



# The Climate Partnership

Needs Analysis &  
Materiality Assessment

Version 2

25 November 2022



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## About the Climate Partnership

The Climate Partnership CIC was established in 2021 with funding from RBWM Council. It is a separate entity from the Council itself, set up to enable more stakeholder-led partnership working, in recognition that the Council alone cannot deliver a net zero carbon borough or address all the Borough's other sustainability needs by itself.

The Partnership is envisioned to be part of the means to deliver the Council's Environment and Climate Strategy, although the content of that Strategy does not definitively determine the scope of the Partnership's activities. Rather, the Partnership itself has established a Vision and Mission which are quoted in the section '[Overview and purpose](#)'. These form the Partnership's guiding purpose and operating principles.

The Partnership currently consists of an Executive Chair and a board of independent representatives from different fields including local government, private sector and community. The Partnership's structure is still in development but is envisioned to expand to include an array of member organisations, an advisory panel of experts on strategic matters, and some longer-term staff to develop and administer its activities.

## About this report

Bioregional has been commissioned by the Climate Partnership CIC to provide a holistic evidence base about the range of 'needs' relating to climate change and biodiversity, and to identify which of these might be most fruitfully addressed by the Partnership.

This report consists of two parts:

- [Needs analysis](#) – to understand what the relevant sustainability needs are, both at local and regional level and in terms of how lifestyles and activities within the Borough may impact on climate, resources and biodiversity, from local to global scale.
- [Materiality assessment](#) – to assess which of the identified needs could be most usefully addressed by the Climate Partnership, based on the scale or urgency of the needs and the scale of influence that the Climate Partnership may be able to exert.

Please note that this report is part of a wider appointment. The other part initially consists of a further two-part report identifying similar existing initiatives where there are learnings to be had from these ('Peer analysis'), and a potential range of key local or regional stakeholders whose input should be sought by the Climate Partnership (Stakeholder review').

## Content and findings of this report

This work is structured using the [One Planet Living](#) framework to ensure a holistic assessment. This framework consists of ten principles: Health & happiness, Equity & local economy, Culture & Community, Land & nature, Sustainable water, Local & sustainable food, Travel & transport, Materials & products, Zero waste, and Zero carbon energy.

[In the Needs Analysis](#), a detailed array of 'needs and issues' was uncovered under each of those ten principles, using a wide range of publicly available data ranging from local area carbon emissions to public health, demographics, water resources and use, future climatic change in the area, travel and transport patterns, and material consumption. Wherever possible these data are local. An overview of key global sustainability concerns is also given as context within which the Borough's impacts must be understood.

Consideration was given to how these issues interact, such as where demographics (eg an older population) might affect vulnerability to a risk factor (eg hotter summers) giving rise to a need to address a specific issue (eg overheating risk in homes).

[A Materiality Assessment](#) was then performed to explore which of the 'needs' might be considered a priority on which the Climate Partnership could usefully focus, in order to maximise its effectiveness and avoid spreading its limited resources too thinly.

Each of the 62 identified 'needs' were scored for 'importance' and 'influence'. A topic is considered 'more material' the higher it scores on these scales. These are visualised via a scatter graph. See [Materiality chapter](#) for detail on scoring criteria and how outcomes can be interpreted. Please note that this is not intended to dictate or delimit the Partnership's activities, but only to guide them by enabling better-informed decisions.

Highly material topics, recommended for active pursuit by the Partnership, are:

- Home energy retrofit skills
- Heat pump retrofit & home fabric retrofit
- Solar PV
- Green skills & green jobs
- Affordable, efficient homes
- Protect designations and habitats (including woodland & grassland, via a Nature Recovery Network).

Less material topics, but still with good potential if suitable projects arise, include:

- Mental health support – not critical to climate and biodiversity, but important for the Partnership's Vision and Mission in light of local public health data.
- Low carbon diets/farming – a small share of local emissions, but key for UK carbon goals & nature recovery
- Car clubs – not a major part of the UK's trajectory to zero carbon, but may get more people into EVs and helps shrink material footprint in an area like the Borough with high car ownership & use.

# 1. Introduction

# Introduction - 1.1 Overview & purpose of this piece of work

Bioregional has been commissioned by the Climate Partnership CIC to provide a holistic evidence base about the range of ‘needs’ relating to climate change and biodiversity, and to identify which of these might be most fruitfully addressed through the activities of the Climate Partnership in pursuit of its stated Vision and Mission.

The Climate Partnership’s Vision is:

“In 2050, the Borough’s population will be a healthier and happier community, thriving in harmony with nature. Everyone will benefit equitably from cleaner air and water; affordable, renewable energy; greater biodiversity; and efficient, resilient infrastructure.”

Its Mission is to act as:

“An independent, multisectoral body focussed on delivering tangible initiatives serving the whole Borough and environs. The Climate Partnership will enable change by acting as a catalyst for partners to initiate projects and access resources and incubate these innovations for others to scale. It aims to be an exemplar of how local authorities can enable stakeholder leadership and community accountability to achieve ambitious climate, biodiversity and wellbeing targets.”

Bioregional’s piece of work is intended to assist the new Climate Partnership in devising its range of potential activities in light of its stated Vision and Mission as above. Our approach to this task includes the following elements:

1. **Needs analysis** – to understand what the relevant sustainability needs are, both at local and regional level and in terms of how lifestyles and activities within the Borough may impact on the planetary bottom line around climate and limited resources.
2. **Materiality assessment** – Assess which of the identified needs could be most usefully addressed by the Climate Partnership, based on the scale or urgency of the needs and the scale of influence that the Climate Partnership may be able to exert.

This work is structured using the One Planet Living framework (see [‘Bioregional and One Planet Living’](#)). This framework is used to ensure a holistic assessment that examines the climate crisis from social, environmental and economic factors, minimises conflicts between these and aims to maximise co-benefits.

In a separate report, Bioregional is also assisting the Climate Partnership to identify similar existing initiatives where there are learnings to be had from these (this may include e.g. effective operational structures, or range of programmed activities where this information is available). That same separate report also identifies a potential range of key local or regional stakeholders whose input should be sought by the Climate Partnership. That separate report covers:

3. **Peer analysis** – an overview of the structure and activities of similar public-private sustainability partnerships and how this contributes to successes or obstacles.
4. **Stakeholder analysis** – an assessment of which local or regional entities are best placed to act on the identified needs and/or play a strong role in the Climate Partnership.

This document comprises steps 1 and 2: **Needs analysis and Materiality assessment**. It draws together a wide range of robust local, national and global data to form a picture of the context in which the Borough sits and the recommended priority areas of focus for the Climate Partnership. Data sources are referenced.

## Glossary of terms

**The Borough** – refers to the geographical boundary of the Royal Borough of Windsor & Maidenhead and/or the population living within this boundary

**RBWM or the Council** – refers to the Royal Borough of Windsor & Maidenhead Council

**The Climate Partnership or CIC** – refers to the Royal Borough of Windsor & Maidenhead Climate Partnership CIC that is an independent body of the Royal Borough of Windsor & Maidenhead Council

**CIC** – Community Interest Company, a legally defined type of organisation.

# Introduction - 1.1 Overview & purpose of this piece of work

To help the Climate Partnership understand, prioritise and justify its Mission and Vision for the Borough

The findings of this **Needs analysis** are intended to provide an objective evidence base to support the Climate Partnership's Vision, so as to demonstrate the key needs that the Borough must address in order to achieve the Partnership's climate, biodiversity and wellbeing goals.

The findings of the attached **Materiality assessment** are intended to prioritise the needs that the Partnership might be most-needed and best-placed to focus on, and to therefore help the Partnership to deliver on its Mission of acting as a catalyst for partners to deliver tangible initiatives and to incubate innovations.

**This document therefore aims to help the Climate Partnership gain a better high-level understanding of:**

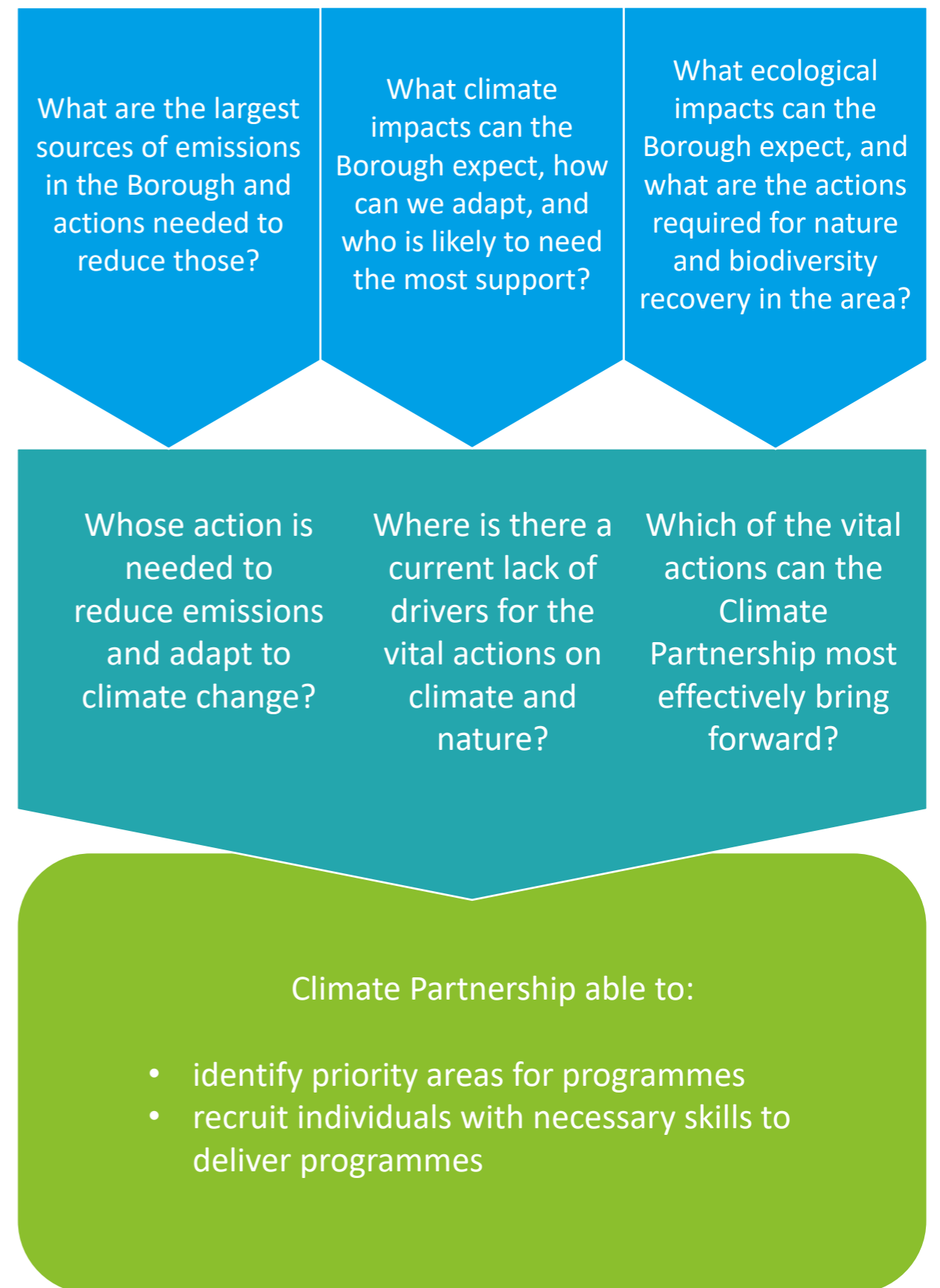
- **The range of issues** facing the Borough due to the climate and ecological crisis – both in mitigation of, and adaptation to, climate change and biodiversity decline
- **The relative scale of different drivers of climate change** linked to activity within the Borough
- **The scale of the climate adaptation challenge** in the Borough, and its different elements (such as water scarcity, adaptation to extreme weather, risks of goods shortages etc).

All of the above points are to be based on data sources showing why each point is relevant to the Borough.

This document also sits alongside a separate **Peer Analysis** and **Stakeholder Analysis** exercise that examines other initiatives with similarities to the Climate Partnership, to understand their structure and activities, in order to learn from their successes and failures.

**It is hoped that the understanding offered by these two documents will help the Partnership to generate ideas and make decisions about:**

- **Priority programme areas** in which the Partnership may develop action plans for specific interventions
- **What kind of actors are needed to engage with** the Partnership in order to bring the necessary sectoral expertise and ability to influence change – this may include regional as well as local organisation, and their involvement in the Partnership may range from general membership to 'Strategic Advisory Panel' members
- **What kind of expertise is needed in staff** that the Partnership will hire.





	<b>Health &amp; happiness</b>	Encourage active, social, meaningful lives to promote good health and wellbeing
	<b>Equity &amp; local economy</b>	Creating safe, equitable places to live and work which support local prosperity and international fair trade
	<b>Culture &amp; community</b>	Nurturing local identity and heritage, empowering communities and promoting a culture of sustainable living
	<b>Land &amp; nature</b>	Protecting and restoring land for the benefit of people and wildlife
	<b>Sustainable Water</b>	Using water efficiently, protecting local water resources and reducing flooding and drought
	<b>Local &amp; sustainable food</b>	Promoting sustainable humane farming and healthy diets high in local, seasonal organic food and vegetable protein
	<b>Travel &amp; transport</b>	Reducing the need to travel, encouraging walking, cycling and low carbon transport
	<b>Materials &amp; products</b>	Using materials from sustainable sources and promoting products which help people reduce consumption
	<b>Zero waste</b>	Reducing consumption, re-using and recycling to achieve zero waste and zero pollution
	<b>Zero carbon energy</b>	Making buildings and manufacturing energy efficient and supplying all energy with renewables

Bioregional is a charity and social enterprise established in 1994 for the purpose of sustainability. We work with partners to integrate sustainability into their work, including with local authorities, national government, property developers, major corporations, community groups and innovators. We use ‘One Planet Living’ to express what we mean by sustainability.

One Planet Living® is a vision of a world in which it is easy and attractive to live happy, healthy lives within the environmental limits of our earth’s resources. The framework was developed by Bioregional with the support of other organisations including WWF.

The name ‘One Planet Living’ refers to the fact that if everyone on the planet lived like a Western European, we would need three planets to supply both the goods we consume, and the land to absorb our carbon.

Rooted in insights from ecological and carbon footprinting, One Planet Living offers ten principles to structure thinking and inform holistic action for social and environmental gain. These principles stem from Bioregional’s experience of creating BedZED, a pioneering eco-village in London. The principles help people examine the sustainability challenges they face, develop solutions and communicate them.

One Planet Living recognises that a sustainable future will need to consider environmental, social and economic factors. One Planet Goals have been developed for each principle and the principles have been used to create a global network to create flagship sustainable communities – so-called One Planet Communities.

One Planet Communities enable more sustainable lifestyles. This includes for example supplying buildings with 100% renewable energy and using waste as a resource within a circular economy. They conserve water, create pedestrian- and bike-friendly settings, enable food growing and use renewable materials. One Planet Communities enable their residents to live high-quality, low-impact lifestyles.

Bioregional uses the One Planet Living framework to recognise the unique social, economic and environmental needs of a place, and respond to them. The following sections take the geographical boundaries of the Borough and outline the considerations under each principle at local, regional and planetary levels, so as to devise measures that can be taken to accommodate them, leading towards a truly sustainable Borough.



# 2. About the Climate Partnership



## 2.1 Origin & purpose of the Climate Partnership

The Royal Borough of Windsor & Maidenhead Council declared a climate emergency in June 2019, in which it:

- Recognised and welcomed the national Net Zero Carbon 2050 goal (as per the Climate Change Act 2008 / 2019 update)
- Committed to establish a cross-party working group within the following year, to review the council’s own carbon footprint and devise a strategy to deliver a net zero carbon Borough by 2050.

Subsequently the Council developed a [Borough-wide Environment & Climate Strategy](#) which it formally adopted in December 2020, which includes an action plan to 2025.

Thereafter in recognition that the Council cannot deliver a net-zero carbon Borough alone, in September 2021 the Council [cabinet resolved](#) set up a Borough-wide [Climate Partnership](#). The Council’s statement (linked above) states that the Partnership is created to oversee the delivery of the Environment and Climate Strategy. The Climate Partnership is formed as a Community Interest Company. In July 2022 the Climate Partnership’s board established an official Vision and Mission (see [section 1.1, Overview](#)). Key points include a focus on delivering tangible initiatives serving the whole Borough and environs, in order to achieve ambitious climate, biodiversity and wellbeing targets.

Although instigated and funded by the Council, the CIC is an independent, multi-sectoral body that is expected to bring together public and private sector organisations and community groups, in order to pool the available expertise to work towards the stated Vision of a Borough in which everyone will benefit equitably from cleaner air and water; affordable, renewable energy; greater biodiversity; and efficient, resilient infrastructure.

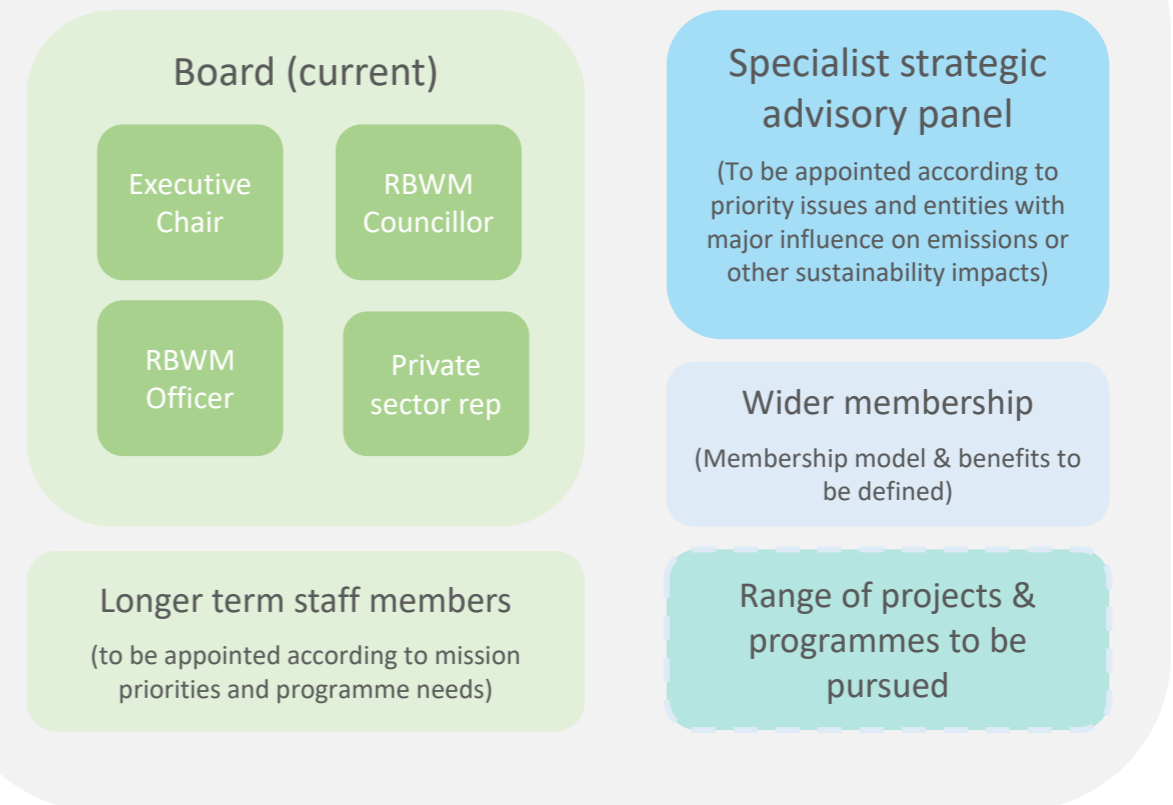
### Role and functions

As the Climate Partnership is at a very young stage, its exact structure and role are as yet emerging. At present, the structure is as follows:

- It is headed by Barnaby Briggs (executive chair), [appointed](#) in June 2022
- Oversight is provided by a board formed of representatives from community, public and private sector, who will initially serve for 12 months
- Longer-term staff members are to be appointed once the Chairman & Board have agreed on priorities for the functions and programming of the Partnership
  - These may include specialist experts on energy, biodiversity or other topics, and/or specialists in community engagement or fundraising to support direct delivery of Partnership programmes or to help members fund the necessary actions for climate adaptation and mitigation within their own operations.



### Climate Partnership CIC – provisional structure



## 2.1 Origin & purpose of the Climate Partnership

Recognising that the Climate Partnership’s foundational aim is to help realise the desired outcomes of the Council’s Environment and Climate Strategy 2020-2025, we hereby provide a summary of that Strategy.

The Strategy was developed in collaboration between the Borough Council’s Climate Steering Committee and a wider group of approximately 60 people from the local community, representing public and private sector, interest groups and individuals.

The Strategy recognises that the Borough has a role to play in enabling the UK to meet its commitments under the international Paris Agreement – that is, to limit climate change to no more than 2°C above pre-industrial global average temperatures, with richer countries taking a greater role according to their respective greater capability and contribution to historic emissions.


Relatedly, the Strategy adopts the energy-related CO<sub>2</sub> reduction targets analysed by the Tyndall Centre to be necessary for this local area to play its fair role in the Paris agreement – including a 50% reduction by 2025. The Tyndall Centre targets relate to CO<sub>2</sub> emissions only, not the full ‘bundle’ of greenhouse gases (which would also include methane, nitrous oxide and fluorinated gases). [CO<sub>2</sub> represents about 80%](#) of the UK’s climate change impact. Tyndall Centre targets also only cover emissions caused by energy use within the area (including for transport). Therefore the Tyndall targets do not cover other sources of CO<sub>2</sub> or other greenhouse gases, or the consumption-based emissions that happen elsewhere as a result of activities or purchases made by the organisations or population of the Borough.

The Strategy identifies the sectoral breakdown of the Borough’s existing CO<sub>2</sub> emissions sources, using the 2018 UK local authority and regional CO<sub>2</sub> emissions statistics published by the Department for Business, Energy and Industrial Strategy (BEIS) in 2020.

This Needs Analysis updates that breakdown with the latest BEIS figures (released 2022; data year 2020) which BEIS now breaks down into a wider range of categories (separating Industrial from Commercial, and adding a new category for Public Sector). This Needs Analysis also looks at an alternative calculation of the carbon footprint of lifestyles in the Borough taking into account not just CO<sub>2</sub> emitted inside the Borough but also CO<sub>2</sub> emitted elsewhere as a result of the Borough’s consumption of goods produced elsewhere.

The Council’s Environment and Climate Strategy 2020-2025 has four strategic themes.





Each theme comes with an overarching aim, and a set of more specific objectives:

Theme	Aim	Objectives
<b>Circular economy</b> 	Reduce waste and consumption, increase material re-use and increase recycling rates in the Borough	Improve recycling rates
		Encourage waste avoidance & material reuse via Council services / operations
		Champion waste reduction in the wider community
<b>Energy</b> 	Reduce energy consumption and decarbonise supply	Reduce energy demand
		Decarbonise supply
		Increase renewable energy generation
<b>Natural environment</b> 	Cleaner air, higher water quality and increased biodiversity	Protect and enhance our natural environment
		Green our towns and urban areas
		Increase awareness of biodiversity
<b>Transport</b> 	Enable sustainable transport choices	Transform transport & digital infrastructure to reduce need for travel
		Create infrastructure to shift journeys to low/zero carbon modes
		Invest in zero emission vehicle infrastructure

Under each of these objectives, the Strategy also lays out a number of intended actions (see overleaf) and a measure of success that will be used for each action. Many of those actions are very specific and many can only be delivered by the Council. Therefore the Climate Partnership’s scope of work is not defined or delimited by the Strategy’s actions, but should help deliver the Strategy’s aims and objectives. This Needs and Materiality Analysis provides evidence to prioritise how the Partnership’s effort should be focussed.

## 2.2 Overview of RBWM Environment & Climate Strategy & Action Plan

**Please note:** The RBWM Environment & Climate Strategy and accompanying action plan do not definitively determine the agenda or functions of the Climate Partnership CIC, but are referenced here as useful context. The Partnership's activities will aim to help with these aims and objectives wherever this aligns with the Partnership's own evidence-based priorities.

Theme	Aim	Objectives	Actions [primarily for Council]
<b>Circular economy</b> 	Reduce waste and consumption, increase material re-use and increase recycling rates in the Borough	Improve recycling rates	<ul style="list-style-type: none"> <li>• Increase availability of recycling facilities</li> <li>• Increase awareness of Royal Borough recycling facilities</li> <li>• Avoid food waste incineration by promoting uptake of the food waste collection service</li> </ul>
		Encourage waste avoidance & material reuse via Council services / operations	<ul style="list-style-type: none"> <li>• Reduce single use plastic usage in [Council's] own estate</li> <li>• Investigate the feasibility of a material reuse shop associated with the recycling and waste site</li> <li>• Provide opportunities for people to grow their own food</li> </ul>
		Champion waste reduction in the wider community	<ul style="list-style-type: none"> <li>• Champion material re-use initiatives</li> <li>• Support plastic free refillable shops and other plastic free schemes</li> <li>• Work with businesses to encourage reuse throughout their operations</li> <li>• Encourage more plant-based food and promote buying local and seasonally</li> </ul>
<b>Energy</b> 	Reduce energy consumption and decarbonise supply	Reduce energy demand	<ul style="list-style-type: none"> <li>• Facilitate energy efficiency improvements in domestic private premises</li> <li>• Reduce energy demand across buildings and assets we own and operate</li> <li>• Incentivise developers to create zero carbon buildings and reduce water demand in line with Thames Water recommendations</li> </ul>
		Decarbonise supply	<ul style="list-style-type: none"> <li>• Encourage businesses and industry to decarbonise their energy supply and reduce emissions</li> <li>• Engage housing associations around a programme of retrofitting homes with low carbon heating/power</li> <li>• Encourage carbon intensive (e.g. oil) heated homes to adopt lower carbon alternatives</li> </ul>
		Increase renewable energy generation	<ul style="list-style-type: none"> <li>• Scope decentralised energy (e.g. solar, heat networks, heat pumps) potential across the Borough</li> <li>• Incentivise renewable energy uptake among Royal Borough residents and businesses</li> <li>• Increase requirement for renewables generation in new build</li> </ul>
<b>Natural environment</b> 	Cleaner air, higher water quality and increased biodiversity	Protect and enhance our natural environment	<ul style="list-style-type: none"> <li>• Work with partners to develop Local Nature Recovery Strategy (LNRS) and Nature Recovery Network</li> <li>• Identify opportunities for rewilding on sites we manage for nature conservation</li> <li>• Continue and extend the council's new mowing regime on roadside verges for the benefit of wildflowers</li> <li>• Develop a biodiversity baseline and metrics for the Borough as part of the biodiversity action plan</li> </ul>
		Green our towns and urban areas	<ul style="list-style-type: none"> <li>• Work with developers to provide green infrastructure in new town centre developments</li> <li>• Deliver the biodiversity net gain requirement for developers through the planning system</li> <li>• Increase biodiversity in public owned open spaces such as parks and cemeteries</li> </ul>
		Increase awareness of biodiversity	<ul style="list-style-type: none"> <li>• Provide biodiversity training to planning officers</li> <li>• Set up biodiversity and climate education sessions at Braywick Nature reserve</li> <li>• Offer conservation volunteering and awareness training for council employees and partners</li> <li>• Encourage wildlife friendly gardening</li> <li>• Engage with landowners, especially those with a significant influence over biodiversity in the Borough</li> </ul>
<b>Transport</b> 	Enable sustainable transport choices	Transform transport & digital infrastructure to reduce need for travel	<ul style="list-style-type: none"> <li>• As part of development planning, identify opportunities to reduce the need to travel in new 'growth areas'</li> <li>• Facilitate roll out of digital infrastructure in the Borough to enable flexible working</li> <li>• Trial Smart City concepts in the Royal Borough [1 trial by 2023]</li> </ul>
		Create infrastructure to shift journeys to low/zero carbon modes	<ul style="list-style-type: none"> <li>• Remove barriers to walking and cycling through delivery of the 2018-2028 Cycle Action Plan</li> <li>• Reduce transport emissions at sensitive locations to improve air pollution and encourage walking/cycling</li> <li>• Investigate options for demand responsive transport ... and implement a trial through external funding</li> <li>• Launch a car sharing scheme for the Royal Borough</li> </ul>
		Invest in zero emission vehicle infrastructure	<ul style="list-style-type: none"> <li>• Increase electric vehicle charging capability and explore cycle charging in the Royal Borough</li> <li>• Set new emissions standards for taxis and buses.</li> </ul>



## 2.2 Overview of RBWM Environment & Climate Strategy & Action Plan

### RBWM Environment and Climate Strategy 2020-2025 Themes, Aims & Objectives mapped against One Planet Living

This page communicates how the components of the Council’s Environment and Climate Strategy 2020-2025 would relate to the ten principles of One Planet Living. The strongly-shaded squares denote areas that strongly correlate, whilst the light-shaded squares denote areas that correlate more weakly or indirectly.

RBWM Environment and Climate Strategy 2020-2025			Relevant One Planet Living principles: <span style="color: #FFC000;">Health &amp; happiness</span> , <span style="color: #92D050;">Equity &amp; local economy</span> , <span style="color: #4CAF50;">Culture &amp; community</span> , <span style="color: #009688;">Land &amp; nature</span> , <span style="color: #00BCD4;">Sustainable water</span> , <span style="color: #00897B;">Local &amp; sustainable food</span> , <span style="color: #00796B;">Travel &amp; transport</span> , <span style="color: #9C27B0;">Materials &amp; products</span> , <span style="color: #E91E63;">Zero waste</span> , <span style="color: #FF9800;">Zero carbon energy</span> .										
Theme	Aim	Objective											
Circular Economy 	Reduce waste & consumption, increase material re-use & increase recycling rates in the Borough	Improve recycling rates											
		Encourage waste avoidance & material reuse via Council services/ops											
		Champion waste reduction in the wider community											
Energy 	Reduce energy consumption & decarbonise supply	Reduce energy demand											
		Decarbonise supply											
		Increase renewable energy generation											
Natural Environment 	Cleaner air, higher water quality and increased biodiversity	Protect and enhance our natural environment											
		Green our towns and urban areas											
		Increase awareness of biodiversity											
Transport 	Enable sustainable transport choices	Transform transport & digital infrastructure to reduce need for travel											
		Create infrastructure to shift journeys to low/zero carbon modes											
		Invest in zero emission vehicle infrastructure											



# 3. Needs analysis

Before introducing the local and regional needs of the Borough, it is important to frame the sustainability challenge we face on a planetary scale.

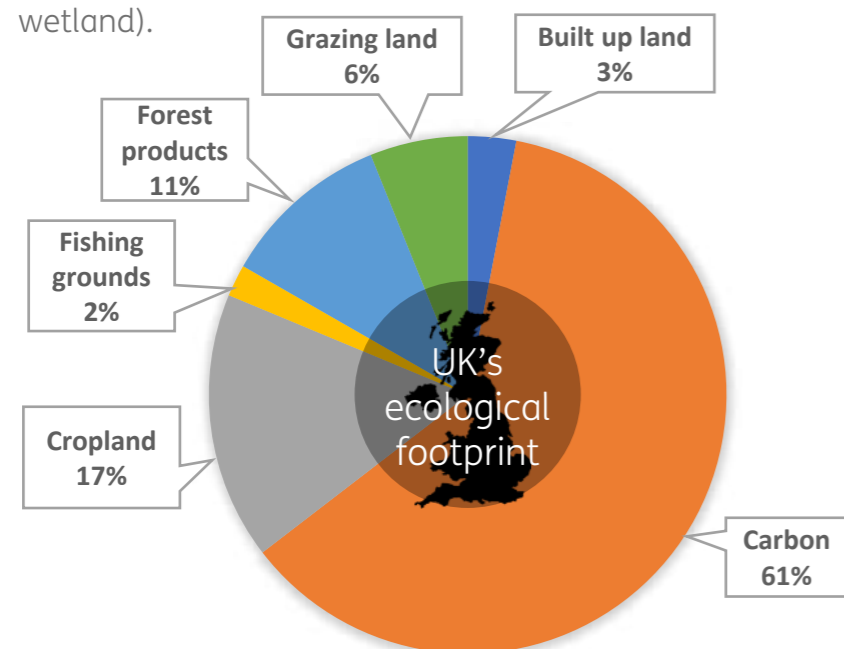
## Resource overconsumption

At present, humankind consumes about **1.8 times** what the planet can replenish each year. Lifestyle consumption varies dramatically between countries. If the entire human population lived like the average British person, we would need **2.6 earths**.



This number is derived from the total land area needed to produce resources for, and absorb waste from, the range of activities in lifestyle consumption. This includes not only resources such as food, materials and energy, but also the land needed to absorb our carbon emissions.

Of the ecological footprint caused by [UK lifestyles](#), the vast majority of this is due to carbon – that is, the land needed to absorb our carbon emissions (e.g. forests, grassland, wetland).



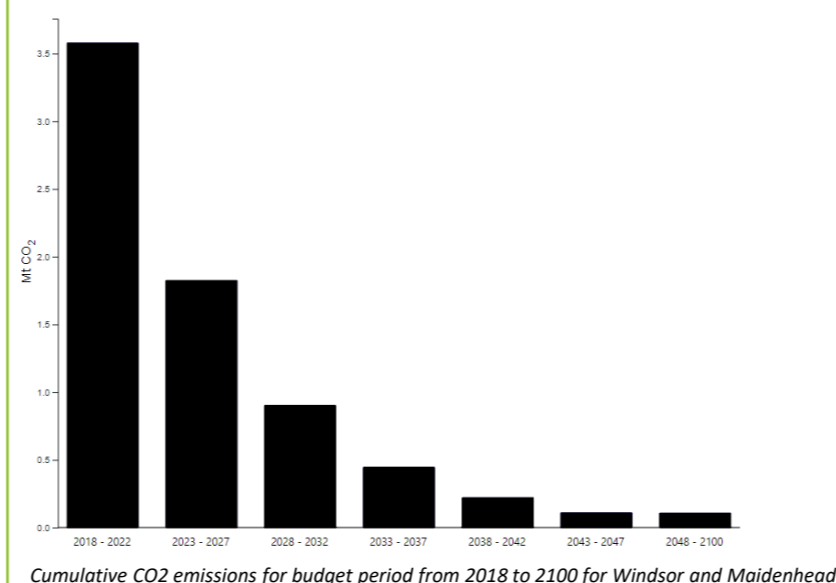
## Climate emergency

The latest climate science from the Intergovernmental Panel on Climate Change (IPCC) states that if we are to avoid catastrophic climate change, we must limit warming to **1.5°C above pre-industrial levels**.

The same report states that we are currently on track for a rise of 3 to 4°C, and that we are already experiencing a rise of **over 1°C**.

The UK's national commitment to the Paris Agreement (an international agreement to limit climate change to 2°C above pre-industrial levels) commits 'developed' countries like the UK to deliver more rapid and drastic action due to their financial and technological capability to do so (as well as a historic responsibility for more of the carbon already present in the atmosphere).

This would involve limiting total global emissions to a 'carbon budget' between now and the end of the century. The graph below shows what the Royal Borough of Windsor and Maidenhead's carbon budgets would be as a reduction from today's level, in order for the Borough to pull its fair weight towards the UK complying with the Paris Agreement. ([Tyndall Centre](#); energy only).



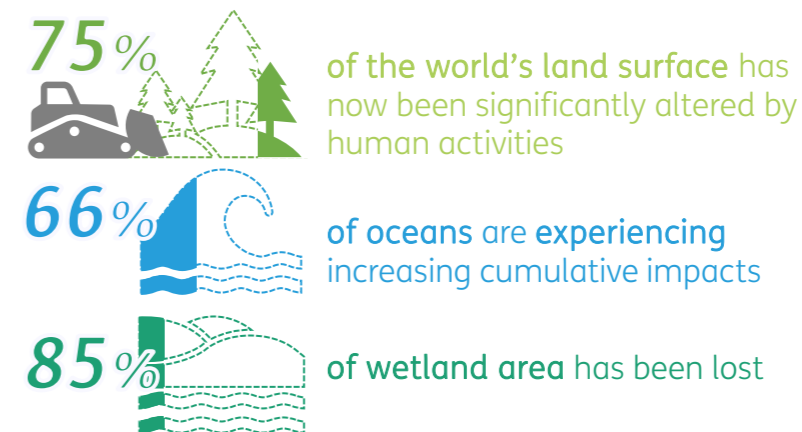
## Ecological emergency

The Intergovernmental Panel on Biodiversity and Ecosystem Services (IPBES) released a landmark report in 2019 warning of the unprecedented global decline in biodiversity.

It's headline message is:

*"Nature and its vital contributions to people, which together embody biodiversity and ecosystem functions and services, are deteriorating worldwide ... Biodiversity ... is declining faster than at any time in human history"*

The report showed that:



Of the 18 'contributions of nature' that were assessed (living natural systems that provide goods or services to people), 14 were in decline. These include services that are vital for humanity's continued survival such as soil carbon and food crop pollinators. There is also increased homogeneity across the world – with local varieties of domesticated crops and animals disappearing, representing a loss of genetic diversity and an increased vulnerability to pathogens, pests and climate shocks.

The human activities driving these declines include land use change (logging, harvesting, hunting, fishing), climate change, introduction of invasive species, and pollution (including from mining), all linked to economic incentives and human population increase resulting in greater demand for energy and materials.



## Planetary needs - 3.2 Resource consumption

In addition to the national-level ecological footprint data previously cited, there has been analysis of ecological footprint differentiated by local areas within the UK.

This analysis was produced by the Stockholm Environment Institute 'Resources and Energy Analysis Programme' (REAP) in 2010-11.

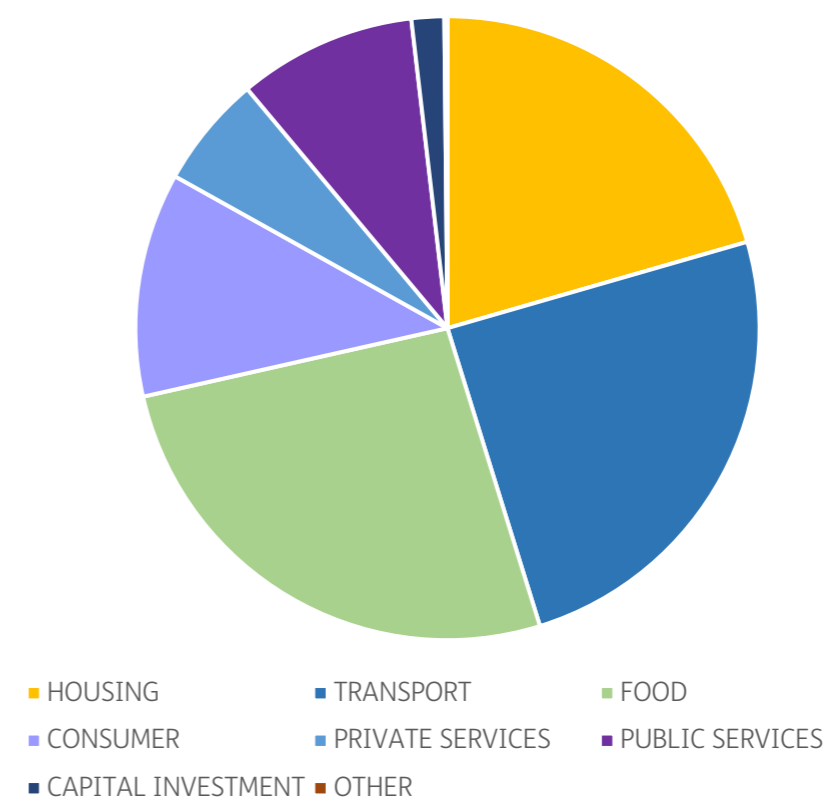
This analysis showed there was variation within the country, as habits around transport and consumption vary from place to place. In different locations, the various lifestyle activities can drive different proportions of the total impact.

Unfortunately the local-level ecological footprint analysis has not been repeated in recent years. However, the breakdown is still informative.

**We cite the analysis for the Borough area here for information, but please note that the data used here are several years old.** We are not aware of any more recent local authority level ecological footprint analysis of this quality. Based on our understanding of carbon and sustainability trends in various UK sectors in recent years, we anticipate that if the analysis were repeated the following changes would appear in the data:

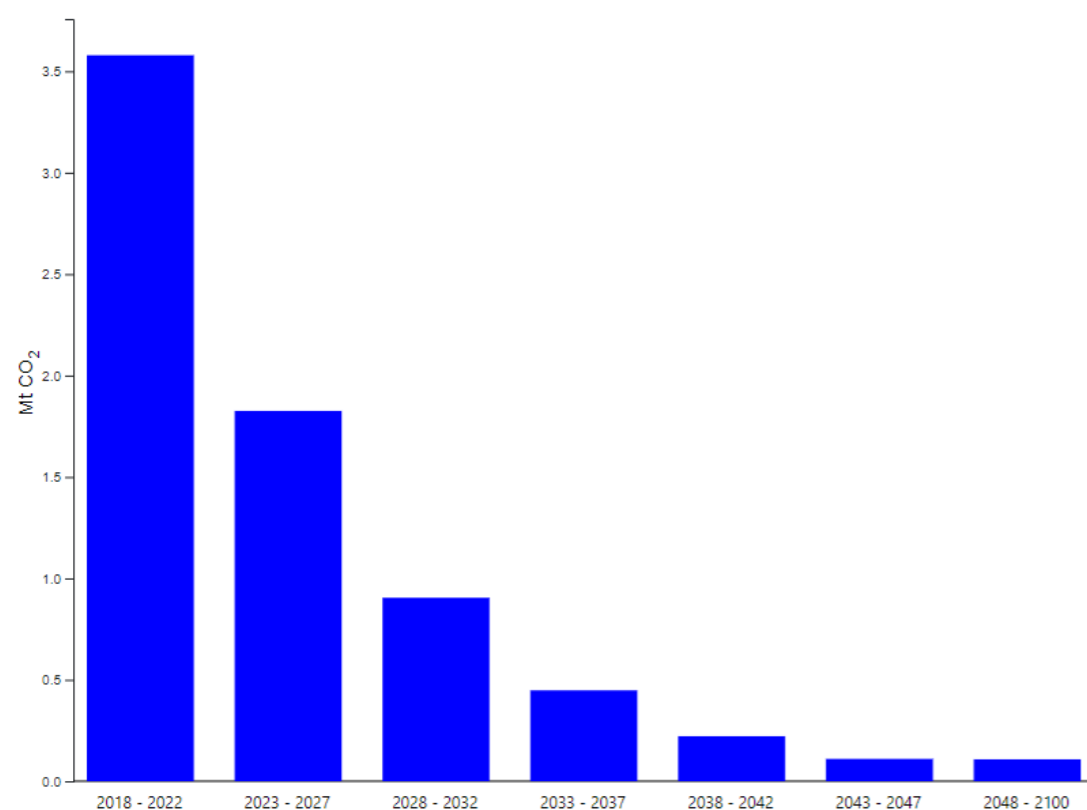
- Due to the decarbonising of the electricity grid, the proportion of the footprint taken up by housing and private services will have shrunk quite significantly (possibly by 20-30%, if the overall impact tracks with the carbon emissions reduction in homes in the past decade).
- Up to year 2019, the transport figure will not have changed much – and may have actually increased – given that until the COVID pandemic there were far more vehicle miles driven and more vehicles on the road compared to 10 years previous. Due to this increased vehicle use, despite gains in new vehicle efficiency, the UK's overall carbon emissions from transport had not reduced in the decade to 2019. After 2020 the transport portion will have dropped quite significantly due to pandemic-related changes in travel patterns, but transport activity rebounded somewhat in 2021.
- The consumer goods section is likely to have increased somewhat.

Drivers of ecological footprint in the Borough (NB: historical data; no recent data available)



# Planetary needs - 3.3 Climate emergency

**The UK's national commitment to the Paris Agreement:** This international agreement brokered at UN level to limit climate change to 2°C above pre-industrial temperatures commits 'developed' countries like the UK to deliver more rapid and drastic action due to their financial and technological capability to do so (as well as their historic responsibility for more of the carbon that is already present in the atmosphere). This would involve limiting total global emissions to a 'carbon budget' between now and the end of the century. A [consortium of UK universities](#) (collectively named the Tyndall Centre) has worked out what the local and national carbon dioxide budgets would be, in order for the UK to comply with the Paris Agreement. The Royal Borough of Windsor and Maidenhead's Environment & Climate Strategy adopts these targets. The Borough's five-yearly CO<sub>2</sub> budgets are therefore as follows, starting from the historic 2018 level:

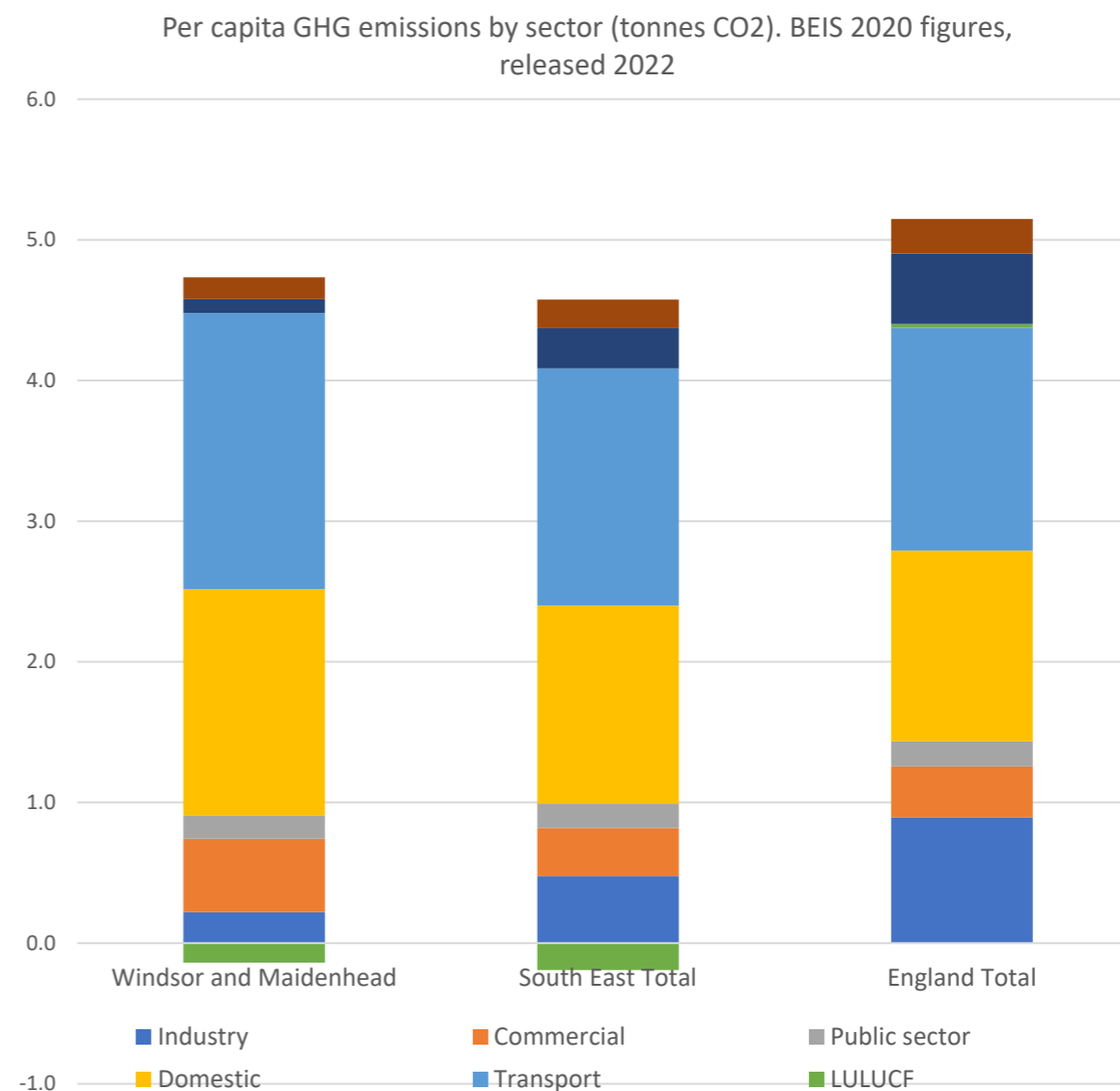


Cumulative CO<sub>2</sub> emissions for budget period from 2018 to 2100 for Windsor and Maidenhead

This shows a need for rapid and dramatic carbon reductions not just from new buildings but from existing buildings, transport and activities. Please note these carbon dioxide budgets are only for **territorial CO<sub>2</sub>-only, energy-only emissions**, in other words ground transport and energy use. They do not include aviation, cement, land use or other carbon-emitting activities, which are treated separately in the Tyndall analysis.

**The Royal Borough of Windsor and Maidenhead's existing carbon emissions:** Data from BEIS shows that the Borough's per capita emissions are 11% lower than the average for England, although 5% higher than average for the South East region. The difference with the national average is driven primarily by the industrial/agricultural sectors, likely to be because of a local economy that leans more towards the service sector. The Borough's slightly larger domestic emissions may be due to homes being larger, or older, than the national or regional average. The Borough's high per-capita transport emissions may be due to its semi-rural character and a public transport system that fails to compete with the road system for convenience, in turn linked to the area's affluence which enables its higher car ownership per home. The figure may also be influenced by the proximity of Heathrow airport and the M4 motorway.

Please note: **All of these BEIS data are territorial, not consumption-based.** They therefore do not include emissions caused outside the Borough which are nevertheless caused by activities and spending with the Borough. [See overleaf for consumption data.](#)



# Planetary needs - 3.3 Climate emergency

## Looking at carbon emissions based on consumption, rather on the geographic source of emissions

The previous pages looked only at territorial emissions– that is, greenhouse gas that was emitted directly from within the area, such as from use of fossil fuels in buildings or vehicles, or the oxidation of nitrogen fertiliser applied to fields.

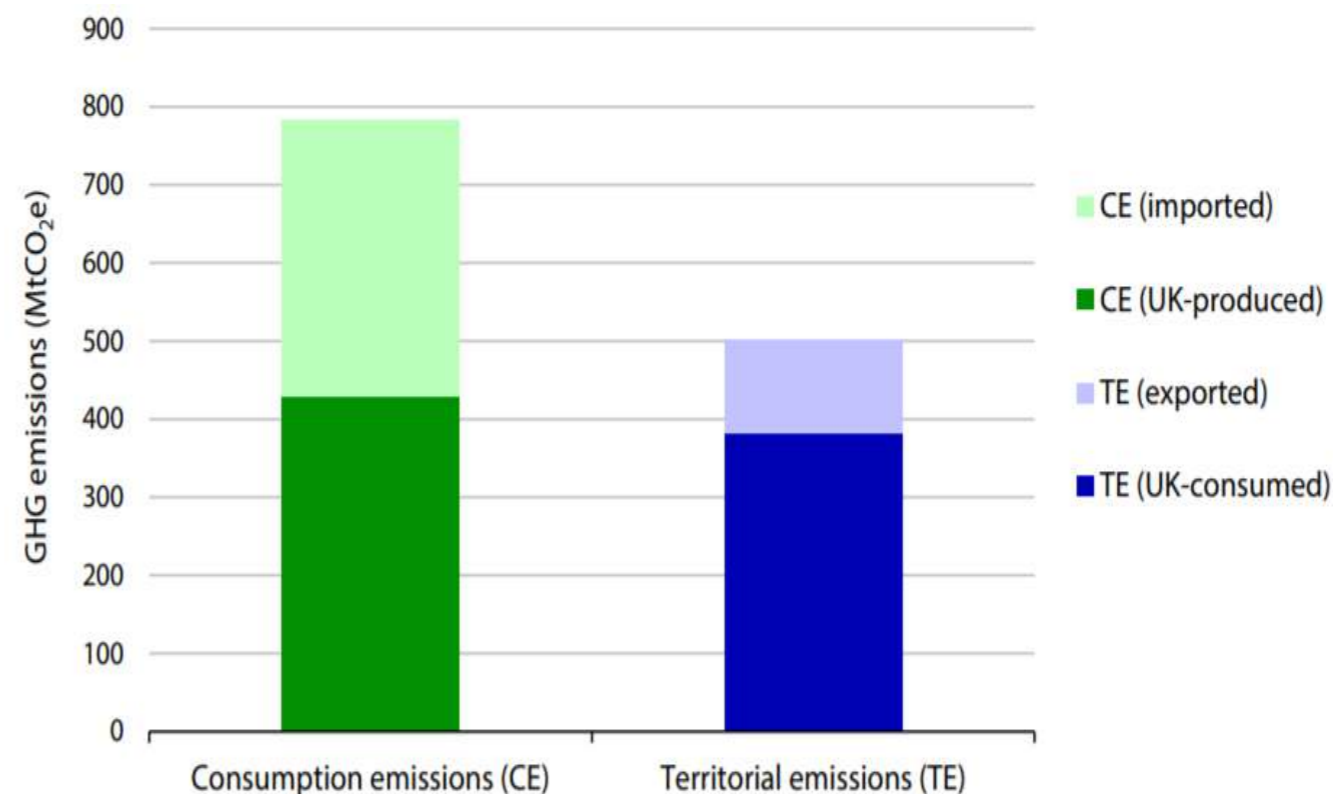
However, that is only part of the picture of the Royal Borough of Windsor and Maidenhead’s climate impact.

Activity and spending within the UK and the Borough also drive emissions in other places. The UK’s consumption-based emissions inventory is significantly higher than its territorial emissions, due to the large amount of goods and services we import.

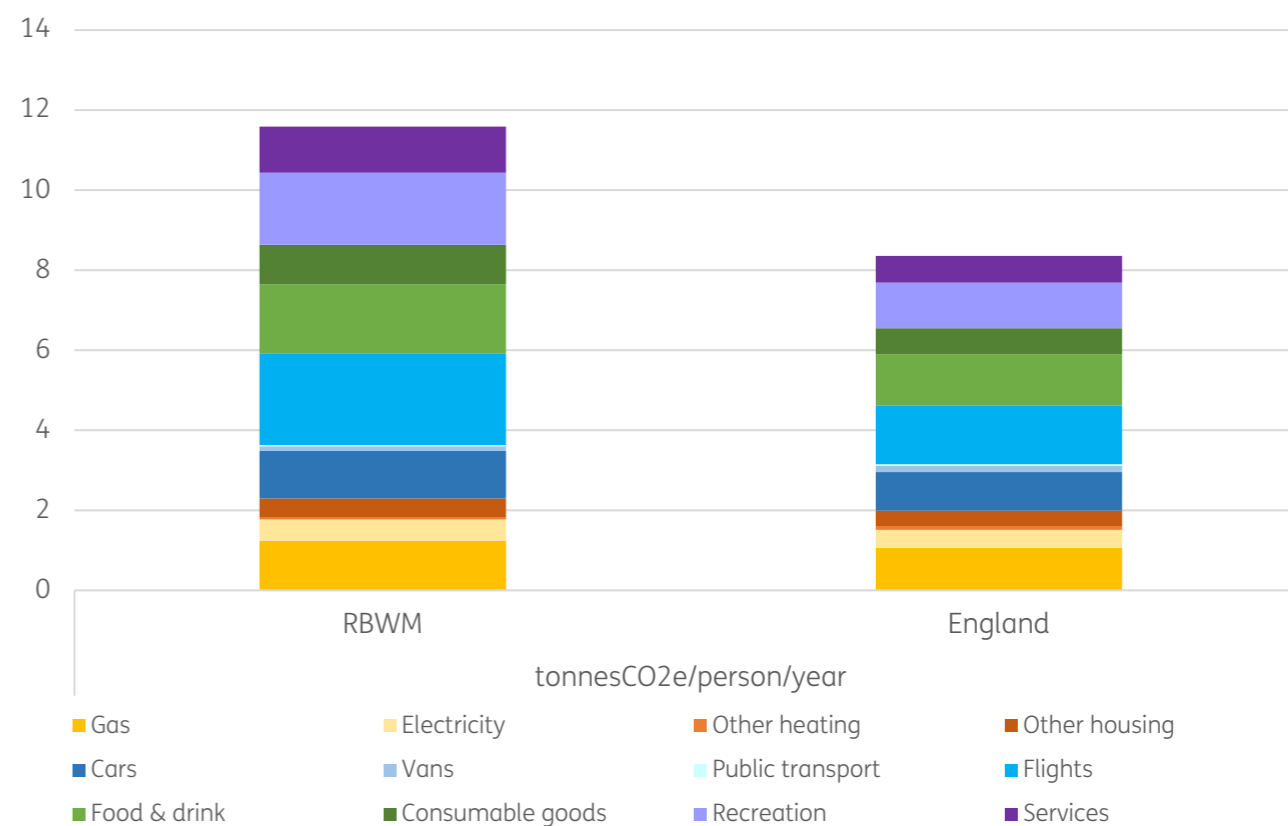
Neither BEIS nor the Committee on Climate Change release consumption-based emissions figures broken down to the local level. Instead, we here present an estimation produced by CREDS (Centre for Research into Energy Demand Solutions). CREDS uses some of the same raw data as the national BEIS territorial carbon emissions figures, but processes this data differently, adjusts it to reflect local factors such as car ownership, and adds additional reasonable assumptions to scale-down national goods consumption data to the local level using evidence on the relationship between affluence and consumption.

The CREDS estimate shows that the Borough’s consumption is likely to be higher, because it will skew even further towards imported goods (from outside the local area) because of the lack of local manufacturing, and the likelihood of a more affluent population to consume more goods. This trend was borne out in other settings in [research](#) by C40 Cities in 2019 which found that two-thirds of cities’ consumption-based emissions were emitted outside the city.

This overall carbon impact can be reduced by borrowing or sharing instead of buying new, wasting less, and switching to less energy-intensive goods for construction and daily life (including diet).



UK’s carbon footprint expressed in two ways: Consumption-based, and territorial. Source: Committee on Climate Change.



Overall carbon footprint per person in the Borough compared to England average. Source: Place-Based Carbon Calculator <https://www.carbon.place/la/>

The Intergovernmental Panel on Biodiversity and Ecosystem Services (IPBES) released a landmark report in 2019 warning of the unprecedented global decline in biodiversity. This was the first report of its kind since the 2005 Millennium Ecosystem Assessment. Its headline messages are that:

- “Nature and its vital contributions to people, which together embody biodiversity and ecosystem functions and services, are deteriorating worldwide ... Biodiversity ... is declining faster than at any time in human history”
- “While more food, energy and materials than ever before are now being supplied to people in most places, this is increasingly at the expense of nature’s ability to provide such contributions in the future, and frequently undermines nature’s many other contributions, which range from water quality regulation to sense of place”.

The report showed that 75% of the world’s land surface has now been significantly altered by human activities, 66% of the oceans are experiencing increasing cumulative impacts, and 85% of wetland area has been lost. Of the 18 ‘contributions of nature’ that were assessed (providing goods or services to people), 14 were in decline. These include services that are vital for humanity’s continued survival such as soil carbon and food crop pollinators. There is also increased homogeneity across the world – with local varieties of domesticated crops and animals disappearing, representing a loss of genetic diversity and an increased vulnerability to pathogens, pests and climate shocks.

The human activities driving these declines include land use change (logging, harvesting, hunting, fishing), climate change, introduction of invasive species, pollution (including from mining), all linked to economic incentives and human population increase resulting in greater demand for energy and materials.



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### Regional needs & challenges

### Local needs & challenges

1



## Health and happiness

Encourage active, social, meaningful lives to promote good health and wellbeing

**Prepare for regional health-related climate change impacts:** The latest UK climate projections (Met Office UKCP18) predict warmer, wetter winters and hotter, drier summers across the UK. Southern England is one of the areas that will see the hottest temperatures in the future. It is projected that the average summer daytime temperature in southern England will increase from 22C (current) to above 25C if the global average temperature rises by 4C (probable by the end of this century). This will bring increased health risks such as overheating, especially for older people.

**Minimise air pollution from transport:** Air pollution is the biggest environmental risk to health in the UK, and is linked to 28,000 to 36,000 deaths per year according to government estimates. Exposure to air pollutants such as fine particulate matter (PM 2.5) and nitrogen dioxide has been linked to health conditions such as asthma, heart disease and lung cancer. A report from the Centre for Cities showed that there is a clear South/North divide, with a higher proportion of deaths related to PM2.5 occurring in cities in the South East England than in the North. The region's PM2.5 rate is ~8% worse than the national average.

- **Adapt homes & towns to climate change, especially protecting older people from health impacts:** The Borough has an ageing population; the number of people aged 65 years and over has increased by 17.5% since 2011 to 28,300 people, representing 18% of the population (ONS Census 2021). Older people are more vulnerable to climate-related health risks. In the Borough, excess winter deaths in over-85s is 41%, nearly double the regional and national average of 21%. Several neighbourhoods in the Borough are also at high or very high risk of loneliness in over-65s, implying social isolation. As extreme weather becomes more frequent, older people will be more at risk of health impacts such as overheating, particularly if they are socially isolated and therefore less able to reach out for help. This risk is higher in more densely developed areas of the Borough where there is a higher likelihood of urban heat island effect.
- **Support people suffering with mental health conditions and home crises:** Medical professionals are warning of a growing mental health crisis in the UK, with 1 in 5 adults experiencing some form of depression in early 2021 (ONS data), double the rate reported before the COVID-19 pandemic (10%).
  - In the Borough, 29% of the population self-reports high anxiety. The Borough has relatively low rates of suicide and people needing employment support allowance due to mental and behavioural disorders, but rates have been rising in the past decade. The rate of alcohol-related mental and behavioural disorders has been rising since 2012 and is now slightly above the England average. The same is true for self harm in early teens (2016-20). Thames Valley Police area has a slight uptick in domestic violence from 2015-2021, albeit still below England's average. The Borough scores poorly in % adults who use mental health services who have stable appropriate housing, since 2018.
  - Climate change can negatively impact on mental health. A survey by the ONS showed 75% of UK adults feel worried about the impacts of climate change, and 43% feeling anxious about the wider future of the environment. As the climate crisis worsens, more support may be needed, particularly for youth, to deal with climate-related mental health.
- **Improve air quality and road safety:** Some neighbourhoods in the Borough are in the top 40% most deprived in the country for living environment quality, which includes both indoor (eg housing) and outdoor (air quality and road traffic accidents) (Index of Multiple Deprivation, 2019). In 2019 the average concentration of PM2.5 pollution particles in the Borough was 10.4 micrograms per cubic metre (below the UK limit of 25, but above the WHO guideline limit of 10). NHS data (2020) finds that 6.3% of deaths in the Borough are attributable to particulate air pollution, worse than the national average of 5.6%.

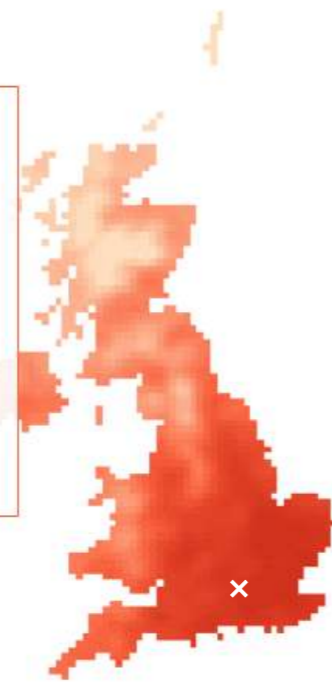




## Average daytime summer temperature, UK Current (1991-2019)

The average daytime temperature in the UK in summer **currently** ranges from about 14C in northern Scotland to 22C in southern England.

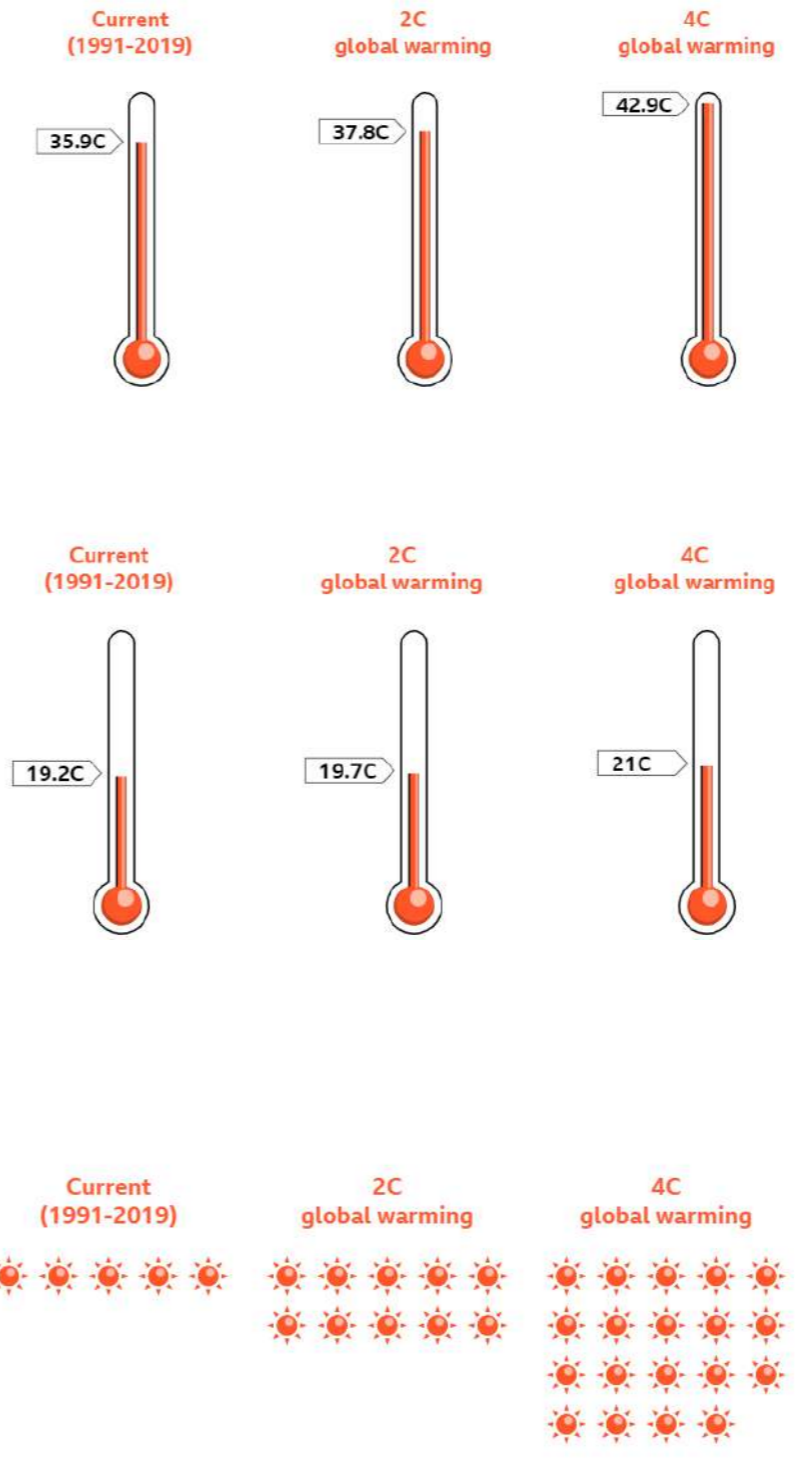
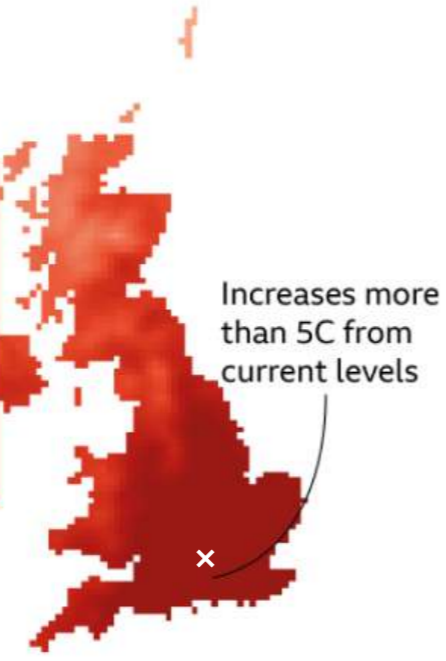
But summers have been getting warmer, with four of the 10 hottest summers recorded in the past two decades.



## Average daytime summer temperature, UK 4C global warming

If emissions continue to increase and average global temperatures **rise by 4C**, summers will be even hotter.

Nearly a third of the UK could see average summer temperatures above 25C.



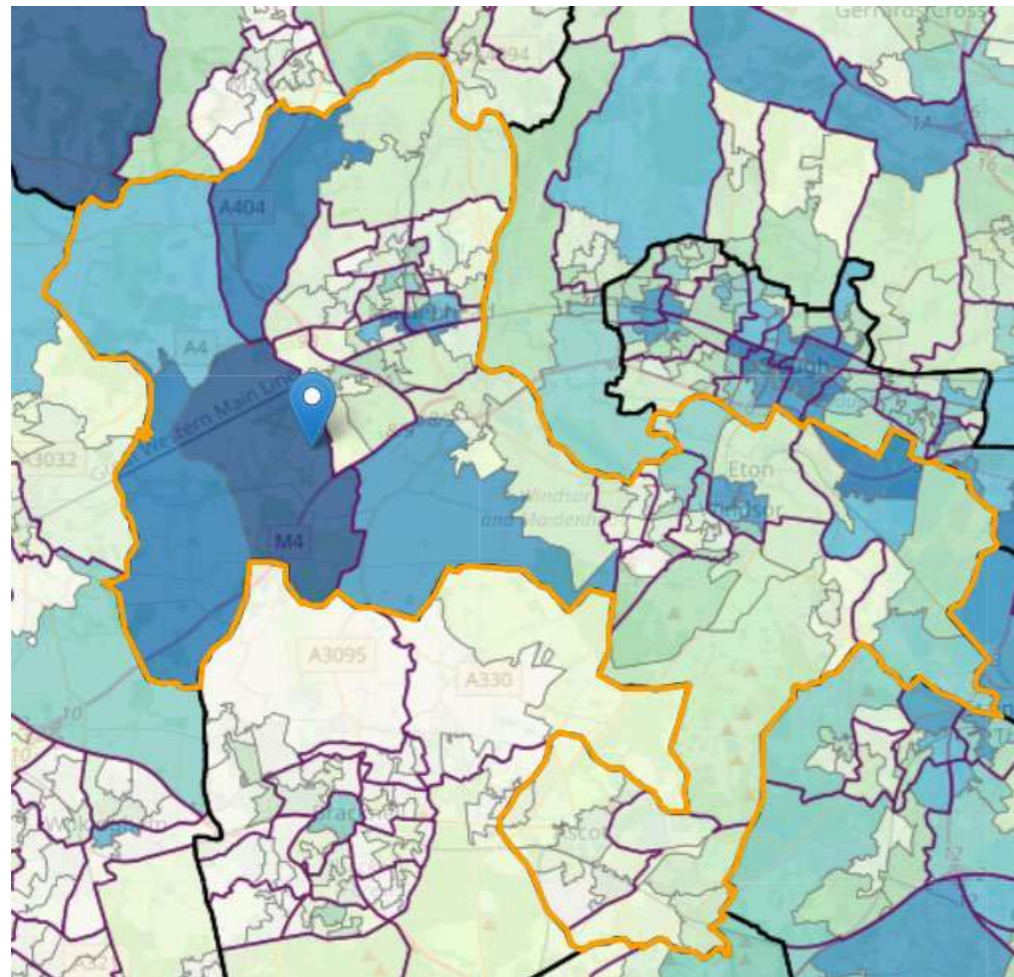
The BBC and the Met Office project that the hottest summer temperature in the Maidenhead postcode area could reach 42.9C with 4C global warming.

The warmest winter temperature in the Maidenhead postcode area is projected to increase to 21C with 4C global warming.

The average number of days above 25C per month in the Maidenhead postcode area is projected to almost quadruple with 4C global warming.

Source: BBC/The Met Office (2022) - [What will climate change look like near me?](#)

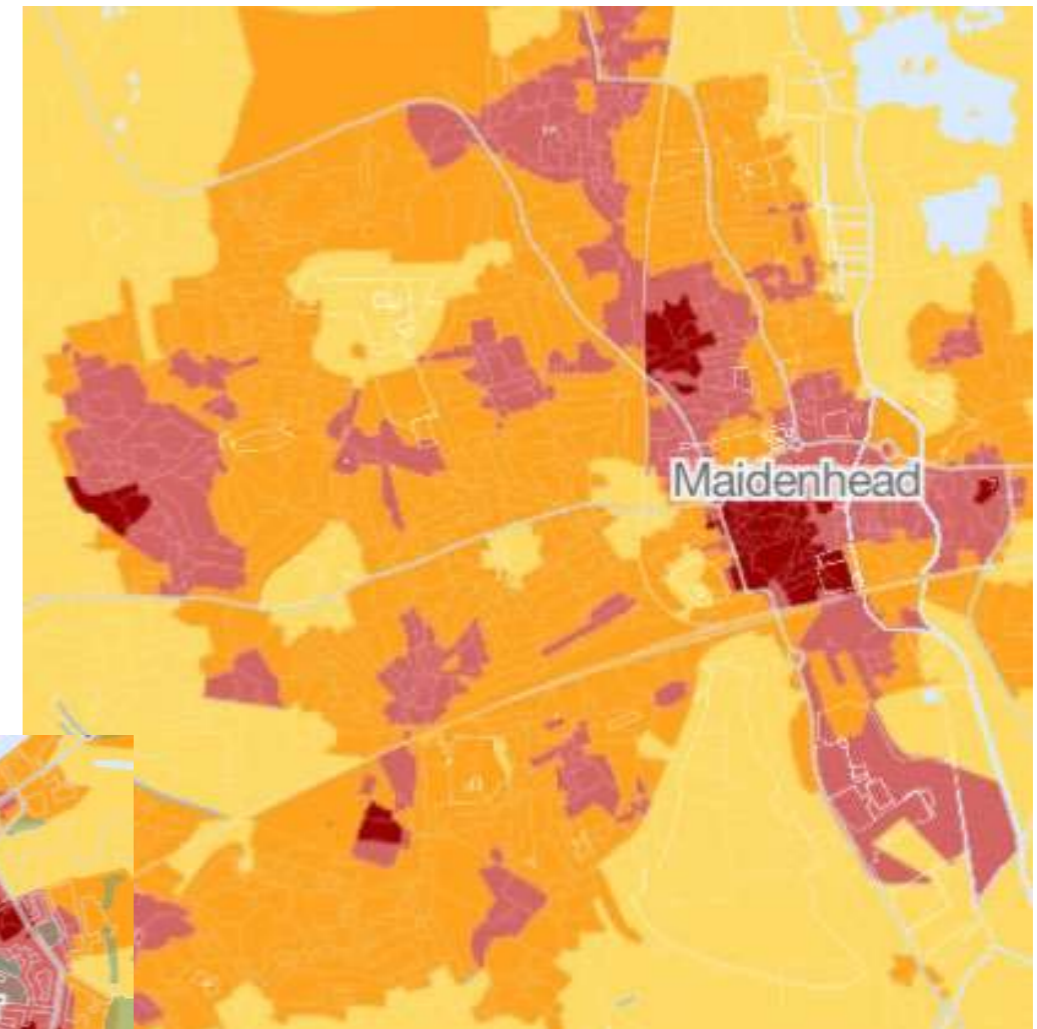
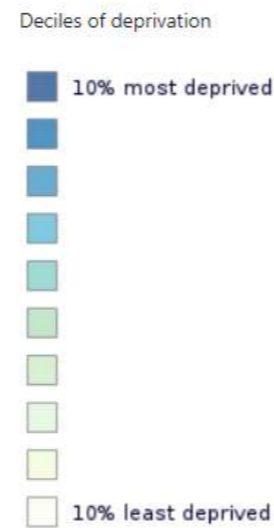




Living environment deprivation. Some neighbourhoods in are among top 40% most deprived neighbourhoods in the country. The Borough's geographical boundary is outlined in orange.

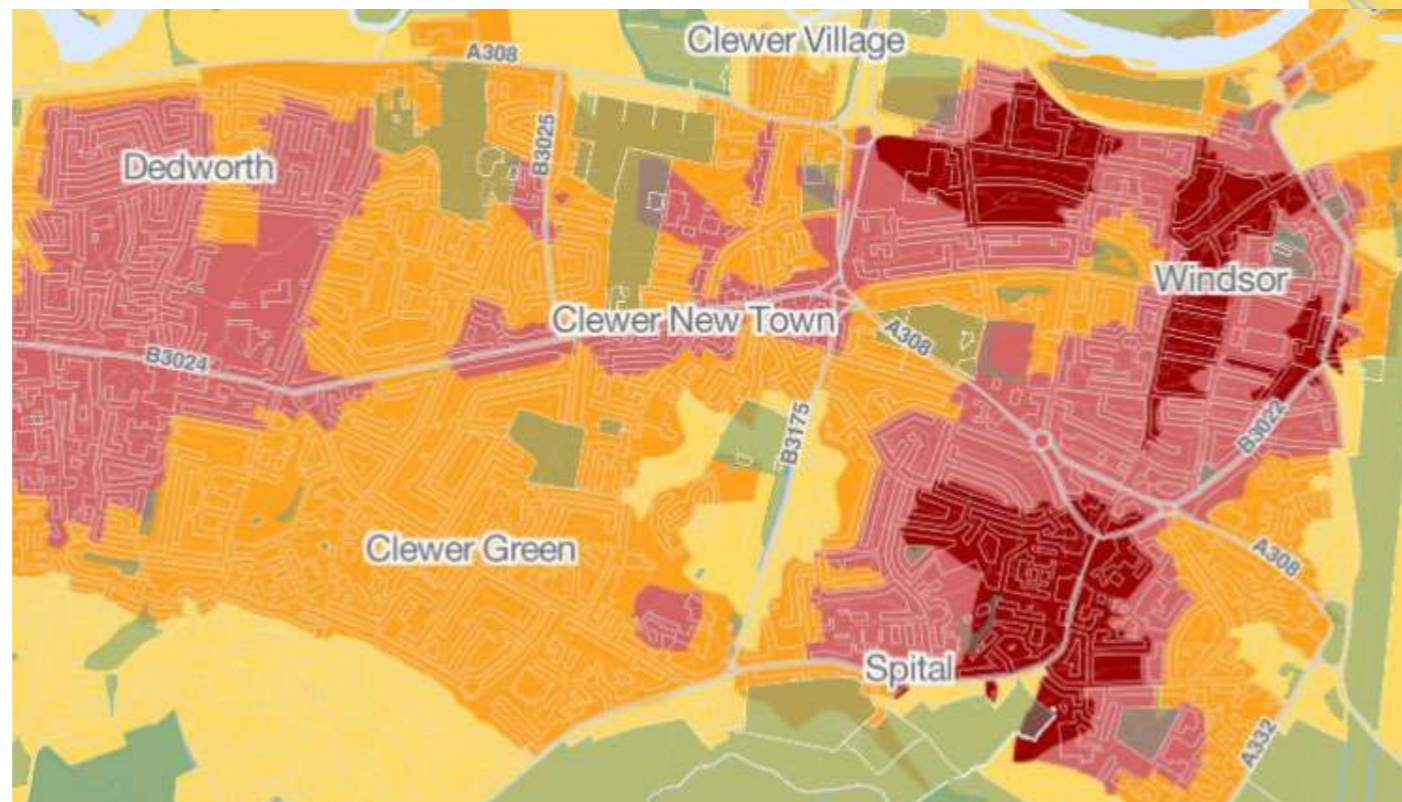
Source: MHCLG (2019) – [Indices of Deprivation data](#)

**Map legend**



Dark red areas on the map show neighbourhoods that have higher heat hazard scores. This means they are more likely to experience high temperatures during hot weather compared to other areas in the neighbourhood – creating an ‘urban heat island’ effect.

Source: BBC/4 Earth Intelligence (2022) – [Check your postcode: Is your area vulnerable to extreme heat?](#)







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Principle

Regional needs & challenges

Local needs & challenges

2



## Equity & local economy

Creating safe, equitable places to live and work which support local prosperity and international fair trade

**Divest pension funds from fossil fuel investments:** Research carried out by UK Divest, Friends of the Earth and Platform in 2021 showed that UK pension funds have an estimated £128 billion invested in fossil fuels, equivalent to nearly £2,000 for every person in the UK. They also estimate that the Berkshire Pension Fund has around £2.7 million invested in fossil fuels. Individuals in the Borough could ask their pension fund provider to decarbonise their investment portfolio and shift to green investments.

**Deploy individual wealth to support sustainable projects:** The South East is the wealthiest region in Great Britain, with the highest levels of average individual wealth and highest household income. Median wealth rose by 43% since 2006 to £503,400 (after adjusting for inflation). It is also has the lowest levels of wealth inequality in the UK, indicating high levels of wealth across the area. This presents an excellent opportunity for wealthy individuals to deploy their wealth in a way that supports sustainable projects, for example by transferring their capital to funds with green investment portfolios.

**New green jobs supporting the circular economy and energy transition:** A report published by the Waste and Resources Action Programme (WRAP) in 2020 found that a circular economy could help the UK to recover from the economic impact of the COVID-19 pandemic, with the potential to bolster the UK economy by £75 billion and create over half a million jobs. The Committee on Climate Change also notes a need to plug the skills gap to enable dramatic upscaling of the rollout of heat pumps and energy retrofit.

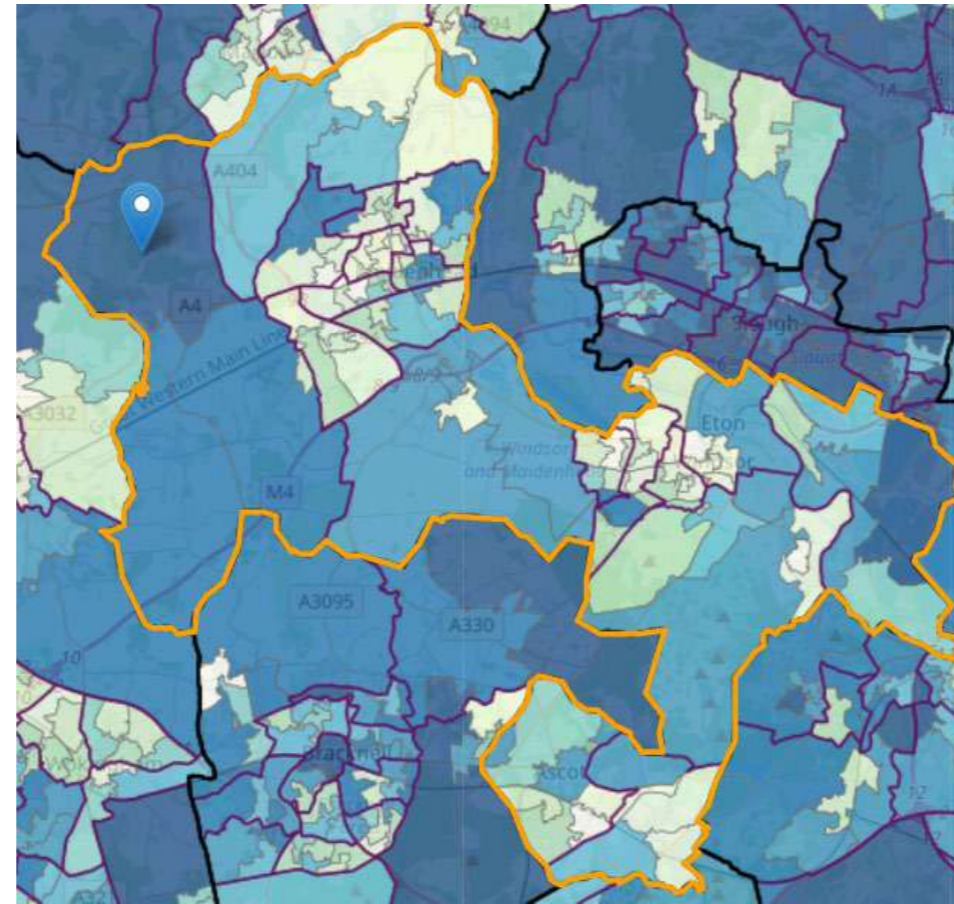
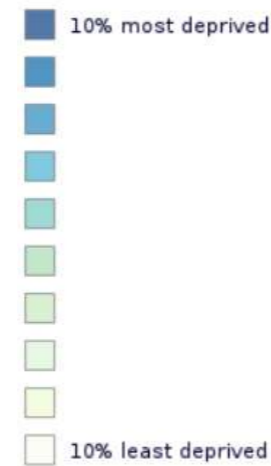
- **Support for lower income older people in the Borough:** Certain areas of Maidenhead have some of the highest levels of income deprivation affecting older people in the country such as St Mary's, which is in the top 10% most deprived in the country. Older people are already more vulnerable to climate-related weather impacts; those suffering from income deprivation will also struggle financially to adopt a low-carbon lifestyle or climate adaptation, such as implementing home energy efficiency improvements, switching to electric vehicles, and dealing with property loss due to extreme weather such as flooding, wind damage, burst pipes, etc.
- **More affordable, efficient homes in the Borough:** Although the Borough is one of the least deprived in the country, multiple neighbourhoods in the Borough perform worse than average on barriers to housing and local services (IMD 2019). This indicates a lack of physical and financial accessibility of housing and local services. The South East has the highest house prices outside of London. According to the UK House Price Index, average house prices in the Borough in July 2022 were £557,450, compared to the national average of £311,583. Average houses prices in the Borough are typically 15.2 times average workplace-based annual earnings, compared to the national average of 9.1. RBWM's Local Plan 2013-2033 identifies a need for 434 new affordable homes in the Borough every year. Home energy and water efficiency is also vital for de facto affordability.





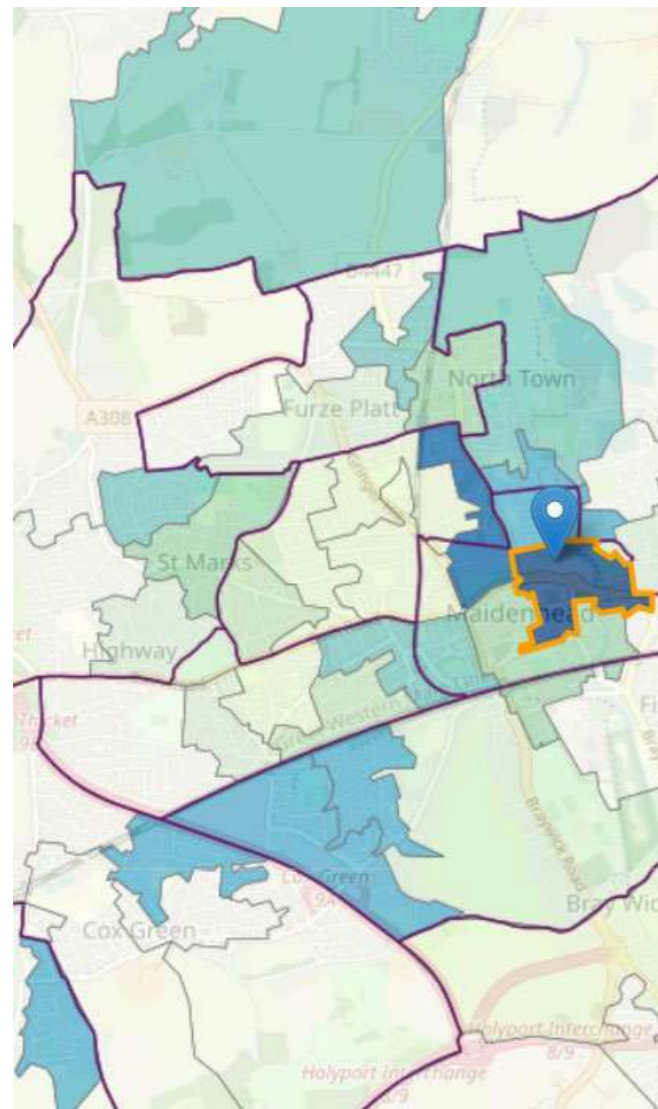
**Map legend**

Deciles of deprivation



In the Borough (within the orange border), some areas are amongst top 10% most deprived neighbourhoods in the country in regard to barriers to housing and services.

Source: MHCLG (2019) - [Indices of Deprivation data](#)

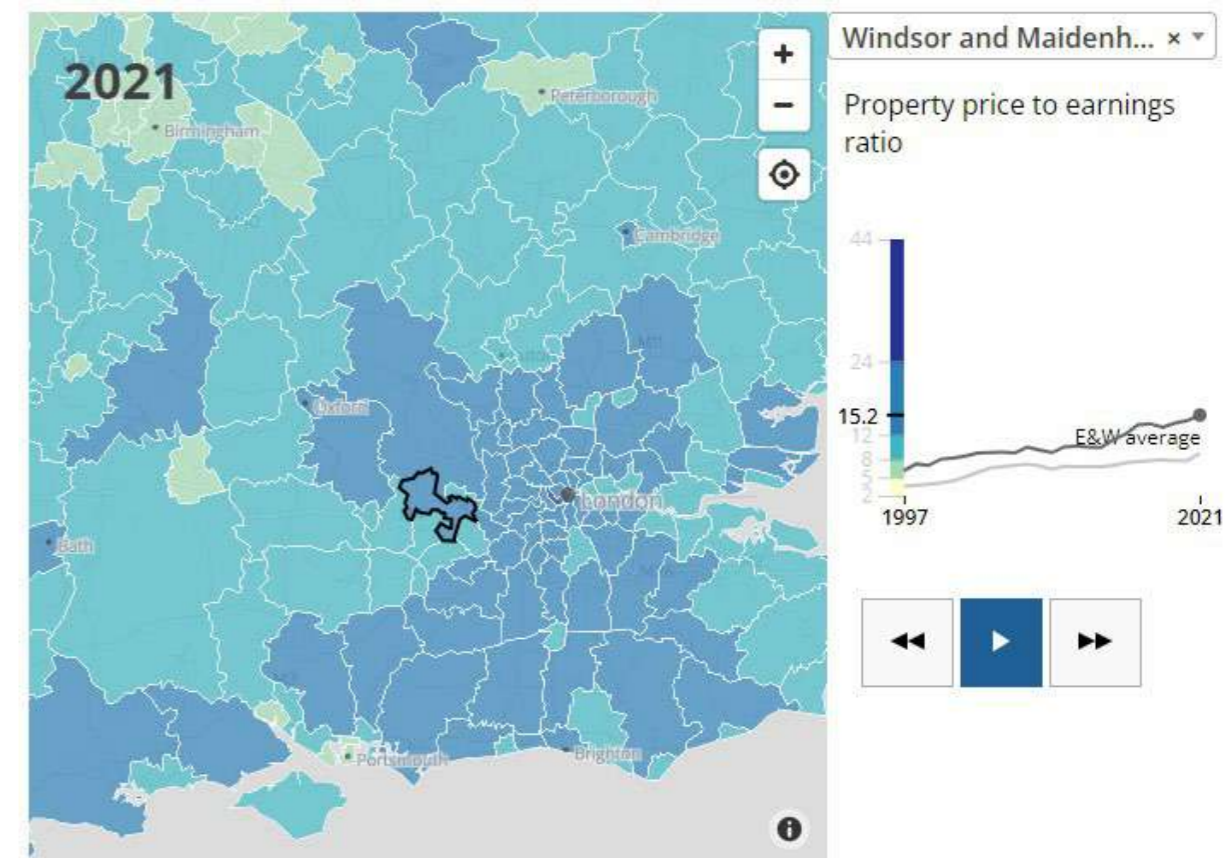


Income deprivation affecting older people in Maidenhead. St Mary's (outlined in orange) is amongst the top 10% most deprived neighbourhoods in the country, and some surrounding areas are within the top 50%.

Source: MHCLG (2019) - [Indices of Deprivation data](#)

Average house prices in Windsor and Maidenhead are 15.2 times average earnings, some of the highest in the UK.

Source: ONS (2022) - [Housing affordability in England and Wales: 2021](#)



Source: House Price Statistics for Small Areas and Annual Survey of Hours and Earnings, ONS





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Principle

Local needs & challenges

3



## Culture & Community

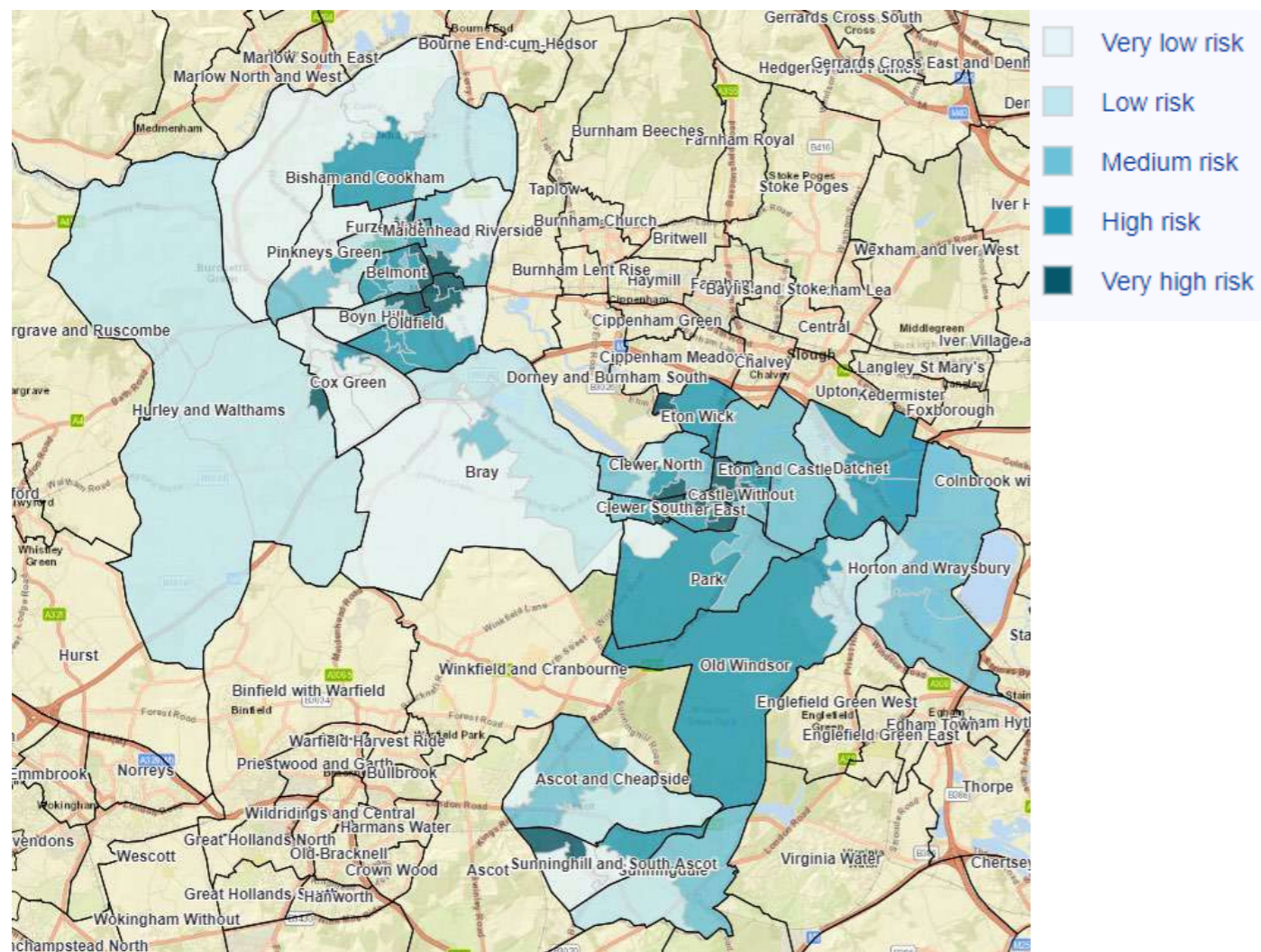
Nurturing local identity and heritage, empowering communities and promoting a culture of sustainable living

- **Reduce crimes which disincentivise uptake of sustainable measures e.g. transport:** Whilst the Borough has low levels of crime overall, there are certain neighbourhoods that have higher than average levels of violence, burglary, theft and criminal damage. For example crime rate in Windsor is 14% higher on average than that of Berkshire overall, and 9% higher than the national average, including for bicycle theft, burglary, possession of weapons and public order. Some crimes (such as burglary and theft) could disincentivise investment in low-carbon lifestyles eg electric bicycles and EVs. There is therefore a need to overcome this obstacle in order to encourage the uptake of sustainable transport modes, as well as addressing the general social detriment.
- **Reduce levels of loneliness and social isolation in older people:** Age UK estimates that several neighbourhoods in the Borough are at very high to high risk of loneliness in people aged over 65 years. This social isolation leaves them more vulnerable to the impacts of climate change as they are perhaps less able to reach out for help. There is a need to support older people in the Borough so that they are less socially isolated.
- **Protect areas of local heritage at risk of weather extremes:** There are 27 Conservation Areas, 17 Scheduled Ancient Monuments, 12 Registered Historic Parks and Gardens (including 6 which form part of the Royal Windsor Estate) and over 950 Listed Buildings. There is a need to protect these areas from the risk of climate-related extreme weather events such as flooding and storms.
- **Encourage a culture of zero waste:** 47% of household waste is either recycled or composted in the Borough, which is just above the average household recycling rate for England. This already indicates a culture of responsible waste management in the Borough. In order to meet the council's target of >50% recycling rate and a 10% increase in the food waste collection service by 2025, there is a need to educate and engage with the community to encourage a zero waste culture where waste is minimised and reuse is encouraged and enabled through repair cafes, reuse networks etc.



Historic buildings Windsor Castle (top) and Eton College (bottom)



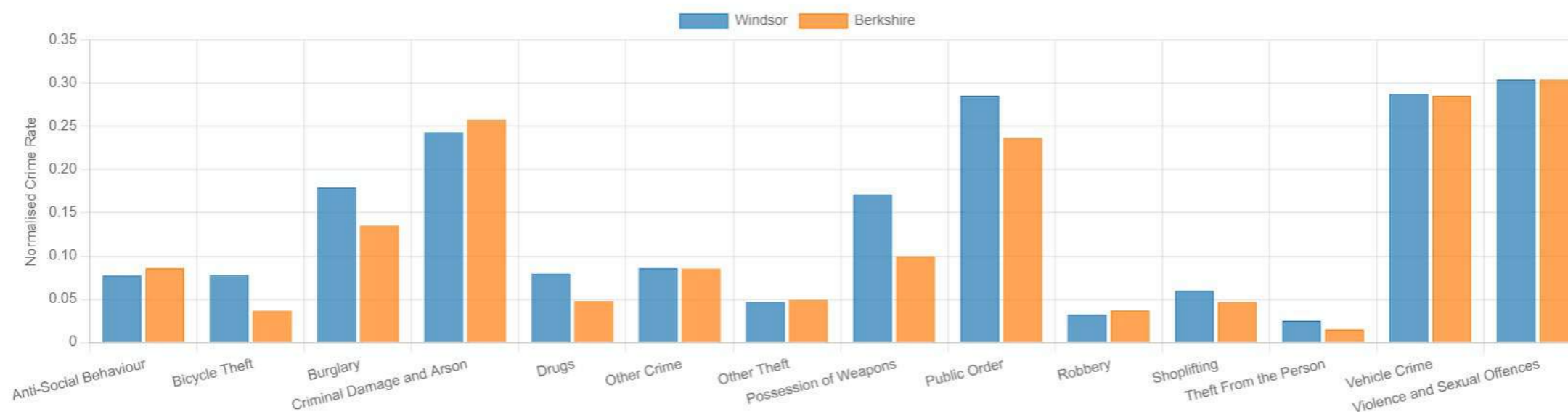
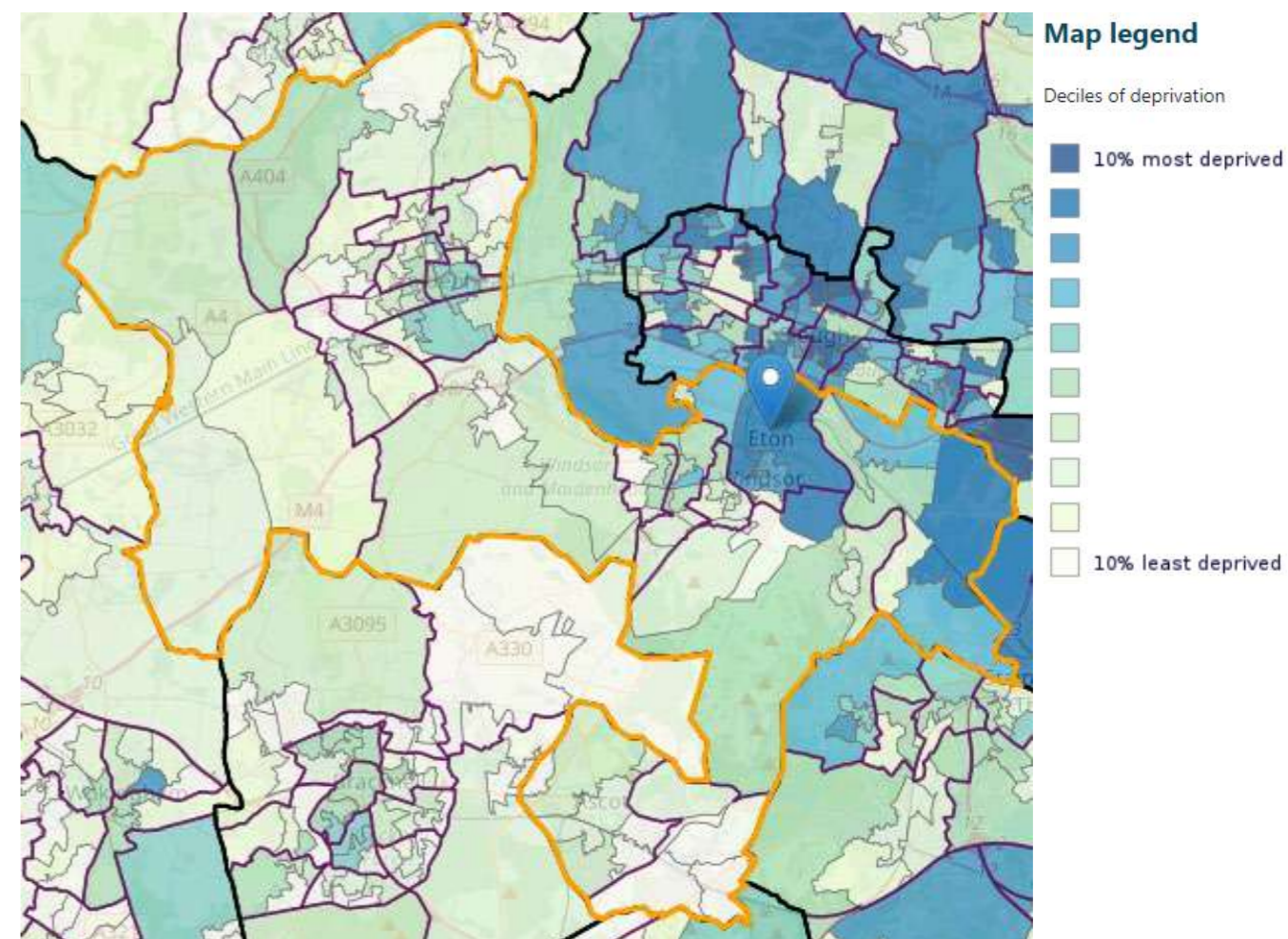


Numerous neighbourhoods in the Borough (shown on the map as the areas in blue) are at very high and high risk of loneliness in over-65s.

Source: Age UK (2016) - [Risk of Loneliness in England 2016](#)

Some neighbourhoods in the Borough are amongst the top 20-30% most deprived areas in the country in regard to crime, which includes indicators such as the rates of violence, burglary, theft and criminal damage. The Borough's geographical boundary is outlined in orange on the map below.

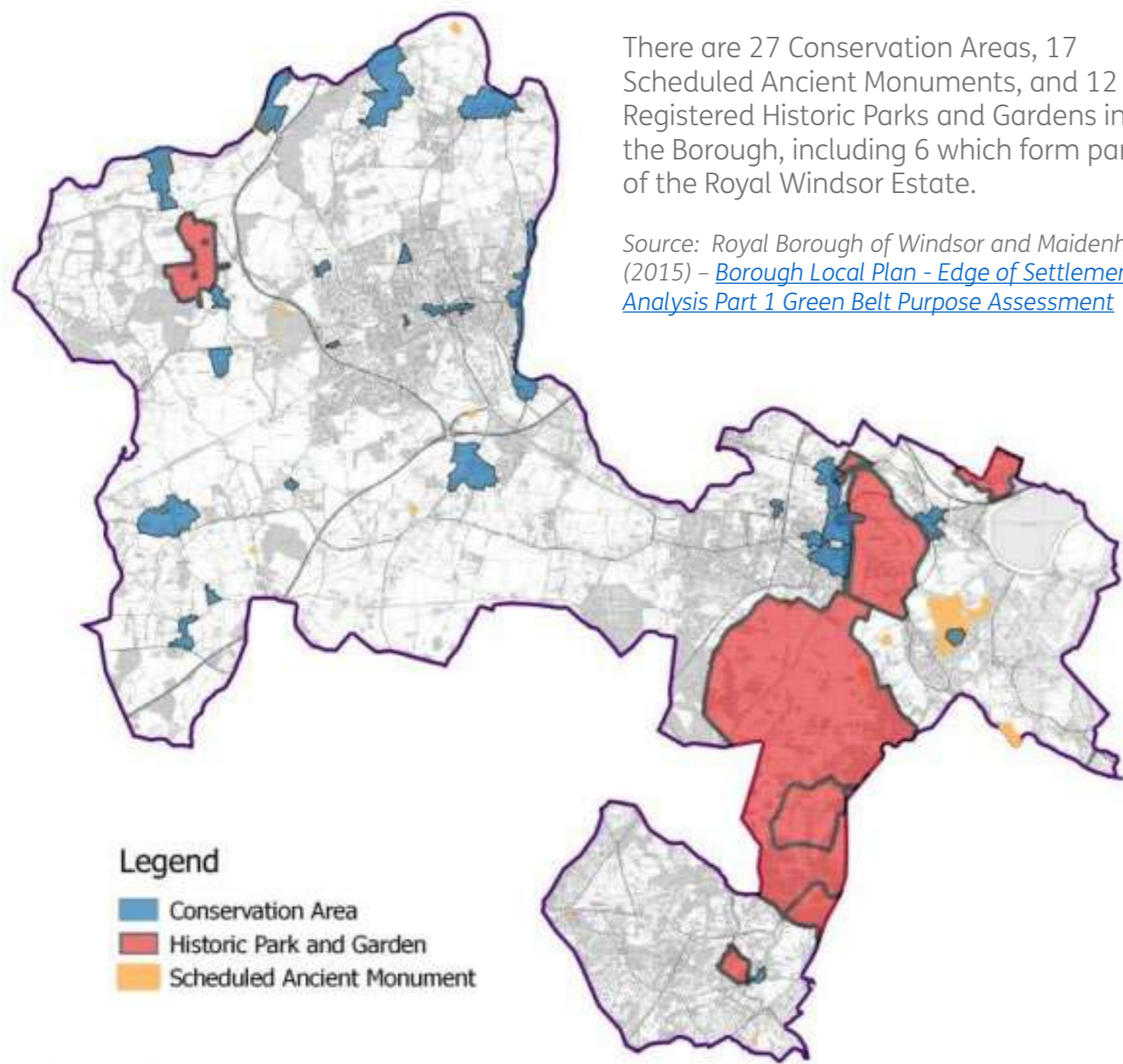
Source: MHCLG (2019) - [Indices of Deprivation data](#)



Windsor has higher rates of crime than compared to the region of Berkshire for a some offences such as bicycle theft, burglary, possession of weapons and public order.

Source: CrimeRate (2022) - [Crime and Safety in Windsor, Berkshire](#)





There are 27 Conservation Areas, 17 Scheduled Ancient Monuments, and 12 Registered Historic Parks and Gardens in the Borough, including 6 which form part of the Royal Windsor Estate.

Source: Royal Borough of Windsor and Maidenhead (2015) - [Borough Local Plan - Edge of Settlement Analysis Part 1 Green Belt Purpose Assessment](#)

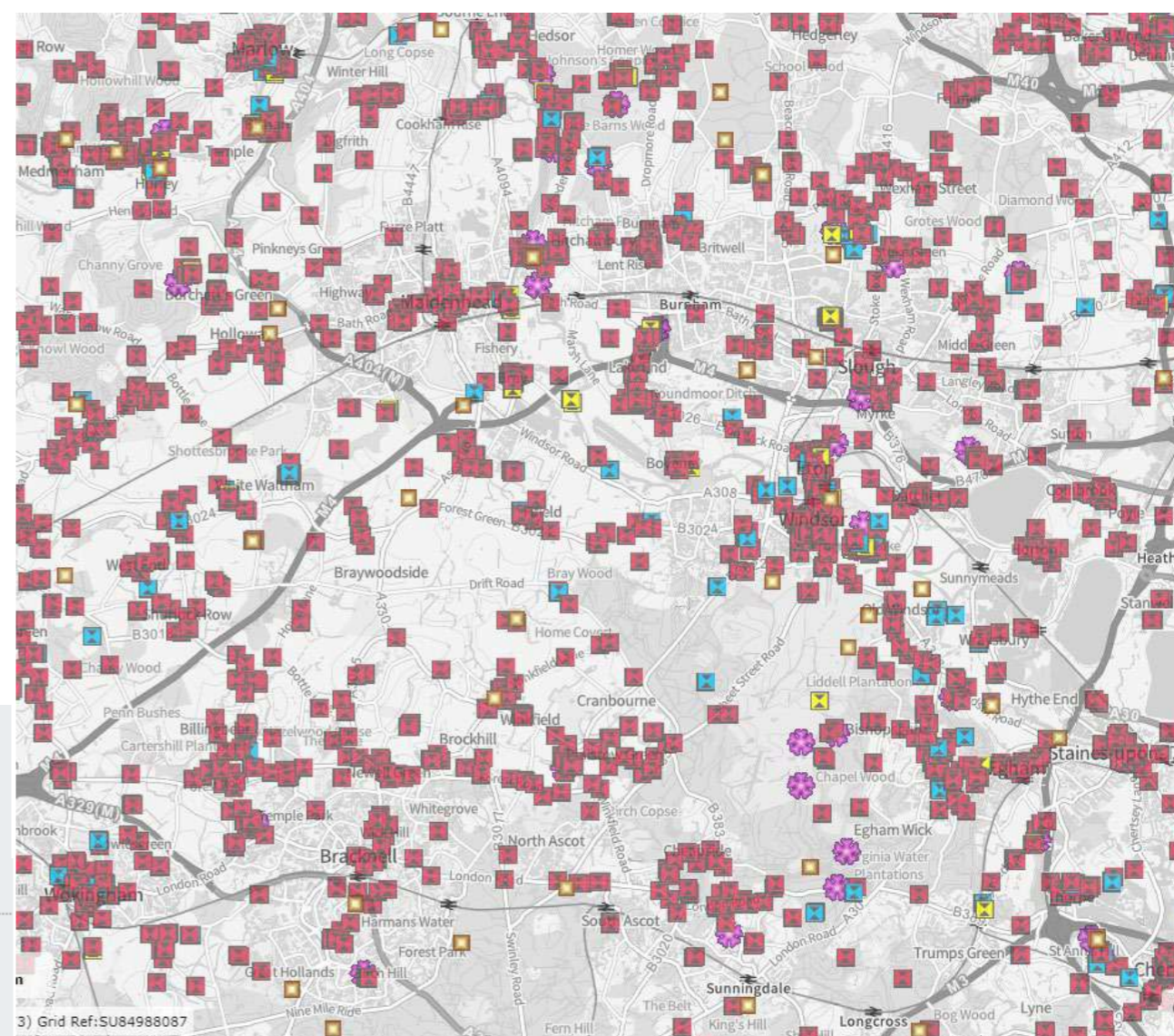
Legend

- Conservation Area
- Historic Park and Garden
- Scheduled Ancient Monument

- Registered Parks and Gardens (England) - points
- Scheduled Monuments (England) - points
- Listed Buildings (England)
- I
- II
- II\*

There are over 950 Listed Buildings in the Borough.

Source: DEFRA (2022) - [Magic Map](#)







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Principle

Regional needs & challenges

Local needs & challenges

4



## Land & nature

Protecting and restoring land for the benefit of people and wildlife

### Increase the carbon removing capacity of land:

Across the South East, forests and grassland remove 6% of the CO<sub>2</sub> that is emitted. If the UK is to meet its 2050 net zero carbon goal, it must increase the carbon-removing / carbon-storing capacity of its land as well as cutting emissions. This can be achieved by increasing the number/size of grassland and forested areas. Forests and woodlands in the South East region remove between -25 and -300 tonnes of carbon dioxide from the atmosphere per square kilometre. These areas must be protected from the human threat of deforestation as well as the increased climatic threat of high temperatures leading to forest fires.

### Enhance the resilience of species by strengthening the nature recovery network:

- The 2019 State of Nature Report showed that 41% of tracked species are in decline (since 1970, species show an average 13% decline in abundance and a 5% decline in distribution)
- That Report points to causes including agricultural intensification, ongoing climate change and conversion of land to built use
- The Environment Act obliges creation of local nature recovery strategies (see 'local needs')
- The 25 Year Environment Plan seeks to restore 75% of protected habitats (land & freshwater) and create/restore 500k hectares of wildlife-rich habitat outside protected sites

- **Protect areas that are important for nature conservation:** Almost 10% of the Borough is covered by an ecological designation, including internationally designated Special Areas of Conservation, Thames Basin Heaths Special Protection Areas, and Wetlands of International Importance (or Ramsar sites). There are also a number of nationally designated sites including Sites of Special Scientific Interest (SSSI) that cover 1,663 hectares of 8.41% of the Borough's area, and National and Local Nature Reserves. Additionally there are non-statutory designation sites within the Borough, such as Local Wildlife sites and Biodiversity Opportunity Areas. Woodlands represent the greatest area of priority habitat in Berkshire and the Borough, representing about 33% of land in the Borough. The second largest habitat area is grassland (29% of the Borough), followed by farmland (26%). RBWM's (draft) Biodiversity Action Plan commits to save 30% land for nature by 2030 in line with the national commitment made in 2020. Protecting these ecological designations and habitats from threats such as fragmentation due to development or clearance, and bringing them into appropriate management, will be key to achieving that goal.
- **Develop and implement a Local Nature Recovery Strategy (LNRS):** The Environment Act 2021 introduces this new mandatory system to enhance habitat quality, connectivity and climate resilience, summing to a national Nature Recovery Network. Its scale and delivery are not fully established yet but will be led by one of several entities eg Local Authority or Natural England, and requires local partnership. There is a need to engage with major land-owners and local conservation groups (eg 'The Wilds') on baselines and action plans; eg Wild Maidenhead Phase 1 Habitat survey 2017 found site-specific threats to toads, glow worms, and river habitat. It also notes areas of unprotected Ancient Woodland, bird species in need of help, and a lack of nectar-bearing plants to support pollinators.
- **Minimum 10% net gain in biodiversity on new developments:** A key need is ensuring that any new developments improve the biodiversity of the site by at least 10%, and that developers provide management plans for long-term protection as per the 2021 Environment Bill. This applies equally to sites within the Green Belt, which covers the majority of the Borough.
- **The majority of the Borough (approximately 82%) lies within Metropolitan Green Belt:** Whilst RBWM's Local Plan 2013-2033 states that Green Belt land will be protected from inappropriate development, around 1% of this land has been released in order to enable growth.





At 2,500 years old, the Ankerwycke Yew tree (left) is the National Trust's oldest tree. On the same site, St Mary's Priory (right) is a Benedictine nunnery that was built during the reign of Henry II. This is therefore an important site of natural and cultural history.

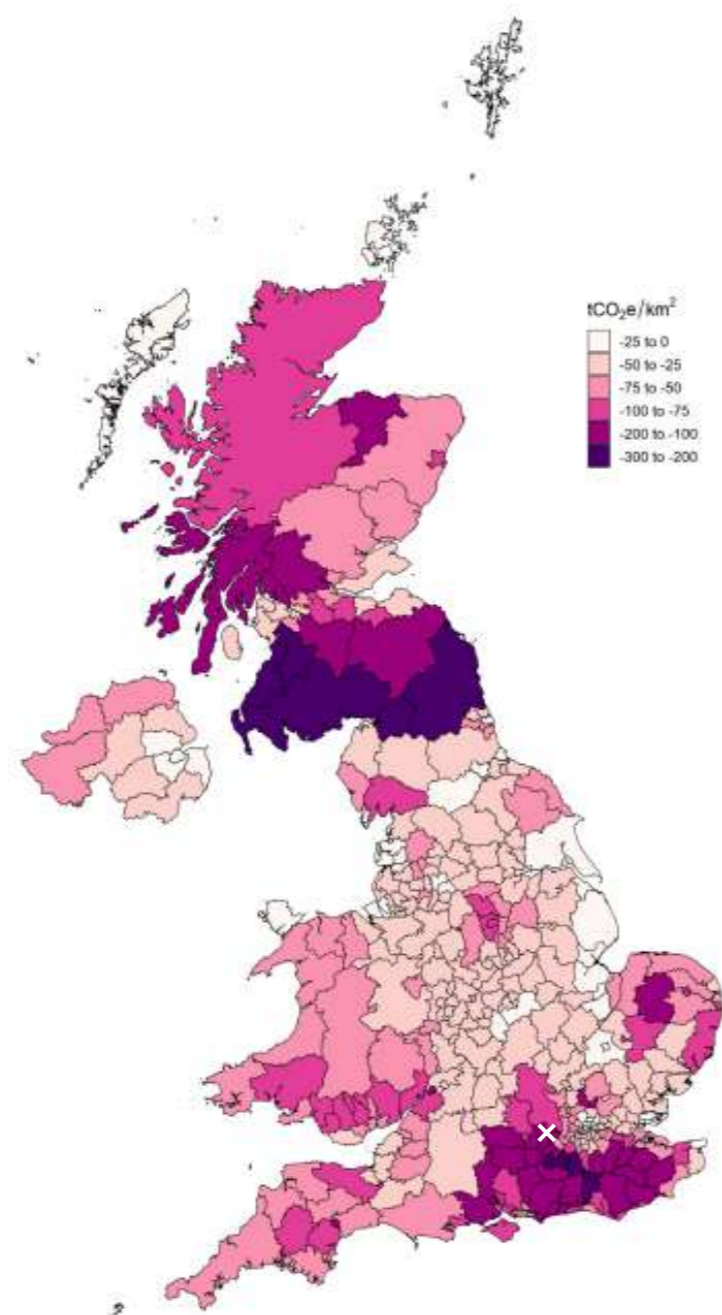






**Figure 3: Distribution of forest carbon dioxide removals from the atmosphere in 2020 per local authority area expressed as tCO<sub>2</sub> per km<sup>2</sup>.**

Sector 4A: Forest (soil and biomass)

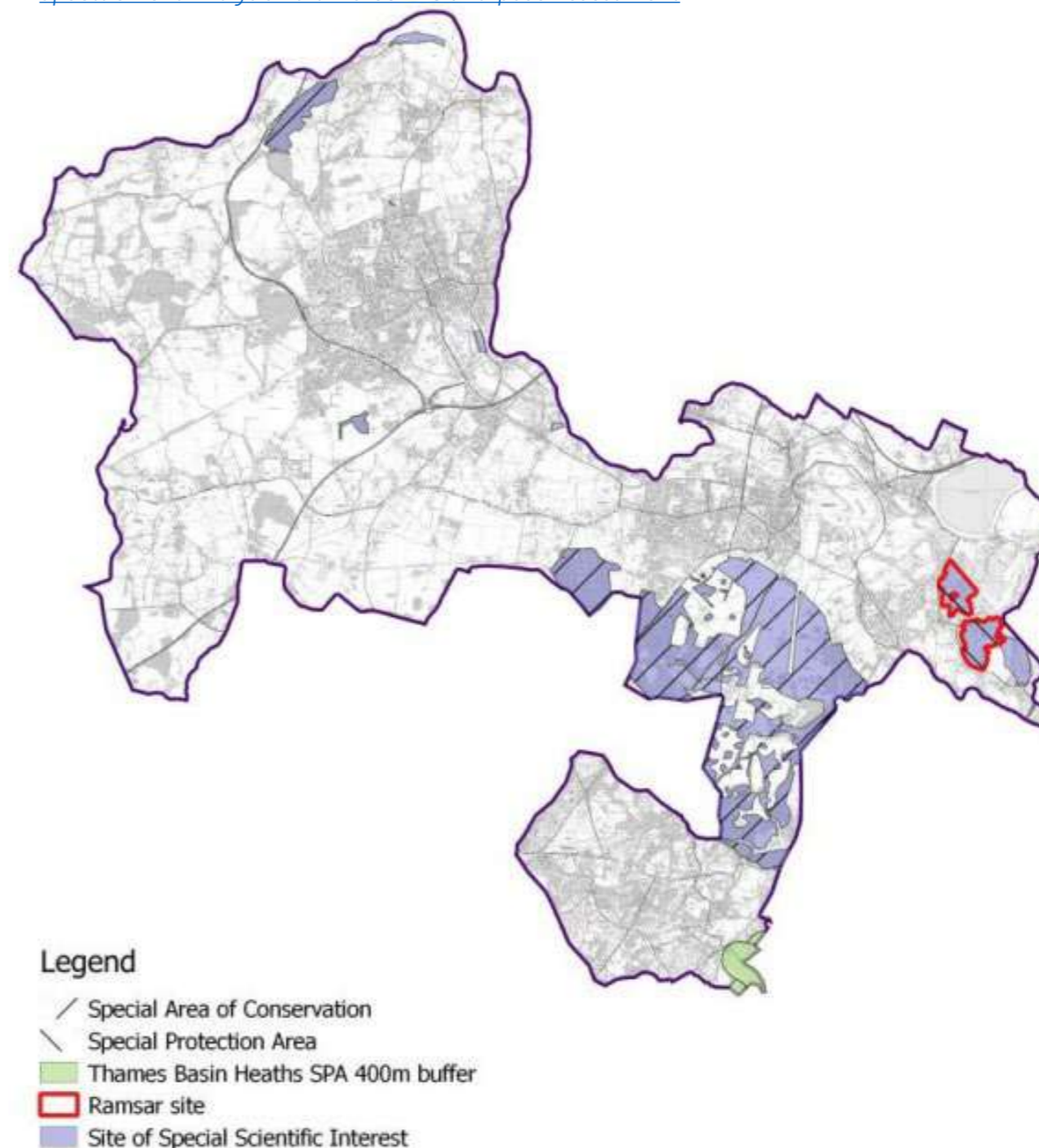


Forests in the Borough (marked with an x on the map above) removed -200 to -100 tonnes of carbon dioxide from the atmosphere per km<sup>2</sup> in 2020.

Source: BEIS (2022) – [Mapping greenhouse gas emissions & removals for the land use, land-use change & forestry sector](#)

There are several international and national nature conservation designations in the Borough, including Special Areas of Conservation, the Thames Basin Heaths Special Protection Areas, and Ramsar Sites designation under the Natura 2000 Convention.

Source: Royal Borough of Windsor and Maidenhead (2015) – [Borough Local Plan - Edge of Settlement Analysis Part 1 Green Belt Purpose Assessment](#)





# Sustainability needs - 4.4 Land and nature

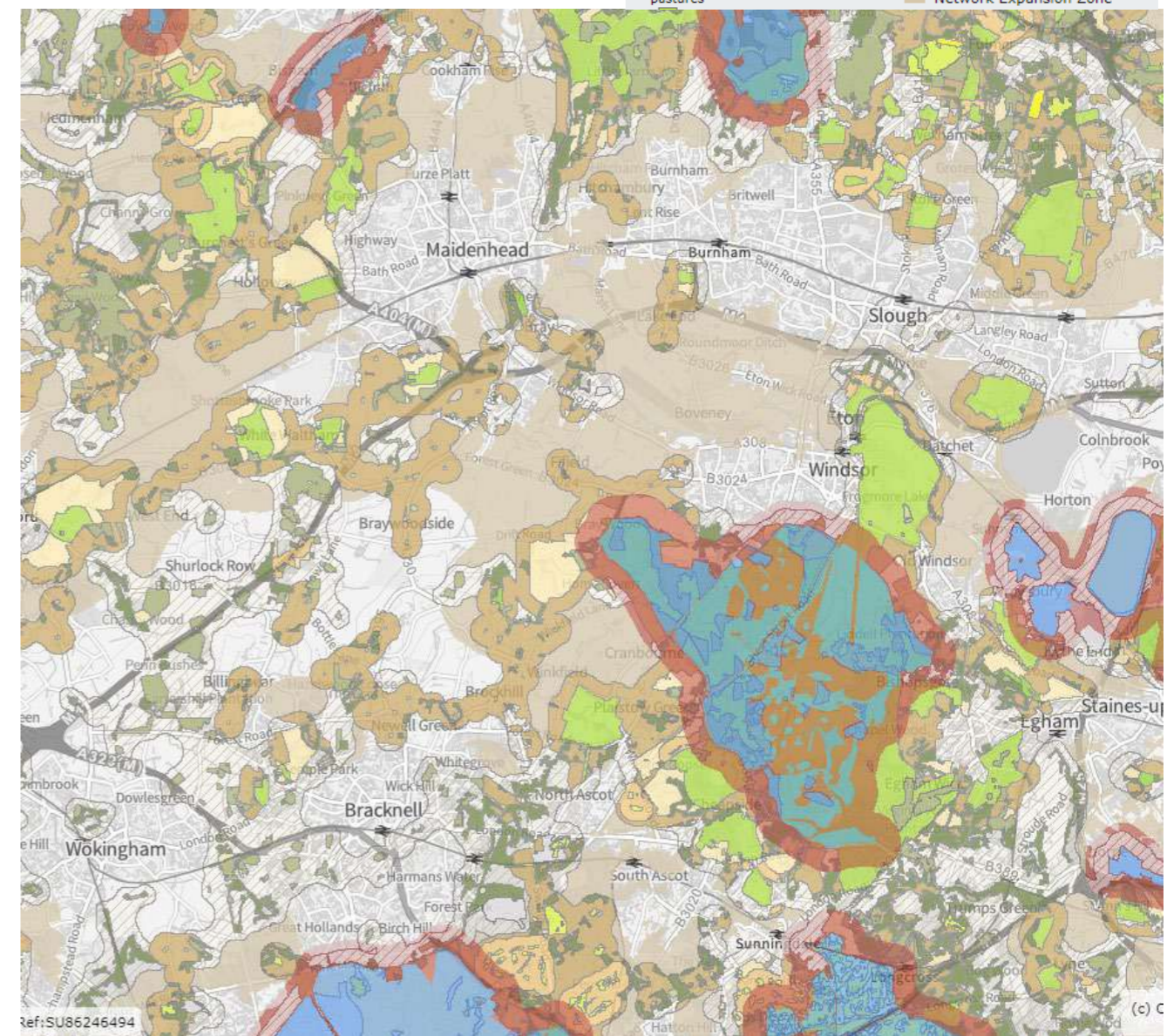


DEFRA [Magic Map](#) – various habitats layers. Please note the DEFRA magic map is an approximation and may not be perfectly accurate in the type of habitat identified at this scale, but gives a good general indication of where there are features in the landscape likely to be relevant to wildlife.



- Woodland**
- Ancient Woodland (England)
- Ancient and Semi-Natural Woodland
- Ancient Replanted Woodland
- Priority Habitat Inventory - Deciduous Woodland (England)
- Forestry Commission Legal Boundary (England)
- National Forest Inventory (GB)
- Priority Habitat Inventory - Traditional Orchards (England)
- Woodpasture and Parkland BAP Priority Habitat (England)

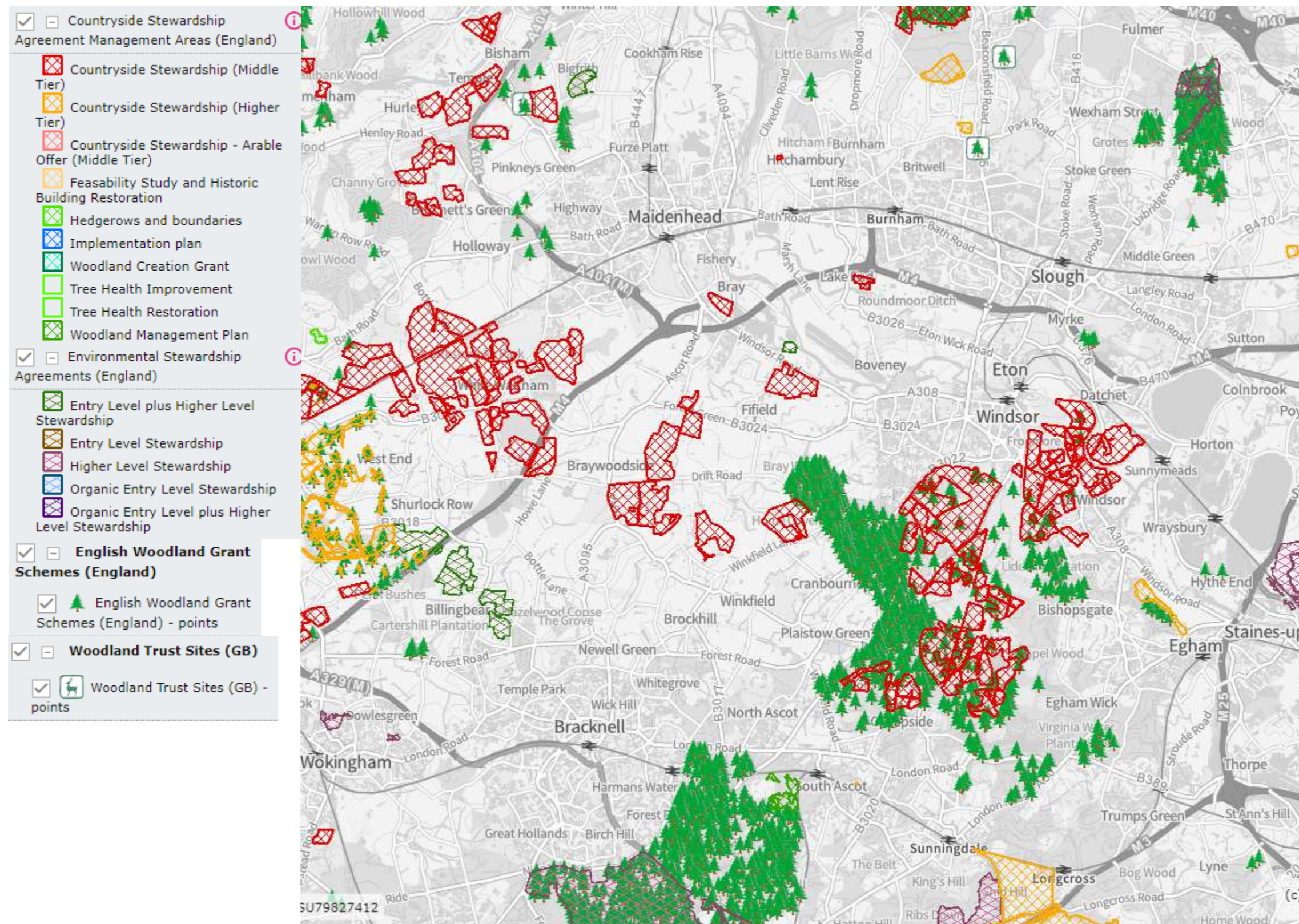
- Common Pheasant and Red-legged Partridge releases – European sites and 500m buffer zones as at 31 May 2021
- Natura sites (England)
- National Habitat Network All Habitats Combined (England)
- Reedbeds
- Rivers
- Traditional orchard
- Upland calcareous grassland
- Upland flushes fens & swamps
- Upland hay meadow
- Upland heathland
- Wood pasture and parkland
- PHI\_Other
- Additional land within SSSIs
- Habitat Restoration-Creation
- Restorable Habitat
- Fragmentation Action Zone
- Network Enhancement Zone 1
- Network Enhancement Zone 2
- Network Expansion Zone







DEFRA [Magic Map](#) – various layers on environmental management schemes. Please note the DEFRA magic map is an approximation, but gives a good general indication of where there are management schemes likely to be relevant to wildlife.

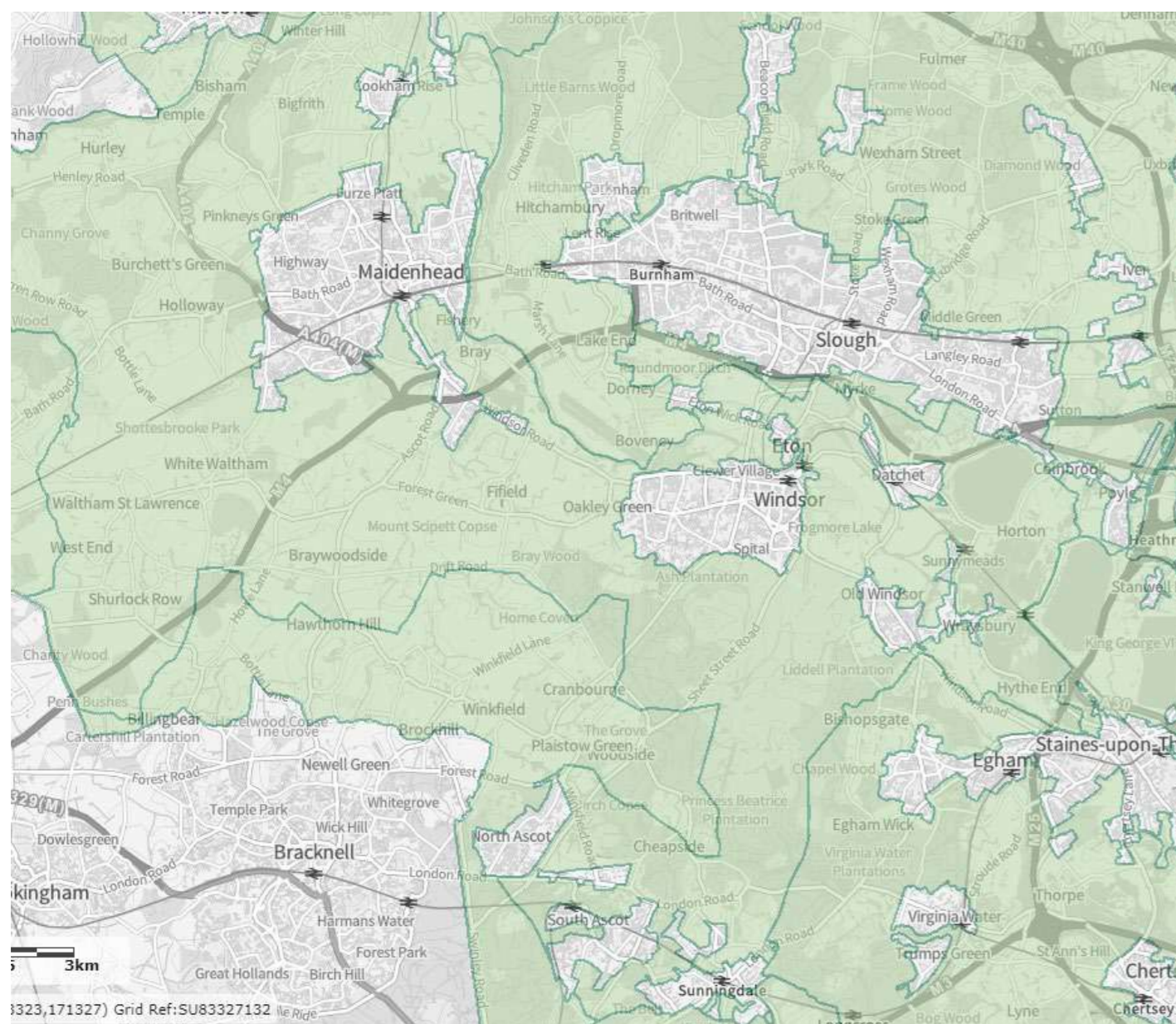






Approximately 82% of land in the Borough sits within Metropolitan Green Belt.

Source: DEFRA (2022) - [Magic Map](#)



The vast majority of land in the Borough lies within the Metropolitan Green Belt, with only the towns of Maidenhead, Windsor and Ascot, along with a number of smaller settlements being excluded from it.

Source: Royal Borough of Windsor and Maidenhead (2015 - [Borough Local Plan - Edge of Settlement Analysis Part 1 Green Belt Purpose Assessment](#))





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## Sustainable water

Using water efficiently, protecting local water resources and reducing flooding and drought

**Sustainable water management of water sources with water efficiency and recycling:** The South East is one of the driest parts of England, despite being home to the River Thames. South East Water manages the water supply for the Borough and other surrounding boroughs. Since 2013 the Environment Agency has deemed the area in which South East Water operates to be of ‘serious water stress’. As climate change increases the likelihood of prolonged dry weather and therefore the risk of drought, water will need to be managed sustainably within the region. There is therefore a need for any new developments in the region to be fitted with enhanced water efficiency measures such as water efficient fittings and appliances, and recycling of potable, grey water and rainwater where appropriate.

**Reduce water consumption and increase metering:** South East Water reported that its customers used an average of 158.6 litres of water per day which, despite representing a 4.4% reduction on 2020/21 annual performance, is above the national average of 142 litres per person per day. There is a need to reduce average water consumption across the region through measures such as water metering. Maps by the MET Office (see overleaf) highlight the shrinking summer water availability with climate change. They project that the South East region’s summers will be up to 20% drier in the 2060s compared to the 1990s.

**Reduce food waste to remove pressure on water sources globally:** Reducing food waste at the regional and national scales is needed to ensure we do not overuse our global water supplies, since food production accounts for 70% of the use of our global freshwater supply. UN projections suggest that global demand for fresh water will exceed supply by 40% by 2030, and so reduction of food waste (and therefore consumption) at a regional level can help to ensure a more sustainable use of water globally. In the UK this is particularly important since 8 out of the top 10 countries from which the UK sources fruit and vegetables are drought-prone.

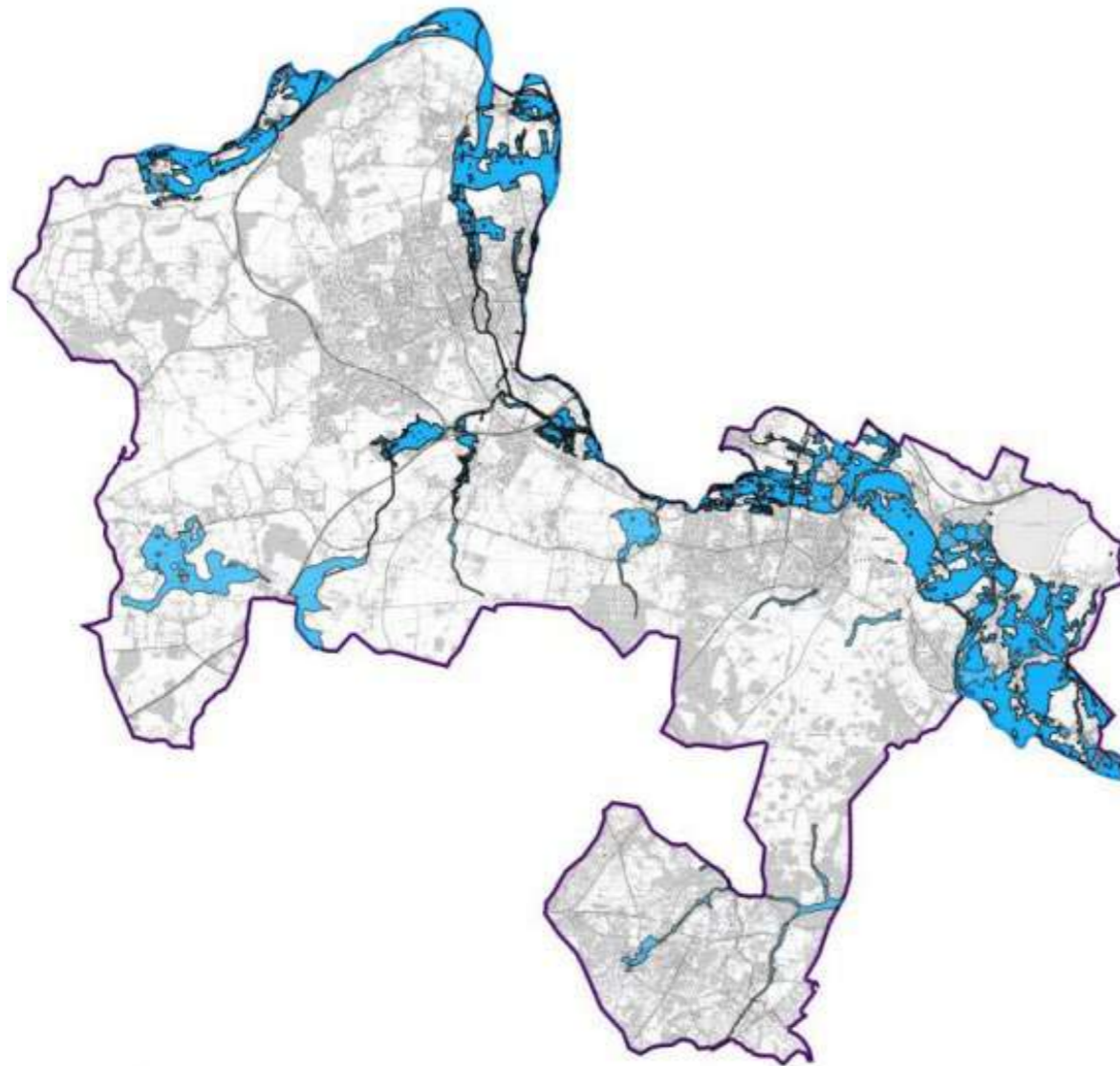
- **Prepare for increased flood risk from surface water and the River Thames:** the Borough contains several areas of high to medium flood risk both from surface water runoff, and in areas around the Thames River and reservoirs in the east of the Borough (Wraysbury and Queen Mother Reservoirs). The Borough will also need to adapt to an even higher risk of flooding with climate change (10-20% wetter winters in 2060s compared to 1990s).
- **Reduce water leakage:** South East Water leakage is 88.7 million litres a day as of 2021/22. Reducing this is a key part of managing water supplies more sustainably, along with reducing use.
- **Improve quality of local water bodies:** RBWM’s Local Plan 2013-2033 notes that development in Source Protection Zones poses a risk to groundwater supplies, which are already at risk of drier recharge seasons with climate change. In this catchment’s surface water bodies, 46% of ecological [data points](#) are ‘poor’, ‘bad’ or ‘fail’, mostly due to pollutants. Only 3% achieve ‘good’ or ‘high’ scores. Sewage causes 65% of the ‘poor/bad/fails’. Two reservoirs also fail on some target values for industrial pollutants.
- **Protect and enhance the River Thames, other watercourses and riparian corridors:** An objective in the Local Plan. Water quality, ecological quality and climate resilience should be pursued.
- **New developments need to incorporate climate change adaptation technologies:** RBWM’s Local Plan states that the design of new buildings, services and infrastructure in the Borough will need to be adapted to the increasing impacts of climate change such as more intense rainfall and flooding, as well as heat waves and droughts. There is therefore a need to consider design matters such as surface water runoff and storage, and SuDS.





Large areas of the Borough are located within flood zones, particularly areas surrounding the River Thames.

Source: Royal Borough of Windsor and Maidenhead (2015) – [Borough Local Plan - Edge of Settlement Analysis Part 1 Green Belt Purpose Assessment](#)

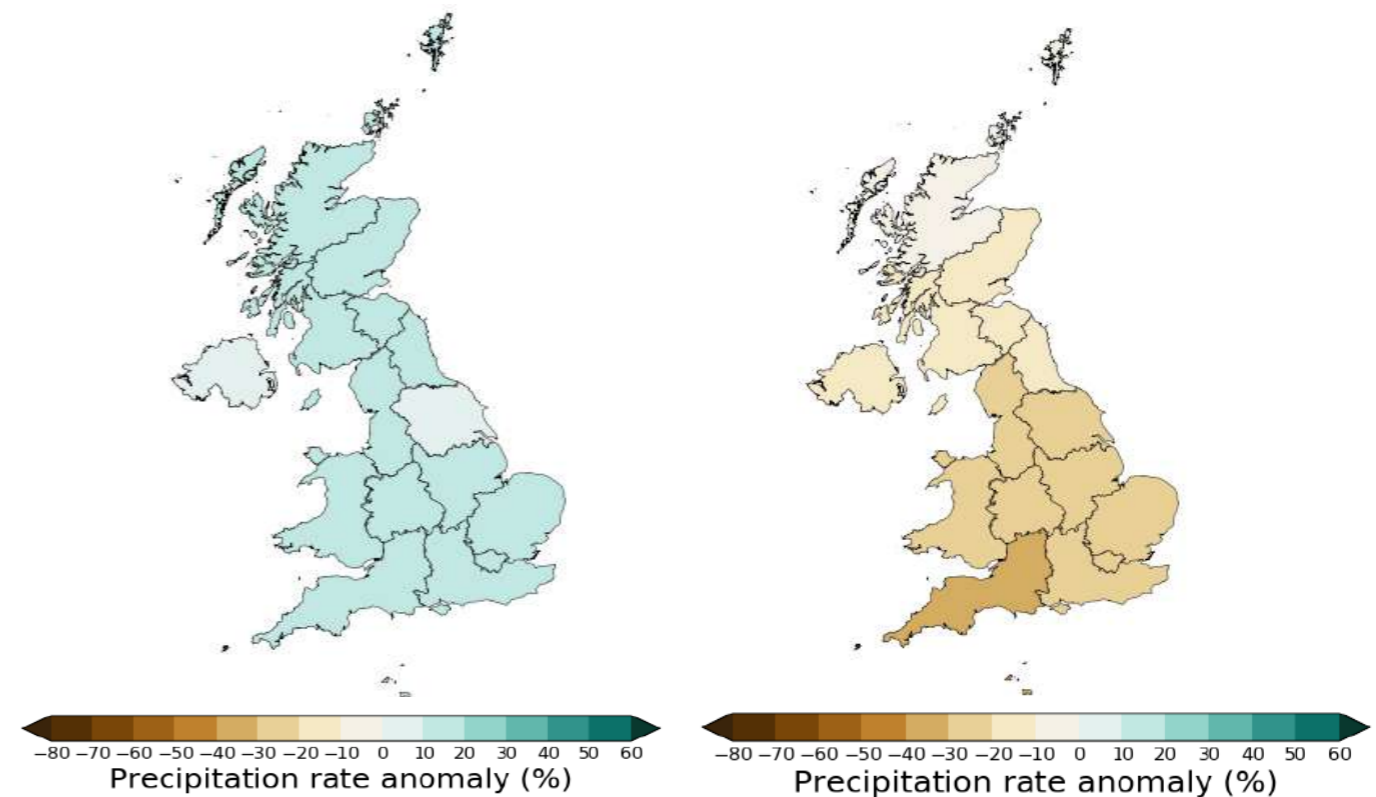


**Legend**

- Flood zone 3b: functional flood plain
- Zone 3b Developed (updated)
- Extent of Zone 3b Functional Floodplain unknown

The MET Office projects that in the 2060s, the precipitation rate will be up to 20% higher in winter across the UK than compared to the 1990s, and up to 30% lower in summer.

Source: Met Office UK Climate Projections 2018 (UKCP18) [User Interface Tool](#).



**Winter** precipitation rate in the 2060s compared to 1990s

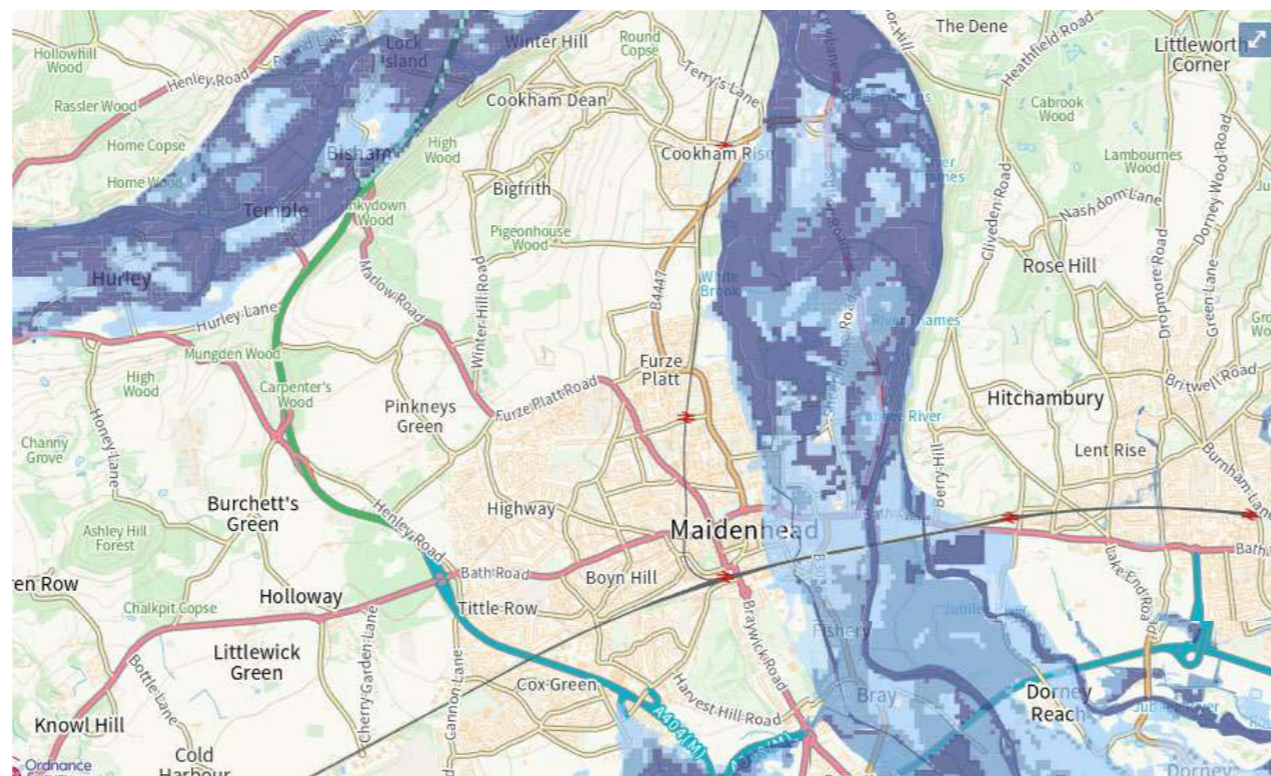
**Summer** precipitation rate in the 2060s compared to 1990s





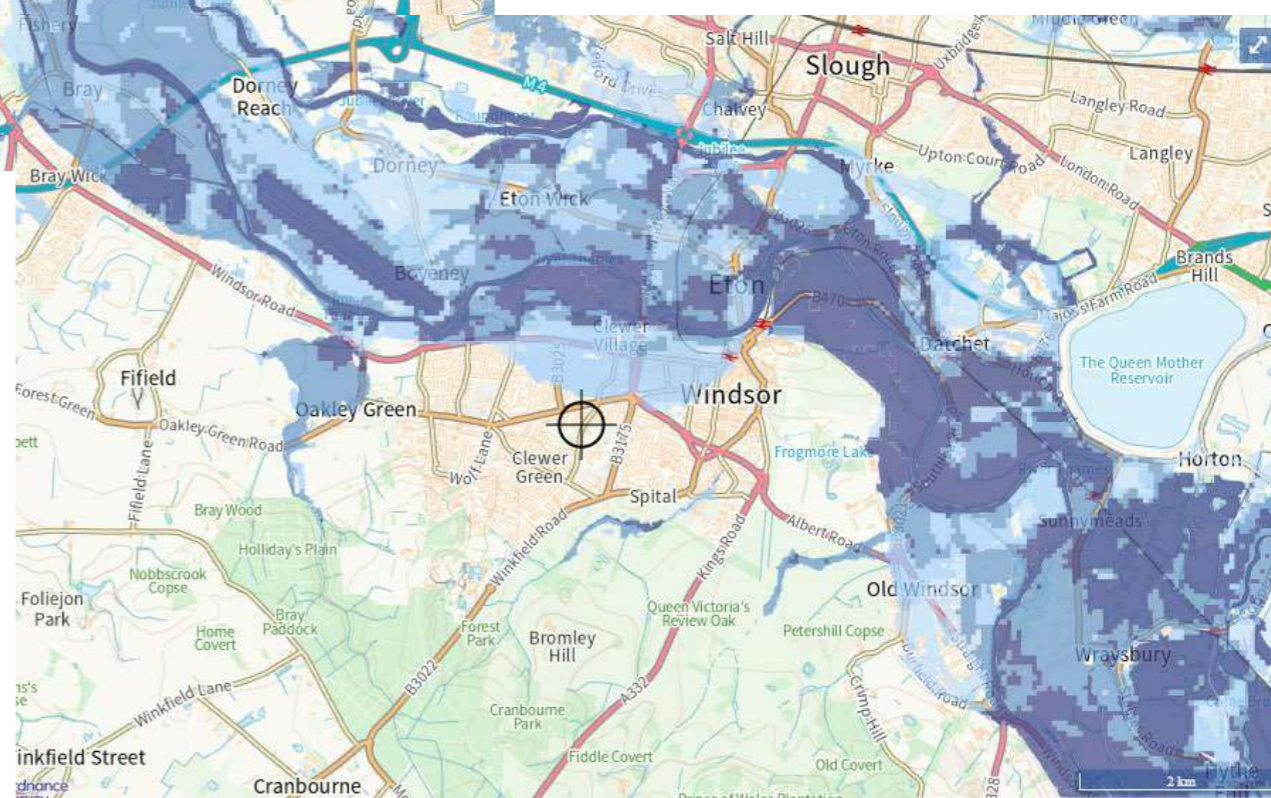
Maps developed by the Environment Agency show that large areas of the Borough surrounding the River Thames are at high to medium risk of flooding from rivers, as demonstrated in the maps to the right. Other areas throughout the Borough are at high to medium risk of flooding from surface water, as demonstrated by the map below.

Source: Environment Agency (2019) – [Learn more about flood risk](#)



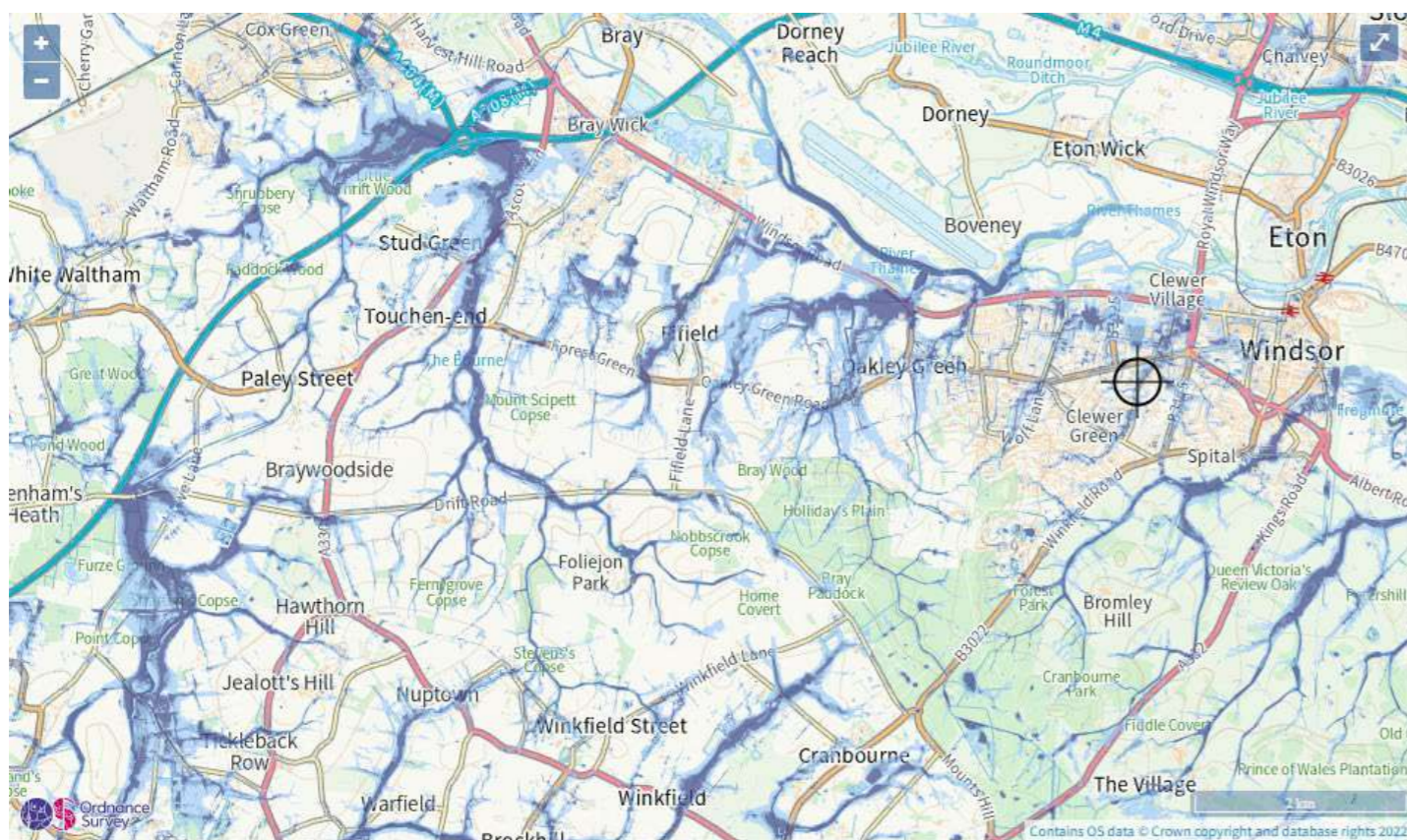
Extent of flooding from rivers or the sea

● High ● Medium ● Low ● Very low ⊕ Location you selected



Extent of flooding from surface water

● High ● Medium ● Low ○ Very low ⊕ Location you selected

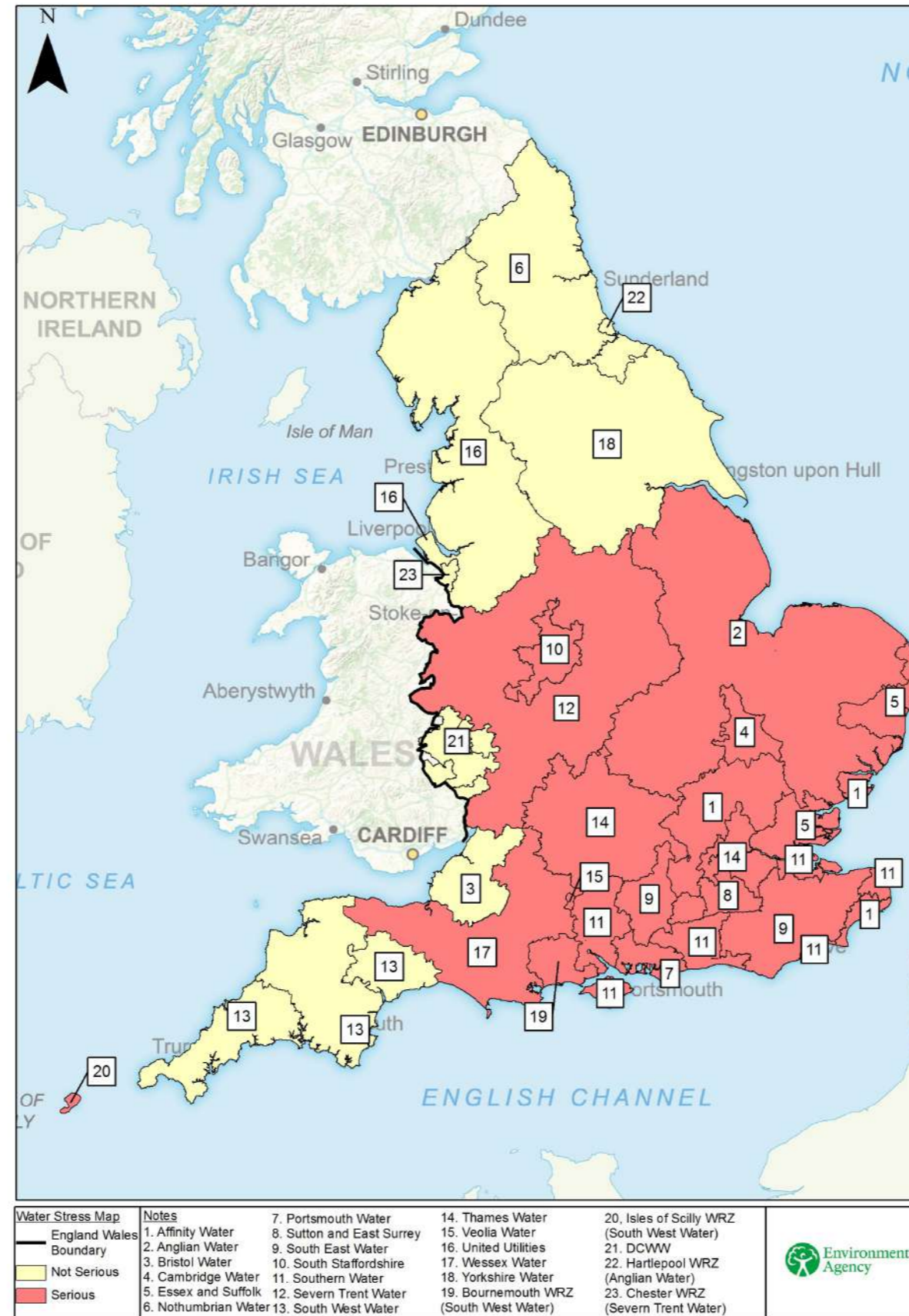




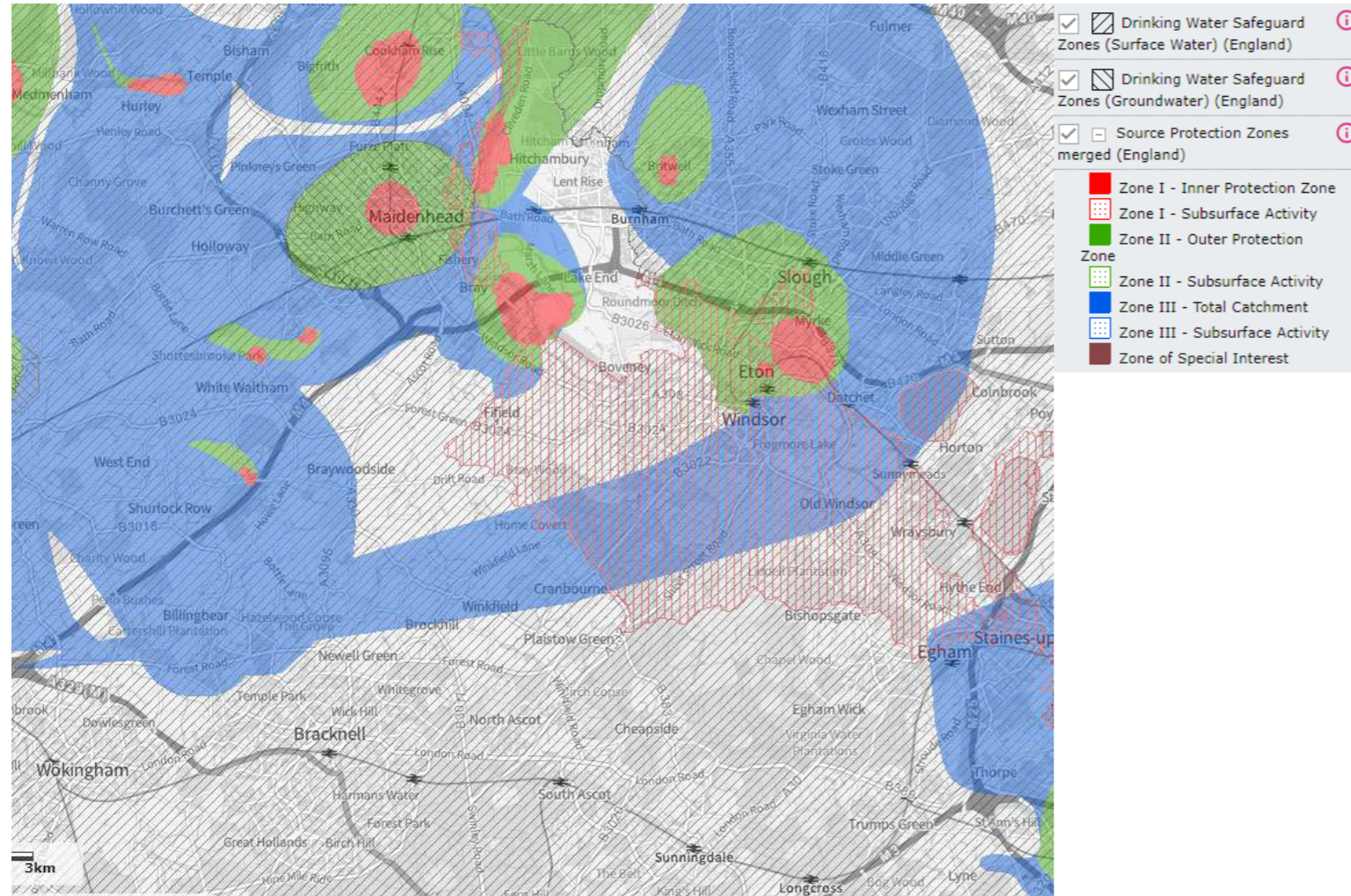


South East Water, which is represented as area 9 in this map, has been deemed to be in an area of serious water stress since 2013.

Source: Environment Agency (2021) - [Water stressed areas - final classification 2021](#)





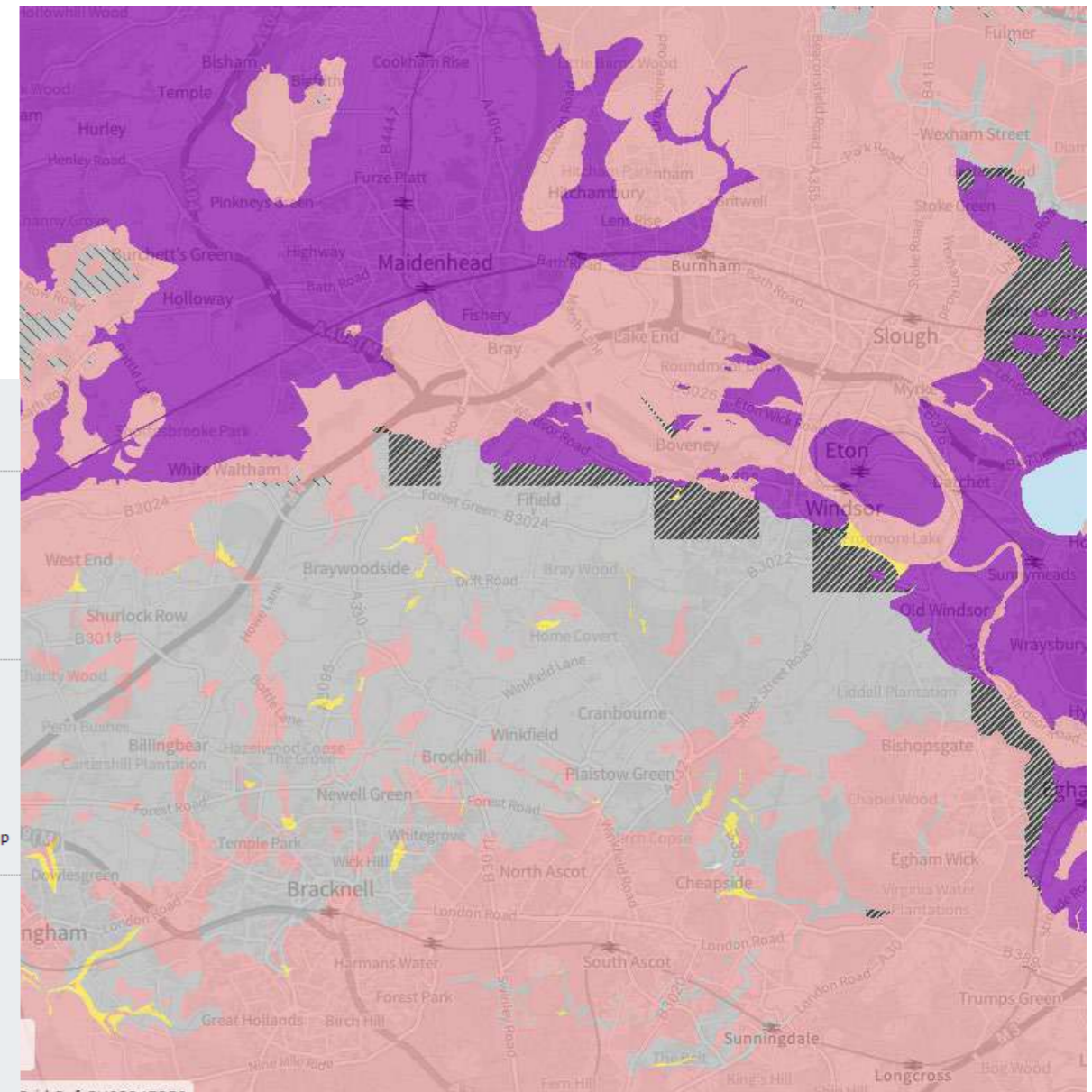
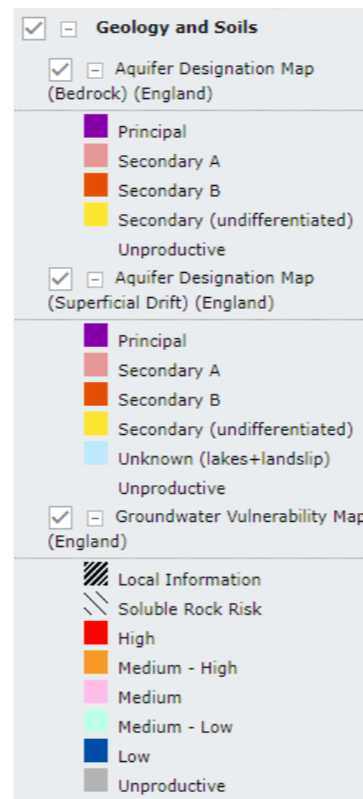


DEFRA Magic Map showing aquifer designations and groundwater vulnerability in the Borough.

Source: DEFRA (2022) - [Magic Map](#)

DEFRA Magic Map showing drinking water safeguard zones and source protection zones in the Borough.

Source: DEFRA (2022) - [Magic Map](#)







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## Local & sustainable food

Promoting sustainable humane farming and healthy diets high in local, seasonal organic food and vegetable protein

**Diversify agricultural sector:** Whilst agriculture is a declining industry in the South East, the region still contributes 50% of the country's small fruit production and 44% of top fruit production, and it has played an important part in the local economy. Along with facing increasing pressure to respond to economic changes and trends in the farming industry, farm businesses are also at risk of climate-related weather impacts. Low genetic diversity is thought to leave the food system vulnerable to shocks such as drought. Farm diversification (of crops but also revenue streams eg tourism, leisure or energy production) can help to sustain existing farm businesses to ensure long-term viability, provide rural employment opportunities as well as increasing resilience to climate change.

**Transition to more sustainable farming methods:** As a result of intensive agricultural production which is based predominantly on a system of monoculture plantations that are heavily reliant on pesticides, fungicides, fertilizers and even antibiotics, soil health and quality is depleting across the South East. There is a need to engage with farmers in the region in order to support them to transition to regenerative agricultural practices. This will help ensure that food is produced in a way that regenerates soil health and supports biodiversity and the local ecosystem, whilst also maximising the carbon sequestration potential of the land.

**Enable and support local food production and consumption:** in 2020, the UK imported 46% of the food it consumed. As food growing conditions become less predictable globally and crop yields decrease, prices for imported food and other commodities will increase and put food security at risk. Increased friction due to Brexit will also affect imported food prices and export opportunities for UK producers. There is therefore a need to ensure that food can be produced and consumed locally and sustainably.

- **Maintain and increase accessibility and affordability of healthy food to all in the Borough:** 61% of the Borough's population usually eat the recommended 5 portions of fruit or vegetables daily, higher than national average of 55%. This should be maintained and extended where possible.
- **Provide opportunities for residents to grow their own food:** Waiting times for an allotment in Maidenhead range from 3 to 10 years; as of April 2022 there were 385 people on the waiting list. There is therefore a need to increase the availability of allotment land (with a proportion of it being made available for community management), to provide more opportunities for residents to grow their own food.
- **Reduce food insecurity:** A study by the University of Sheffield Institute for Sustainable Food, using data from a 2021 Food Foundation survey, has mapped adult food insecurity at the local authority scale. It found that in this Borough, 3% of adults experienced hunger because they did not have enough to eat, 9% of adults struggled to access food, and 9% were worried about having enough food. Whilst many other areas have higher levels of food insecurity, it is nevertheless a worrying issue that should be addressed, particularly in light of the rising cost of living which could push people who are just about managing into hunger.
- **Make low carbon diets more attractive:** Per-person carbon emitted due to food consumption in the Borough is thought to be 36% higher than the England average. See chart in '[Materials & Products](#)'. Meat, dairy, food waste and out-of-season perishable fresh goods tend to be high carbon.



Statistics from DEFRA show that in 2020, the South East region represented 14% total income from farming in England. Fruit, wheat, milk and plants/flowers (in descending order) are the biggest contributors to farming income in the region, accounting for 41% of total income from farming. 'Veg, Hort & Potatoes' are responsible for a bigger share of regional output (34%) than in any other region in 2020.

Source: DEFRA (2022) - [Total Income from Farming for the Regions of England, second estimates for 2020](#).

### 4.8 South East including London regional profile

Table 4.8.1: Key statistics for the South East region in 2020

	2020 (£m)	% of England
<b>Gross output at basic prices</b>	1,996	10%
of which: <i>Combinables &amp; Sugar Beet</i>	479	13%
<i>Veg, Hort &amp; Potatoes</i>	619	15%
<i>Pigs &amp; Poultry</i>	218	6%
<i>Dairy</i>	155	5%
<i>Beef &amp; Sheep</i>	189	9%
<i>Diversification</i>	169	15%
<b>Total intermediate consumption</b>	1,135	9%
<b>Gross value added at basic prices</b>	861	11%
<b>Direct payments</b>	265	13%
<b>Total Income from Farming</b>	504	14%



Figure 4.8.2 Share of 'total' output value for the South East, 2010-20, real terms

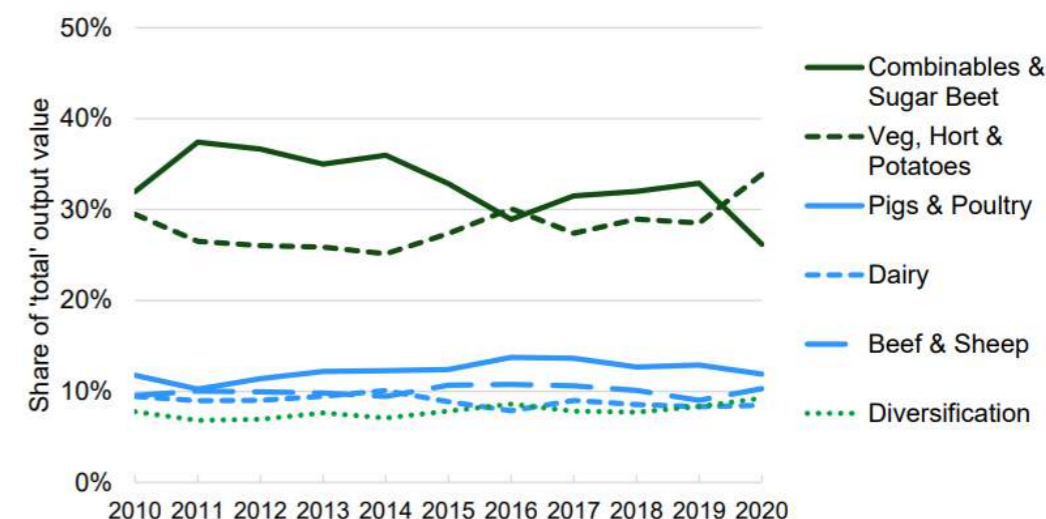


Figure 4.8.1: Value of output groups in the South East, 2020 (£ million)

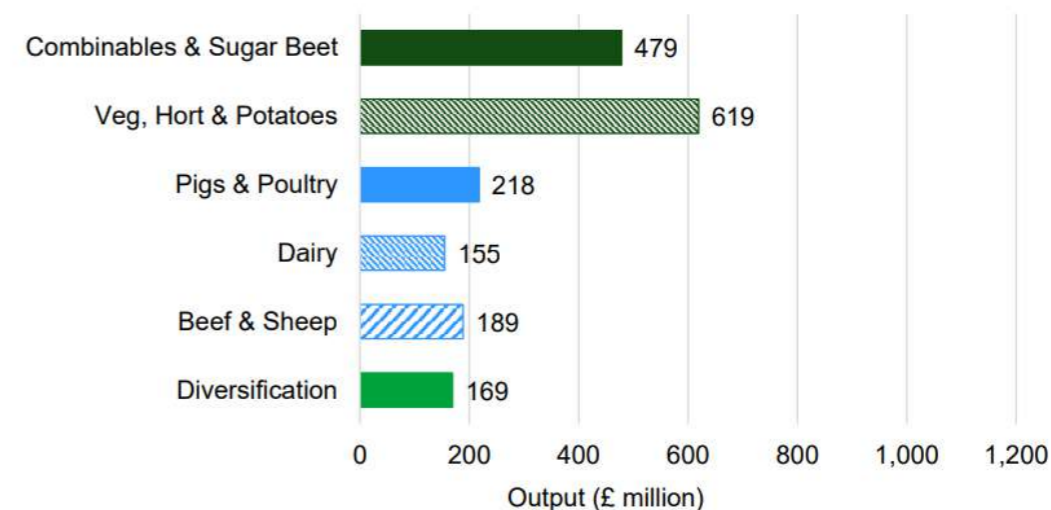
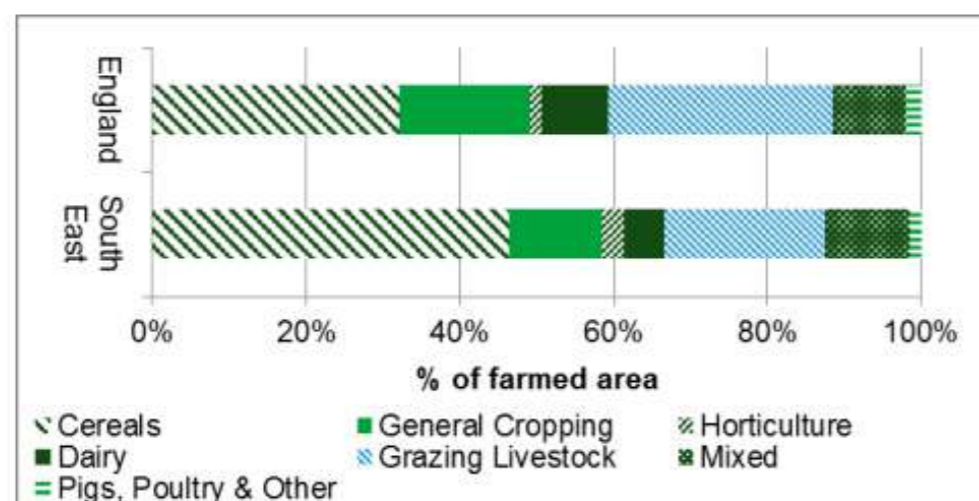


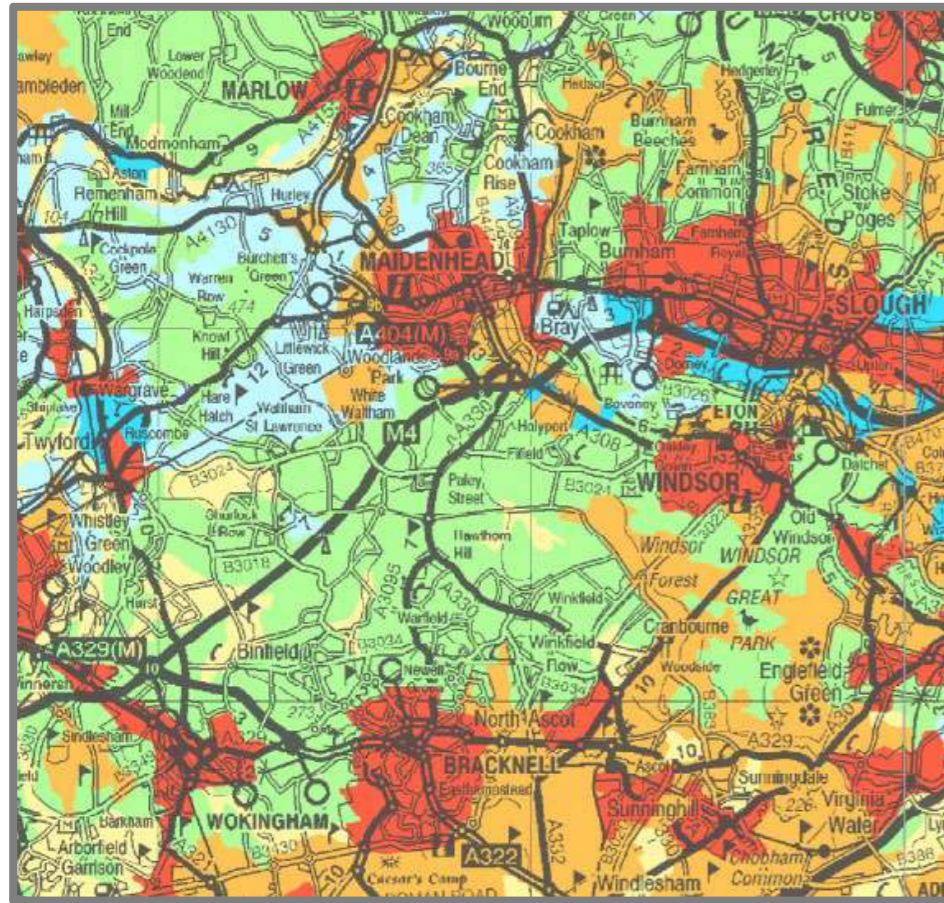
Figure 4: Distribution of farms by type, percentage of farmed area



Statistics from DEFRA show that cereal farms are the predominant farm type in the South East, representing 46% of farmed area in the region. Grazing livestock is the second predominant farm type, representing 21% of farmed area. The South East region contributes 50% of England's small fruit production, and 44% of its top fruit production.

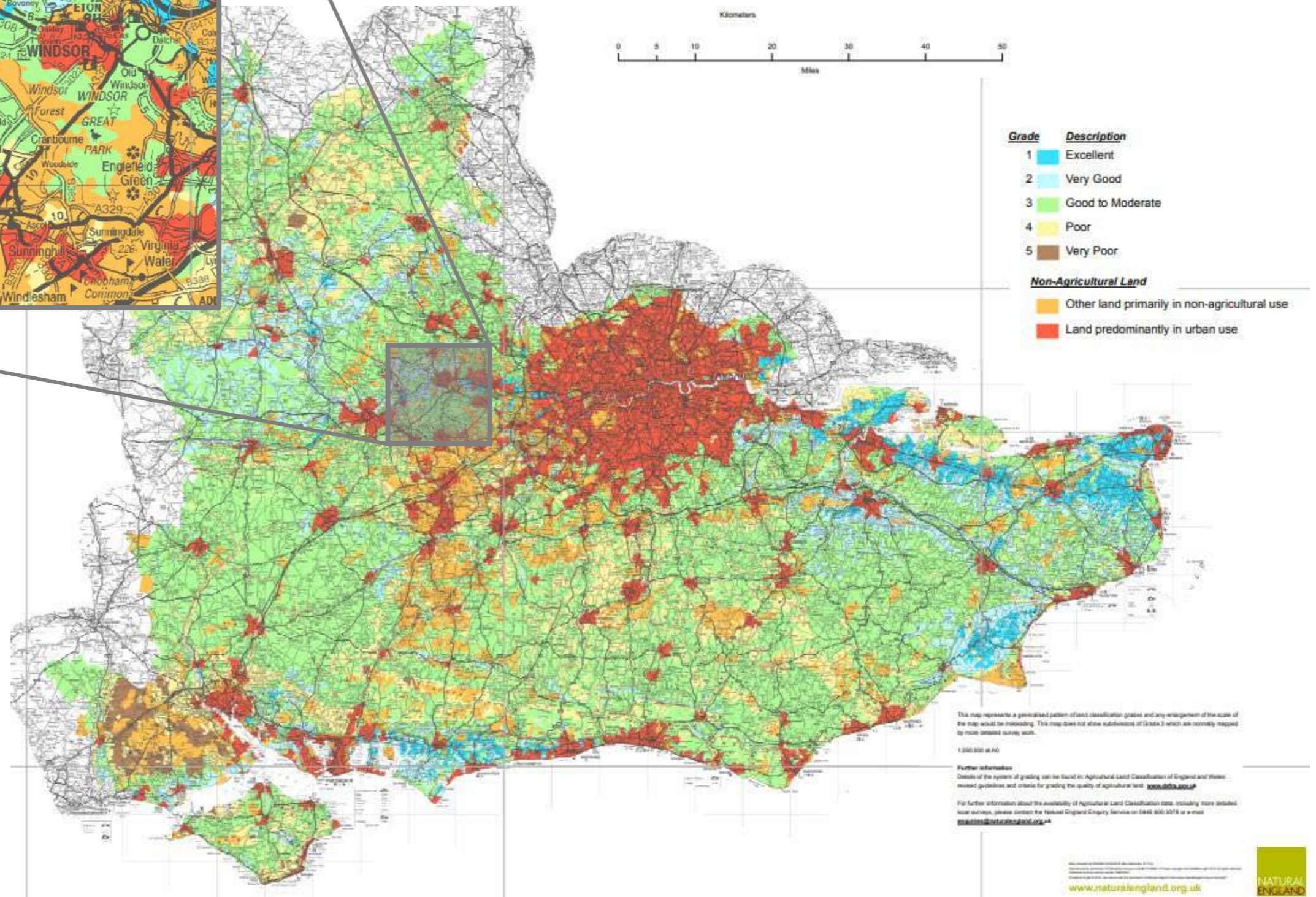
Source: DEFRA (2021) - [Agricultural Facts - South East](#)





Natural England has created a map showing the quality of agricultural land in the London and the South East. The close-up on the map shows the areas within the Borough, which has small pockets of excellent quality agricultural land, some very good quality land, and a decent amount of good to moderate quality land.

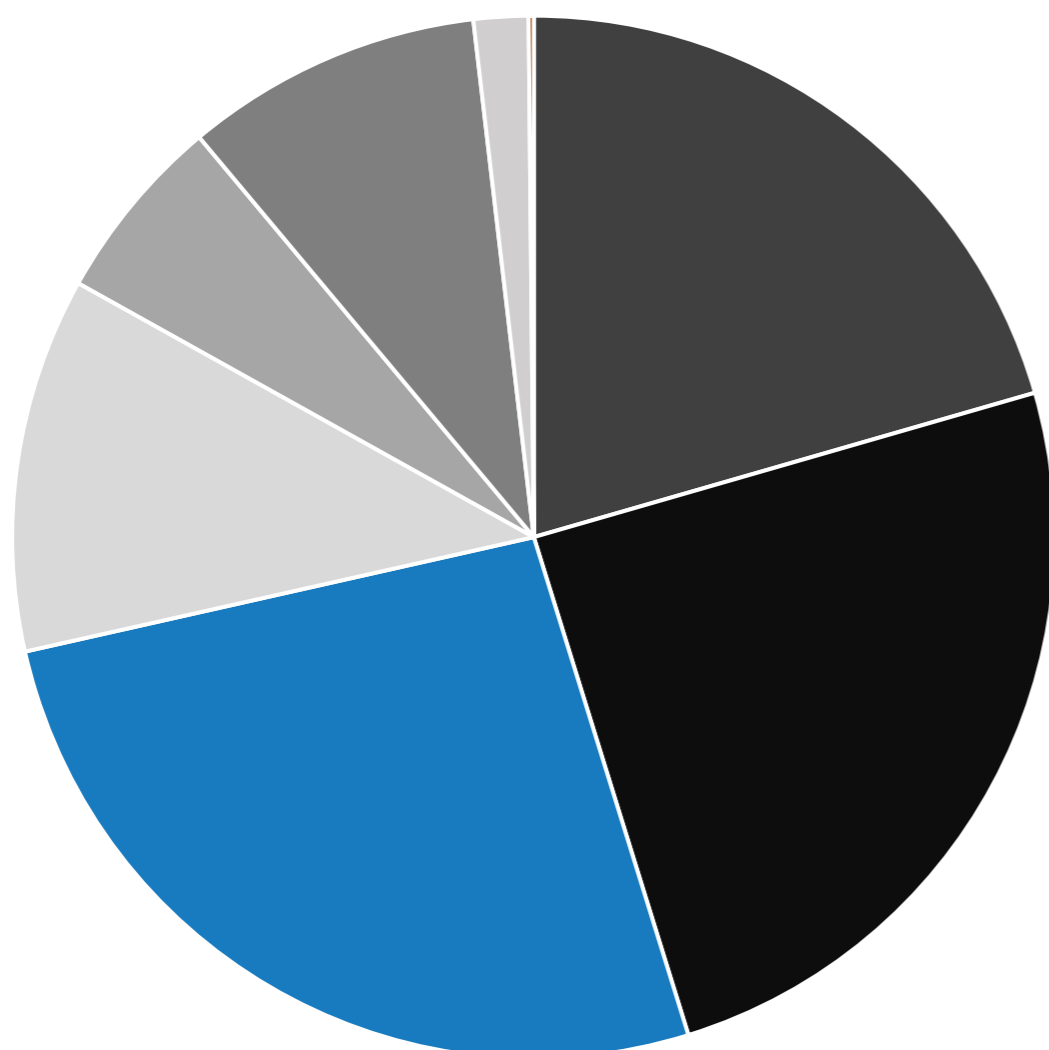
Source: Natural England (2010) – [Agricultural Land Classification map London and the South East \(ALC007\)](#)







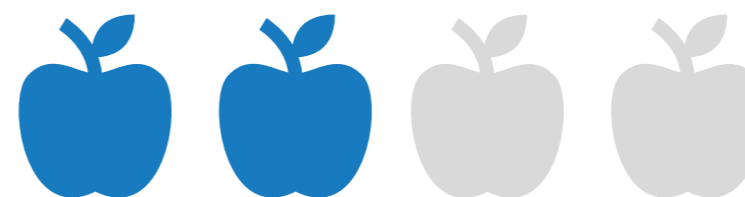
Drivers of ecological footprint for Royal Borough of Windsor & Maidenhead (NB: historical data; no recent data available)



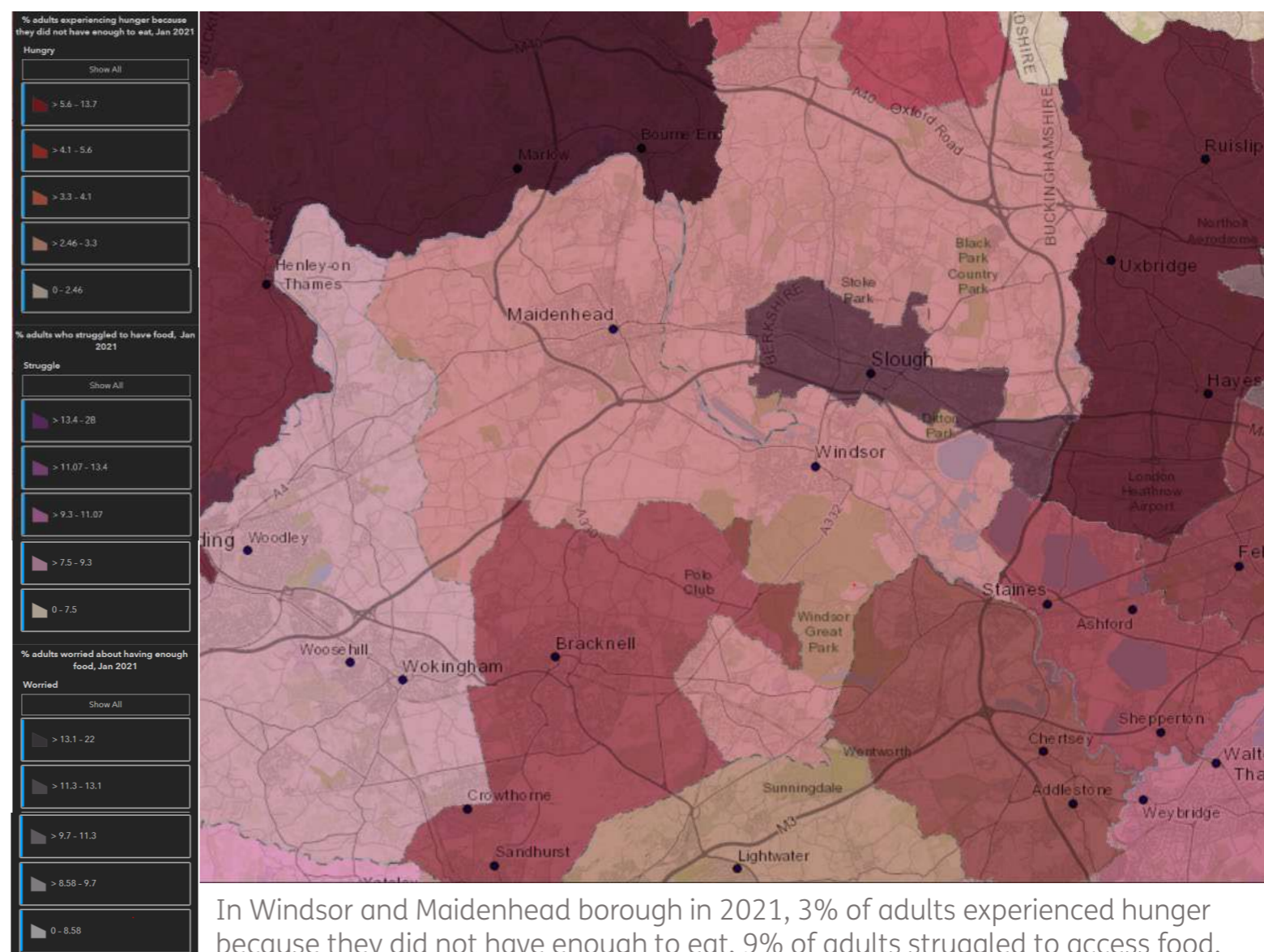
- HOUSING
- TRANSPORT
- FOOD
- CONSUMER
- PRIVATE SERVICES
- PUBLIC SERVICES
- CAPITAL INVESTMENT
- OTHER

Please note: This pie chart's colour configuration is designed to highlight the section that is relevant for this One Planet Principle, i.e. food.

For a graph showing the same data with a fuller range of colours for easier differentiation of other sectors, please revisit previous section '[Planetary Needs – Resource Consumption](#)'.



About half of the UK's food is imported from elsewhere



In Windsor and Maidenhead borough in 2021, 3% of adults experienced hunger because they did not have enough to eat, 9% of adults struggled to access food, and 9% were worried about having enough food.

Source: University of Sheffield (2021) – [UK local food insecurity of adults Jan 2021](#)





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## Travel & transport

Reducing the need to travel, encouraging walking, cycling and low carbon transport

### Continue to reduce car use including by reinforcing the post-COVID booms in 'work from home' and walking/cycling:

- Up to 2018/19, people in the South-East made more trips by car (driving or passenger) than the England average, even excluding London – but this dropped sharply in 2020.
- As of 2021 the South-East further reduced its number of car trips per-person and is now below the national average (National Transport Survey dataset [NTS9903](#)) – this may be due to a higher share of jobs suitable for remote work compared to other regions.
- As of 2021 The South-East has kept its walking and cycling figures equal or higher to those of 2020 and 2018/19, including for walks of over a mile.
- BEIS data shows that 30% of carbon emissions in the South East are from road transport (2020) similar to an average of 32% across England.

### Restore confidence in public transport post-COVID, especially compared to car use:

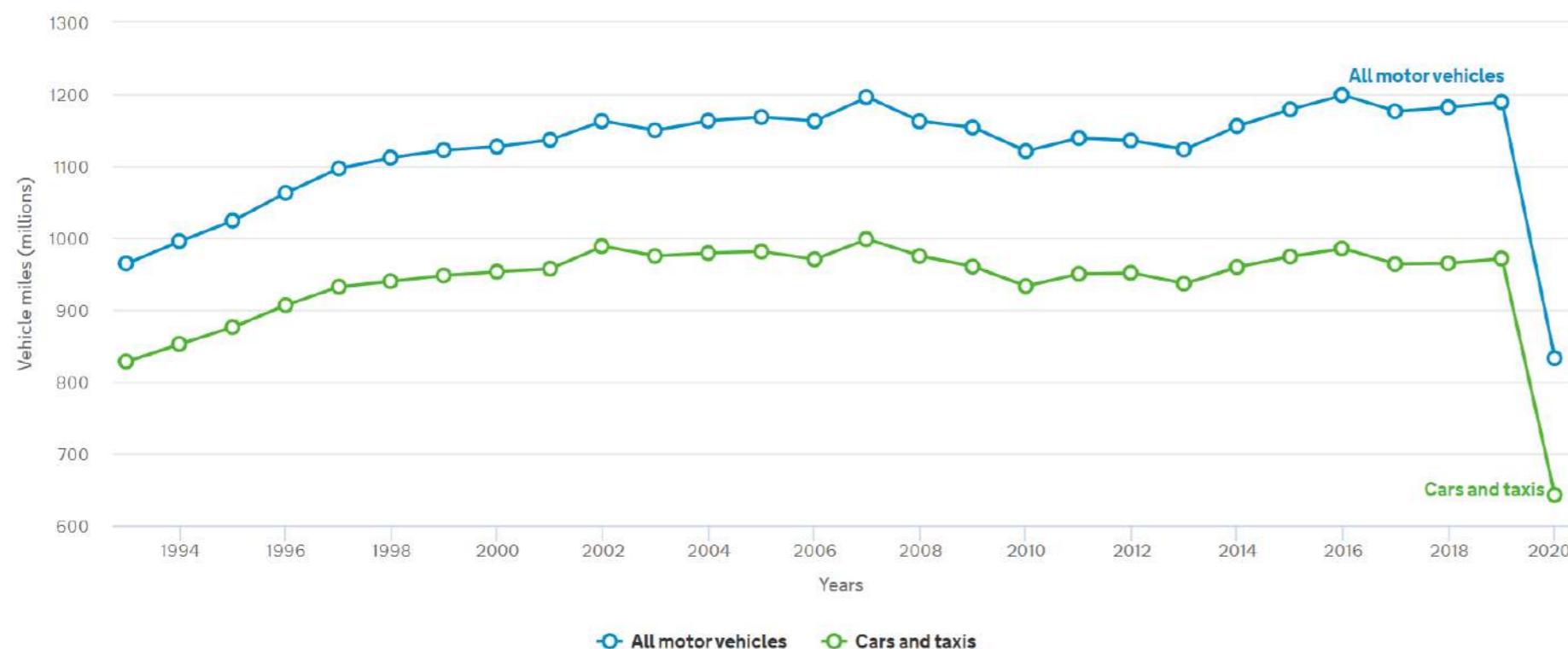
- Rail & bus trips in the South-East roughly halved in 2020 compared to the previous year, and have only slightly rebounded in 2021 (NTS9903 as above).

- **Reduce car use and reliance:** Individual carbon footprint due to transport is consistently higher in the Borough compared to the England average. BEIS data shows that 33% of carbon emissions from the Borough are from transport, of which 93% come from road traffic. The Borough's per-person carbon emissions due to car use is 24% higher than average for England, possibly linked to the to semi-rural location and presence of the M4. Car ownership is very high in the Borough, at 17% above the national average. Annual traffic in the Borough (both private cars/taxis and other motor vehicles) has not been improving in the 10 years to 2019, until the drastic fall in 2020 due to the pandemic. This demonstrates a need to reduce the attractiveness of cars in comparison to other transport modes, in terms of affordability and convenience. It could also provide an opportunity for car clubs, in order to reduce individual car reliance.
- **Incentivise more active travel:** NHS data shows that only 1.5% adults in the Borough cycle for travel at least three days per week, compared to 2.4% regionally, and 2.3% nationally. The Borough has lower rates of emergency admissions for pedal cyclists and cyclists killed or seriously injured in road traffic accidents (compared to the regional average per population), but this is most likely because of having very little cycling.
- **Reduce the number of frequent flyers:** Individual carbon emissions caused by flights are estimated to be 55% higher in the Borough than compared to England, linked to the relative wealth of population in the Borough, indicating a higher number of frequent flyers. The convenience of accessing nearby Heathrow may also underscore this.



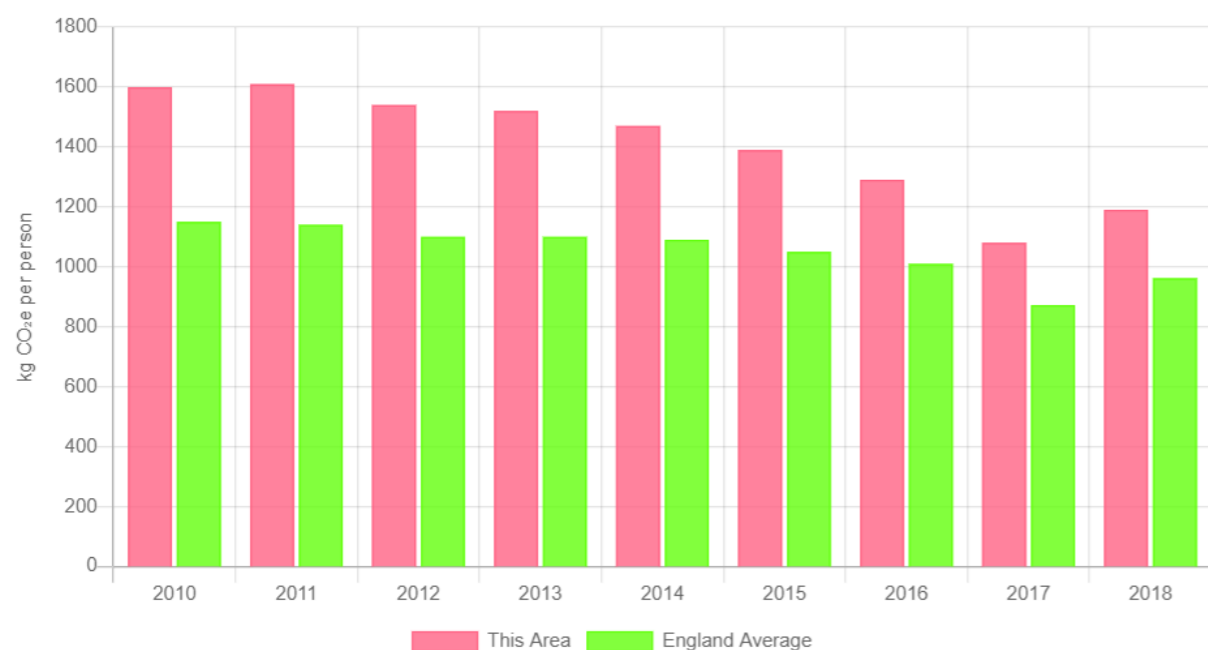
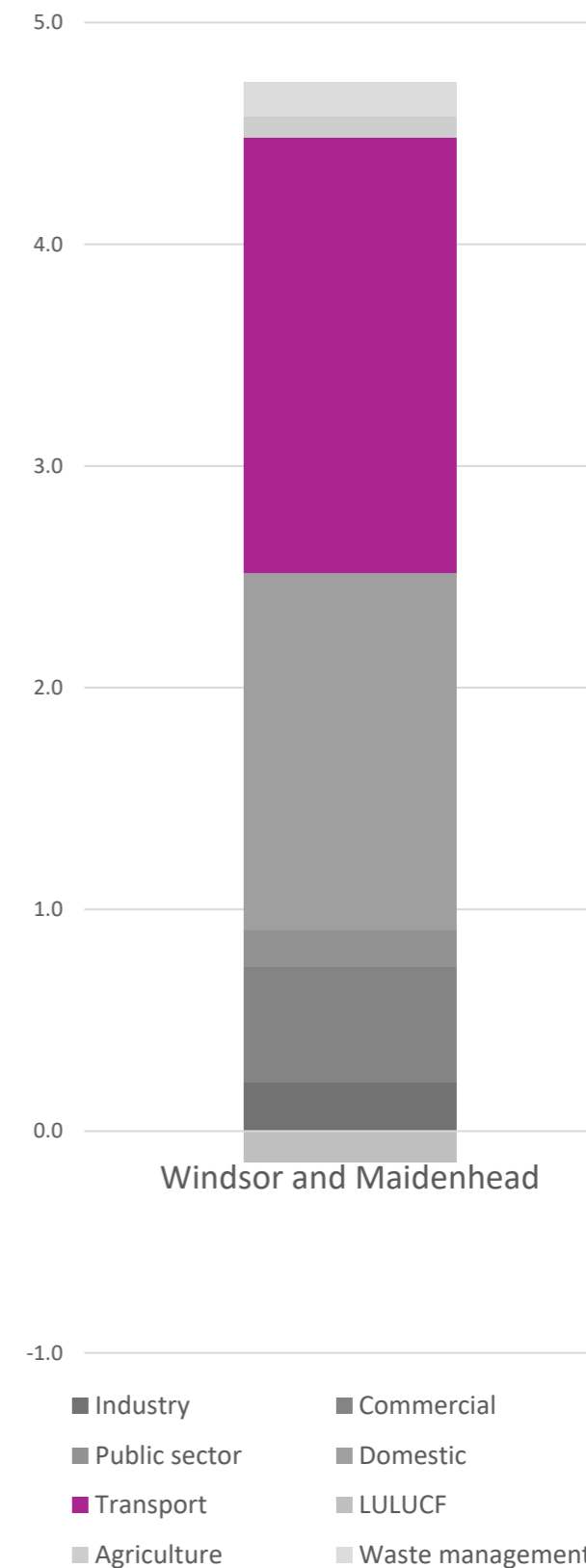
## Annual traffic by vehicle type in Windsor and Maidenhead

Traffic in Great Britain from 1993 to 2020 by vehicle type in vehicle miles (millions)



Source: Department for Transport <https://roadtraffic.dft.gov.uk/local-authorities/179>

Per capita GHG emissions by sector (tonnes CO<sub>2</sub>). BEIS 2020 figures, released 2022



Whilst CO<sub>2</sub> emissions per person from cars has been declining up to 2017 overall, the average person in the Borough consistently contributes more CO<sub>2</sub> from cars than an average person in England.

Source: Place-Based Carbon Calculator <https://www.carbon.place/la/>

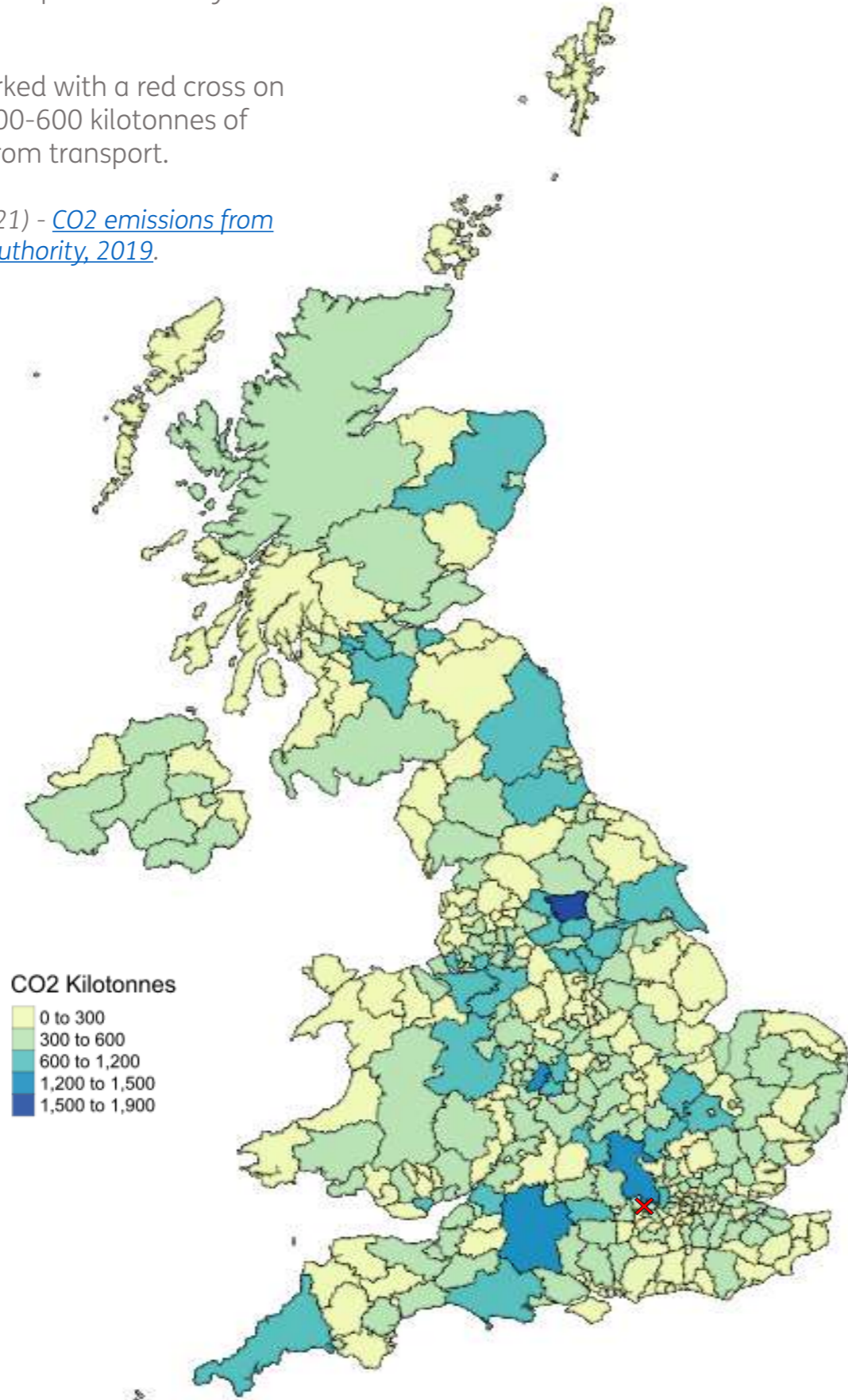




Map showing BEIS data for carbon emissions from transport in 2019 by Local Authority.

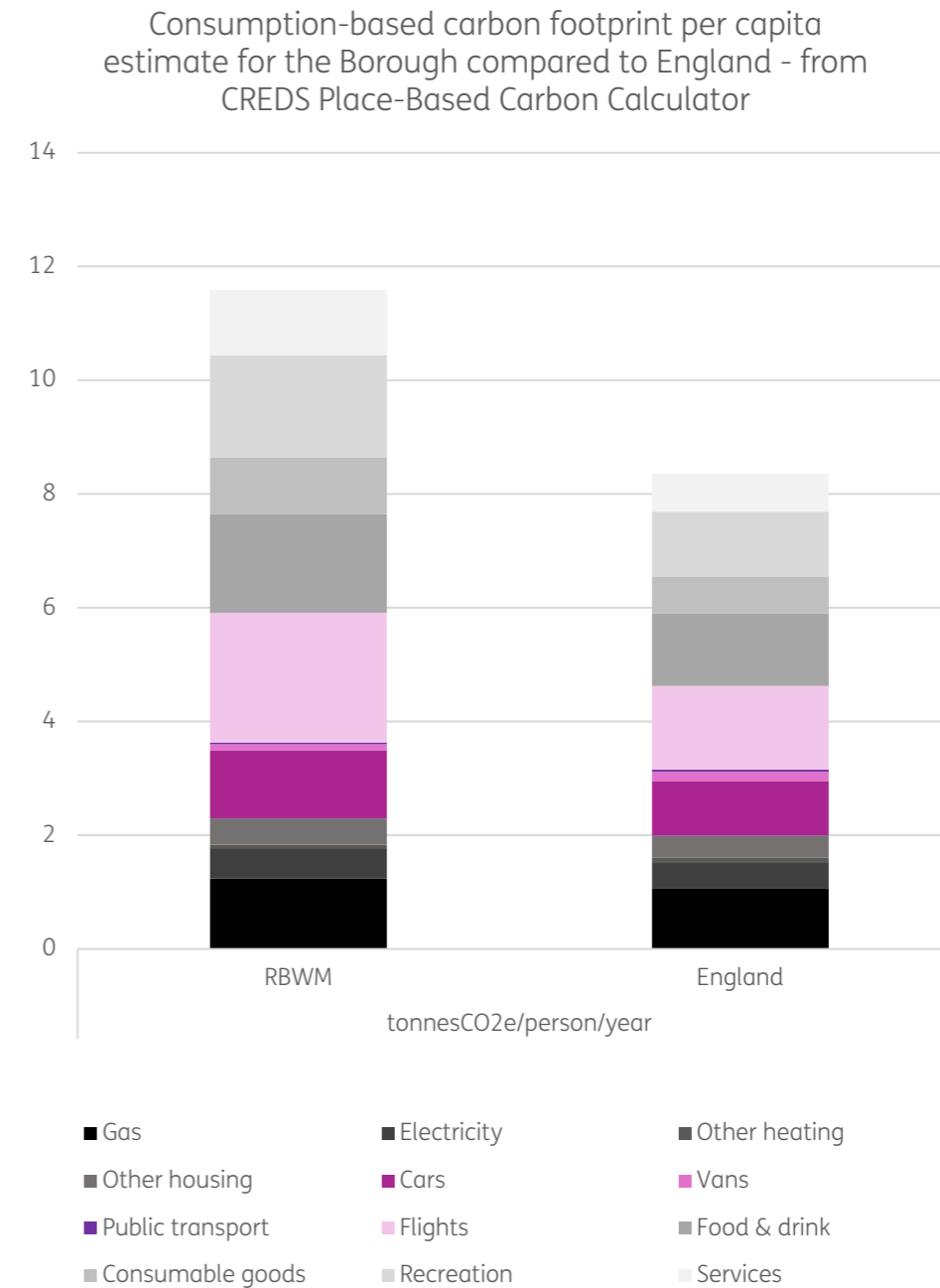
The Borough, marked with a red cross on the map, emits 300-600 kilotonnes of carbon per year from transport.

Source: UK Gov (2021) - [CO2 emissions from transport by local authority, 2019](#).



The graph below shows an alternative estimation of how the average person in the Borough contributes 55% more carbon due to flights, and 16% more due to cars & vans, than the national averages for those categories.

Source: Place-Based Carbon Calculator (2022) - <https://www.carbon.place/la/>





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## Materials & products

Using materials from sustainable sources and promoting products which help people reduce consumption

**UK material footprint has not reduced much in a decade:** As of the latest data (2019; released 2022), the material footprint was recorded as 16.5 tonnes/capita. This is not much different to the level at the end of the financial crash (2012: 17.5 tonnes), although it has fallen back to this level (thanks to reduced fossil fuel consumption) after a brief spike in 2015 (19.4 tonnes).

**Materials other than fossil fuels are not contributing to falls in the UK material footprint** since the early-2000s peak. The other materials considered (biomass, metals and minerals) fluctuate much more and do not have a consistent downward trend.

**Construction material use is a significant driver of emissions:** Cement production accounts for [5 - 8% of global carbon emissions](#). Glass, steel and aluminium also have very high embodied energy (and therefore usually high embodied carbon). Building reuse should be prioritised, followed by the use of sustainable construction materials with a low embodied carbon and ecological footprint including reclaimed or reused materials, and concrete with high proportions of cement replacement.

Locally-specific data regarding actual material and product use (and its environmental impact) is scarce. However:

- **Affluent populations tend to consume more material goods:** See charts overleaf which estimates the difference in carbon emitted due to consumer goods consumption between the Borough and the national average, based on applying data about consumption relating to affluence and applying this to the local area. This is borne out by, for example, the 17% higher car ownership per person in the Borough compared to the England average (noted previously in Travel & Transport section).
- **Construction and demolition anticipated as part of the Local Plan 2013-2033:** including the Council's target of 712 new dwellings per year of the plan period. In their Embodied Carbon Primer, LETI estimates that there is 800kg of embodied carbon emissions per square metre of the average residential dwelling under the current 'business as usual' scenario. In order to reach whole life net zero carbon best practice, LETI recommend a series of targets for re-use of construction materials, and for building component disassembly at end of use for re-purposing.
- **Heavy building materials supplier, Hanson UK, is headquartered in Maidenhead:** This provides a potential opportunity to change the construction industry at the source, by influencing the supply of construction materials such as cement, aggregates, ready-mix concrete and asphalt.





Analysis by [CREDS](#) has indicated that the population of Windsor & Maidenhead has heavier carbon emissions from consumer goods and food, compared to the national average:

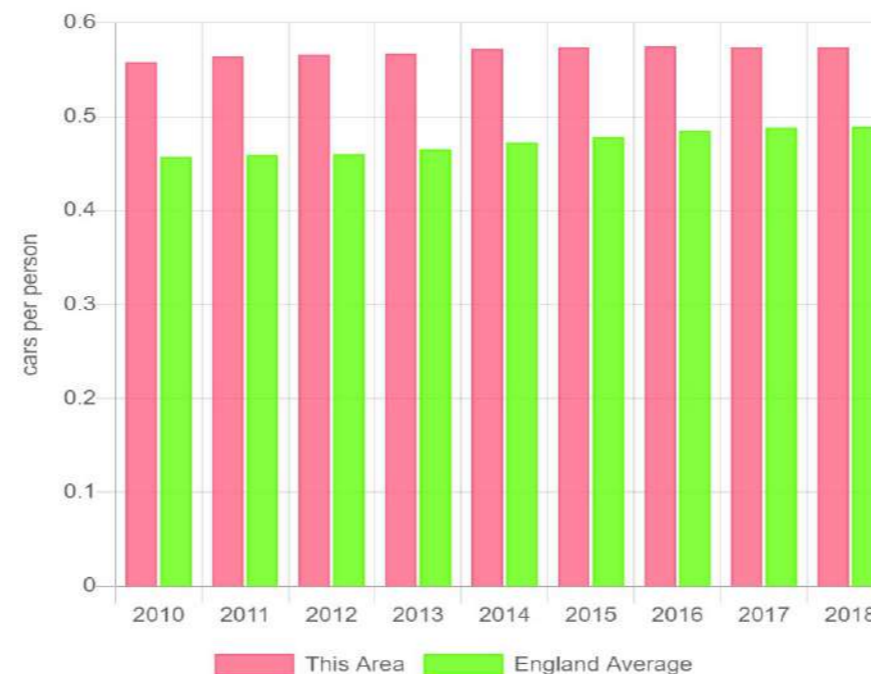
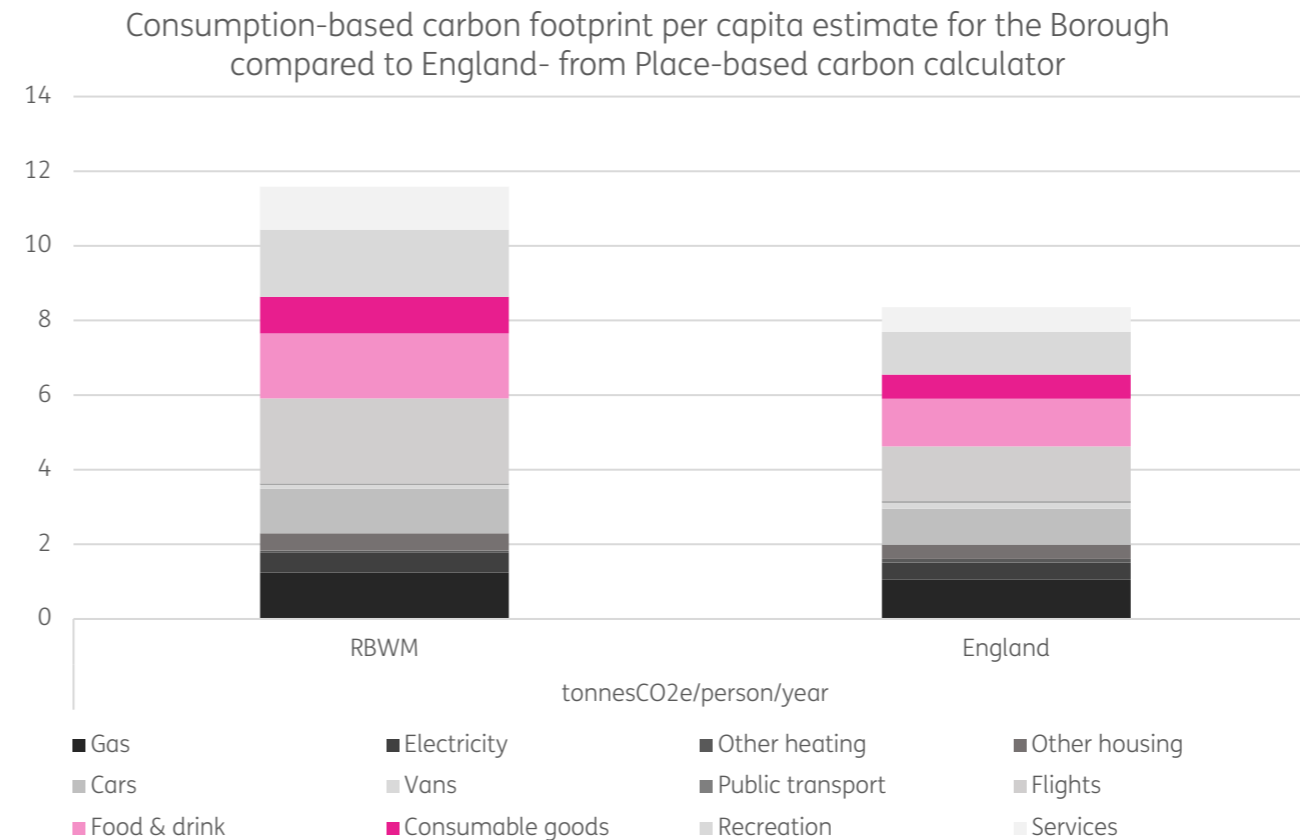
- 50% more emissions associated with consumable goods
- 36% more emissions associated with food and drink.

These higher estimated figures are essentially a function of the area's higher affluence.

(Please note: The colours on this chart are designed to highlight the parts most relevant to this principle. A copy with other sectors more clearly differentiated is given in '[Planetary needs](#)').

The CREDS analysis also found that people in the Borough own more cars per capita than the national average.

Not only is this strongly correlated to how much people drive, but also has a significant impact on carbon emissions: CREDS estimates that 2% of the UK's total carbon footprint comes from purchasing new cars and other vehicles.



Average number of cars owned per person in the Borough compared to in England.

Source: Place-Based Carbon Calculator  
<https://www.carbon.place/la/>

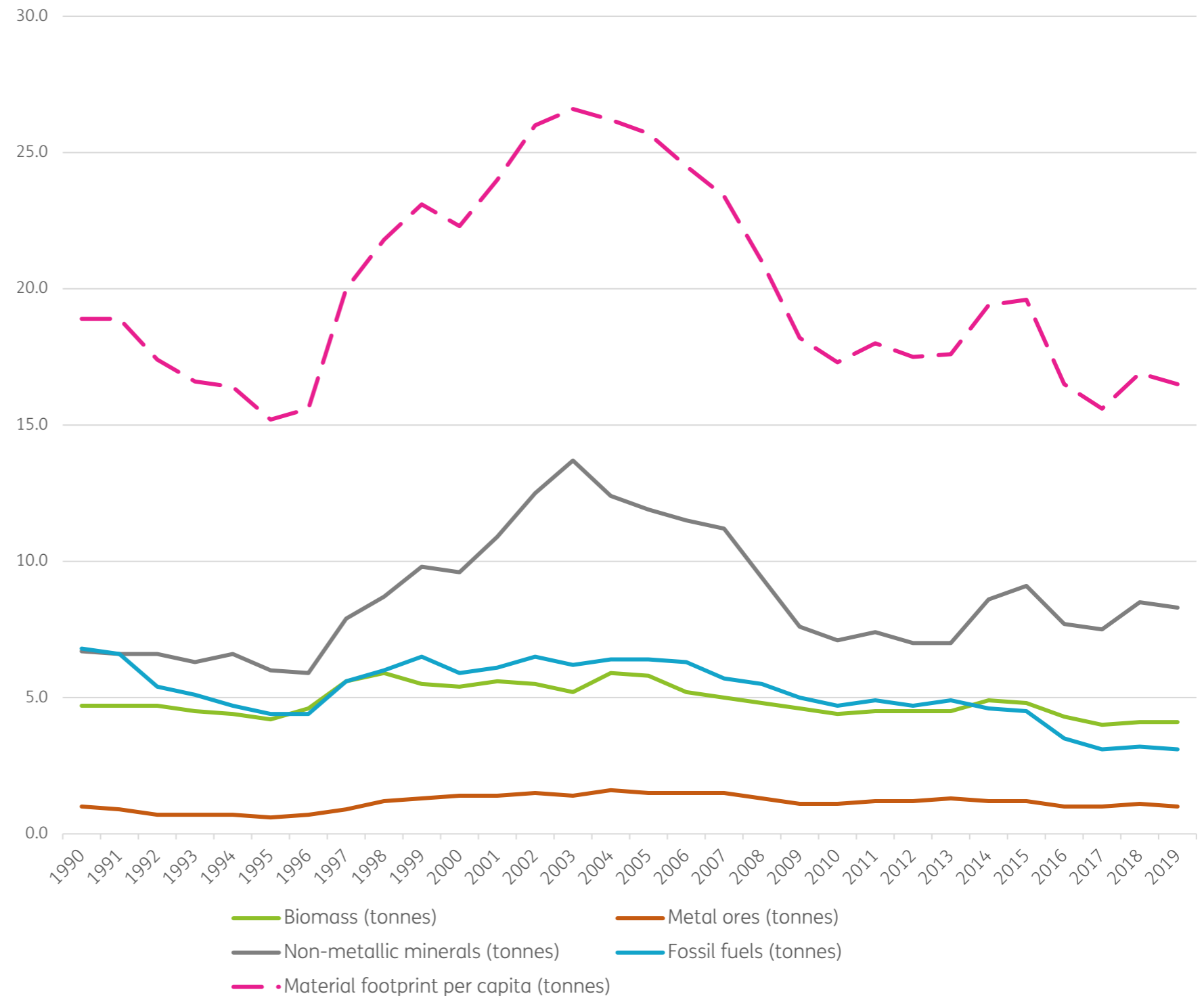


Data on the UK's material consumption shows that although there has been a drop since the early 2000s peak, the decline since then has been extremely slow. Of the four material groups accounted for, only fossil fuel use shows a consistent decline in the past decade (and to a much lesser extent, biomass).

Raw material consumption is associated with greenhouse gas emissions, waste generation, and environmental destruction in many resource extractive industries (especially given that the UK imports most of its materials and meets only 27% of its consumption with domestic extraction).

There is a need to consume less, develop the circular economy to keep materials in use for longer and/or recycle secondary materials, and continue to reduce and eventually eliminate fossil fuels.

UK material footprint, tonnes per capita  
(Office for National Statistics, 2022 – available [here](#))







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## Zero waste

Reducing consumption, re-using and recycling to achieve zero waste and zero pollution

**Increase regional recycling rates:** Greenpeace estimates that less than 10% of household plastic waste is actually recycled in the UK. A significant portion is incinerated, and much exported. In 2020, the UK exported 688,000 tonnes of discarded plastic packaging to countries such as Turkey, Malaysia and Poland, despite these countries not having the necessary recycling infrastructure. As a result, thousands of tonnes have been dumped or burned illegally.

**Enable reduced domestic and commercial waste generation, especially food:** Every year 10 million tonnes of food goes to waste in the UK, causing carbon emissions as it breaks down and putting ecosystems under increased pressure to produce excess food. The UK Government's 2018 Resources & Waste Strategy therefore notes a priority to cut food waste and enable the redistribution of excess. In response, the Environment Act 2021 requires local waste authorities to collect food waste weekly, separate from other recycling.

**Reduce regional consumption and waste sent to landfill:** The UK generated 222.2 million tonnes of waste in 2018. Of this, 14,644,000 tonnes was sent to landfill. In the South East, there are numerous landfill sites and 9,572,000 tonnes of waste was sent to landfill in 2019. Landfills are bad for the environment as they can leach harmful toxins into the soil and waterways; create leachate, a toxic liquid formed when waste breaks down; and they are a significant source of methane emissions, a greenhouse gas that is 25 times more potent than carbon dioxide.

**Reduce levels of single-use plastics:** Plastic packaging accounts for 70% of plastic waste in the UK, most of it being single-use plastic items. According to Greenpeace UK and the Environmental Investigation Agency (EIA), UK supermarkets produced 896,853 tonnes of plastic packaging in 2019. Not only does this create huge amounts of waste, with only 9% of plastic waste ever generated having been recycled, but plastic production supports the oil and gas industry and is highly carbon-intensive.

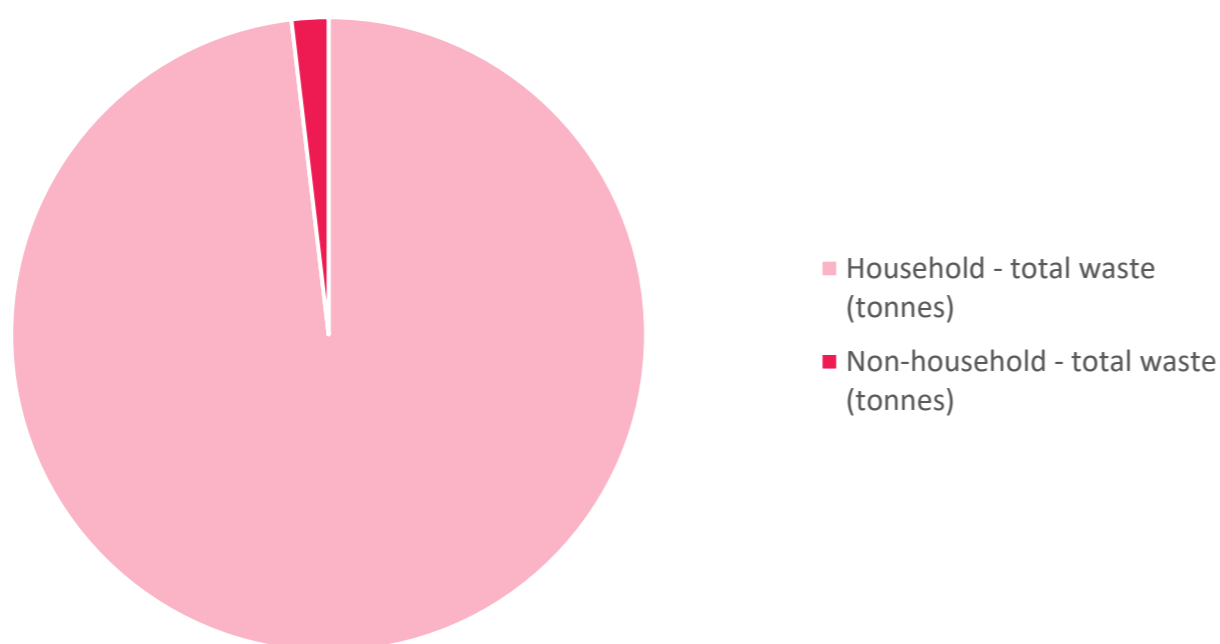
- **Improve recycling and composting rates:** The recycling rate in the Borough has increased by 10% since 2010-11. In 2020-21, 49% of total waste collected was sent for reuse, recycling or composting. This is higher than the regional and national averages (46% and 41% respectively). All non-recycled waste is sent to energy from waste, meaning 0% of municipal waste has been sent to landfill since 2016-17. Whilst the Borough has a very good recycling rate, the Council is aiming to increase household recycling to over 50% by 2025, in order to move into the top 100 performing councils in the country. It also has the aim to increase their food waste collection service by 10% by 2025.



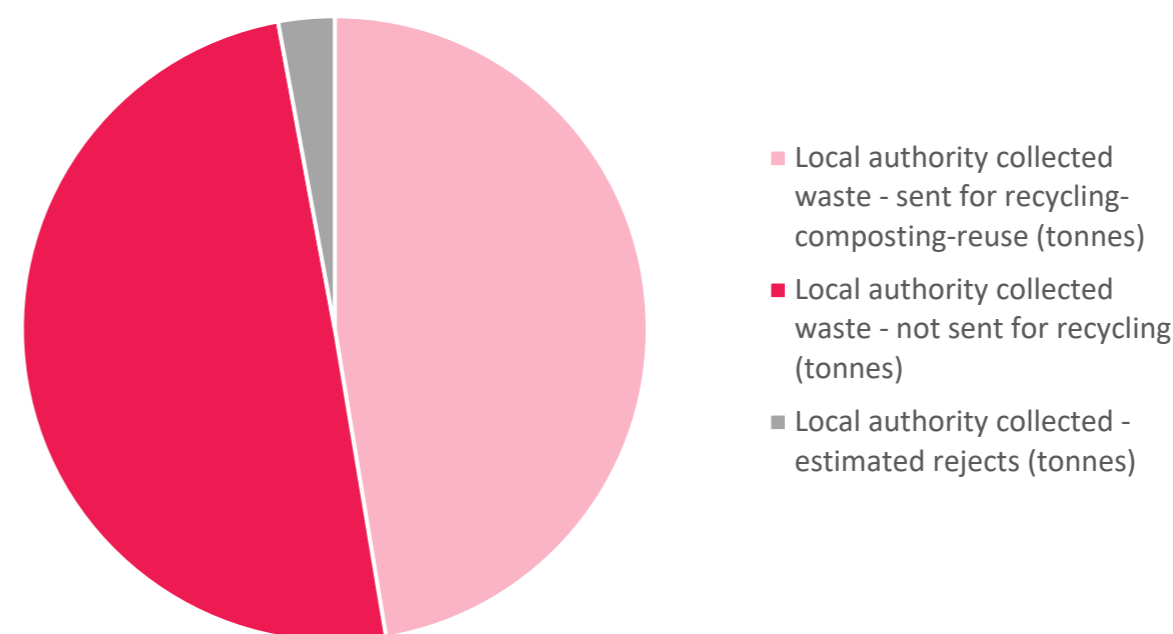
Statistics from DEFRA on Local Authority collected waste show that 49% of waste in the Borough is recycled, composted or reused. The vast majority (98%) of waste collected by the local authority in the Borough comes from households, of which 48% is recycled. Of the 2% of non-household waste that is collected, almost three quarters (73%) of it is recycled, composted or reused. (Note: There may be more non-household waste generated but dealt with by non local authority contractors).

Source: DEFRA, WasteDataFlow (2021) – [Local Authority Collected Waste Statistics – Local Authority Data](#)

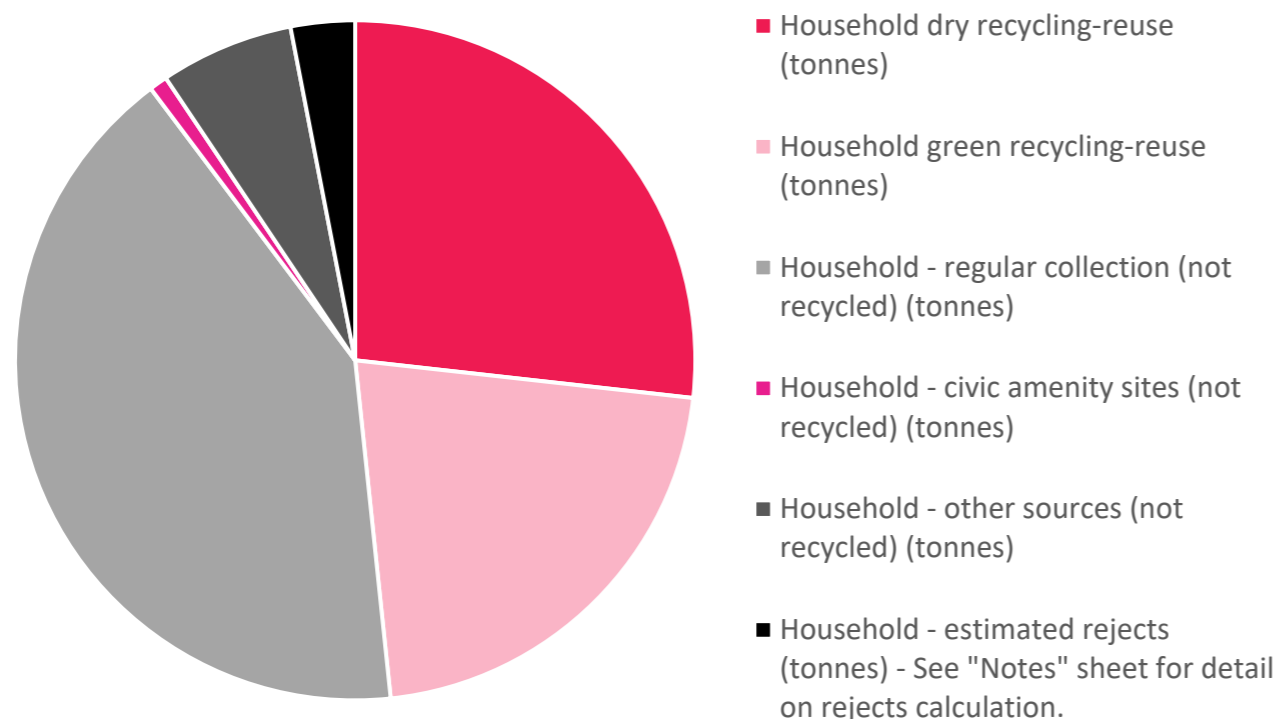
Split of total household v non-household waste collected in the Borough 2020-21 (tonnes)



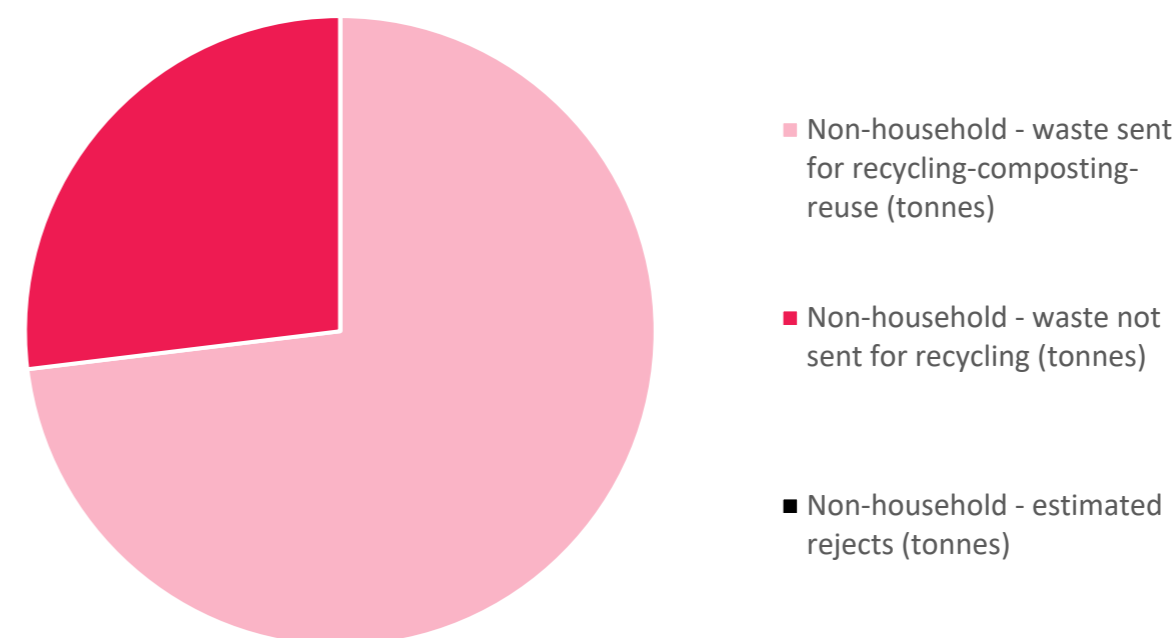
Split of total recycled v non-recycled waste collected in the Borough 2020-21 (tonnes)



Split of total household waste collected in the Borough 2020-21 (tonnes)



Split of total non-household waste collected in the Borough 2020-21 (tonnes)







One Planet Living<sup>®</sup>  
Principle

Regional needs & challenges

Local needs & challenges

10



## Zero carbon energy

Making buildings and manufacturing energy efficient and supplying all energy with renewables

**Expand renewable electricity generation & storage:** To meet the net zero carbon goal on a 'balanced' pathway, the Committee on Climate Change [notes a need](#) to fully decarbonise electricity generation by 2035 while meeting a 50% increase in electricity demand.

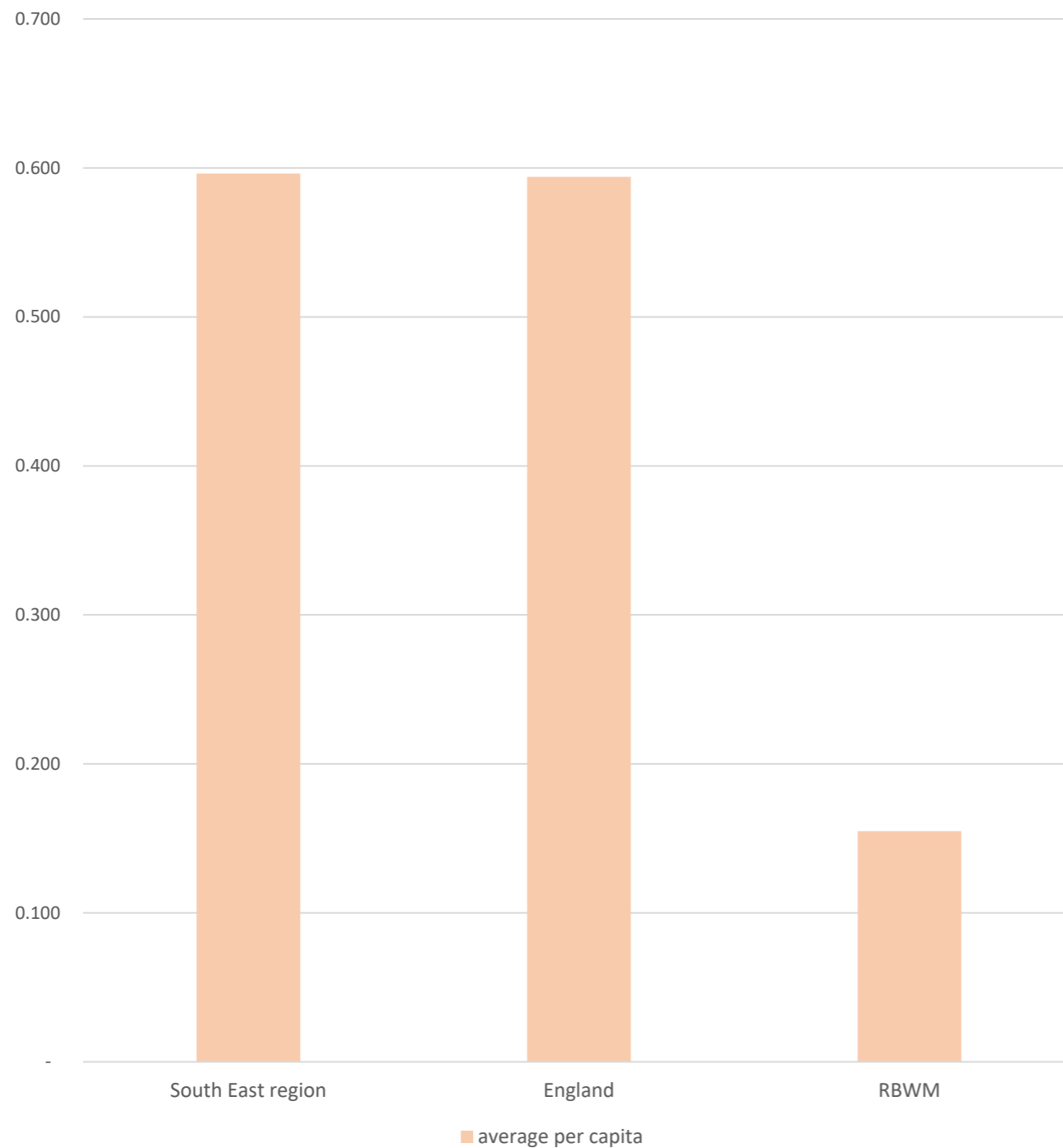
- New development can help by minimising its demands on the grid via excellent building fabric, energy storage, and heat pumps (which put out more heat energy than it consumes as electricity). Minimising primary energy demand should be prioritised wherever viable.

**Improve the energy efficiency of homes in the region:** For an average person in the South East, 33% of their wealth comes from property, with 64% owning property despite the South East having the highest house prices outside of London, with a median property wealth of £111k. The UK's net zero carbon transition needs home owners with financial means to play the vital role of increasing their homes' energy efficiency, such as installing low-carbon heating and upgrading insulation, doors and windows. This can also bring returns for home owners through bill savings, increased property value and potential future mortgagability.

- **Decarbonise energy supply through expanding renewable electricity generation:** Fossil fuels are still the most predominant heating type in the Borough, with 71% of homes using gas as their heating system. Renewable electricity is under-developed in the Borough. By the end of 2020, the Borough had fewer PV installations, lower installed capacity and lower electricity generation from PV than on average in the region and in England. Per capita, both the South East region and England generate approximately 385% more renewable electricity from PV than the Borough. The Borough has very few other sites that generate renewable electricity in the Borough, including just one Hydro power site and one Landfill gas site. Onshore wind is currently undeveloped in the Borough (it has been indicated that the planning regime will [soon](#) become more favourable for this by giving more scope to local authorities to grant permission to onshore wind which they currently effectively cannot if there is any local objection to it; however, the relevant Government ministers and leadership have been entirely replaced since that intention was expressed therefore the intended changes may be abandoned).
- **Reduce energy consumption through improving building performance:** BEIS estimates that in 2020, over 50% homes in the Borough were EPC rated D or E. There is therefore a need to improve the energy efficiency of these homes, as well as those on the lower ratings of EPC F and G.
- **Reduce energy demand:** Two-thirds of the Borough's carbon emissions are a result of energy consumption in buildings. 42% carbon emissions in the Borough come from domestic energy consumption, including electricity, gas and other fuels. There is therefore a need to reduce energy demand, through smart energy saving measures such as home energy retrofit.



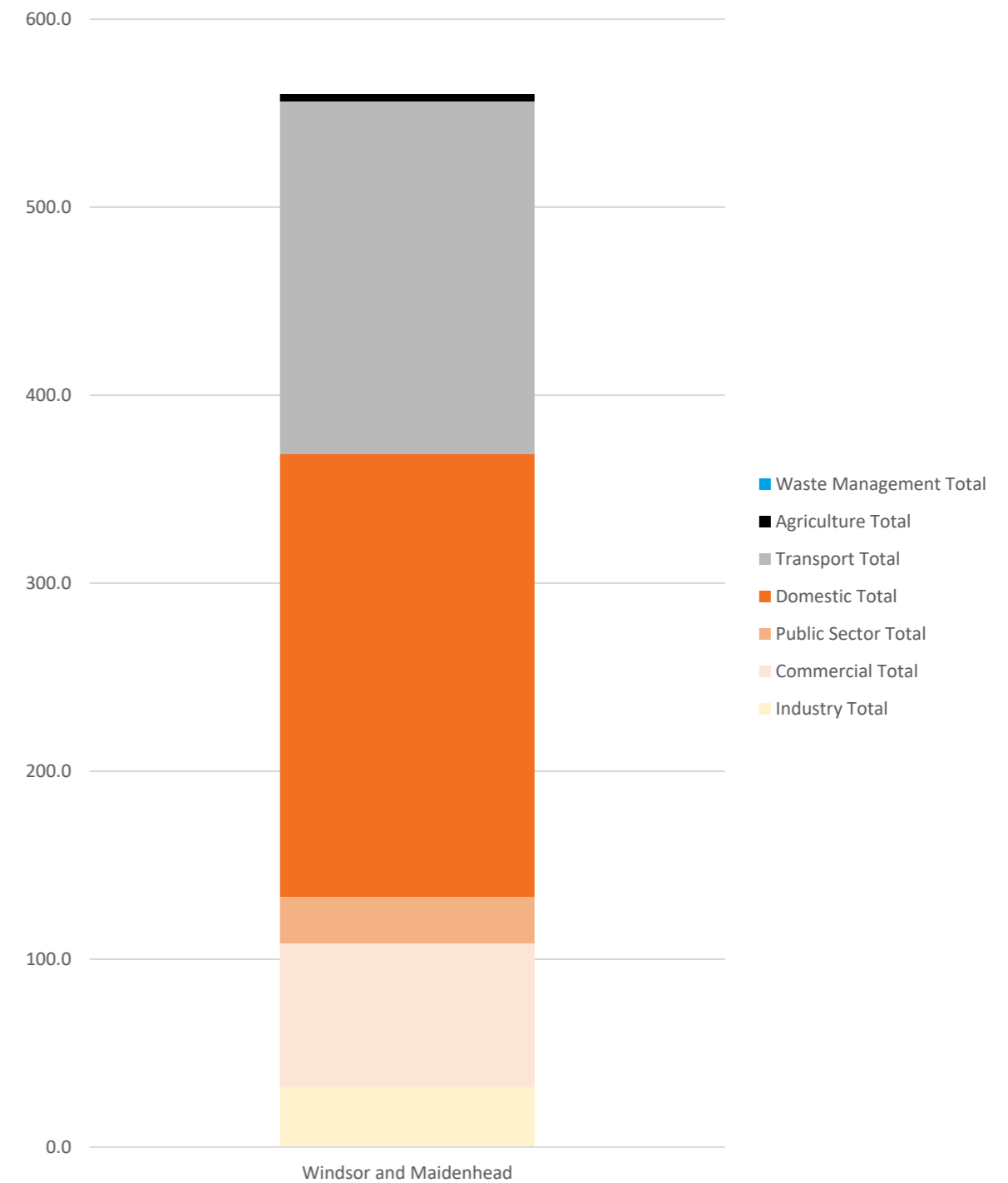
Per capita average renewable electricity generation from PV in 2020 (MWh)



Renewable electricity generation from PV was on average (and per capita) lower in the Borough in 2020 than in England and the South East.

Source: Source: BEIS, 2021. [Renewable electricity by local authority, 2014 to 2020.](#)

Total carbon emissions by sector in the Borough (tonnes CO<sub>2</sub>). BEIS 2020 figures, released 2022



The majority of carbon emissions from buildings in the Borough in 2020 came from heating and powering homes, followed by energy use in commercial, industrial and public sector buildings.

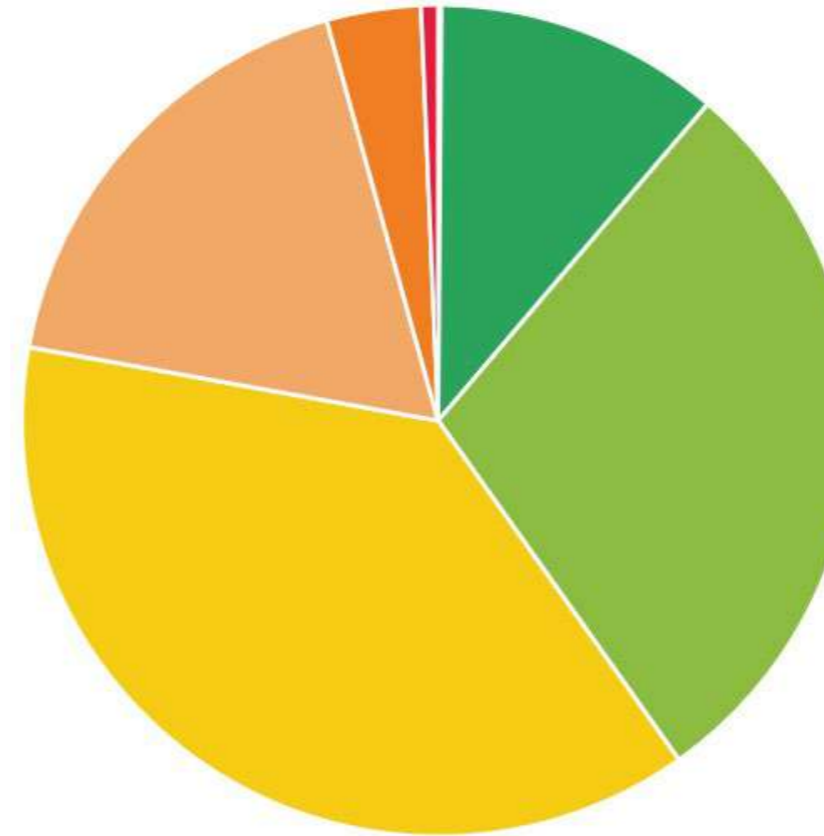
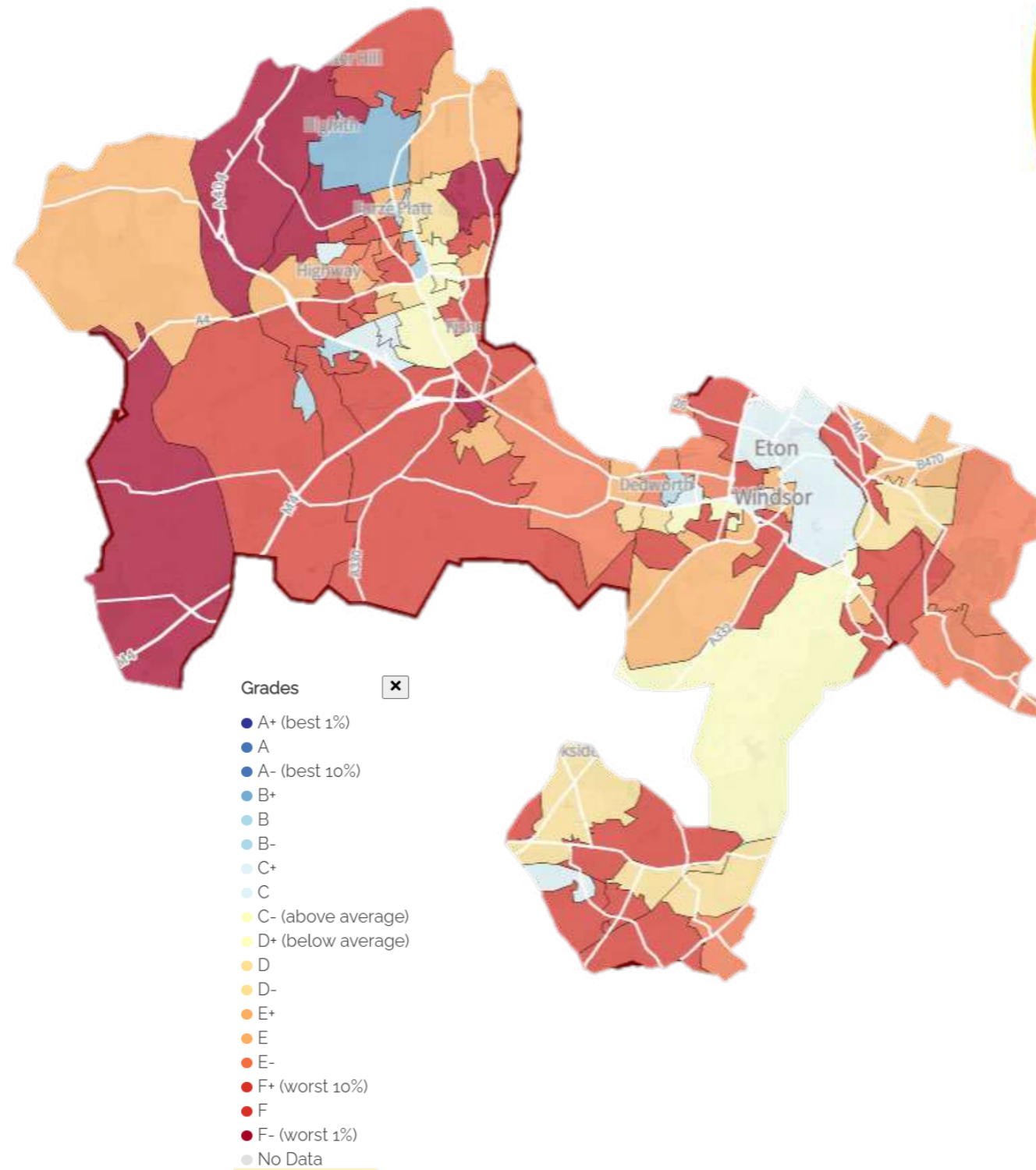
Source: Source: BEIS, 2022.





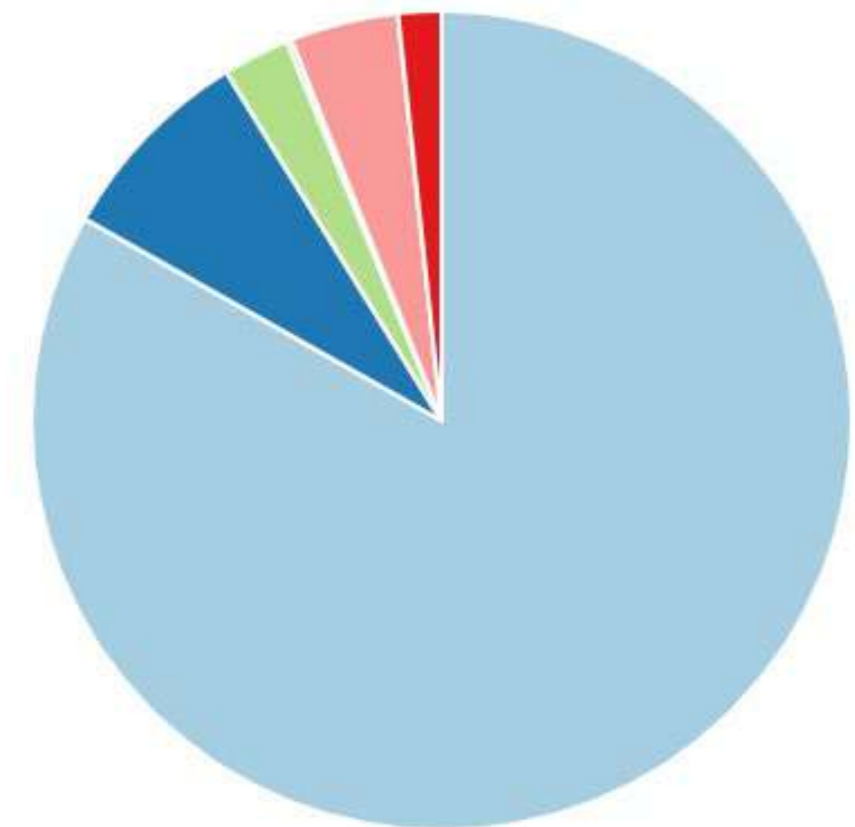
The Place-Based Carbon Calculator has calculated the estimated per person carbon footprint for each Lower Super Output Area (LSOA) in the Borough, and then graded them in comparison to all LSOAs in England. LSOAs in the Borough range from being in the 1% worst performing at Grade F- to some of the best performing at Grade B+.

Source: Place-Based Carbon Calculator <https://www.carbon.place/#8/51.482/-0.151>



Over 50% of homes in the Borough are EPC rated D or E, indicating low levels of energy efficiency in the majority of homes in the Borough.

Source: Place-Based Carbon Calculator, 2022. (<https://www.carbon.place/la/>)



Gas is the most common type of heating system in homes in the Borough.

Source: Place-Based Carbon Calculator, 2022. (<https://www.carbon.place/la/>)

Gas Electricity Oil Soild Fuel Other None

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# 4. Materiality assessment

## 6.1 Materiality Assessment of needs identified: purpose & process

This **Materiality Assessment** aims to identify:

- Which needs/issues have the **greatest importance and urgency** for further action; and
- Which needs/issues are most likely to be within, and in need of, the **Partnership's scope and ability to influence**.

The aim is to help the Partnership make decisions about how to prioritise projects to pursue or fund. A range of topics were distilled from the Needs Analysis. These topics were then scored against a range of **criteria** regarding their relative impact/influence, so that they could be plotted onto a matrix.

The **criteria regarding each topic's importance/urgency** for climate transition and biodiversity recovery was assessed were:

- **Speed and scale of change required on this topic** for the UK's legislated carbon reduction budgets, climate adaptation, or biodiversity recovery (sources: *Committee on Climate Change, JNCC State of Nature Report*)
- **Socioeconomic relevance** in the Borough (sources: *Needs Analysis*)
- **Carbon and biodiversity relevance** in the Borough. How strongly does this topic link to a sector responsible for a major part of the Borough's carbon footprint or biodiversity needs? (Sources: *Needs Analysis*)

The **criteria regarding the necessity and scope for influence by the Climate Partnership** on each topic were:

- **How much additional influence is needed on this topic compared to what is already happening?** That is, how large are the gaps in government policy and sector rate of change? (Sources: *Committee on Climate Change's 2022 Progress Report*)
- **How smooth is the path to implementing action?** Considering potential obstacles such as: regulatory; technological; actor reluctance; geographic.
- **How much engagement or interest might be generated by a program on this topic** beyond the physical outcomes of a program itself? Such as from the general public or opportunities to inspire the sector.

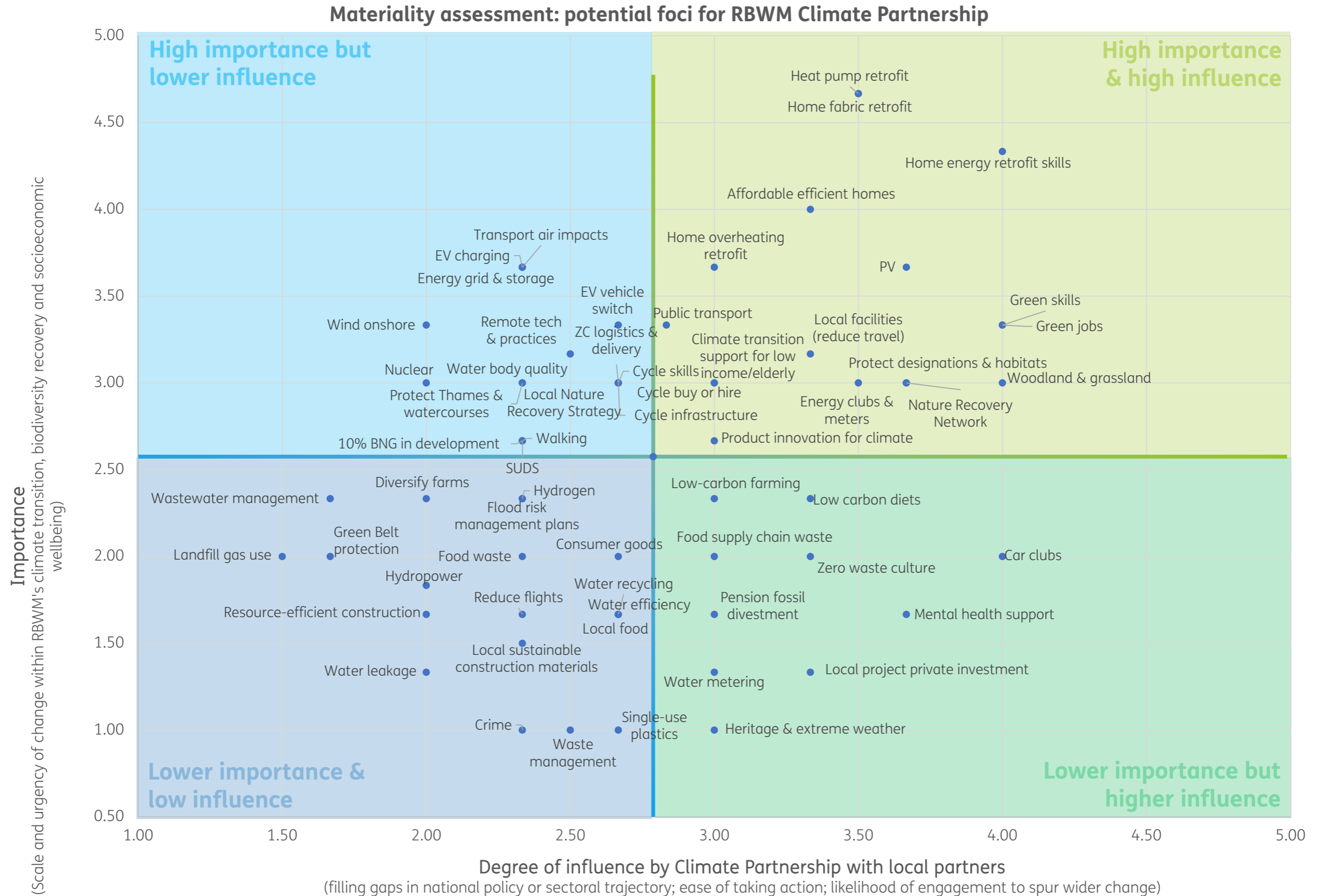
These scores were drafted by Bioregional, shared in draft form with the Climate Partnership and subsequently workshopped with the Partnership's board.

Following a workshop with the Climate Partnership Board on 18 November 2022, the following amendments were made to the Materiality Assessment:

- The 'influence' score for **car clubs** was increased slightly to reflect the fact that the Borough's population are heavy car owners/users and the Board felt this is therefore an area with more scope for strategic influence, in light of the cost, complexity and potential actor reluctance around other larger interventions on car use such as infrastructure and public transport.
- The 'importance' score for **consumer goods** was slightly increased in recognition of the CREDS consumption-based emissions data which shows consumer goods as a large proportion of the Borough's emissions, along with the high levels of car ownership. However, whilst this is an important issue, it must be recognised that consumption behaviour change is extremely tricky and slow-moving. It is likely that real change in consumer goods impact will need national or international legislation or regulation (eg circular economy or Extended Producer Responsibility legislation). The Board felt that there may be scope to support and incubate practical projects such as reuse centres and libraries of things. We expect that the Climate Partnership's influence in this sphere could be to demonstrate innovative projects that provide attractive and convenient ways to keep goods in use longer, eg technology takeback or refurbishment schemes, or clothing repair/upcycling skills development via local colleges. Any Partnership projects in this topic should ideally be inspirational, exemplar and replicable/scalable in the sector beyond the hyper-local context.
- Some comments related to the **clarity of each topic** (eg "Local facilities - reduce travel"). We have therefore added an appendix listing each topic that has been identified in the Materiality Assessment, along with an explanation of the factors that have been considered under each topic.
- The Board agreed that it felt right to focus on influencing **lifestyles and people** in the Borough, and that it would be positive to bring this element into any project that the Partnership pursues, wherever possible.
- In order to visualise the **stacking of benefits**, a page has been added after the matrix to demonstrate how many of the materiality topics would be addressed by each of the Partnership's three proposed projects.



## 6.2 Materiality Assessment – Importance / Influence matrix of results



## 6.3 Materiality Assessment – function stacking

In order to visualise how the Climate Partnership’s three proposed projects have the potential to deliver multiple benefits, the boxes below list the specific needs/issues identified in the Materiality Assessment that each project has the potential to address.

Borrowing a term from permaculture, we have called this exercise a ‘function stacking’. This refers to delivering multiple functions through a single intervention.

### 1. Solar PV farms with community investment mechanism

- ✓ **1** ‘HIGH materiality’ topic definitely hit:
  - i. Renewables/solar PV
- ✓ **1** ‘MEDIUM materiality’ topic definitely hit:
  - i. Local project private investment opportunities
- Potential to hit **3** further ‘MEDIUM materiality’ topics depending on programme design:
  - i. Green jobs
  - ii. Green skills
  - iii. Energy grid/energy storage

### 2. Home retrofit – equipment, skills, advisory service

- ✓ **3** ‘HIGH materiality’ topics definitely hit:
  - i. Home fabric retrofit
  - ii. Green/retrofit skills
  - iii. Affordable efficient homes
- ✓ **1** ‘MEDIUM materiality’ topic definitely hit:
  - i. Local project private investment opportunities
- Potential to hit **3** more ‘HIGH materiality’ topics:
  - i. Climate transition support for low income elderly
  - ii. Overheating retrofit
  - iii. Green jobs

### 3. Nature engagement program for mental health / refuge beneficiaries

- ✓ **1** ‘MEDIUM materiality’ topic definitely hit:
  - i. Mental health (particularly domestic violence)
- Potential to hit **4** ‘HIGH materiality’ topics depending on programme design:
  - i. Protecting designated sites
  - ii. Woodland/grassland
  - iii. Nature recovery network
  - iv. Green skills



## 6.4 Materiality Assessment – Potential foci for the Climate Partnership

The following conclusions can be drawn from the Importance/Influence matrix on the previous page.

The needs/issues that are the most important, and where the Climate Partnership has the most scope to influence include:

- Home energy retrofit skills
- Heat pump retrofit & home fabric retrofit
- Solar PV
- Green skills & green jobs
- Affordable, efficient homes
- Protect designations and habitats (including woodland & grassland, via a Nature Recovery Network).

The needs/issues that have been identified as less important, but where the Climate Partnership might have scope to influence and could therefore present good opportunities include:

- **Mental health support** – this was less directly critical to the Borough’s climate and biodiversity needs, but is important for wellbeing in the Borough, as well as for meeting the Climate Partnership’s Vision and Mission.
- **Low carbon diets & low carbon farming** – only a small share of the Borough’s emissions come from agriculture and food/drink consumption, but the topic is still an important area for carbon reduction and nature recovery in the UK.
- **Car clubs** – this does not play a major role in the anticipated carbon reduction trajectory in the transport sector, but car use reduction and EVs do. Given the high rates of car ownership in the Borough it provides an opportunity to reduce material and energy consumed to produce private cars, and give more people exposure to electric vehicles and thus confidence to choose one in future.

Please note: None of the topics are *unimportant* in the climate and biodiversity crisis, simply ‘more’ or ‘less’ material compared to each other. At the Board workshop it was noted that ‘less material’ topics may not be actively pursued by the Partnership, but if such opportunities arise, they may be considered for special merit and scope explored to link them to ‘more material’ topics for greater impact.

Based on the topics that have scored the highest in terms of importance/influence in the preceding Materiality Assessment, and that address both planetary and local/regional sustainability needs, we suggest that the opportunities that the Climate Partnership might most fruitfully pursue include:

- Roll-out low carbon energy retrofit to existing buildings, especially heat (primarily heat pumps) and fabric efficiency, including for the 50% homes with poor energy efficiency in the Borough
- Increase renewable energy generation in the Borough through the expansion of solar PV
- Bridge the gap in green skills and jobs through innovative investment models and training programmes, to support the delivery of building energy retrofit and other key interventions
- Support the recovery of nature and biodiversity by protecting and expanding woodland and grassland across the Borough, strengthening habitat protection and connectivity, and bringing more land area into beneficial management
- Roll-out zero-emissions electric car clubs to reduce the number of high emitting cars on the road and reduce individual car ownership
- Enable lifestyles that induce less consumption of high-carbon, high-energy goods (including diet)
- Utilise planning powers to the greatest possible extent for high standards for new builds (operational and embodied carbon; biodiversity net gain; climate adaptation measures)

## 6.5 Materiality Assessment – appendix for clarity on topic areas

Short topic title	Full topic title
10% BNG in development	Min. 10% biodiversity net gain on new developments
Affordable efficient homes	Make homes affordable including affordable to run (energy & water efficiency)
Car clubs	Expand use of car clubs (especially EV and small vehicles) and lift sharing
Climate transition support for low income/elderly	Support for socially isolated or lower income older people to live well through the climate transition (energy/water efficiency; overheating risk; low carbon mobility etc)
Consumer goods	Reduce consumer goods throughput by buying less and keeping things in use for longer
Crime	Improve crime rates, especially where those impact uptake of climate-positive behaviours e.g. cycling & EVs
Cycle buy or hire	Accelerate active travel - expand access to cycles & ebikes
Cycle infrastructure	Accelerate active travel – improve cycling infrastructure
Cycle skills	Accelerate active travel – address cycling confidence & uptake
Diversify farms	Farm diversification (range of produce / planted species and economic activities e.g. training, etc)
Energy clubs & meters	Local energy buying clubs and smart meter rollout
Energy grid & storage	Expand grid capacity, energy storage, and fossil-free heat networks
EV charging	Support transition to EV - charging network
EV vehicle switch	Support transition to EV - enabling vehicle uptake (purchases; leases)
Flood risk management plans	Flood risk management plans
Food supply chain waste	Cutting waste in food and the food supply chain - including on farm
Food waste	Reduce food waste

Short topic title	Full topic title
Green Belt protection	Protection of Green Belt land
Green jobs	New green jobs
Green skills	Green skills training
Heat pump retrofit	Low carbon heat retrofit to existing buildings (especially homes)
Heritage & extreme weather	Protect areas of local heritage at risk of weather extremes
Home energy retrofit skills	Training to expand qualified skilled workforce for home energy retrofit (fabric efficiency & heat pumps / other low carbon heat)
Home fabric retrofit	Home fabric retrofit
Home overheating retrofit	Home retrofit to avoid overheating
Hydrogen	Hydrogen production & use
Hydropower	Expand hydropower
Landfill gas use	Expand landfill gas harvesting
Local facilities (reduce travel)	Reduce the need to travel by providing more local facilities eg remote work hubs, play/community etc
Local food	Local agricultural production and consumption
Local Nature Recovery Strategy	Local Nature Recovery Strategy
Local project private investment	Private investment in local sustainable projects
Local sustainable construction materials	Increase local production and use of low-embodied-carbon construction products (e.g. timber; hemp etc)
Low carbon diets	Low carbon diets





# Materiality Assessment – appendix for clarity on topic areas

Short topic title	Full topic title
Low-carbon farming	Low-carbon & agroecological farming
Mental health support	Mental health support
Nature Recovery Network	Strengthen the nature recovery network
Nuclear	Nuclear generation
Pension fossil divestment	Divest pension funds from fossil fuel investments / active focus on green pension investments
Product innovation for climate	Innovation & production of products to enable the climate transition (e.g. energy storage; heat pumps; renewables; smart energy controls; ULEVs; ventilation; carbon capture; low-carbon foods; anti-methane livestock food supplements etc)
Protect designations & habitats	Protect ecological designations and habitats
Protect Thames & watercourses	Protect and enhance River Thames & other watercourses & riparian corridors
Public transport	Boost modal share of public transport (via better access, reliability, convenience, cost, trust in COVID safety, and rebalancing investment away from roads) to bounce back post COVID
PV	Expand solar PV
Reduce flights	Reduce flights
Remote tech & practices	Enable more uptake of remote work/study/care via tech & working practices
Resource-efficient construction	Improve resource efficiency (including circularity) in construction
Single-use plastics	Reduce levels of single-use plastic use

Short topic title	Full topic title
SUDS	Incorporate SUDS and consideration of surface water runoff and storage
Transport air impacts	Minimise air pollution from transport
Walking	Accelerate active travel - walking
Waste management	Solid waste management & landfill - increase region's recycling rate; reduce tonnage sent to landfill; enable reduced commercial and domestic waste generation
Wastewater management	Wastewater management
Water body quality	Improve quality of local water bodies
Water efficiency	Water efficient fittings/appliances in new developments
Water leakage	Reduce water leakage
Water metering	Roll out water metering
Water recycling	Water recycling
Wind onshore	Expand onshore wind
Woodland & grassland	Protection, expansion & sustainable management of woodland / other carbon-sequestering green infrastructure (and protect existing)
ZC logistics & delivery	Development of zero-emissions logistics/delivery services
Zero waste culture	Cultivate a zero waste culture



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