, the more severe the conditions, though such extreme values are.

2.1.2.1. Flooding

Wandsworth benefits from the broader flood defences within the Thames Estuary and along the River Thames, which borders the north of the borough, and as such is completely dependent upon these defences to ensure against river flooding. The River Wandle (which runs through the centre of the borough) and the Beverly Brook (which borders the west of the borough) also present a flood risk (figure 10) and have flood mitigation measures in place to reduce this risk.

As an urbanised, inner London borough, Wandsworth is also vulnerable and susceptible to surface water flooding. With much of the borough covered in impermeable surfaces, significant portions of Wandsworth are at risk of surface water flooding (figure 11).

Social vulnerabilities significantly compound the impact of flooding among the public. Figure 12 maps overall flood risk across the borough when these key social vulnerabilities are accounted for.

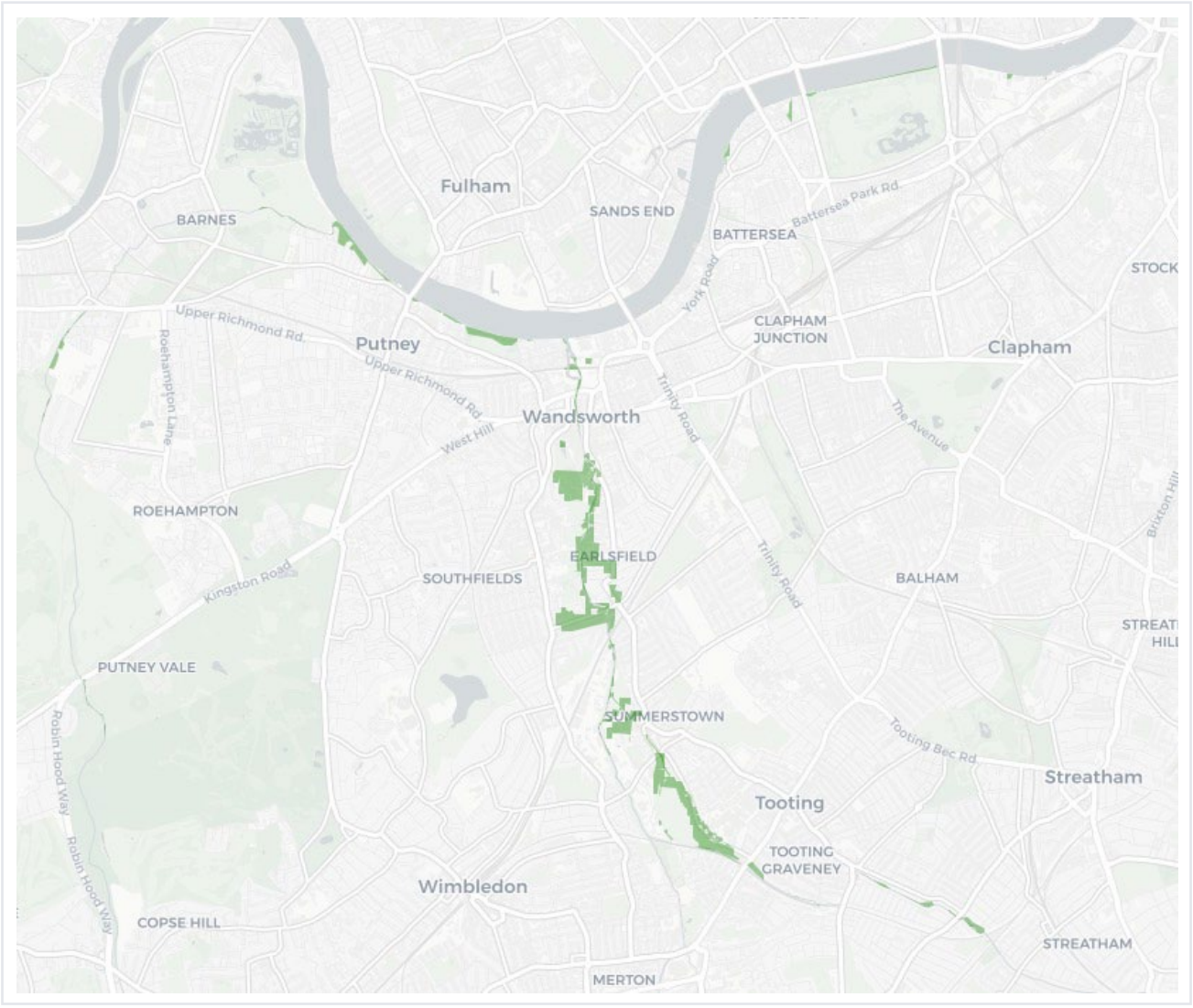


Figure 10: River and sea flood risk in the London Borough of Wandsworth. The green colouring shows where there is a risk of river and sea flooding. [Source]

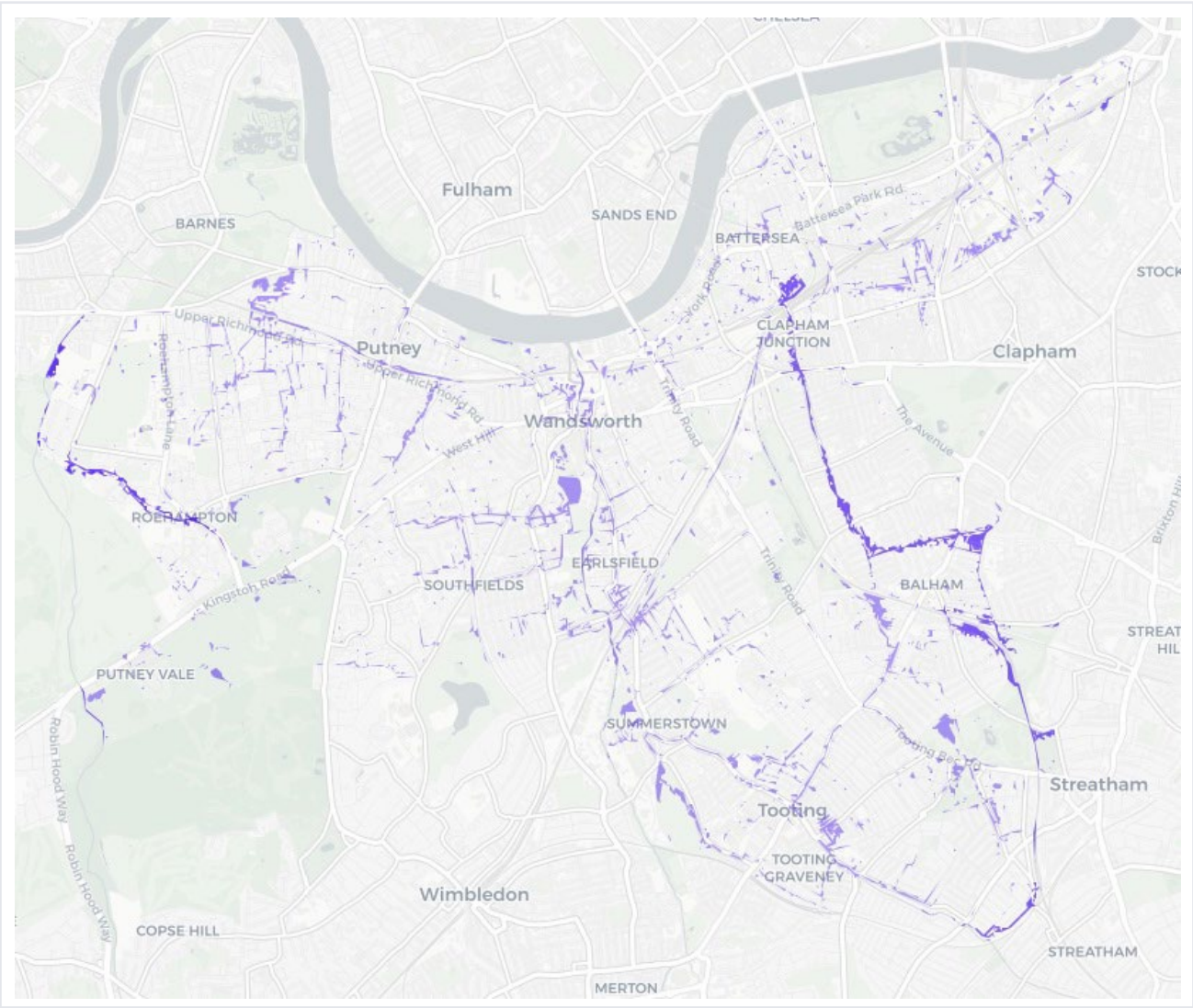
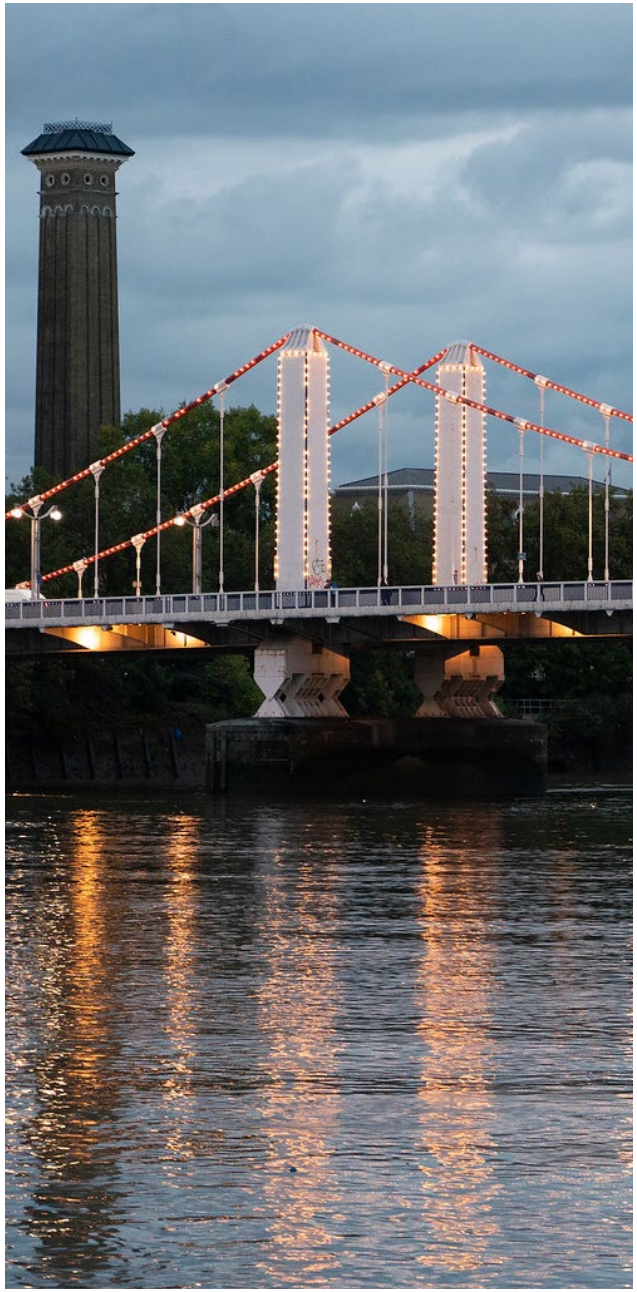


Figure 11: Surface water flood risk across the London Borough of Wandsworth. The blue colouring shows where this is a risk of surface water flooding. [Source]



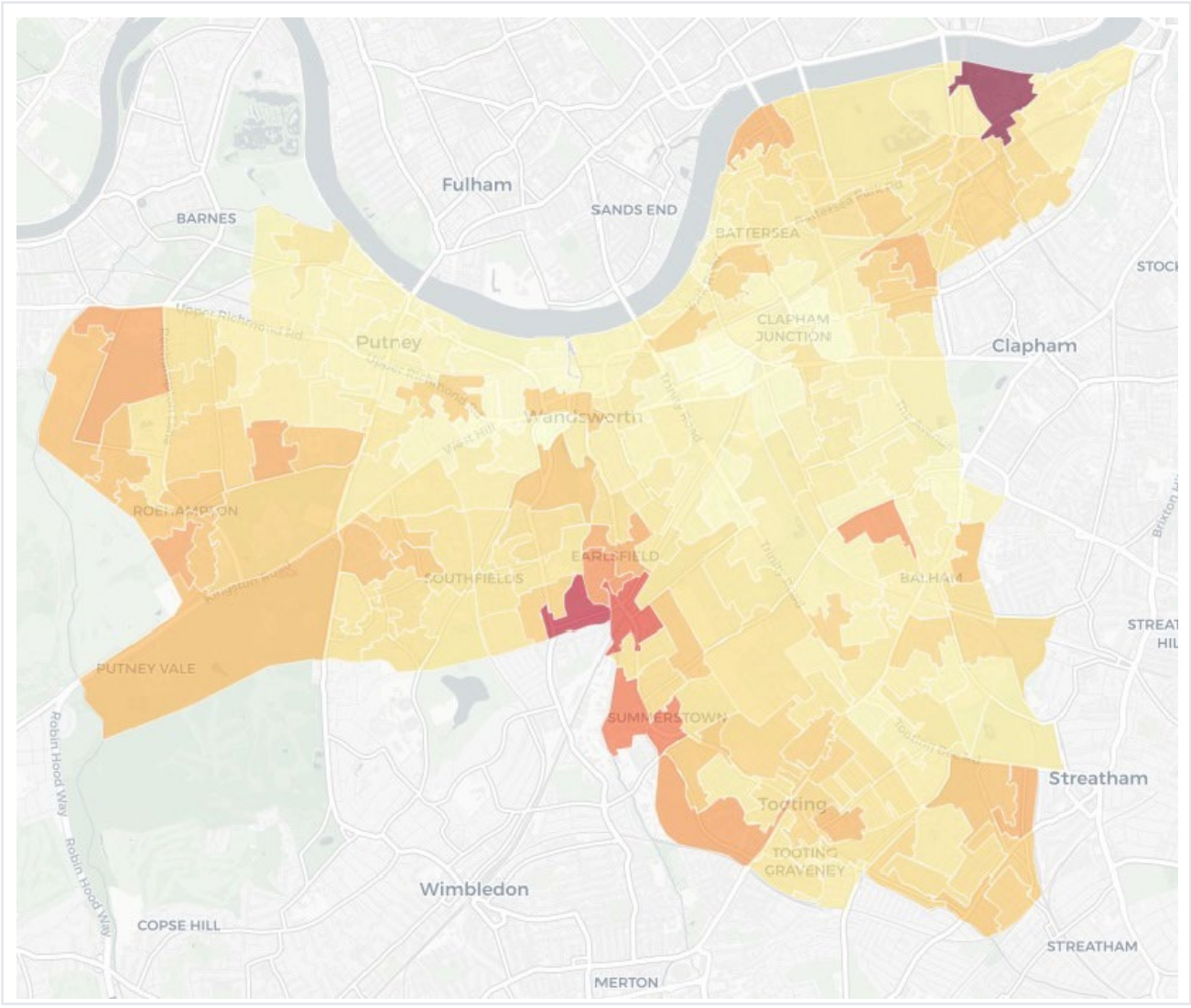


Figure 12. Overall flood risk across the London Borough of Wandsworth. [Source]

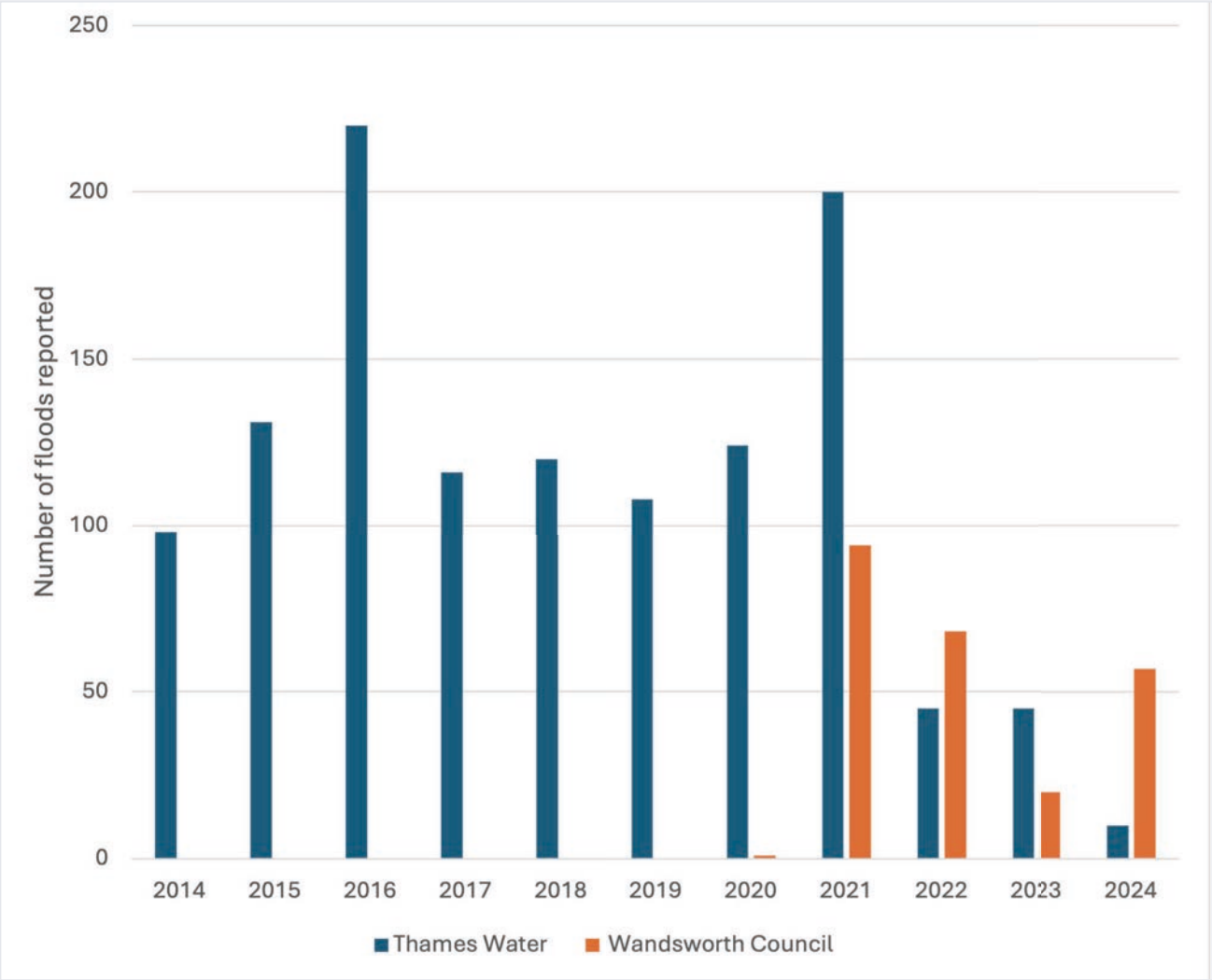


Figure 13: Recorded flood events in Wandsworth borough between 2014 and 2024. Blue bars represent flood events recorded by Thames Water (2014-2024). Orange bars represent flood events reported by the public to Wandsworth Council (2020-2024).

Figure 13 shows recorded flood events in the borough, with Thames Water data shown since 2014 and publicly reported flood events recorded since 2020. The years with the highest number of flood events were 2016 and 2021.

Whilst precipitation is not the only contributing factor to flood risk, it is one of the key ones. Annual observed rainfall has not changed significantly since the late 19th century (figure 7). Winter rainfall shows significant annual variability, but has increased overall since 1890 (figure 14). Precipitation tends to be higher in winter and this season can be particularly susceptible to flooding. However, flooding can occur at any point of the year. Indeed, heavy rainfall events that follow very dry periods can be particularly severe, as the dry ground is unable to absorb water leading to worse surface water runoff.

Heavy precipitation increases the risk of the different types of flooding (i.e., river flooding, surface water flooding and groundwater flooding) occurring at the same time and combining to result in a particularly severe flood event. Furthermore, such events can be worsened further still by high tides and storm surges causing tidal flooding, which London is susceptible to.

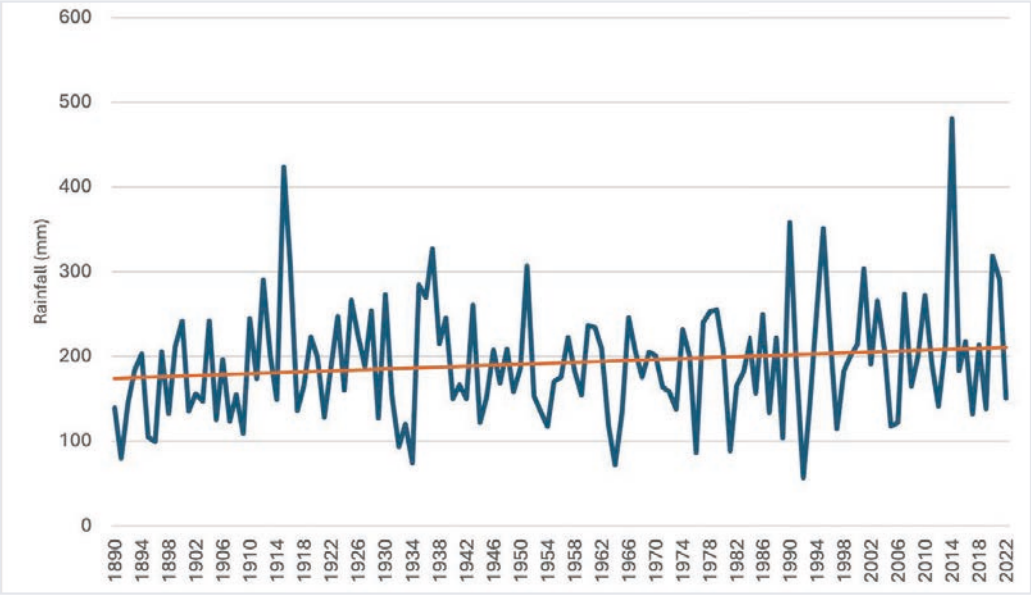


Figure 14. Observed total winter rainfall in 25km grid square including Wandsworth (1890-2022). [Source]

BOX 2: July 2021 Flash Flooding

On 12 and 25 July 2021, 15 flood incidents were reported across the two dates across Wandsworth Borough. On 12 July, Wandsworth experienced return periods of between 1 in 50 years and 1 in 100 years (in the northwest of the borough). The return periods on 25 July were between 1 in 20 years and 1 in 30 years (in the northeast of the borough).[ref] Model simulations show that human-induced climate change has contributed to increased flooding. [ref] Indeed, climate change is leading to an increase in extreme weather globally and there has been an increase in heavy downpours and associated flash flooding in the summer months in London, as seen in July 2021. [ref] On both dates, it is likely that sewers were overwhelmed by the large volumes of rainwater in the network. London's sewer network is largely Victorian and in need of upgrading and modernisation. Of the locations where flooding occurred in July 2021, some of the combined sewers are at risk of surcharge in a 1 in 2 year event from 2035, highlighting the need for investment in the sewer network to increase capacity and resilience to heavy rainfall events. [ref]

The impacts of this flooding were significant. During this period, there were 14 reported incidents of internal flooding (i.e., inside buildings and basements), covering 33 properties across 15 different roads. There was also one report of highway flooding, which disrupted travel. On 12 July, an area near Putney Common and on Cambalt Road were particularly badly affected, and on 25 July the Diamond Estate Areas was worst affected. [ref] Furthermore, there are known adverse impacts on the mental health among those whose lives are disrupted by flooding, as well as those whose homes are flooded, which can result in mental health problems persisting for at least three years. [ref] The heavy downpours also resulted in sewer flooding, which leads to pollution and can contaminate public spaces and nearby watercourses. [ref] The average cost of repairing a home damaged by flooding is around £33,600. [ref]

2.1.3. Storms

There are two key components to account for when observing storm activity: wind and rainfall. Trends in rainfall are shown in figures 7, 8 and 14, with winter rainfall (when storms are more likely to occur in the UK) having increased overall since 1890. Observational data of wind speeds have declined overall in Wandsworth since 1970 (figure 15), which is corroborated by the State of the UK Climate 2023 Report and supports global observations of a general slowdown in near-surface wind, known as "global stilling". There are some indications this trend may be slowing in the UK and reversing globally. [ref] The Third UK Climate Change Risk Assessment concluded that there is currently no evidence for increased storminess in the UK, although changes in monitoring storm activity complicates this.[ref] Figure 16 shows the number of named storms that have occurred in each storm season since 2015/16 in the UK and/or Ireland; there is no significant trend in storm occurrence during this period.

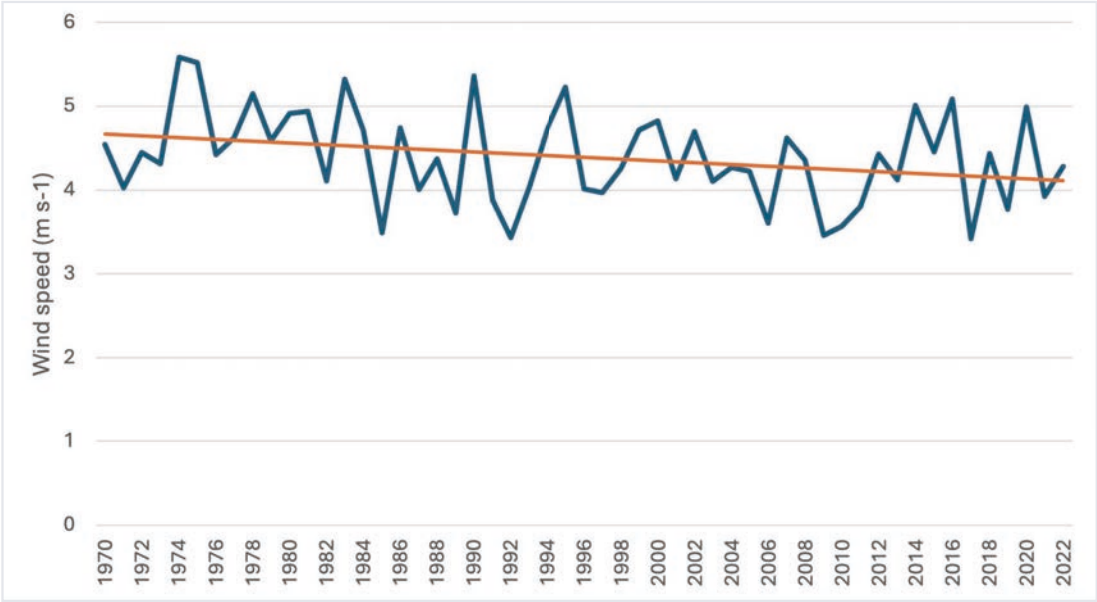


Figure 15: Observed average windspeed in 25km grid square including Wandsworth 1970-2022. [Source]

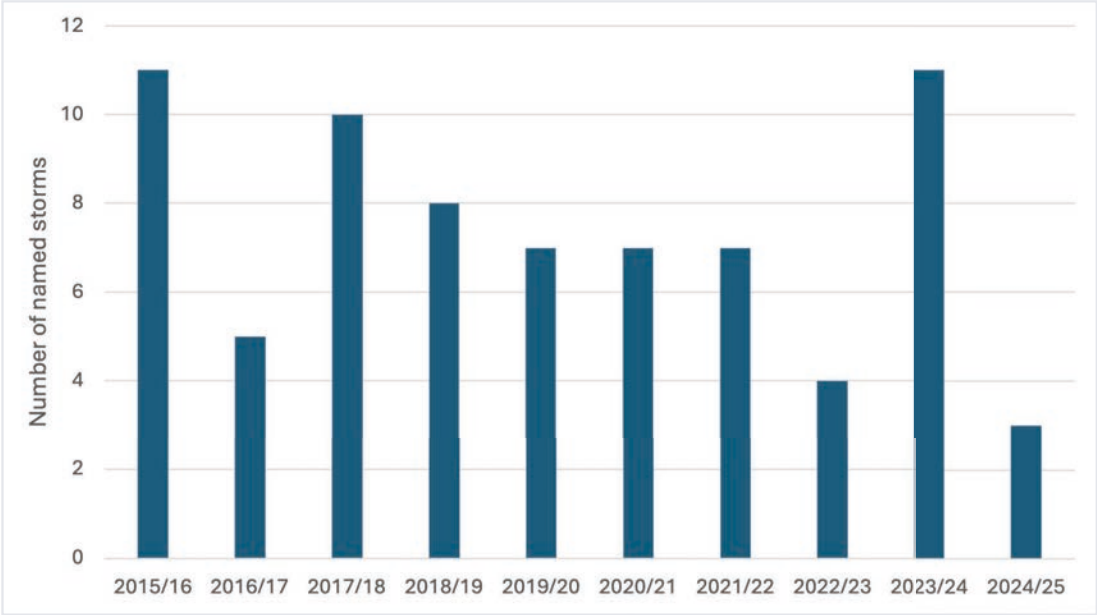


Figure 16: Total number of named storms in the UK and/or Ireland in each annual storms season (2015/16-2024/25). [Source]

2.1.4. Air Pollution

Air pollution is one of the biggest environmental threats facing the UK, with 29,000 to 43,000 deaths associated with air pollution every year.[ref] Of these, 3,600 to 4,100 deaths are in London, with 115-129 attributed to Wandsworth borough in 2019. [ref] Deaths are especially high among the elderly and those with preexisting health conditions (such as asthma and chronic obstructive pulmonary disease (COPD)). Children are also extremely vulnerable to air pollution, with children consistently exposed to high levels of air pollution having had their lung capacity reduced by 5%. [ref] Figure 17 shows current air pollution risk across Wandsworth.

Air pollution and climate change are intrinsically linked. The sources of air pollution and greenhouse gas emissions are largely the same (predominantly petrol and diesel vehicles in the UK) – this in turn means measures to address these challenges can tackle both air pollution and climate change. However, climate change is also expected to impact air pollution, due to changing weather patterns affecting the dispersal and concentrations of key pollutants. Whilst emissions of air pollutants will be the dominant factor in levels of air pollution in future, it is important to recognise that changes to the climate will also affect the public's exposure to air pollution. [ref]

Air pollution has decreased overall across the borough (figure 18). All but two monitoring stations show that NO2 concentrations met the World Health Organization (WHO) interim target in 2023 (figures 18.1 and 18.2). Concentrations of PM10 show a decreasing trend at all monitoring sites, with one site meeting the WHO guideline target in 2023 (figure 18.3).

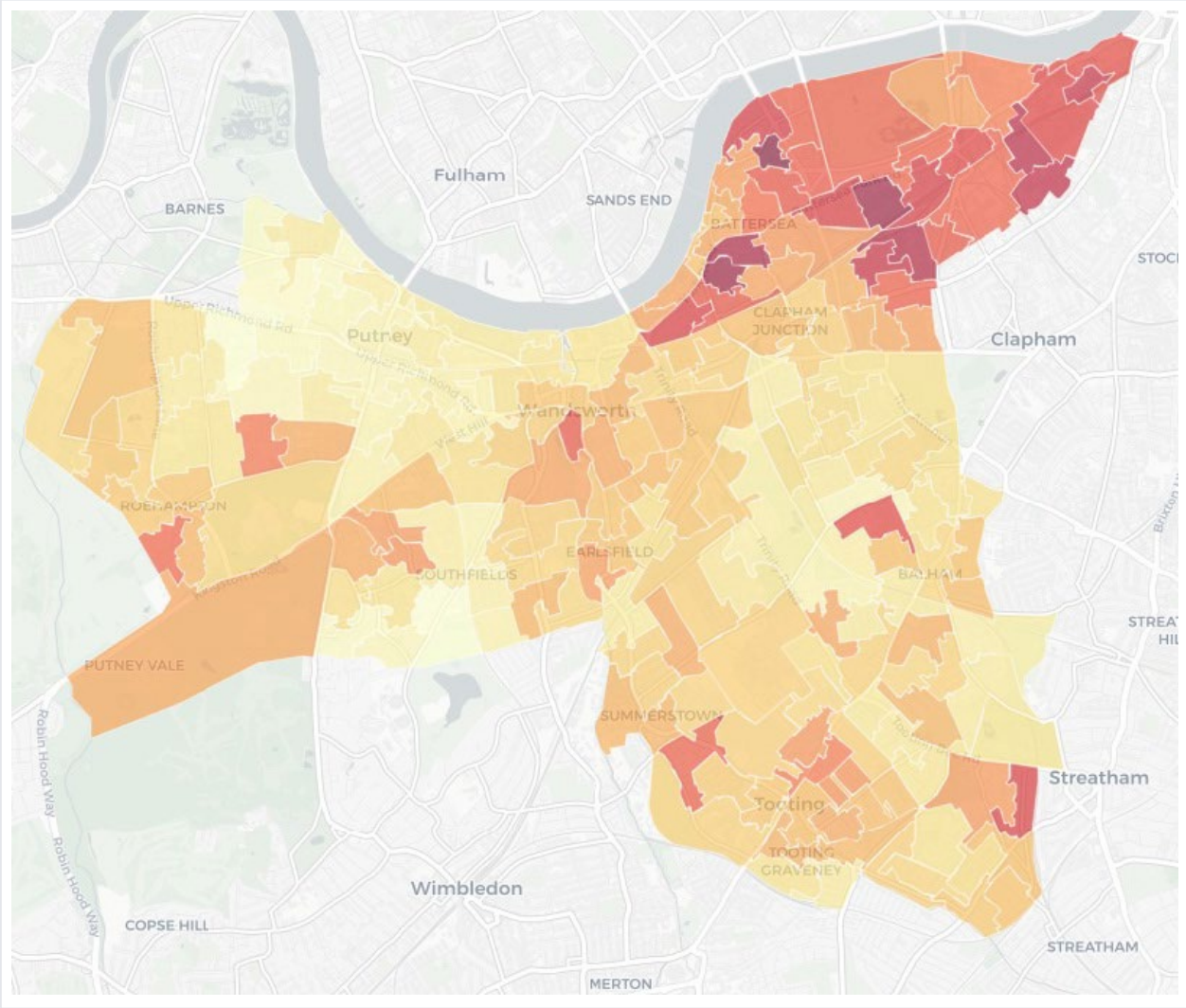


Figure 17: Overall air pollution risk from NO2, PM10 and PM2.5 across the London Borough of Wandsworth. [Source]

Figure 18: Monitoring data from sites across Wandsworth showing trends in nitrogen dioxide (NO2) (figures 17.1 to 17.2) and PM10 (figure 17.3) from 2017 to 2023 (where monitoring data permits).

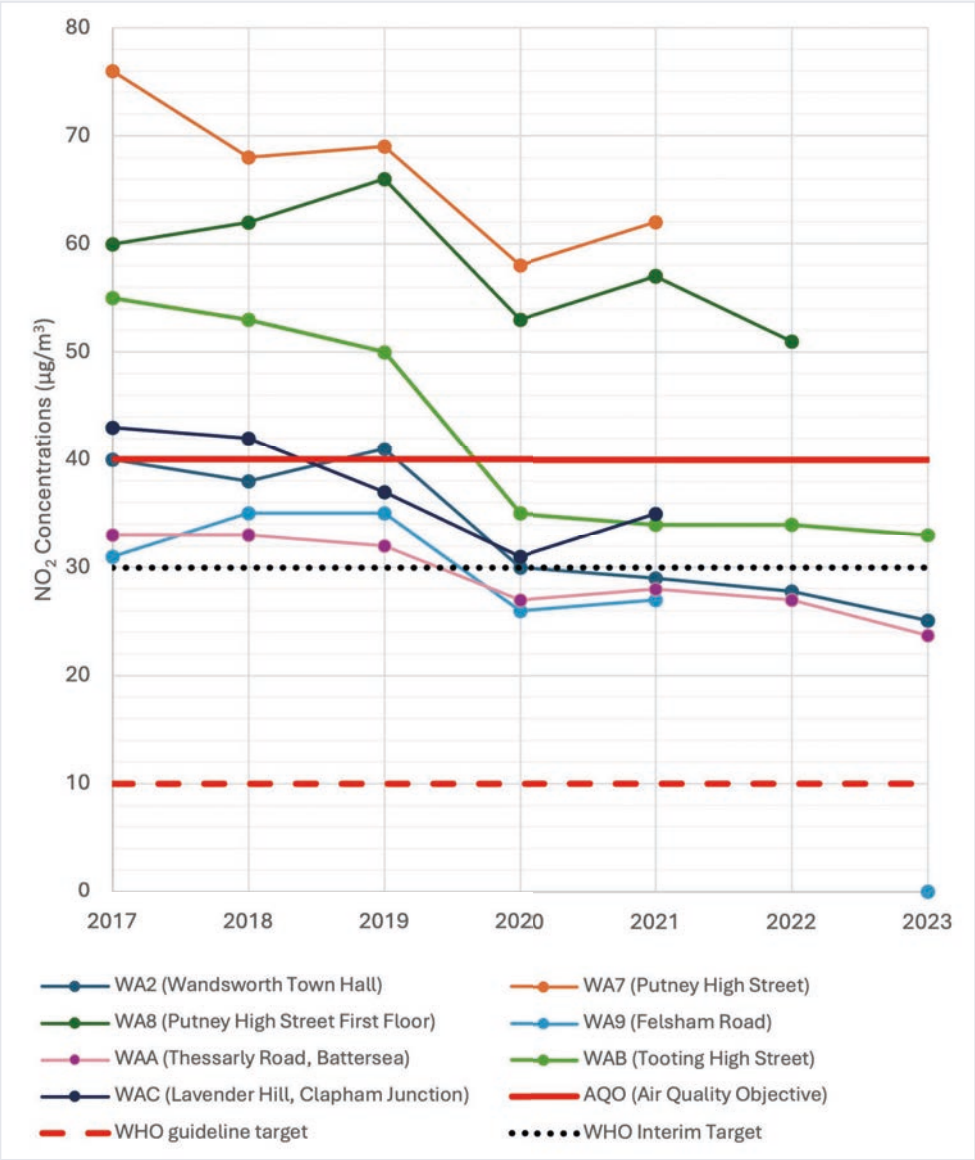


Figure 18.1: Trends in annual mean nitrogen dioxide (NO2) concentrations measures at the automatic monitoring stations (µg m-3).

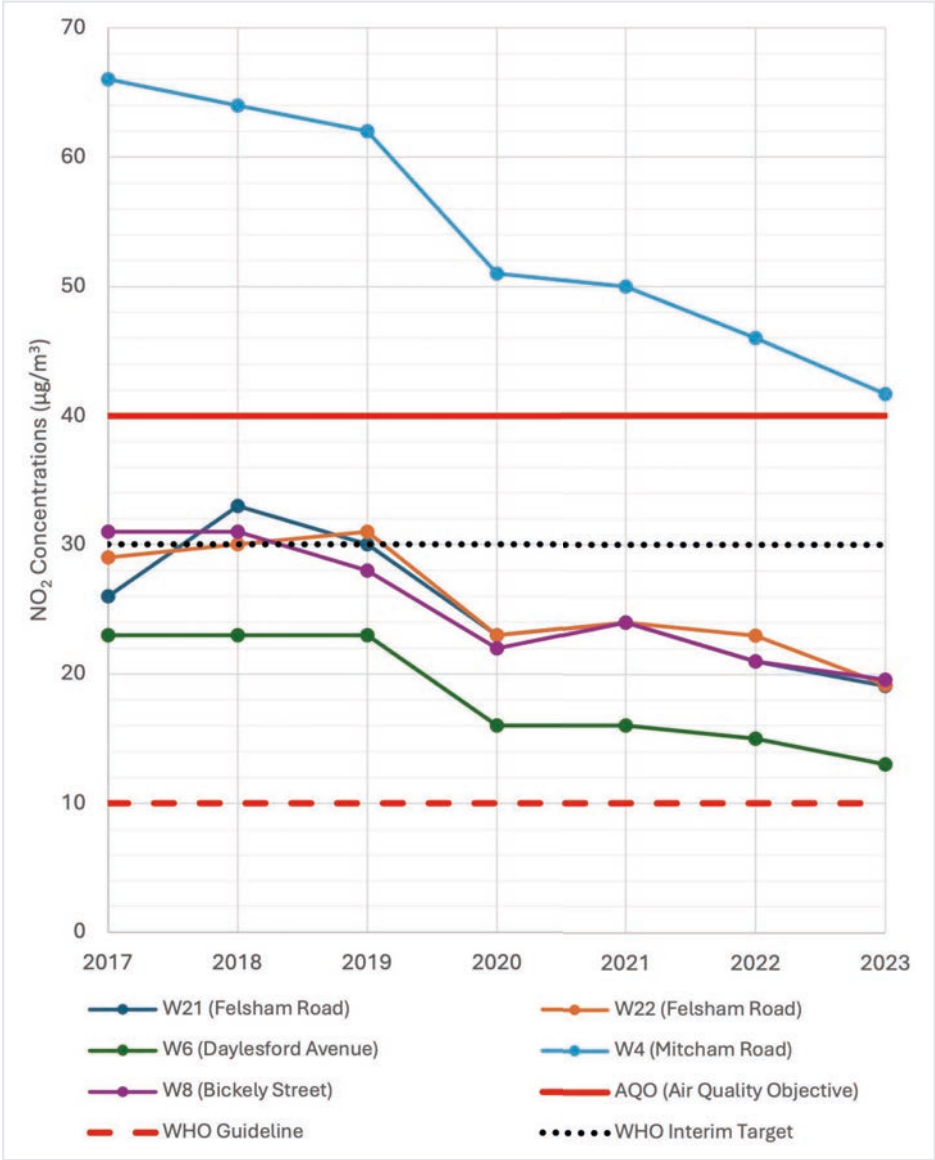


Figure 18.2: Long trends in annual mean nitrogen dioxide (NO2) concentrations measures with diffusion tubes (µg m-3).

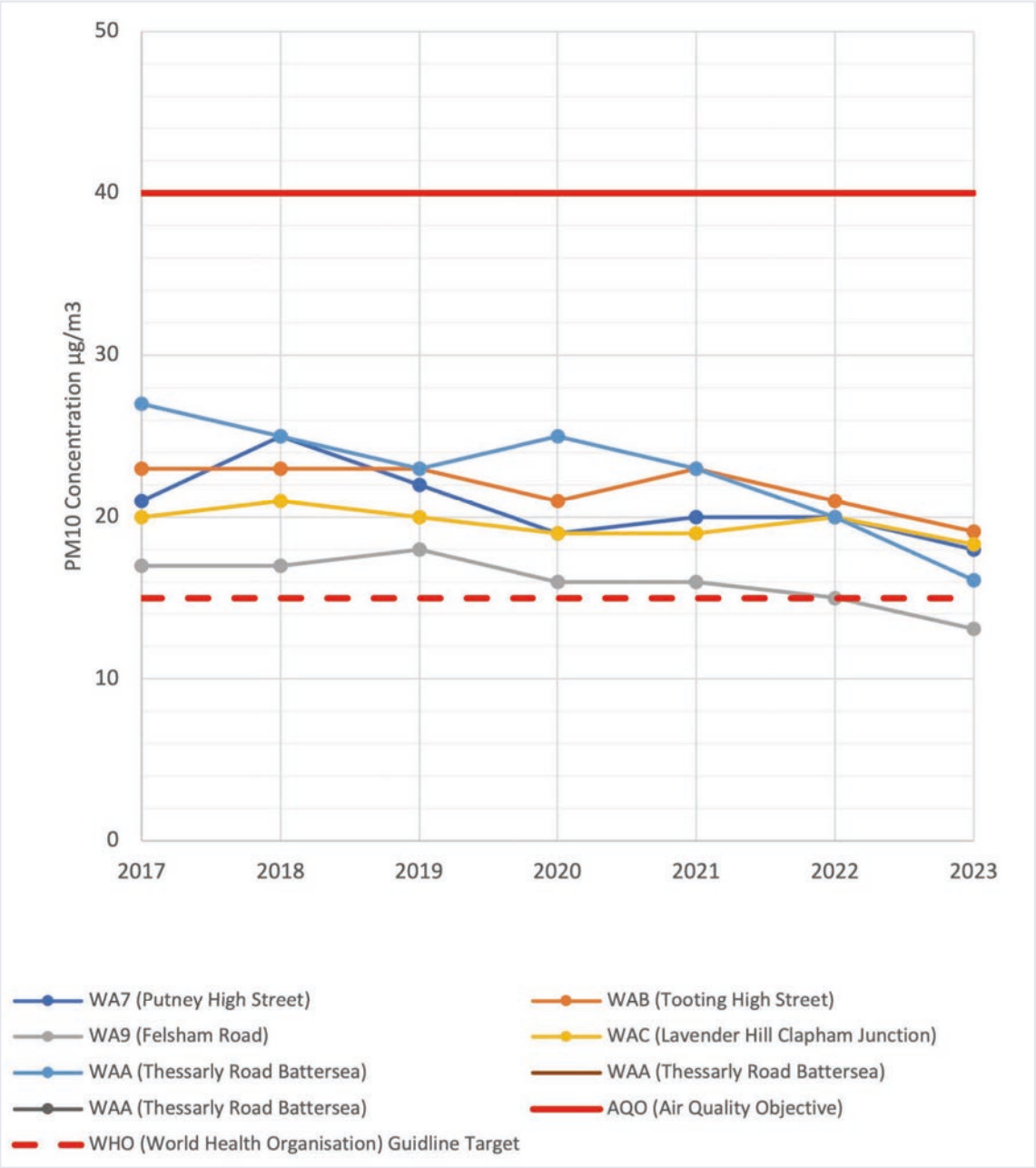


Figure 18.3: Trends in annual mean PM10 concentrations at the continuous monitoring sites (µg m-3)

2.2. Climate Projections

Climate projections are a powerful tool in helping to understand how the climate is expected to change. However, climate projections are not a prediction of the future, but rather a suite of possible futures that could manifest. The main uncertainties associated with climate projections are:

1. The emissions pathway the world follows (i.e., what concentration of greenhouse gases will be in the atmosphere).
2. The occurrence and impact of tipping points.
3. The uncertainties associated with the response of the climate system to different concentrations of greenhouse gases.

Despite these uncertainties, climate modelling can give a strong indication and reliable range of how the climate can be expected to change. These projections can therefore help to inform actions that can be taken to reduce the impacts of these changes. To account for uncertainty in the fact it is unknown what emissions pathway the world will take, climate modelling uses four scenarios known as Representative Concentration Pathways (RCPs).

Representative Concentration Pathways

Four RCPs are used in climate modelling: RCP2.6, RCP4.5, RCP6.0, and RCP8.5. Each RCP represents specific concentrations of greenhouse gases in our atmosphere, associated with anthropogenic emissions of greenhouse gases. RCPs therefore give different pathways for the future in terms of how successful global mitigation efforts are (i.e., how much greenhouse gas emissions are reduced by).

RCP2.6 represents a scenario where greenhouse gas emissions are strongly reduced. RCP2.6 is broadly aligned with the Paris Agreement, a legally binding international treaty adopted by 196 countries, which commits to hold "the increase in the global average temperature to well below 2°C above pre-industrial levels" and pursue efforts "to limit the temperature increase to 1.5°C above pre-industrial levels". [ref]

RCP8.5 represents a business-as-usual scenario where no additional efforts are made to mitigate greenhouse gas emissions. Table 1 below shows the global temperature rise, compared with pre-industrial levels, associated with each RCP.

In the following section, the 50th percentile is presented for each RCP. This represents the "mid-point" of the range within each RCP. As such, the projections presented do not necessarily capture outliers and extremes above (e.g., 95th percentile) or below (e.g., 5th percentile) the 50th percentile.

Table 2: Global mean temperature rise (°C) by 2081-2100 associated with each RCP.

RCP	Global mean temperature rise
RCP2.6	1.6°C
RCP4.5	2.4°C
RCP6.0	2.8°C
RCP8.5	4.3°C

2.2.1. Temperature

In all scenarios, mean annual temperature is projected to increase by the end of the century (figure 19). Under a high emissions scenario (RCP8.5), mean annual temperature could increase by 5°C by 2099. However, if significant mitigation occurs (RCP2.5), annual mean temperatures in Wandsworth could still be 1.5°C higher by 2099. Wandsworth Council has a target to be net zero as a borough by 2043. Mean annual temperature in 2043 is expected to be 1.3°C to 1.6°C higher (RCP2.5 and RCP8.5, respectively).

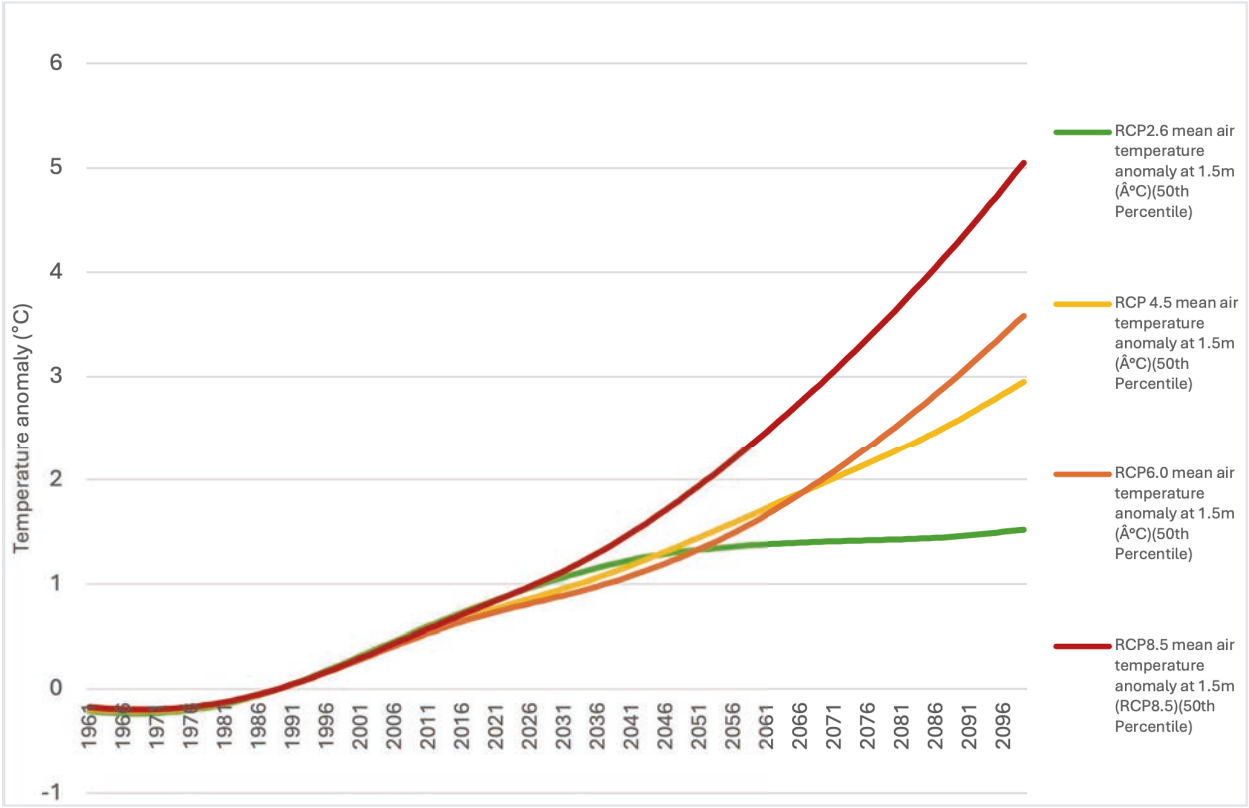


Figure 19: Mean annual air temperature anomaly at 1.5m (°C) for 1961-2099 in 25km grid square including Wandsworth (baseline 1981-2000). For each RCP, the 50th percentile is shown. [Source]

2.2.2. Extreme Heat

As the planet warms, heat waves are expected to be more frequent and severe. By the end of the century, maximum summer temperatures in Wandsworth are projected to be 36.6°C (RCP2.5) to 41.2°C (RCP8.5) (figure 20). In 2043, maximum summer temperatures are expected to be 36.1°C to 36.9°C (RCP2.5 and RCP8.5, respectively).

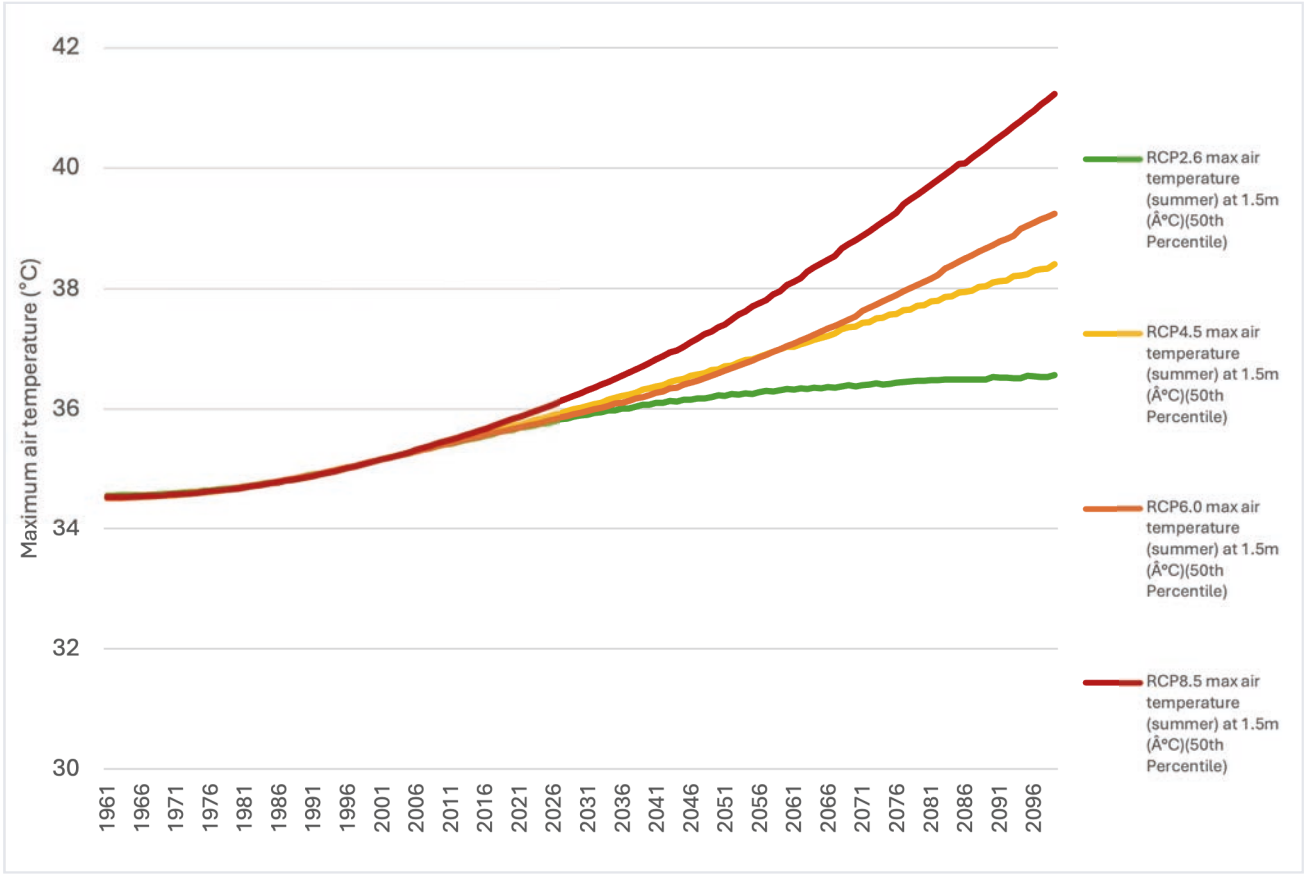


Figure 20: Maximum summer air temperature at 1.5m (°C) in June, July and August for 1961-2099 in 25km grid square including Wandsworth (baseline 1981-2000). For each RCP, the 50th percentile is shown. [Source]

2.2.3. Extreme Cold

Although extreme cold events are expected to become less frequent and severe with climate change, they will likely still occur sometimes. Nonetheless, the projected trend is that minimum winter temperatures will rise by 1.3°C to 4.4°C (RCP2.5 and RCP8.5, respectively) by the end of the century (figure 21).

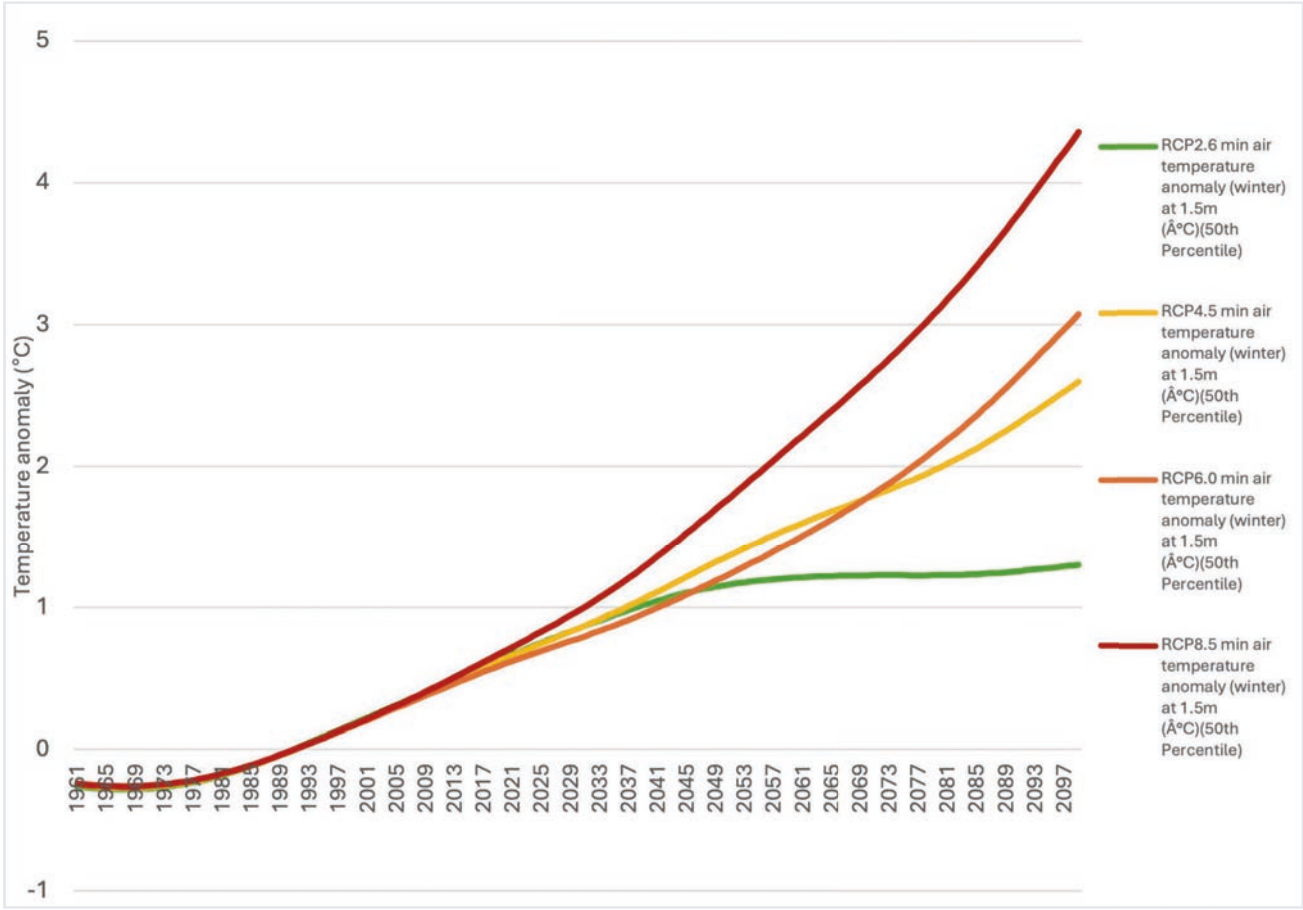


Figure 21: Minimum winter air temperature anomaly at 1.5m (°C) for 1961-2099 in 25km grid square including Wandsworth (baseline 1981-2000). For each RCP, the 50th percentile is shown. [Source]

2.2.4. Precipitation

While annual precipitation rates are projected to remain fairly consistent, there are significant seasonal variations. In general, summer precipitation is projected to decrease, while winter precipitation is projected to increase. This presents a dual challenge, with potentially not enough water in summer (increased risk of drought) and too much water in winter (increased risk of flooding) in Wandsworth.

2.2.4.1. Drought

Summer precipitation is projected to decrease by 29.2% to 55.4% (RCP2.5 and RCP8.5, respectively) by the end of the century (figure 22). This increases the risk of drought, most especially when combined with higher temperatures increasing evapotranspiration rates.

2.2.4.1. Flooding

Winter precipitation is projected to increase by 9.5% to 26.1% (RCP2.5 and RCP8.5, respectively) by the end of the century (figure 23). High levels of rainfall, particularly more intense downpours, could increase river, surface water and groundwater flood risk in Wandsworth.

2.2.5. Storms

Projections of future storminess in the UK do not show an overall change in storminess.[ref] However, winter wind speeds and precipitation are projected to increase from 2050, with an associated increase in the frequency of storms in the winter months. [ref] Although this could increase the risk of storm surges, which could in turn cause flooding in London, the dominant driver for storm surges is projected to be sea level rise.[ref]

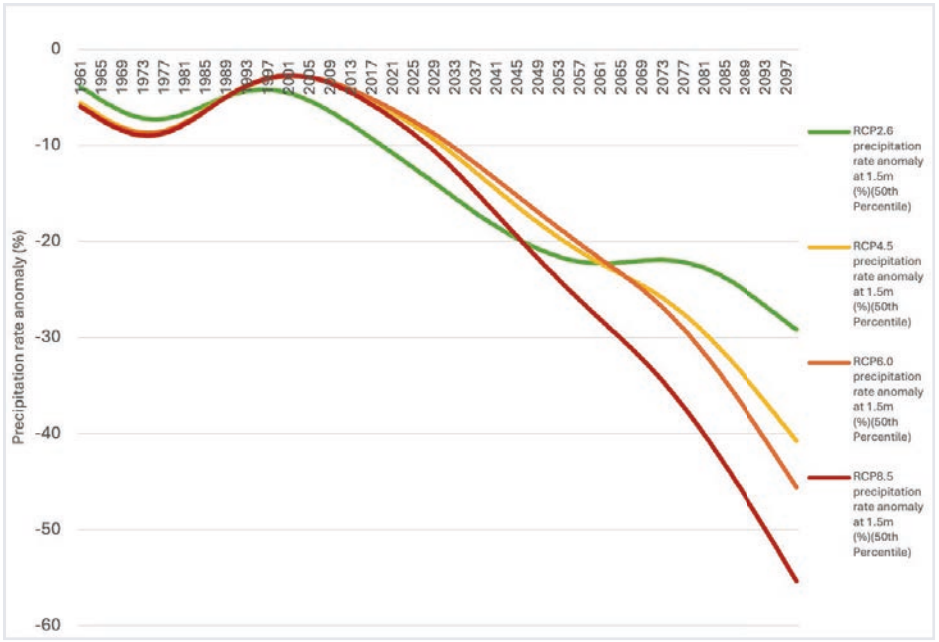


Figure 22: Seasonal average precipitation rate anomaly (%) in June, July and August for 1961-2099 in 25km grid square including Wandsworth (baseline 1981-2000). For each RCP, the 50th percentile is shown. [Source]

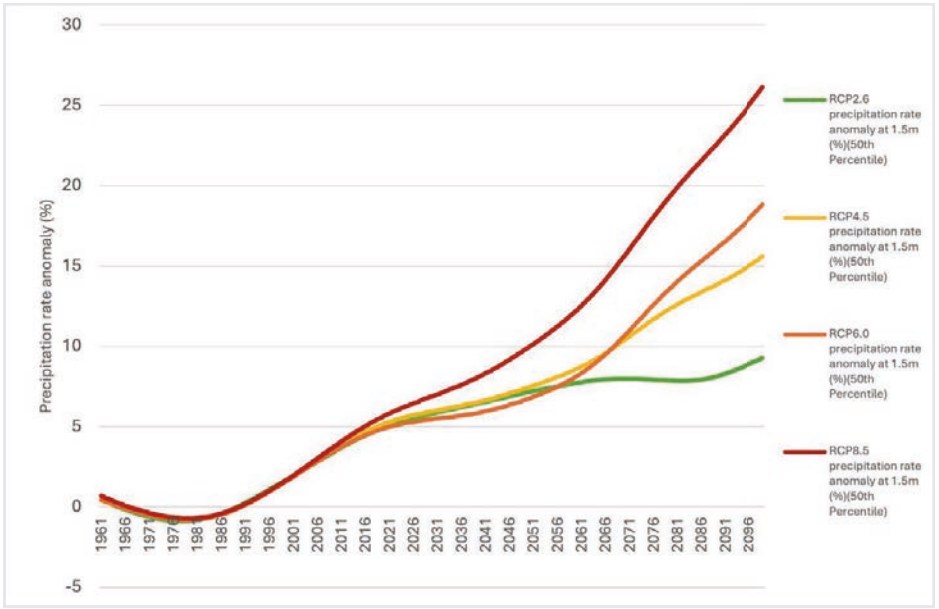


Figure 23: Seasonal average precipitation rate anomaly (%) in December, January and February for 1961-2099 in 25km grid square including Wandsworth (baseline 1981-2000). For each RCP, the 50th percentile is shown. [Source]

2.3. Emerging Risks

2.3.1. Humidity

As well as higher maximum summer temperatures, humidity is projected to rise overall in summers in Wandsworth, increasing by as much as 8.4% to 26.1% (RCP2.5 and RCP8.5, respectively) by the end of the century (figure 24).

2.3.2. Wildfires

The UK's weather is projected to become more conducive to wildfires, with hotter and drier summers. This poses significant risks to climate and biodiversity targets, as well as risks to people and infrastructure. Currently in the UK, most wildfires are started by humans.[ref]

In London, the number of Met Officer Fire Danger days is projected to increase under all RCPs over the century, with potentially 45 to 82 days (RCP2.6 and RCP8.5, respectively) being fire danger days by 2086 (figure 25).

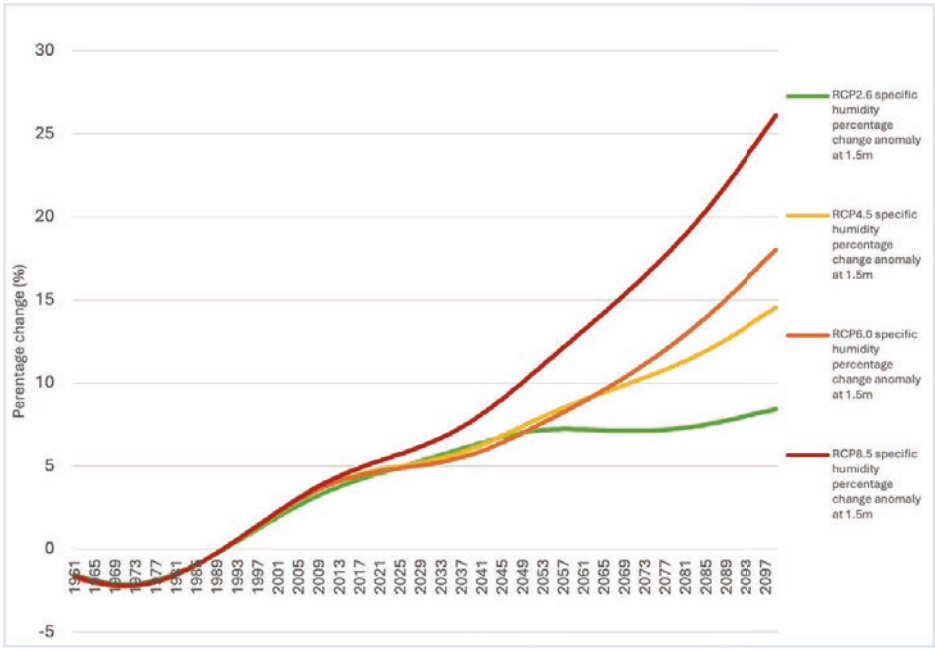


Figure 24: Seasonal average specific humidity percentage change anomaly (%) at 1.5m in June, July and August for 1961-2099 in 25km grid square including Wandsworth (baseline 1981-2000). For each RCP, the 50th percentile is shown. [Source]

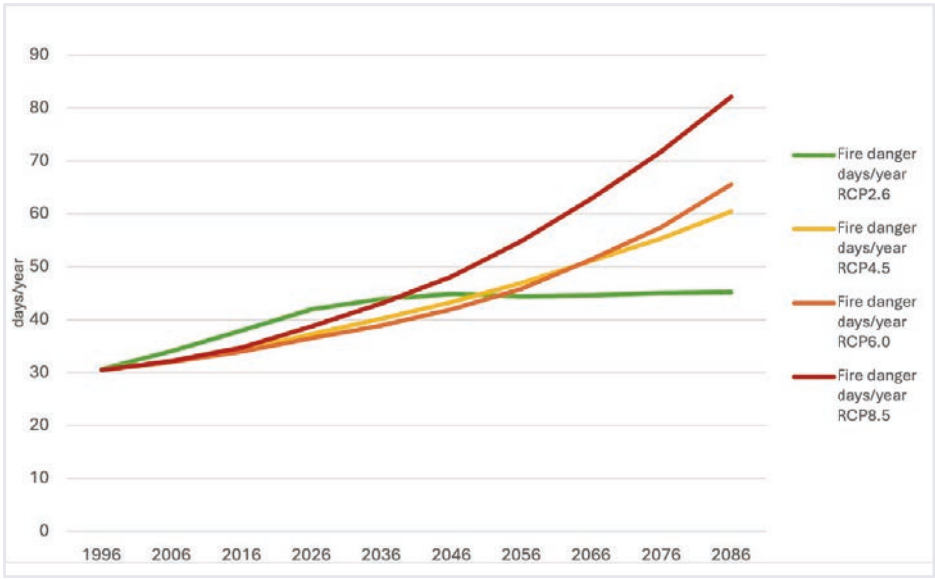


Figure 25: Met Officer Fire Danger Days per year in London (1996-2086). For each RCP, the 50th percentile is shown. [Source]

2.3.3. Infectious and Vector Borne Diseases

Infectious and vector borne diseases can be climate sensitive. As the UK's climate warms, there is potentially an increased risk of infectious and vector borne diseases.

The impact of climate change on infectious diseases is complicated, as there are many contributing factors, including sociodemographic factors that are hard to project. However, warmer climates influence the geographical distribution and extend transmission periods of some infectious diseases. For many pathogens, there is not enough evidence to reliably anticipate how climate change may affect them, but for Salmonella, Campylobacter, and Vibrio spp. (food and waterborne bacteria causing gastrointestinal illness) there is evidence to suggest the risk of these diseases could increase in future in the UK.[ref]

Vector borne diseases are closely linked with climate, as weather and climate impact vectors and in turn the diseases they carry. In general, warmer temperatures and sufficient precipitation favour vectors. As such, warmer and wetter conditions in the UK could increase the presence and survival of vectors, and in turn increase the risk of vector borne diseases. There are numerous factors than can affect vector borne diseases. For example, the greening of cities, while having numerous benefits, can also increase contact between people and vectors.[ref] This demonstrates the need to understand the complexities around climate adaptation, the potential for unintended consequences, and how to mitigate these.

Additionally, extreme weather events can cause infectious disease outbreaks. For example, flood events can result in the spread of infectious disease, including skin and gut infections from contaminated flood water.[ref]

2.3.4. Invasive and Non-Native Species

Climate change also poses a significant threat to nature. The UK is one of the most nature-depleted counties in the world, with mass decreases in abundance and range across different species recorded over the last 50 years. Climate change is one of the primary causes of this. [ref] Yet climate change poses further threats to nature, due to potential outbreaks of new pests and diseases and changes in the frequency and severity of existing outbreaks. This is because a warmer climate can result in some pests and pathogens extending their range further north into the UK where they were not previously found. Furthermore, milder temperatures increase the ability of some pests and pathogens to survive through the winter and increase their growth. [ref]

2.3.5. Subsidence

With potentially hotter and drier weather affecting the UK, the risk of shrink-swell subsidence is expected to increase. The number of properties at risk of subsidence in London could be as high as 57.3% in 2070 (RCP8.5), with Wandsworth being identified as one of the most at-risk boroughs (figure 26). [ref] Figure 27 shows how the risk of subsidence is expected to increase across much of Great Britain, with London being particularly badly affected. [ref]

In attempting to reduce the impacts of subsidence, there is a risk that trees may be removed, as trees can be blamed for subsidence despite the main climate-related risks associated with subsidence being due to shrink-swell subsidence. When a property is at risk of subsidence and trees are close, trees could be lost and in turn the wealth of benefits these natural assets provide. This highlights the need for joined-up thinking when adapting to climate change.

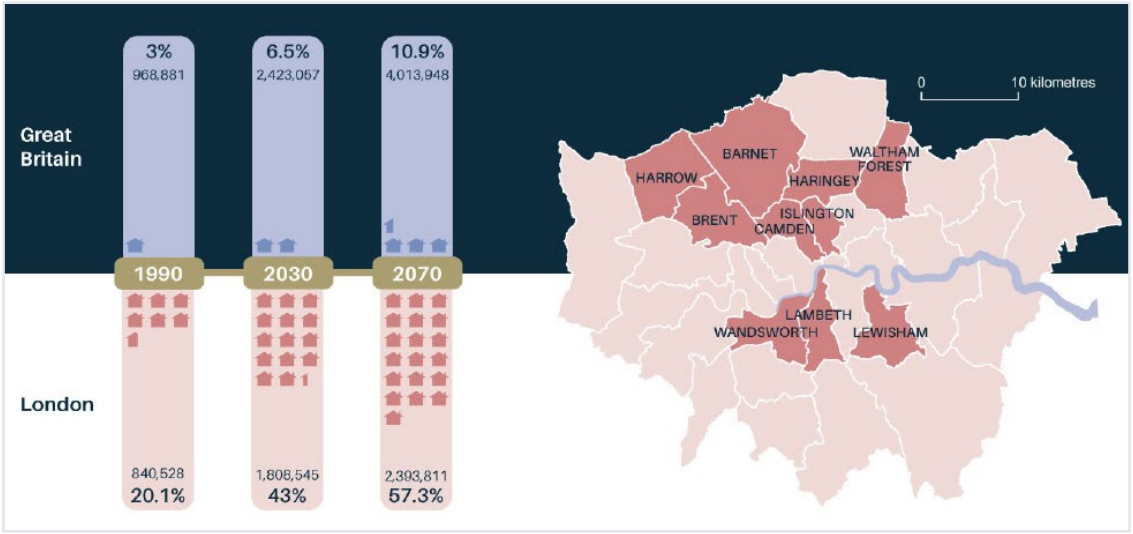


Figure 26: The proportion of properties that are highly likely or extremely likely to be affected by clay shrink-swell due to climate change, under RCP8.5. [Source]

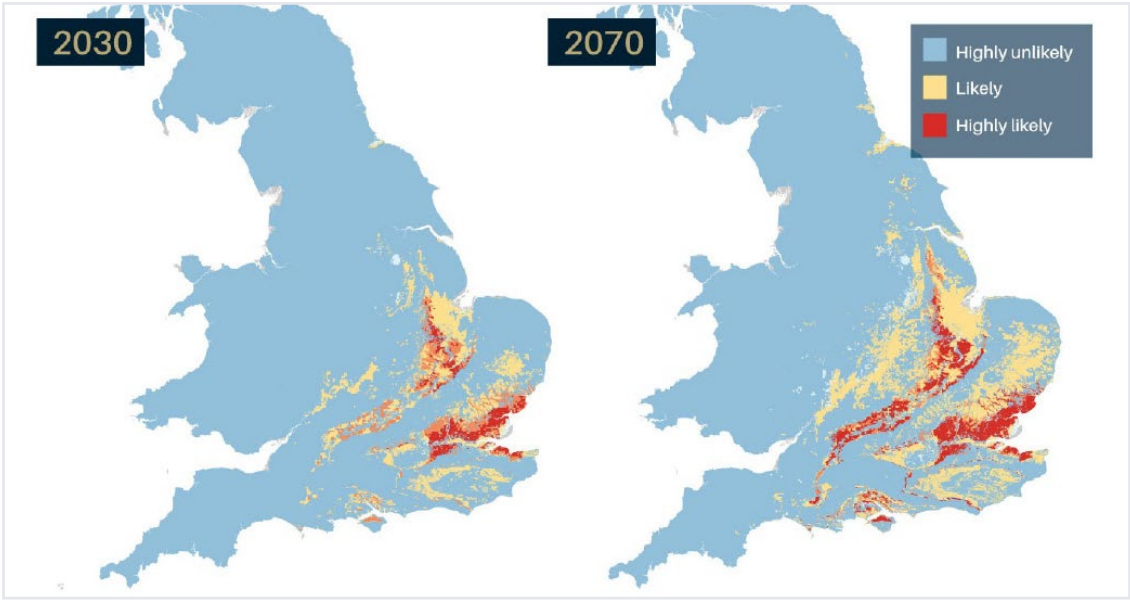


Figure 27: GeoClimate UKCP18 2030 and 2070 projections showing potential change in shrink-swell subsidence susceptibility due to climate change, under RCP8.5. [Source]

2.3.6. Sea Level Rise

The stretch of the River Thames bordering Wandsworth borough is tidal and as such affected by sea level rise. Projections of sea level rise in London in 2100 show the sea level will rise under all RCPs, with the average rise projected ranging from 0.5m to 0.8m (RCP2.6 and RCP8.5, respectively).[ref] Figure 28 shows the average projected range of sea level rise in London under different emissions scenarios. Such rises in sea level have significant implications for flood risk in Wandsworth, particularly during high tides and storm surges.

2.3.7. Global Shocks

Global shocks can have significant impacts locally. The COVID-19 pandemic is a prime example of this. The rapid spread of COVID-19 around the world had huge repercussions locally, including illness and deaths from those infected with COVID-19, enforced lockdowns, job losses, and economic shocks.

Global shocks from climate change are expected to trickle down and cause significant local impacts. These global shocks can therefore have significant implications for everyone around the world. As such, whilst the most severe impacts of climate change may occur in another part of the world, Wandsworth is not immune to these global impacts. Table 3 shows some examples of potential global shocks and the implications locally.

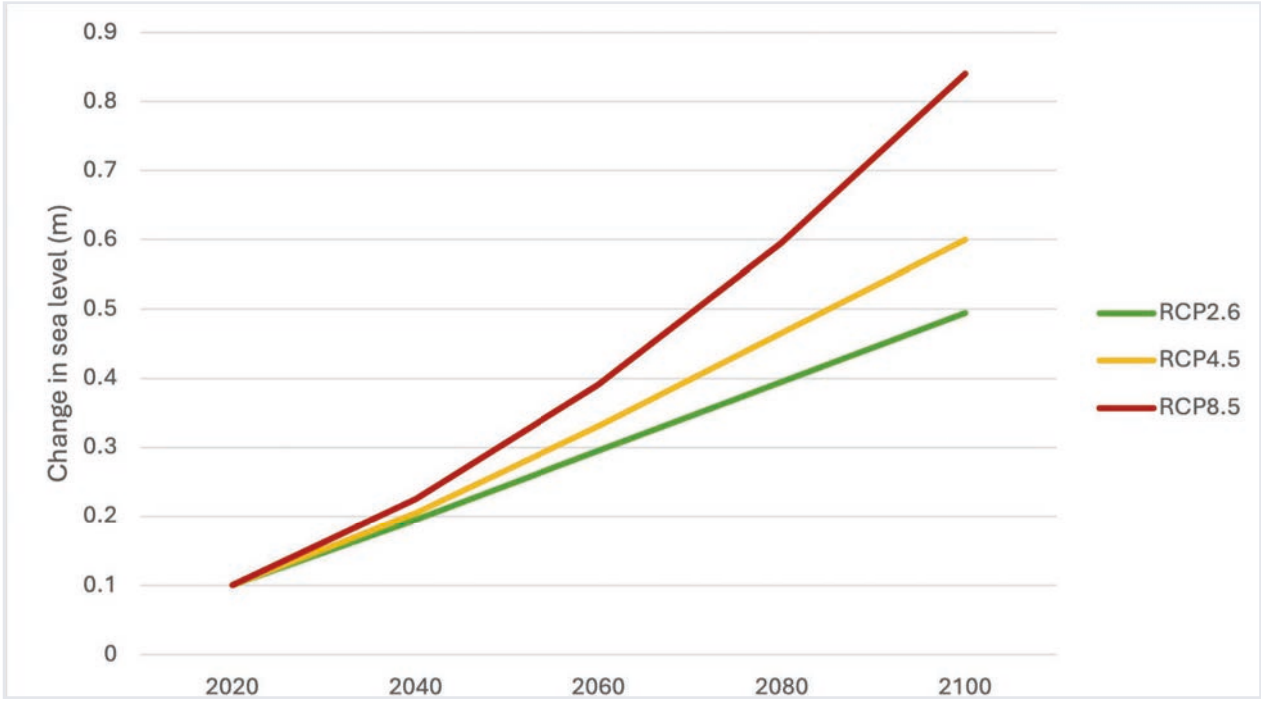


Figure 28: Change in sea level (m) in London relative to the 1981-2000 average. For each RCP, the 50th percentile is shown. [Source]

Table 3: Examples of global shocks associated with climate change and how these could affect Wandsworth.

Tipping Points	As global temperatures rise, this could trigger tipping points in the global climate system. A tipping point is the triggering of a threshold, which causes an abrupt and fundamental change in the Earth's climate system. An example of a tipping point is mass thawing of permafrost. Permafrost stores around double the amount of carbon as is currently in the atmosphere. As the planet warms, there is a growing risk that mass permafrost melting will occur on a greater scale than that recorded to date and release the carbon dioxide and methane stored in it, causing potentially catastrophic warming.[ref] The mass release of methane is particularly concerning, as methane has 28 times the global warming potential as carbon dioxide. This scale of planetary warming would have severe implications around the world, including in Wandsworth.
Food Security	While the UK's food security is broadly stable, climate change poses a significant risk to this stability. The UK is highly reliant on food imports. As such, extreme weather events around the world potentially put food security in the UK at risk if crops fail. To mitigate this, efforts have already increased to grow more imported food domestically. However, extreme weather in the UK could also affected food security, as seen with the exceptionally wet winter of 2023-24.[ref]
Economic Security	Catastrophic disruption to the global economic system is considered the greatest risk under current climate policies. Indeed, this could cost 4.1% of the UK's GDP by 2100. Disruption to foreign trade is the single largest impact, as climate impacts around the world cause losses for countries, resulting in a 1.1% decrease in the UK's GDP. Furthermore, damages from climate change are expected to increase from the present 1.1% of GDP to 3.3% by 2050 and 7.4% by 2100. [ref]
Wealth Inequality	Climate shocks increase wealth inequality, with poorer populations bearing climate impacts more than richer populations. There is growing evidence that rich countries are not as immune to climate change as previously thought, due to the disproportional impact on poorer populations within those countries. In the UK, which is one of the countries in Europe with the highest level of income inequality, climate change is having a disproportionately increased burden on households in poverty, most especially when these households are in areas at high risk to climate impacts. [ref] Global shocks could worsen existing wealth inequalities in Wandsworth.
International Trade	Climate change is expected to impact international trade, with extreme weather events affecting supply chains, transportation infrastructure, and manufacturing. For example, in 2023 there was a severe drought in Panama, resulting in the drying of the Panama Canal and disruptions to global shipping distribution. Such disruptions could have severe consequences in the UK. For example, the UK imports medicines from around the world, which are essential to healthcare. Additionally, manufacturing could suffer from productivity losses during extreme heat events and extreme weather events affecting manufacturing facilities. [ref] Furthermore, international trade is a common gateway for invasive and non-native species to arrive in the UK, which can bring diseases affecting people and nature.
Antimicrobial Resistance	There is growing evidence that warmer temperatures resulting from climate change could increase antimicrobial resistance. Warmer temperatures can increase bacterial growth, bacterial infection rates, frequency of infections, and geographical distributions. All of this combines to make horizontal gene transfer and therefore the emergence of drug-resistant infections more likely. Furthermore, more extreme precipitation events are likely to increase pollutants in water, resulting in bacterial blooms and potential antibiotic resistant gene transfer. [ref]
Climate Migrants	As extreme weather events become more frequent and severe, and some parts of the world become inhospitable, the people living in these places will need somewhere safe to take refuge. Estimates for the number of environmental migrants globally by 2050 range from 25 million to 1 billion people. [ref] Wandsworth is a Borough of Sanctuary, formalising its role in welcoming, supporting and celebrating refugees. Systems need to be in place to ensure potential climate migrants are supported.

3. Vulnerability to Climate Change

Climate change poses sector-specific threats, which need to be understood to reduce associated impacts. The following sectors have been identified as part of this vulnerability analysis.

Public Health	Climate change risks a range of direct and indirect health impacts, which could significantly affect public health services in Wandsworth. This includes a rise in demand for healthcare due to the impacts of climate change on health; challenges to the functioning of healthcare (e.g. staffing shortages or other infrastructure issues that prevent operation due to extreme weather); and these impacts collectively or individually diverting resources from other healthcare needs that mean indirect morbidity/mortality (e.g., delays to a surgical procedure due to system impacts).
Housing and Residents	Housing in Wandsworth is vulnerable to a changing climate, particularly the increasing severity and frequency of extreme weather events (such as flooding), which can have very sudden and dramatic consequences. Slower onset risks also pose a threat to housing, including subsidence and sea level rise. Impacts on housing in turn affect residents, who may be exposed to extreme weather events in homes that are not designed to cope with such events (such as extreme heat). Residents are also vulnerable to the broader impacts of climate change, which directly and indirectly threaten their health and wellbeing.
Infrastructure Services	Infrastructure services have largely been designed based on assumptions of our current climate. Changes to these assumptions therefore pose a risk to the functioning of infrastructure services. For example, water provision needs to adapt to be able to cope with sudden intense downpours, but also drought. Additionally, the location of infrastructure services can make them vulnerable; for example, electricity substations may become increasingly vulnerable to groundwater flooding, whereas this may not have previously been a risk.
Public Services	Public services cover a huge array of services, many of which the council is responsible for delivering. Extreme weather events pose a particular threat to the reliability of these services, including staff being unable to carry out duties during extreme weather. This could include, for example, outdoor workers being unable to carry out essential works during extreme heat or staff being unable to reach people in need during flooding. Furthermore, climate change could affect the nature of the work that needs to be delivered by public services, and therefore such services need time to adapt to their changing roles.
Nature and Biodiversity	Nature and biodiversity in Wandsworth and the UK at large has evolved under a generally stable climate. As the climate warms, this poses a threat to nature and biodiversity, with some species at risk of extinction, as their habitats rapidly become unsuitable for them. As well as these longer-term changes, extreme weather events also pose a risk to nature and biodiversity; for example, drought may cause the drying of vital habitats that species depend upon. Furthermore, as the climate changes, invasive non-native species, biological pests and diseases present an increasing risk of significant loss of nature and biodiversity in the borough.
Business and Industry	Business and industry face a range of challenges from climate change. This includes localised impacts, such as flooding to properties and staff being unable to work during extreme heat. Global threats also pose potential challenges to business and industry, including disruptions to global supply chains from extreme weather events affecting shipping routes and reductions in manufacturing productivity during extreme weather.

A survey was completed by 16 key internal council officers on the impact of different climate hazards on key sectors and the likelihood of these climate hazards occurring. The following climate hazards were included in the analysis, as these present the greatest growing and emerging risks in Wandsworth: extreme heat, drought, flooding, storms, wildfires, infectious and vector borne diseases, and subsidence. Table 4 is a matrix showing the outcome of this survey, whereby average impact and likelihood are multiplied to give overall vulnerability of key sectors to these climate hazards.

The results of the vulnerability assessment highlight that extreme heat and flooding pose the greatest overall threat to the key sectors included in the analysis, with every sector having a high vulnerability to extreme heat and flooding. Only two sectors had a high vulnerability to another climate impact: nature and biodiversity was identified as having high vulnerability to drought and infrastructure was identified as having a high vulnerability to storms.

This does not mean that sectors are not vulnerable to other climate hazards. The matrix in table 4 is intended to give an indication of relative vulnerability and to help with prioritising actions.

Sectors were identified as having the lowest vulnerability to impacts associated with emerging climate risks, in particular subsidence (lowest overall vulnerability) and wildfires (second lowest overall vulnerability). However, it is important to note that the response "I don't know" was selected for "subsidence" more than any other climate hazard. Where the response "I don't know" was chosen, this was omitted from the numerical analysis on average impact and likelihood. A lack of knowledge and understanding of subsidence and its relationship with climate change may therefore have been a contributing factor to the lower overall vulnerability rating.

Of note, this vulnerability assessment is not static. Wandsworth Council will continue to liaise with stakeholders and revisit this matrix, to ensure it is continually evolving and accurate. Furthermore, the results of this survey will be used to support in increasing awareness, knowledge and understanding of stakeholders around the impacts of climate change and associated adaptation and resilience measures required.

Table 4. Matrix showing the vulnerability of key services to climate impacts.

Vulnerability has been estimated by multiplying average ratings for impact and likelihood. A survey was shared with internal officers working directly and indirectly on adaptation and resilience. Sixteen officers responded to the survey, with representation from engineering, public health, parks and ecology, housing, flooding, planning, emergency planning, and climate change and sustainability. Officers were asked to rate the impact of each climate hazard on each key sector and the likelihood of each climate hazard occurring from 1 (low) to 5 (high) (there was also an option to respond with "I don't know"). The average ratings for impact and likelihood across all hazards and sectors is showed in the matrix. These average ratings were multiplied to calculate relative vulnerability of key sectors to these environmental hazards. The key shows the corresponding low, medium or high vulnerability of the ratings calculated.

		Extreme Heat	Drought	Flooding	Storms	Wildfires	Infectious and Vector Borne Diseases	Subsidence
Public Health	Impact	4.73	3.27	3.93	3.20	2.67	4.00	2.15
	Likelihood	4.53	4.20	4.53	4.40	2.73	3.40	2.64
	Vulnerability	**21.46**	**13.72**	**17.83**	**14.08**	**7.29**	**13.60**	**5.68**
Housing and residents	Impact	4.60	3.47	4.20	3.73	3.07	3.50	3.43
	Likelihood	4.53	4.20	4.53	4.40	2.73	3.40	2.64
	Vulnerability	**20.85**	**14.56**	**19.04**	**16.43**	**8.38**	**11.90**	**9.04**
Infrastructure Services	Impact	4.33	3.60	4.73	4.27	3.07	2.69	2.73
	Likelihood	4.53	4.20	4.53	4.40	2.73	3.40	2.64
	Vulnerability	**19.64**	**15.12**	**21.46**	**18.77**	**8.38**	**9.15**	**7.19**
Public Services	Impact	4.27	3.13	4.13	3.53	2.87	3.53	2.73
	Likelihood	4.53	4.20	4.53	4.40	2.73	3.40	2.64
	Vulnerability	**19.34**	**13.16**	**18.74**	**15.55**	**7.84**	**12.01**	**7.19**
Nature and Biodiversity	Impact	4.53	4.73	4.33	3.50	3.87	3.17	1.67
	Likelihood	4.53	4.20	4.53	4.40	2.73	3.40	2.64
	Vulnerability	**20.55**	**19.88**	**19.64**	**15.40**	**10.57**	**10.77**	**4.39**
Business and Industry	Impact	4.29	3.43	4.43	3.71	2.77	3.60	2.27
	Likelihood	4.53	4.20	4.53	4.40	2.73	3.40	2.64
	Vulnerability	**19.43**	**14.40**	**20.08**	**16.34**	**7.57**	**12.24**	**5.99**

KEY	Low vulnerability (score = 0 to 8.3)	Medium vulnerability score = 8.3 to 16.6	High vulnerability score = 16.6 to 25

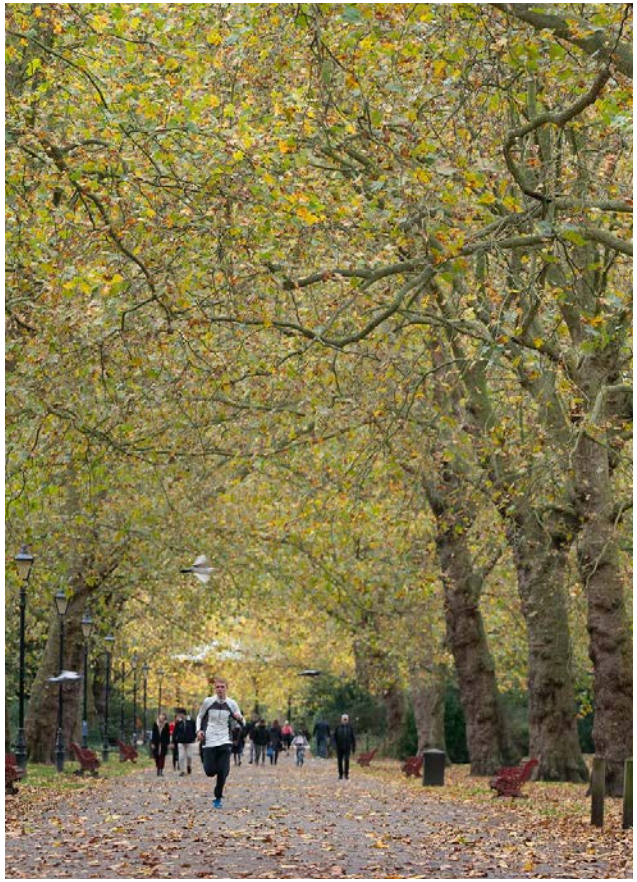
Two workshops with internal officers were also held in April 2024. The aim of these workshops were to understand and map:

1. Climate-related problems that need addressing.
2. Existing adaptation and resilience projects across the council.
3. Gaps to implementing adaptation and resilience projects.
4. Internal and external stakeholders across different climate risks and vulnerabilities.
5. Key enabling conditions.
6. Existing and planned resources for adaptation and resilience work.

The outcomes of this workshop have been used to inform the development of this strategy and will continue to inform Wandsworth Council's work on adaptation and resilience going forward.

The workshops identified a number of gaps and challenges, which affect the council's ability to do work on adaptation and resilience and reduce the effectiveness of work being done on adaptation and resilience. As such, these barriers increase the vulnerability of the borough to climate change. The main barriers and challenges identified were:

- **Funding:** there is not enough funding for adaptation and resilience work, which significantly hinders the ability to carry out the projects that are needed to adapt to climate change and make Wandsworth a climate resilient borough.
- **Knowledge and expertise:** there a lack of knowledge and understanding in some specific areas of expertise, including project management of adaptation and resilience work, technical knowledge in some aspects of adaptation and resilience, and the loss of local knowledge due to staff turnover.
- **Collaboration:** it was highlighted that there is not currently a joined-up approach to adaptation and resilience work internally and externally and there needs to be greater collaboration with a range of internal and external stakeholders. Many of the issues related to this area are outside of council control and as such better collaborative and partnership working is needed.
- **Knowledge and understanding of nature-based solutions (NBS):** there is a need to improve knowledge and understanding of NBS, including the benefits of NBS over traditional engineering and urban design and the ongoing maintenance required of NBS.
- **Long-term gains:** there is currently not a good understanding and appreciation of the fact that adaptation and resilience work has upfront costs and long-term gains. There can be resistance to adaptation and resilience projects, because the gains are sometimes not necessarily felt immediately. This can be exacerbated by conflicting priorities and urgent priorities taking precedence.
- **Infrastructure:** much of the current infrastructure in Wandsworth is outdated, but there is a lack of prioritisation and strategy for ensuring such infrastructure is modified and climate resilient.
- **Engagement:** there needs to be better communications and engagement on the impacts of climate change, including targeted support for vulnerable groups.



4. Adaptation and Resilience Framework

4.1. Adaptation Principles

The London Climate Resilience Review is an independent report, which was published in July 2024 and commissioned by the Mayor of London, "to take stock of London's preparations for climate impacts and make recommendations". [ref]

Wandsworth Council submitted evidence to the London Climate Resilience Review, which published its full findings in July 2024. [ref] The recommendations of this Review highlight the need for collaborative working across London, as climate impacts do not respect borough boundaries. The six areas that the London Climate Resilience Review identified as needing urgent attention and action were:

1. A strategic, London-wide action plan on heat risk.
2. Better preparation across London to surface water flood risk.
3. Understanding cascading risks and system interdependencies within and beyond London's boundaries.
4. Enabling investment in climate resilience by national, regional and local governments.
5. Engaging Londoners on climate impacts, including associated risks and adaptation options.
6. Strategic coordination and a shared regional vision and framework for adaptation.

The London Climate Resilience Review also identified five principles that are recommended should guide climate adaptation and resilience:

1. Adaptation must take a people-centred approach, be locally led, strive to reduce vulnerability, and address socio-economic inequality.
2. Adaptation must be embedded across decision-making and organisations, ensuring measures are owned at the strategic level and responsibility assigned.
3. Adaptation must be integrated with work to meet net zero to ensure coherent clima te action.
4. Adaptive pathways approaches should be used to account for uncertainties and be flexible.
5. Nature-based solutions must be considered and prioritised.[ref]

To ensure consistency with work being done across London, Wandsworth Council is adopting these five principles in its Adaptation and Resilience Framework. The impacts of climate change are not limited to borough boundaries and as such it is important that Wandsworth Council's approach to adaptation and resilience is complementary to and consistent with the approach being adopted across London. Furthermore, Wandsworth Council is actively involved in a number of pan-London projects working on adaptation and resilience (such as London Councils' Resilient and Green Working Group; the GLA's and London Councils' Pathways2Resilience Programme (box 3); and the Joint Thames Strategy (box 4)) and so adopting the principles of the London Climate Resilience Review will best ensure consistency with the work Wandsworth Council is involved with regionally.

BOX 3. EU Pathways2Resilience

The EU Pathways2Resilience (P2R) funding supports "regions in developing transformative solutions to foster their climate adaptation". [**ref**] The GLA and London Councils submitted a successful bid to P2R, to create and deliver a "shared regional vision for climate adaptation in London". The funding will support the delivery of the recommended actions in the London Climate Resilience Review and accelerate progress made. Wandsworth Council is partnering with the GLA and London Councils to support in the delivery of this work.

BOX 4. Joint Thames Strategy

The Joint Thames Strategy is a comprehensive guide for riverside strategy development, leading to the climate resilience and offer wider benefits. The Joint Thames Strategy brings together the five individual strategic areas along the River Thames and in doing so ensures a consistent approach to flood risk management across London.

The five strategic areas run from Surrey to Kent and Essex:

1. Thames Landscape Strategy Weybridge Hampton Kew
2. Thames Strategy Kew to Chelsea
3. Thames Strategy London Central
4. Thames Strategy east
5. Thames Strategy Kent and Essex

The Joint Thames strategy aims to:

1. Improve flood risk management along the Thames
2. Deliver wider benefits
3. Promote a collaborative approach [**ref**]

The Joint Thames Strategy is also working in collaboration with other key programmes of work, notably the Thames Estuary 2100. [**ref**]

4.1.1. People-Centred

The impacts of climate change are not uniform. One of the greatest determining factors in the severity of the impacts of climate change is social vulnerability. Such vulnerabilities include, but are not limited to, factors such as age (elderly and young), preexisting health conditions, and income. These vulnerabilities can exacerbate climate-related impacts on an individual or group (e.g., elderly people are more susceptible to illness and death during heatwaves) and limit an individual or group's adaptive capacity and resilience to climate change (e.g., people on lower incomes are less able to adapt their housing to reduce exposure to climate hazards). People therefore have to be at the centre of all adaptation and resilience measures. By adopting a people-centred approach, so too can a 'just transition' be assured and existing vulnerabilities reduced (box 5).

BOX 5. Just Transition

North American trade unions developed the concept of a 'just transition' to provide a framework for discussions surrounding what necessary social and economic interventions should be put in place to secure workers' livelihoods through the shift from a high-carbon economy to a low-carbon and climate-resilient economy. [**ref**] Embedding the just transition principles into Wandsworth Council's climate change policies is integral to achieving Net Zero by 2043, whilst simultaneously improving equity and increasing the climate resilience of Wandsworth. A just transition is about building a fairer, cleaner, and resilient borough that leaves no one behind and improves wellbeing for all.

Wandsworth Council has published its own Climate Risk Map, which shows individual layers for climate hazards and social vulnerabilities. The Climate Risk Map also shows overall risk to climate change (i.e., all exposures), overheating, flooding and air pollution, by combining the exposure and vulnerability factors. Table 1 provides a complete list of risks, exposures, and vulnerabilities included in the Climate Risk Map.

By including vulnerability in the Climate Risk Map, this enables more thorough analysis of the impacts and risks associated with different climate exposures and therefore better prioritisation of actions. For example, the young and elderly are particularly vulnerable to extreme heat, as their bodies are less efficient and able to regulate their core temperatures. Areas where exposure to extreme heat is high and there is a large proportion of young/elderly should be prioritised for action, as the impacts are more likely to be very severe here, with acute risks to public health among vulnerable groups.

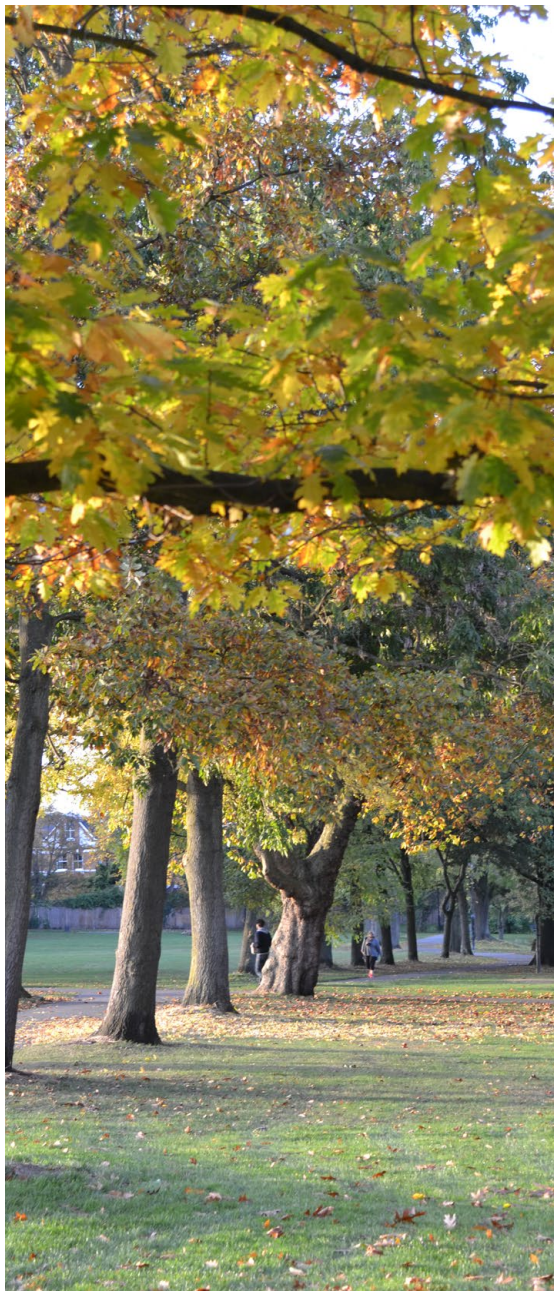
4.1.2. Embedding Adaptation

Climate change has the potential to affect every sector and aspect of society. As such, measures to adapt must be embedded across all teams at Wandsworth Council. The Climate Change and Sustainability Team already works in close collaboration with teams from across the council, but more needs to be done to effectively embed climate change, and adaptation and resilience specifically, into all council teams. One of the primary aims of this Adaptation and Resilience Strategy is to provide a framework for all council teams to use, to ensure a consistent and robust approach to climate adaptation. To inform the develop of this Strategy, two workshops were held with officers in April 2024 whose work relates to adaptation and resilience (directly and/or indirectly). These workshops looked at:

- Climate-related problems that need addressing.
- Existing adaptation and resilience projects across the council.
- Gaps to implementing adaptation and resilience projects.
- Internal and external stakeholders across different climate risks and vulnerabilities.
- Key enabling conditions.
- Existing and planned resources for adaptation and resilience work.

4.1.3. Integrating with Net Zero

Wandsworth Council has set a target to be net zero as a borough by 2043. This is a science-based target, set by calculating the borough's fair contribution to the 2015 Paris Agreement. The council has undertaken an emissions pathways analysis, to understand the actions needed across sectors to reach net zero by 2043. This analysis included co-benefits, such as nature-based solutions, which can be highly effective in both mitigating and adapting to climate change and sequestering carbon. Opportunities for crossovers and co-benefits will be identified in all climate activities, to ensure that, where possible, mitigation and adaptation are undertaken collaboratively to maximise the effectiveness and efficiency of measures and a consistent approach to tackling climate change.



4.1.4. Adaptive Pathways

As discussed in section 2.2, there is uncertainty as to how the climate will change and what the impacts associated with this are. By providing a range of expected impacts under different scenarios, climate projections support planning and the implementation of measures to adapt and increase resilience to climate change. However, as there is still inherent uncertainty around future impacts, so too there is uncertainty as to the precise measures needed to ensure robust adaptation. By implementing rigid measures based on a specific scenario, there is a danger of locking into measures that are not fit for purpose under different scenarios. This is known as maladaptation.

An adaptive pathways approach to adaptation and resilience promotes a more flexible approach to adaptation and resilience, which not only accounts for climate uncertainty, but embeds it. An adaptive pathways approach supports and enables decision-making, despite uncertainty, by supporting the identification of actions that can be taken now and in future. This approach incorporates review points that ensure adaptation and review measures are regularly scrutinised and assessed to enable action to be taken as needed and ensure the approaches are still working.

Wandsworth Council will adopt an adaptive pathways approach to its adaptation and resilience work, to ensure that all measures implemented are robust, sustainable and effective. This supports the recommendations of the London Climate Resilience Review and compliments the Thames Estuary 2100 (TE2100) Plan.[ref] [ref] More details on how Wandsworth Council will do this are outlined in section 4.2.

4.1.5. Nature-Based Solutions

Nature-based solutions (NBS) are measures that are developed using the benefits of nature to meet particular objectives. NBS is particularly effective in adaptation and resilience, by working with nature to reduce the impacts associated with climate change. NBS can be used to reduce flood risk in urban areas, by putting in wetlands, attenuation ponds, and vegetation to slow the flow and making more space for water by allowing flooding in certain areas. Green spaces and trees also play a significant role in cooling urban areas.[ref] [ref] Smaller-scale intervention can also be highly effective at reducing environmental risks, including greening and SuDS (box 6). At scale, these smaller-scale interventions can create "sponge cities", whereby urban areas are strategically designed to hold water and reduce flooding in undesirable locations. As an inner-London borough, with large areas of impermeable surfaces, such measures could play a significant role in reducing surface water flooding in Wandsworth, while creating more space for nature and better access to nature for people. NBS also offer numerous co-benefits, in creating green space for nature and biodiversity; human health benefits (including better mental and physical health from access to new and improved green space); better air, soil and water quality; and acting as carbon sinks and so helping mitigate climate change. NBS should therefore be prioritised where possible, to maximise the co-benefits available, so long as the measures would not be detrimental to biodiversity priorities.

BOX 6. Parklets.

One way in which Wandsworth Council intends to increase the resilience of the borough is through the implementation of parklets. These are small, targeted green spaces which address specific environmental risks, including flooding, overheating and air pollution. The council is mapping environmental hazards against social vulnerabilities and practical locations to convert into parklets to determine which locations will most significantly reduce environmental risks and maximise co-benefits. Greening measures include rain gardens, SuDS, and planting to support particular objectives. Parklets offer many co-benefits, including connecting the community to each other and nature.

4.2. Adaptation and Resilience Framework

While embedding and enabling the five principles outlined above, Wandsworth Council's Adaptation and Resilience Framework has three key components:

1. Climate risk and vulnerability assessment.
2. Monitoring and evaluation.
3. A council-wide approach.

4.2.1. Climate Risk and Vulnerability Assessment

All projects will need to do a high-level climate risk and vulnerability assessment at the planning phase. A high-level tool will be made available to all council teams to support them in undertaking such assessments. This tool will serve a dual purpose. Firstly, it will help ensure that climate change impacts are being formally accounted for in the planning stages of projects, which will enable adaptation and resilience measures to be incorporated early. In doing so, this will reduce longer-term costs by reducing the impacts of climate change and the need for retrofitting infrastructure projects. Secondly, it will provide teams with the invaluable information and evidence they seek to justify and prioritise programmes of works.

4.2.2. Monitoring and Evaluation

The Thames Estuary 2100 (TE2100) was the first strategy of its kind to adopt an adaptive flood management approach.[ref] The adaptation pathways approach of TE2100 has since been applied internationally. Wandsworth Council will also adopt this approach, helping ensure consistency with adaptation work happening across London and further afield.

Key to an adaptation pathways approach is the monitoring of how the climate is changing, associated impacts, and the effectiveness of adaptation and resilience interventions.

Under Wandsworth Council's Adaptation and Resilience Framework, all adaptation and resilience interventions will be monitored every 5 years. Indicators have been identified, and are being further refined, across all climate hazards to support with monitoring and evaluation. This regular monitoring will embed flexibility into Wandsworth Council's approach to adaptation and resilience, ensuring actions are not "locked in" and can be updated as the impacts of climate change are better understood.

Furthermore, Wandsworth Council's Adaptation and Resilience Strategy will be updated every 10 years, to ensure the climate risk and vulnerability assessment is up to date and the latest scientific evidence is accounted for in the council's adaptation and resilience work.

4.2.3. A council-Wide Approach

This Adaptation and Resilience Framework will be shared with all teams from across the council, to ensure any projects that have direct and indirect links to climate adaptation and resilience are using the framework. This will ensure a consistent and robust

approach to adaptation and resilience is being used across Wandsworth Council.

Three main mechanisms will be used to ensure the Adaptation and Resilience Framework is being used by teams across the council and that adaptation and resilience is being imbedded into all teams across the council working directly and indirectly in this space:

1. The Climate Change and Sustainability Team already work closely with teams across the council and so these existing relationships will help support the rollout of the Adaptation and Resilience Framework and imbed this across the organisation. This will include providing information, training and guidance on adaptation and resilience, including support on the monitoring and evaluation of interventions to enable the adaptive pathways approach being adopted by Wandsworth Council.
2. Wandsworth Council will establish an Adaptation and Resilience Board within its Climate Change Steering Group (CCSG), which will be responsible for monitoring progress on adaptation and resilience and ensuring that all teams working directly and indirectly on adaptation and resilience are using the council's Adaptation and Resilience Framework. Every six months, CCSG's meeting will focus on adaptation and resilience (i.e., taking the function of the Adaptation and Resilience Board).
3. The council's Infrastructure Board will be a key mechanism for imbedding the Adaptation and Resilience Framework in all infrastructure projects. There is already a process for including climate mitigation and adaptation considerations in infrastructure projects, which can be used as a platform to expand this work to include the Adaptation and Resilience Framework. The existing process by which climate change is considered through Infrastructure Board is a good starting point, but a more detailed and robust mechanism is needed to enable Wandsworth Council to adopt an adaptive pathways approach and more successfully adapt and increase resilience to climate change.

5. Priorities

This Adaptation and Resilience Strategy is designed to be complemented by the annual Climate Action Plans published by Wandsworth Council. To this end, long-term, aspirational priorities have been identified, informed by the climate vulnerability and risk assessment and engagement undertaken as part of this strategy. These long-term priorities will be supported by short- and medium-term actions, set out in the annual Climate Action Plans.

There are five broad priorities, which represent a complementary and phased approach to adaptation and resilience. Each priority is necessary in order for them all to be successful:

1. **Embed adaptation and resilience across the organisation.**
2. **Ensure a joined-up approach to adaptation and resilience to maximise the impact of the work done and increase the capacity of the council to build a more resilient borough.**
3. **Compile and analyse the data required to effectively adapt to climate change and increase the resilience of the borough.**
4. **Implement effective adaptation and resilience measures across the borough - targeting areas of highest climate risk.**
5. **Ensure formal monitoring and evaluation of adaptation and resilience.**

Within these overarching priorities, more specific objectives are detailed in table 5.

Table 5: Wandsworth Council's Adaptation and Resilience Priorities

Priorities	Objectives	title?
1. Embed adaptation and resilience across the organisation.	Ensure decision-making on adaptation and resilience is owned at strategic level and responsibility assigned.	To ensure decision-making is owned at the strategic level, this Adaptation and Resilience Strategy will be taken to Committee for formal approval. Three initial steps will be to: support teams across the council in using the Adaptation and Resilience Framework; set up the Adaptation and Resilience Board under CCSG; and ensure all projects going through Infrastructure Board are using the Adaptation and Resilience Framework. The Adaptation and Resilience Board will have ultimate ownership and responsibility for work in this space.
	Continue and expand training for internal officers on climate change impacts, adaptation and resilience.	Wandsworth Council will continue to roll out its Carbon Literacy Training for internal officers. The council will also scope how best to support officers working directly and indirectly on climate adaptation and resilience, including improving their knowledge and understanding of the risks and impacts of climate change and, in turn, what measures can be delivered through the work of teams across the council to adapt and increase resilience to these. This will involve targeted and tailored support to ensure the priorities and needs of different teams are met.
2. Ensure a joined-up approach to adaptation and resilience to maximise the impact of the work done and increase the capacity of the council to build a more resilient borough.	Identify and leverage opportunities to increase funding and maximise efficiencies around adaptation and resilience work.	The lack of funding for adaptation and resilience work is a significant barrier for local authorities. Three key routes will be taken by Wandsworth Council to try and overcome this barrier. Firstly, Wandsworth Council's Policy and Review Team have created new roles responsible for leveraging external funding. The Climate Change and Sustainability Team will work closely with the Policy and Review Team to identify and bid for funding opportunities for adaptation and resilience work. Secondly, by embedding adaptation and resilience across the council, this will significantly increase efficiencies in this area of work, thus helping to maximise the impact of the resources available. Thirdly, Wandsworth Council will continue its existing partnership working and expand its partnership working with external stakeholders locally, regionally and nationally to identify potential opportunities for collaborative working, which could help leverage funding and/or implement adaptation and resilience work locally.
	Work with internal and external partners to reduce climate impacts, ensure a consistent approach to adaptation across all boroughs, and promote more joined-up working.	There is a need for more joined-up thinking within and between council teams to ensure projects maximise impacts, efficiencies, and co-benefits. Wandsworth Council will continue to work with key internal and external stakeholders (including with London Councils, the Greater London Authority (GLA), and the NHS), and identify new opportunities to contribute to and benefit from adaptation and resilience work happening across London and beyond. Greater collaboration with a range of internal and external stakeholders will help promote a more joined-up approach and enable a place-based approach to adaptation and resilience. Consideration to lobbying requirements will also be included as part of this work, where action is needed that is beyond the powers of Wandsworth Council.

Priorities	Objectives	title?
3. Compile and analyse the data required to effectively adapt to climate change and increase the resilience of the borough.	Understand the proportion of residential, commercial, and service buildings at risk from climate extremes and implement retrofit measures to reduce these risks.	Residential, commercial and service buildings will require retrofitting in order to meet Wandsworth Council's target to be a net zero borough by 2043, but also to ensure that these buildings are resilient to extreme weather events. Wandsworth Council has published its' Retrofit Strategy, with close collaboration being undertaken between that and this Adaptation and Resilience Strategy to ensure the approaches are aligned and that efficiencies and co-benefits are maximised.
	Map and establish public refuges accessible during extreme weather events.	Publicly accessible refuges during extreme heat, extreme cold and flooding are an essential part in adapting to climate change, by providing reliably cool, warm and/or dry spaces for the public to use during extreme weather events. The current number and location of such spaces needs to be mapped. Subsequently, public refuges need to be established in collaboration with partners where there are gaps in provision, most especially in areas where social vulnerability is high.
	Understand and monitor the impact of climate change on critical infrastructure.	Understanding the potential impact of climate change on critical infrastructure is an essential first step in informing adaptation measures, as infrastructure is vulnerable to extreme heat, extreme cold, drought, flooding, storms, and subsidence. Critical infrastructure includes council managed infrastructure, such as highways, and non-council managed infrastructure, such as energy and water provision. Wandsworth Council will explore how best to map these risks and work with relevant stakeholders to identify and rollout adaptation measures to reduce risks to critical infrastructure associated with climate change.
	Use data and mapping to enable joined-up thinking and information sharing across the organisation.	Wandsworth Council has a number of different mapping tools hosting data related to climate change, adaptation and resilience. The council will explore how best to ensure all teams have access to this information and options for incorporating and expanding the data to inform adaptation and resilience measures. This could include, for example, mapping past and projection data for Wandsworth's climate; the impacts of different emissions scenarios, including on extreme events and green infrastructure; the capacity of green spaces to act as nature-based solutions; properties vulnerable to extreme heat; and potential cool routes using trees.

Priorities	Objectives	title?
4. Implement effective adaptation and resilience measures across the borough – targeting areas of highest climate risk	Prioritise nature-based solutions and maximise co-benefits.	Nature-based solutions (NBS) can significantly reduce the impacts of extreme events, including extreme heat, drought, flooding and wildfires. Wandsworth Council will prioritise NBS in its approach to adapting to climate change, including measures to promote urban cooling, effectively store and manage water, natural flood management strategies, and habitat management. NBS also offer a wealth of co-benefits (for both nature and people), which will be identified and maximised as much as possible.
	Undertake public information campaigns on the impacts of climate change and associated risks.	Improving public awareness of the range of risks associated with climate change is essential. In particular, exposed and vulnerable populations need to be engaged with and supported in implementing measures that reduce their vulnerability to climate impacts, including extreme heat, extreme cold, drought, flooding, storms, wildfires, infectious and vector borne diseases, and subsidence.
	Ensure robust and effective early-warning systems are in place.	Early warning systems are a central tenet of effective adaptation, in making people aware of upcoming risks and providing time to prepare and reduce associated impacts. Wandsworth Council will assess the current systems around extreme events and ensure that robust and effective early warning systems are in place. Early warning systems need to be in place for extreme heat, extreme cold, drought, flooding, storms, wildfires, and infectious and vector borne diseases.

Priorities	Objectives	title?
5. Ensure formal monitoring and evaluation of adaptation and resilience.	Review and assess the costs and benefits associated with climate impacts and adaptation in Wandsworth.	Wandsworth Council will regularly review and assess the costs and benefits associated with the impacts of climate change and adaptation and resilience, to continually improve understanding of action required. Wandsworth Council has already completed an analysis of the costs associated with reaching its target to be a net zero borough by 2043. Cost-benefit analyses (CBA) to inform adaptation and resilience therefore needs to focus on the costs associated with the impacts of climate change in Wandsworth, the investment required in adaptation and resilience measures to mitigate these risks, and the savings associated with this risk reduction. The health impacts of climate change, the impact of the cost-of-living crisis on adaptation and resilience, and the savings associated with the co-benefits of adaptation and resilience activities will need quantifying and reviewing regularly.
	Continue to use external frameworks to validate, report and support our work on adaptation and resilience.	Wandsworth Council will continue to use and identify opportunities for validating, reporting and supporting its work on adaptation and resilience. For example, the council already reports to the Carbon Disclosure Project (CDP) each year, which provides an independent assessment and rating of the work Wandsworth Council does on climate change, including adaptation and resilience. This provides an important opportunity to have the council's approach independently reviewed and holds the council publicly accountable for the work being done on adaptation and resilience. Wandsworth Council will continue its work with the GLA and London Councils to align with the EU Mission: Adaptation to Climate Change, which supports regions, cities and local authorities in adapting and building resilience to climate change by helping them understand current and future climate risks; develop pathways to improve preparedness; and test and rollout innovative solutions needed to increase resilience to climate change.
	Monitor, assess and prepare for potential global shocks associated with climate change.	Whilst many of the impacts of climate change will be felt directly in Wandsworth, impacts around the world could result in global shocks that could indirectly impact Wandsworth as well. Wandsworth Council will monitor, assess and prepare for these potential global shocks, to ensure the systems are in place to mitigate these impacts should they occur.

6. Conclusion

Global temperature rise has now exceeded 1.5°C since pre-industrial times, breaching the targets committed to by nations under the 2015 Paris Agreement. The impacts of this rise in temperatures globally are already being felt in Wandsworth. Average annual temperatures have increased in Wandsworth from 8.7°C in 1890 to 11.8°C in 2022 and are projected to increase further over the course of the century, with average annual temperatures rising by up to 5°C and maximum summer temperatures potentially reaching 41.2°C by 2099. Precipitation patterns have also changed in Wandsworth, with significant annual variability but an overall trend of drier summers and wetter winters observed since 1890. This trend is projected to continue, with summer precipitation potentially decreasing by as much as 55.4% by 2099 and winter precipitation increasing by as much as 26.1% by 2099. There are also new and emerging risks that could affect the borough, including wildfires, infectious and vector borne diseases, invasive and non-native species, sea level rise, and subsidence. Furthermore, global shocks have the potential to have localised impacts in Wandsworth.

A vulnerability assessment highlighted that all sectors were identified as having a high vulnerability to extreme heat and flooding. These were the only climate hazards for which this was the case. Furthermore, a number of gaps and challenges were identified. At best, these gaps and barriers reduced the effectiveness of the work the council is doing on adaptation and resilience. At worst, these gaps and challenges prevented the council from being able to do work on adaptation and resilience.

Wandsworth's Adaptation and Resilience Strategy has been published to formalise the council's approach to adaptation and resilience, in recognition of the existing and growing threat climate change poses. This builds upon the progress Wandsworth Council has made in meeting its targets to be carbon neutral as an organisation by 2030 and a net zero borough by 2043. An Adaptation and Resilience Framework is presented in section 4, which details how Wandsworth Council will approach adaptation and resilience work.

The Adaptation and Resilience Framework is centred on the five principles recommended in the London Climate Resilience Review, to ensure Wandsworth Council is adopting a consistent approach alongside London as a whole:

1. **Adaptation must take a people-centred approach, be locally led, strive to reduce vulnerability, and address socio-economic inequality.**
2. **Adaptation must be embedded across decision-making and organisations, ensuring measures are owned at the strategic level and responsibility assigned.**
3. **Adaptation must be integrated with work to meet net zero to ensure coherent climate action.**
4. **Adaptive pathways approaches should be used to account for uncertainties and be flexible.**
5. **Nature-based solutions must be considered and prioritised.[ref]**

Building off these principles, Wandsworth Council's Adaptation and Resilience Framework has three key components to ensure an effective, robust and consistent approach to adaptation and resilience: climate risk and vulnerability assessments; monitoring and evaluation; and a council-wide approach.

To support the implementation of the Adaptation and Resilience Framework and address climate risks in Wandsworth, the council has identified 5 overarching priorities on adaptation and resilience. These are long-te rm strategic priorities, which will guide the work undertaken on adaptation and resilience. The priorities are designed to be complemented by Wandsworth Council's annual Climate Action Plans, which commit to short- and medium-term actions.

The priorities represent a complementary and phased approach to adaptation and resilience, with each priority being necessary in order for them all to be successful:

1. **Embed** adaptation and resilience across the organisation.
2. Ensure a joined-up approach to adaptation and resilience to maximise the impact of the work done and increase the capacity of the council to build a more resilient borough.
3. Compile and analyse the **data** required to effectively adapt to climate change and increase the resilience of the borough.
4. **Implement** effective adaptation and resilience measures across the borough.
5. Ensure formal **monitoring and evaluation** of adaptation and resilience.

Climate change is not a future problem. It is here now, and the impacts are already being felt. These impacts will worsen in future if action is not taken now to adapt and increase resilience to climate change. Many of the public services Wandsworth Council is responsible for delivering are vulnerable to climate change. This Adaptation and Resilience Strategy has therefore been published to ensure Wandsworth Council is:

- Helping the borough adapt and increase its resilience to the impacts of climate change.
- Able to continue delivering its services, despite the impacts of climate change.
- Using a robust and consistent approach to climate adaptation and resilience across all council teams to reduce the impacts of climate change.

In doing so, this Adaptation and Resilience Strategy will support Wandsworth Council's pledge of delivering a fairer, more compassionate and more sustainable borough.

Glossary

Adaptation	Adaptation is the process (or outcome of a process) that leads to a reduction in harm or risk of harm, or realisation of benefits associated with climate variability and climate change. Adaptation policies can lead to greater resilience of communities and ecosystems to climate change. [ref]
Adaptive pathways	An adaptive approach imbeds monitoring and evaluation of how the climate is changing, including impacts associated with this, and adjusting approaches accordingly.
Attenuation ponds	A type of sustainable drainage system (SuDS) that manages excess rainwater, by intercepting and temporarily storing rainwater runoff.
Carbon literacy training	Training to support individuals, teams and organisations in being Carbon Literate, meaning they have "an awareness of the carbon costs and impacts of everyday activities, and the ability and motivation to reduce emissions, on an individual, community and organisational basis." [ref]
Carbon sink	A natural environment that is able to absorb and store carbon dioxide from the atmosphere.
Carbon Disclosure Project (CDP)	CDP is a not-for-profit charity that runs the global disclosure system for investors, companies, cities, states and regions to manage their environmental impacts. [ref]
Climate Change Steering Group (CCSG)	Wandsworth Council's internal body responsible for the monitoring and delivery of the council's climate targets and actions.
Climate risk and vulnerability assessment	Technical analysis of the potential impacts of climate change in a given context.
Co-benefits	Simultaneously meeting several interests or objectives resulting from a political intervention, private sector investment or a mix thereof. Co-beneficial approaches to climate change mitigation are those that also promote positive outcomes in other areas, such as air quality and health, economic prosperity and resource efficiency or more general in terms of Sustainable Development. [ref]
Cost-benefit analysis	An evaluation of financial costs and savings associated with interventions in the short-, medium- and long-term.
Early-warning systems	An integrated system of hazard monitoring, forecasting and prediction, disaster risk assessment, communication and preparedness activities systems and processes that enables individuals, communities, governments, businesses and others to take timely action to reduce disaster risks in advance of hazardous events. [ref]

EU Mission – Adaptation to Climate Change	The Mission on Adaptation to Climate Change focuses on supporting EU regions, cities and local authorities in their efforts to build resilience against the impacts of climate change. [ref]
Intergovernmental Panel on Climate Change (IPCC)	The United Nations body for assessing the science related to climate change. [ref]
Maladaptation	Actions that may lead to increased risk of adverse climate-related outcomes, including via increased greenhouse gas emissions, increased or shifted vulnerability to climate change, more inequitable outcomes, or diminished welfare, now or in the future. Most often, maladaptation is an unintended consequence. [ref]
Nature-based solutions	Nature-based Solutions leverage nature and the power of healthy ecosystems to protect people, optimise infrastructure and safeguard a stable and biodiverse future. [ref]
Net zero	Where total greenhouse gas emissions are equal to or less than the emissions removed from the environment through emissions reduction and/or removal. [ref]
NO2	Nitrogen Dioxide.
Paris agreement	A "legally binding international treaty on climate change. It was adopted by 196 Parties at the UN Climate Change Conference (COP21) in Paris, France, on 12 December 2015. It entered into force on 4 November 2016." [ref]
Parklets	Small-scale green infrastructure to reduce environmental risks in urban environments.
PM10	Particulate matter of 10 micrometers in size.
PM2.5	Particulate matter of 2.5 micrometers in size.
Representative Concentration Pathways (RCP)	Scenarios that include time series of emissions and concentrations of the full suite of greenhouse gases and aerosols and chemically active gases, as well as land use/land cover. The word representative signifies that each RCP provides only one of many possible scenarios that would lead to the specific radiative forcing characteristics. The term pathway emphasises that not only the long-term concentration levels are of interest, but also the trajectory taken over time to reach that outcome. RCPs usually refer to the portion of the concentration pathway extending up to 2100, for which integrated assessment models produced corresponding emission scenarios. [ref]
Resilience	The ability of a system to recover from the effect of an extreme load that may have caused harm. Adaptation policies can lead to greater resilience of communities and ecosystems to climate change. [ref]
Retrofit	Retrofit refers to any improvement work on an existing building to improve its energy efficiency, making them easier to heat, able to retain that heat for longer, and replacing fossil fuels with renewable energy. [ref]

Science-based target	These provide "a clearly defined pathway for companies and financial institutions to reduce greenhouse gas emissions in line with what the latest climate science deems necessary to meet the goals of the Paris Agreement." [ref]
Shrink swell subsidence	Shrink–swell is the volume change that occurs as a result of changes in the moisture content of clay-rich soils. Swelling pressures can cause heave, or lifting of structures, whilst shrinkage can cause settlement or subsidence, which may be differential. [ref]
Sponge cities	Urban areas with abundant natural spaces, including trees, lakes and parks, and/or other green infrastructure designed to absorb rain and prevent flooding. [ref]
Standard precipitation index	An index to quantify meteorological drought.
Storm surge	A change in sea level that is caused by a storm. [ref]
Sustainable drainage systems (SuDS)	SuDS are designed to both manage the flood and pollution risks resulting from urban runoff and to contribute wherever possible to environmental enhancement and place making. [ref]
Tipping points	A critical threshold when global or regional climate changes from one stable state to another stable state. [ref]
Vector borne diseases	Human illnesses caused by parasites, viruses and bacteria that are transmitted by vectors. [ref]

WANDSWORTH

ADAPTION AND RESILIENCE STRATEGY 2025 - 2035

Wandsworth

Designed and produced by wdp@wandsworth.gov.uk TC3251 (5.25)