



LONDON BOROUGH OF RICHMOND UPON THAMES

Climate Change and Sustainability Strategy

2019-2024



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Very late in the day, the existential and urgent crisis posed by climate change, with the risk of “tipping points” or points of no return, has begun to be more widely appreciated. A revision of the Council’s Climate Strategy of 2008 has been overdue for strengthening for some time and what follows is an attempt, with targets, to set out, what the Council plans to do and some of things residents can do both to reduce climate change impact and to mitigate its effect. This is a draft document and we look forward to and expect a wealth of comment and suggestions from residents and from the many concerned groups active in the borough. To coin a phrase, we are all in this together and together we can do our very best to make our contribution towards the national, European and international efforts to limit and, if possible, roll back the very evident process now under way.

Martin Elengorn

Chair, Environment, Sustainability, Culture and Sport Committee



INTRODUCTION AND CONTEXT

There is a global consensus that we must take urgent action to tackle climate change before irreparable damage is done to our environment, which would have huge knock-on impacts for society and for the other species with which we share the planet. Successive reports published by the Intergovernmental Panel for Climate Change (the UN body charged with looking at climate change) as well as EU level reports, national reports and overwhelming scientific consensus have all highlighted the need for immediate and decisive action to address the causes of climate change and to plan for the impacts it will likely have on the planet and society. On the 1st May 2019 the House of Commons passed a motion declaring a national

climate change emergency, following on from climate change emergency declarations by both the Welsh and Scottish governments.

While many solutions to climate change will need to be tackled at a national or international level, all levels of government, communities, businesses and individuals have a role to play in addressing climate change. Richmond upon Thames needs an ambitious climate change focused strategy which can:

- Ensure that we have our own house in order and are doing all we can to prevent climate change
- Ensure our services are resilient and adaptable enough to respond to the impacts of climate change
- Provide community leadership so that residents and businesses are able to get involved in preventing and preparing for climate change

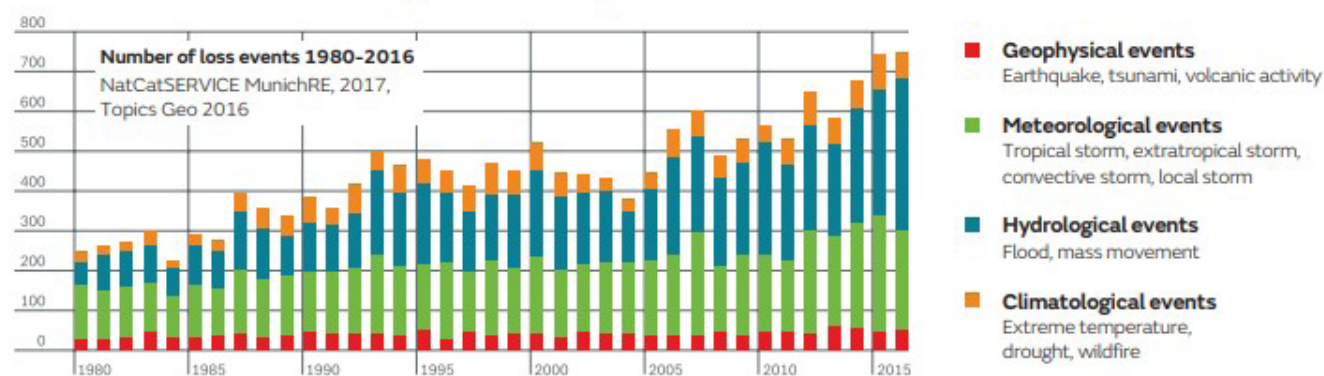
The threat of climate change

The threat of climate change is both local and international and, while the direct impact of climate change for Richmond may not be as severe as in developing countries or some coastal areas, there is a need to ensure that the borough is prepared for the adverse impacts of climate change such as extreme weather events, increased temperatures with risks to health from heat waves, greater pressure on water resources, damage to existing natural habitats, as well as demand for increasingly limited resources.

Extreme weather and climate events can inflict huge human and financial costs on society. A report by Christian Aid showed that in 2018 there were losses totalling \$84.8 billion from the 10 most expensive extreme weather-related events, which doesn't include the myriad other weather events and climate shifts that impact on people. The United Nations Framework Convention on Climate Change suggests that climate change will particularly affect poorer members of communities as they are more vulnerable to the negative impacts of climate change and have fewer resources to adapt².

Climate change is also a public health priority and should be a consideration for all health partners of the Council. The possible adverse impacts of climate change on the health and wellbeing of the population

Are extremes becoming more frequent?



Climate change frequency chart¹

is well known and becoming ever clearer (see the Health Protection Agency's report, "Health Effects of Climate Change in the UK 2012"). At a national level, Public Health England (PHE) evaluate the effects of climate change through their research programmes, feeding into national plans and policies such as the Cold Weather Plan and Heatwave Plan. People's health and wellbeing can be impacted by any of a web of interconnected factors, including increases in air pollution (which causes chronic conditions such as cardiovascular and respiratory diseases and lung cancer) and aeroallergens, water shortage and flooding, heatwaves and other adverse weather conditions (extreme cold spells), as well as increases in food and vector/ water-borne diseases. Worsening

indoor environments (overheating buildings, including homes, care homes and hospitals) and heightened UV risks can also impact negatively on our health³.

While there is an undeniable need to reduce energy consumption and emissions of greenhouse gases, there are also a number of associated issues that need urgent action. Addressing climate change is not simply about reducing the Council's own CO2 emissions, but is about looking at the needs of future generations as well as residents today and seeking to mitigate problems in the future by acting responsibly now. This includes looking at our capacity to support human activity and taking decisions that

¹ Observed changes in extremes. The Met Office. www.metoffice.gov.uk/binaries/content/assets/mohippo/pdf/climate/cop23/observed_changes_in_extremes_final_v1.0.pdf

² Combination of Climate Change and Inequality Increasingly Drives Risk. Article / 14 Jun, 2018 <https://unfccc.int/news/combination-of-climate-change-and-inequality-increasingly-drives-risk>

³ Health Effects of Climate Change in the UK, The Department of Health www.climateinireland.org.uk/cmsfiles/resources/files/Health-Effects-of-Climate-Change-in-the-UK_Department-of-Health.pdf

respect environmental limits as well making sure that there is a balance in decision-making between immediate financial needs for the borough and long-term sustainability. It is generally recognised that economic, social and environmental issues are interlinked and that tackling them in an integrated way will achieve the best solutions. Climate change increases health inequalities due to rising fuel and food prices and a reduction in access to cooling or heating, leading to cold related deaths in winter and heat related deaths in summer, as well as costlier insurance. These factors will have a greater impact on those who may already be disadvantaged or vulnerable in our communities⁴.

Sustainability

In addition to climate change, this strategy also deals with sustainability. Simply put, sustainability is about meeting the needs of the present without compromising the ability of future generations to meet their needs. The concept of sustainability is composed of three pillars: economic, environmental, and social, which can also be known informally as profits, planet, and people.

For the London Borough of Richmond upon Thames, this fits well with our approach as a public sector organisation. We have a responsibility to look after our local environment, we have a responsibility

to look after the people in the borough, including those who are most vulnerable, and we have a duty to encourage a vibrant local economy. Our various responsibilities and powers means we are a key local driver for sustainability, from our role in planning and development, our environmental services, our support for vulnerable adults and children through to our significant procurement budgets. As an organisation, we need to ensure that sustainability is ingrained into everything that we do. It also presents an opportunity, as innovation, technology and new approaches develop, so we can make sure that we are well placed to take advantage of these and ensure that we are integrating sustainability into everything we do.

There is also a need for us to support our residents so that they are able to lead more sustainable lives. In order to avoid catastrophic impact on our environment, society and also our economy, all areas of society need to think about how they go about their daily business and look at ways to live more sustainably. This will mean a change in the people's lifestyles and a reverse of consumerism, which we should encourage and support our residents through. A good example of this is food, with the World Resource Institute estimating that 14.5% of human caused climate change comes from animal agriculture globally. United Nations scientists state

that raising animals for food is one of the major causes of the world's most pressing environmental problems, with impacts including climate change, land degradation, air and water pollution, and loss of biodiversity. Growing crops to feed them to farm animals is inefficient, driving up the price of grains and legumes. Advocates for sustainable approaches promote a reduction in the current levels of consumption of meat.

⁴ Climate Change 2014. Impacts, Adaptation and Vulnerability- Part A; Global and Sectoral Aspects. IPCC www.ipcc.ch/report/ar5/wg2/

Impacts of Climate Change on Richmond upon Thames

The Intergovernmental Panel on Climate Change (IPCC) assesses the global risks from climate change and predicts the average global temperature in 2100 could reach 2.5°C to 7.8°C above late 19th century levels if no action is taken to reduce global greenhouse gas emissions. Climate change is already affecting the UK and other countries around the world. For example, in the UK:

- the average sea level is rising by 3mm per year and could increase by 12 to 76cm by the end of the century (compared to 1990 levels)
- the earlier onset of spring and summer is affecting plants and animals
- winter rainfall is arriving in more intense bursts⁵

Richmond's environment is a vital component of the character of the borough. More than two thirds of its land is protected by either open space or conservation area status and this contributes greatly to the quality of life for residents, workers and visitors. In addition, Richmond is the only London borough that straddles the Thames, making it at risk of flooding but also meaning limited crossing points and transport around the borough.



⁵ Global Warming of 1.5 °C. The Intergovernmental Panel on Climate Change. www.ipcc.ch/sr15/

Climate Variable	Summary of change	Overview of anticipated changes	Richmond context
Temperature	Increase in average annual temperatures with noticeable changes in the number of hot days.	<p>The UK is projected to experience temperature increases of up to around 2°C in the south of England.</p> <p>Average temperatures have increased by nearly 1°C since the 1980s. All of the top ten warmest years for the UK have occurred since 1990. This includes 2014, which was the warmest year on record in the UK.</p>	<p>Public transport links will be affected by the heat as temperatures on all modes of transport become harder to bear.</p> <p>There is a risk of severe disruption on roads (affecting cars, buses, and emergency services), rail and underground leading to transport difficulties.</p> <p>This can also impact services such as rubbish collection, schools and hospitals, which could postpone appointments and operations.</p>
Sea/ River Level Rise	Rise in sea / river levels and storm surges.	<p>The risk of fluvial and tidal flooding in Richmond can be expected to increase as a result of climate change and this increase in the number of properties at risk of flooding.</p> <p>LBRuT is very susceptible to surface water flooding, such as the summer 2007 flooding.</p>	<p>The borough is vulnerable to surface water flooding which could cause disruption to transport (road closures, speed restrictions and lane restrictions) and damage to property.</p> <p>Surface water flooding is regularly contaminated with sewage which in turn causes the spread of disease.</p> <p>There will be a greater risk from tidal, pluvial and fluvial flooding throughout the borough. Increased flood risk will lead to a change in insurance provisions, with some areas prohibitively expensive to insure. Flood defences will need to be upgraded to cope with new parameters. If inadequately treated or in excessive quantities, sewage in the river effluent can damage the plant and animal life of a river by reducing the oxygen content of the water. In extreme cases, the river will support very little life and the entire ecosystem and will become foul smelling and grossly offensive.</p>

Climate Variable	Summary of change	Overview of anticipated changes	Richmond context
Extreme events	Increase in frequency of extreme weather events	<p>Heat waves could have a major effect on mortality in the UK with greater frequency of record-breaking temperatures and longer consecutive days of higher than average temperatures being recorded.</p> <p>Rainfall extremes are generally projected to increase, particularly during winter but with drier long summers.</p>	<p>Severe heat waves can impact on vulnerable residents in particular, such as the very young, very old and those who are severely ill.</p> <p>There has been an increase in damage to council infrastructure caused by weather events (e.g. trees, roads, pathways) and an increasing propensity for insurance claims against the Council.</p> <p>Severe winter weather events could cause widespread impacts throughout the borough with school closures and increased number of hospital admissions.</p> <p>Extreme events will mean that wildlife species displacement will become more common. Prevalence of disease, pests and non-native species will become more frequent.</p>
Water Supply	Water shortages	<p>Changing rainfall patterns leading to unpredictable rainfall and water shortages. Water shortages will impact upon local biodiversity as well as food production nationally and regionally.</p> <p>Recent simulations by the AVOID programme project that the UK could experience a moderate increase in water stress with climate change.</p>	<p>London is within the driest part of the country and is potentially at risk of drought if reservoirs and groundwater aquifers are not re-filled by regular rainfall. The cost of a severe drought to London's economy is estimated by Thames Water to be £330m per day, and would have severe economic, social and environmental consequences.</p>

Climate Variable	Summary of change	Overview of anticipated changes	Richmond context
Biodiversity	Changes to the climate will change the biodiversity of the borough	There is strong evidence that climate change is affecting UK biodiversity. Impacts are expected to increase as the magnitude of climate change increases. Many spring life-cycle events are likely to occur earlier in the seasons.	<p>Climate change increases the potential for non-native species introduced by people (including pests and pathogens posing a public health risk) to establish and spread. Temperature increases could result in migration of species or even loss of habitats. Reduction of summer precipitation could have an impact on flora growth and diversity.</p> <p>Changed growing seasons could result in some crops being unviable but could lead to other becoming viable.⁶</p> <p>Various species of tree within the borough are particularly vulnerable to the effects of climate change, this was evidenced in 2018 where a long, hot summer resulted in high mortality rates of both native and non-native trees.</p>

⁶ Biodiversity climate change impacts. Report card 2015. <https://nerc.ukri.org/research/partnerships/ride/lwec/report-cards/biodiversity/>

⁷ Taken from; Climate; Observations, projections and impacts. The Met office. www.metoffice.gov.uk/binaries/content/assets/mohippo/pdf/t/r/uk.pdf

The Climate Change and Sustainability Strategy and how it fits with other strategies

In Richmond, work is under way in many areas related to climate change and sustainability. The Council has programmes in place to improve energy efficiency, reduce business mileage, increase recycling and capture good practice, among others.

This Climate Change and Sustainability Strategy is intended to provide an overarching framework around this issue, bringing together existing areas of work to provide more clarity and focus, to highlight linkages between approaches being taken across the organisation and to identify additional key future actions and approaches which have not previously been in place. The Strategy will focus attention on areas where we can have the most impact. Climate change and sustainability is a constantly evolving area, with huge technological leaps being made and the Strategy aims to place the Council in the best position to harness these and deliver the most impact for our residents.

The Council has set four priorities in its current 2018-2022 Corporate Plan which outlines how we aim to become a greener, safer, fairer borough for everyone. The Climate Change and Sustainability Strategy is linked to the 'Greener Borough' priority with the goal of becoming the greenest local authority in London by putting the environment back at the heart of local decision making.

The activities identified within the strategy will continue to drive change within a much more structured approach. Adopting a structured and measured approach to energy sourcing and use, waste production and disposal, travel and transport, and the purchasing of goods and services will help the Council prepare for the adverse conditions that may be faced due to the changing climate. At a time of intense pressure on resources the expanding green economy also presents an opportunity to set a positive agenda.

Successful delivery of the strategy will depend on integration with and implementation of other council strategies and action plans. These include:

- Air Quality Action Plan (to be published in 2019)
- Allotment Strategy (2018-2028)
- Asset strategy (2016- 2021)
- Biodiversity Action Plan (developed with SWLEN) (2019)
- Cycling Strategy (2016- 2026)
- Parks and Open Spaces Strategic Principles (2011)
- Procurement Strategy (2016-2019)
- The Local Plan (Adopted July 2018) including the Sustainable Design and Construction
- Supplementary Planning Document (Adopted January 2016)
- Tree Policy (2015)
- West London Waste Plan (to 2031)

While the Local Plan was only adopted in 2018, preparations are already underway for its review and update. Its successor will need to take into account policy and legislative changes, especially with regard to the Mayor of London's London Plan, so it is therefore likely to be more directed at climate change related issues, including parking, transport and biodiversity.

To further demonstrate the Council's commitment to environmental sustainability, an Inclusive Growth strategy is being developed which will outline the key opportunities and ambitions that growth will bring for the places and people of Richmond. The Council's pillars for inclusive growth are: communities; affordable housing; environment; good design and employment and enterprise. Alongside this work the Council is reviewing its approach to measuring social value to establish a consistent methodology which will allow further financial quantification of green initiatives such as improving air quality alongside other social and economic benefits.



IMPLEMENTING THE STRATEGY

The strategy builds on existing progress and plans and acts as a framework to drive forward the delivery of the actions already identified in those plans as well as additional ones identified in the strategy. Action on climate change will not be deliverable without engaging with our partner organisations, local businesses and most importantly of all, our residents. The strategy has been developed with consideration of the roles that partners and our community play, and it will be delivered in collaboration with them.

We have identified five key areas of focus that will need to be addressed to meet our legislative requirements as well as contributing to reducing

our carbon emissions and mitigating the impacts of climate change. For each area we highlight the importance of the issues, current performance, immediate targets, and key measures and actions required to achieve the vision. Each area has overlapping issues that will need a comprehensive and holistic approach from several different Council departments and potentially partners as well.

Implementation of the strategy is scheduled to take place from autumn 2019 through to 2022. There will be annual reporting on the strategy as well as reporting on progress linked to the Richmond Corporate Plan on a biannual basis. The actions to deliver the strategy will be reviewed annually

to monitor the progress of activities and identify new and emerging priorities, while a series of key performance indicators will be developed which will be embedded into the Council's regular performance reporting. These results will be published on the Richmond web site via an annual environmental report.

A Climate Change Steering Group will be formed which will include a senior representative from all strategic areas and will ensure performance monitoring and strategic oversight of delivery of the Strategy. Its responsibilities will include:

- Identifying and shaping priorities for the Strategy.
- Leading on partnership working, creating links with public sector organisations and businesses to work jointly on climate change approaches
- Monitoring performance on key targets
- Monitoring progress on delivery of projects
- Promoting a consolidated Council-wide approach to climate change by reducing silo-based working

A Climate Change Action Group will also be formed, which will lead on more operational matters, ensuring that identified projects and approaches are being delivered on time. Its responsibilities will include:

- Project delivery
- Monitoring and delivering on performance indicators
- Identifying potential opportunities for new projects/developments and funding
- Ensuring information sharing on climate change is being spread throughout the organisation
- Ensuring up to date and relevant information is

available for the public on climate change issues and delivering on community engagement

- Regular reporting to the Climate Change Steering Group

The Council will seek to use various capital funds available to deliver infrastructure and investment based actions around climate change, including CIL, SALIX, the minimum energy efficiency fund, Climate Change Reserve, Carbon Offset Fund and any other funding streams made available by the government.

Procurement will also play a key role in implementing the strategy, with a new Sustainable Procurement Strategy developed which will integrate environmental and social requirements into all procurement activities. This will ensure that our suppliers are also considering climate change and working towards reducing their environmental impact, giving us more confidence that our supply chain is not contributing to climate change.

We will also develop a communications strategy around climate change, which will steer our communication initiatives within the organisation to increase staff awareness and promote the take-up of new approaches.





THE RICHMOND CLIMATE CHANGE AND SUSTAINABILITY VISION

We want to make Richmond upon Thames a greener, safer and fairer borough. Our goal is to become the greenest local authority in London by putting the environment back at the heart of local decision making.

The strategy sets out five main areas of focus around climate change and sustainability, ensuring that we comply with current legislation, have a framework to set robust targets, have identified key actions we need deliver and have the resources in place to achieve these actions.

Climate Change Mitigation and Energy Efficiency

We will reduce the Council's Carbon footprint by reducing our energy demand, increasing our energy efficiency. By 2022, Richmond will use less energy in our operations and better control our energy consumption by monitoring our emissions and implementing mitigation measures. We will use cleaner, greener supplies of electricity and explore locally generated sources of renewable energy including solar power. We will ensure Richmond is able to plan, measure and respond proactively to the effects of climate change and the implications of resource scarcity.

[Our key target is to become carbon neutral as an organisation by 2030.](#)

Improving Air Quality

We will develop and deliver an ambitious air quality plan that will make a meaningful change to air quality in the borough with emphasis on reducing air pollution around schools, and town centres. We will lead by example shifting to cleaner modes of transport within our operations and developing policies and infrastructure that reduce pollution from transport and buildings in the borough.

[Our key target is to improve the air quality in the borough.](#)

Green Infrastructure and Biodiversity

We will improve and protect the biodiversity and ecology of our green spaces and protect them against the negative impacts of climate change. We will facilitate and support quality networks of green infrastructure capable of supporting biodiversity and resilience against climate change and ensure the consideration of biodiversity both in policy and practice across the Council's services. We will maintain the parks and open spaces of Richmond as centres of excellence, make them fully accessible, ensuring high standards across all parks and open spaces managed by the Council.

[Our key target is to plant more trees.](#)

Waste and Plastics and the Circular Economy

We will embed reduce, reuse, recycle into everything Richmond does around waste. We will work with our residents, businesses and schools to reduce the overall amount of waste generated in the borough and will aim to be one of the top performing boroughs in London for recycling. We are committed to support residents in being able to make a significant contribution in the management of waste and will make services accessible, inclusive and comprehensive. We are committed to becoming single use plastic free in our operations by 2022 and will work with residents, businesses and schools to reduce consumption of single use plastics. We will ensure our waste and recycling operations are

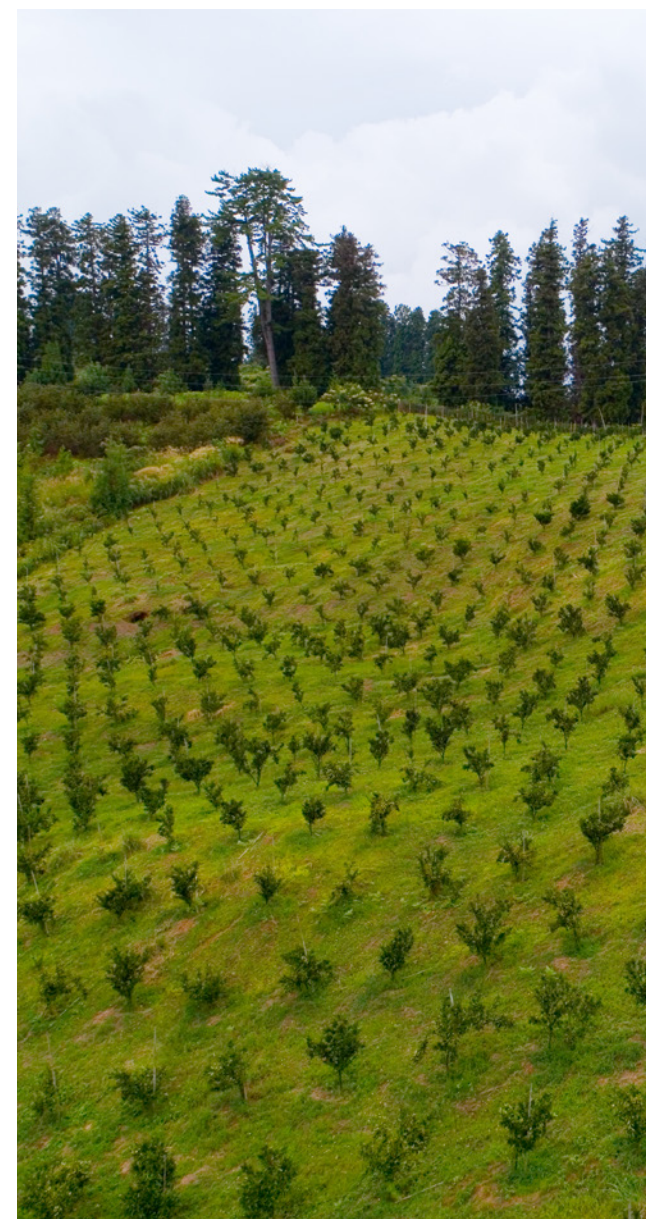
conducted in the most sustainable way possible and available through working with contractors, operators and waste disposal authorities. We will look for opportunities to promote a Circular Economy in Council operations including the way we procure goods and services.

[Our key target is to be single use plastic free as an organisation by 2022.](#)

Water Management and Flood Abatement

We will ensure that development across Richmond addresses flood risks and promotes sustainable drainage. We will promote and encourage development to be fully resilient to the future impacts of climate change in order to minimise vulnerability of people and property, including risks of flooding, water shortages and the effects of overheating.

[Our key target is to reduce our water consumption as an organisation.](#)





CLIMATE CHANGE MITIGATION AND ENERGY EFFICIENCY

Our Ambition

We will reduce the Council's Carbon footprint by reducing our energy demand and increasing our energy efficiency. By 2022, Richmond will use less energy in our operations and better control our energy consumption by monitoring our emissions and implementing mitigation measures.

We will use cleaner, greener supplies of electricity and explore locally generated sources of renewable energy including solar power. We will ensure Richmond is able to plan, measure and respond proactively to the effects of climate change and the implications of resource scarcity and will be carbon neutral by 2030.

The Context

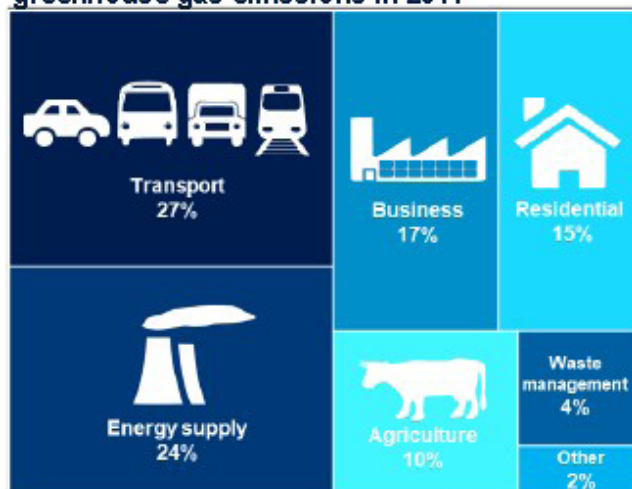
Key Drivers and the Richmond Context

Climate Change Mitigation is the reduction or prevention of greenhouse gases, which are the gases fuelling global climate change. Mitigation approaches can include using newer technology, renewable energy, changing consumer behaviours (either our own or persuading others) and reducing energy use through energy efficiency. The biggest challenge in reducing emissions in order to have the most impact is the decarbonisation of Council as an organisation and the borough as a whole.

In the UK in 2017, transport and energy supply were the biggest areas of greenhouse gas emissions.

As can be seen, transport and energy supply make up over half of UK emissions, so reducing our own demands on these areas will help reduce emissions. Around our energy supply, challenges include the following:

Transport was the largest emitting sector of UK greenhouse gas emissions in 2017

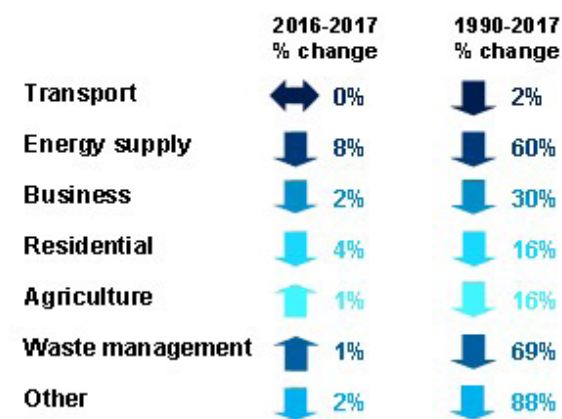


Other includes Public, Industrial Processes and the Land Use, Land Use Change and Forestry (LULUCF) sectors (note that LULUCF acts as a net sink of emissions). The percentages may not sum to 100% due to rounding.

UK Greenhouse gas emissions; final figures⁸

- Reducing energy demand and increasing energy efficiency – reducing energy consumption while still maintaining similar levels of output or performance. This will be achieved by reducing wasted energy and increasing the power efficiency of our appliances and will require capital investment and development of a robust and comprehensive decarbonisation strategy.
- Generating energy – maximising the use of renewable energy sources is an effective way

Energy supply and the residential sector delivered the largest reductions in emissions from 2016 to 2017



The energy supply sector has accounted for around half of the overall reduction in UK emissions since 1990, at which point it accounted for 35% of all emissions in the UK. It was the largest emitting sector until its emissions fell below transport in 2016.

to reduce reliance on supplies of fossil fuels. Green technologies can offer opportunities for sustainable energy generation.

- Seeking new sources of funding – the establishment of funding mechanisms from public, private and alternative sources that seek to support mitigation and adaptation actions that will address climate change and work towards the decarbonisation of our operations. The resulting reduction in operating costs could in turn help protect front line services.

There are a great number of historic buildings in Richmond. These listed buildings form an intrinsic and unique characteristic of the Borough, but they also present a challenge for executing energy improvement measures. We will seek to improve the efficiency of the buildings owned and managed by the Council while respecting their cultural significance.

The Council does not own or directly manage social housing but works in partnership with social housing and private landlords to address housing issues and ensuring compliance with legislation such as the Energy Efficiency Regulations.

In addition, the Council controls a substantial investment portfolio as part its reserves and actively manages short, medium and long-term investments to make best use of our finances. There is a legal requirement for the Richmond Pension Fund to detail how it approaches environmental, social and governance issues and there are opportunities to review this. The Pensions Committee have engaged consultants to look at options for enhancing the current arrangements.

Around transport, the Council has less direct control due to many responsibilities around transport lying with national government and Transport for London. However, there are direct challenges that include:

⁸ 2017 UK greenhouse gas emissions: final figures (Department for Business, Energy & Industrial Strategy). https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/776083/2017_Final_emissions_statistics_one_page_summary.pdf

- Meeting our legislative requirements around ULEZ compliance, which will impact on Richmond in October 2021
- Reducing transport related emissions from our own workforce, such as journeys to and from work and journeys taken within work
- Reducing emissions from the vehicles that we own and use. While smaller electric vehicles are widely available, specialist vehicles (such as bin lorries and the highways fleet) that are electric or renewable fuel powered may be unavailable or have technologies that are in their infancy and therefore not financially and operationally sound investments.
- Influencing the behaviour of residents in the borough and encouraging ‘modal shift’ away from the highest emitting forms of transport towards the lower emitting forms of transport where possible, following the transport hierarchy, below:
- Addressing socio economic factors, such as the impact of climate change on the most vulnerable in society. We will ensure changes and improvements will have lasting benefits for the whole community.

Legislation and Policy

The UK has ratified the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol, and the Paris Agreement, which are international treaties and frameworks designed to tackle climate change. As a current EU member state, the UK is covered by the EU’s Nationally Determined Contribution for the reduction of greenhouse gases (GHGs) under the Paris Agreement. This obligates the EU to reducing its GHGs by 40 per cent by 2030 compared to 1990 levels.

The UK is currently bound by EU climate change legislation which includes the Energy Efficiency Directive 2012, the EU Emissions Trading System and the Renewable Energy Directive 2009. The EU’s climate and energy package requires member states to achieve the following:

- improvements in energy efficiency and savings
- reductions in GHG emissions from 1990 levels via the EU Emissions Trading Scheme
- increases in the share of energy from renewable sources

The UK intends to exit the EU in 2019 and upon exit, the UK will need to ensure that it complies with its

international climate change and energy efficiency commitments, although it will be able to deviate from the EU laws on climate change, renewables and energy efficiency.

The Climate Change Act 2008 established the longstanding framework for the UK’s plan on dealing with climate change. The act encourages the transition to a low carbon economy in the UK through setting national targets. Under the Climate Change Act 2008, local authorities are committed to an 80% emissions reduction by 2050 compared to 1990 levels and to build the UK’s ability to adapt to climate change. To ensure that regular progress is made towards this long-term target, the Act also established a system of five-yearly carbon budgets. The current carbon budgets commit the UK to 17% emissions cut by 2020 on 2010 levels (34% emissions cut on 1990 levels) and a 50% cut by 2025. In June 2019 the government amended the Climate Change Act and set a new target of zero carbon by 2050.

The UK Government’s 2017 Clean Growth Strategy outlines the policies that are intended to meet the UK’s carbon budget. The key policies in the Clean Growth Strategy focus on:



- green finance capabilities
- improving the efficiency of homes and rolling out low-carbon heating
- accelerating the shift to low-carbon transport delivering clean, smart, flexible power (including the phase out of unabated coal in energy production by 2025 and improving the route to market for renewable technologies such as offshore wind)
- leading in the public sector (with tighter targets for 2020 for central government)
- government leadership in driving clean growth (including annual reporting on performance).

The Mayor of London’s environment strategy was published in May 2018 and sets out a number of key aims for London, including making London a zero-carbon city by 2050, with energy efficient buildings, clean transport and clean energy. Key actions and approaches within the strategy include improving energy efficiency in all buildings, increasing communal heating networks using local energy sources, increase solar power energy generation, ensure new developments are zero carbon and trialling low carbon technologies like heat pumps and batteries.

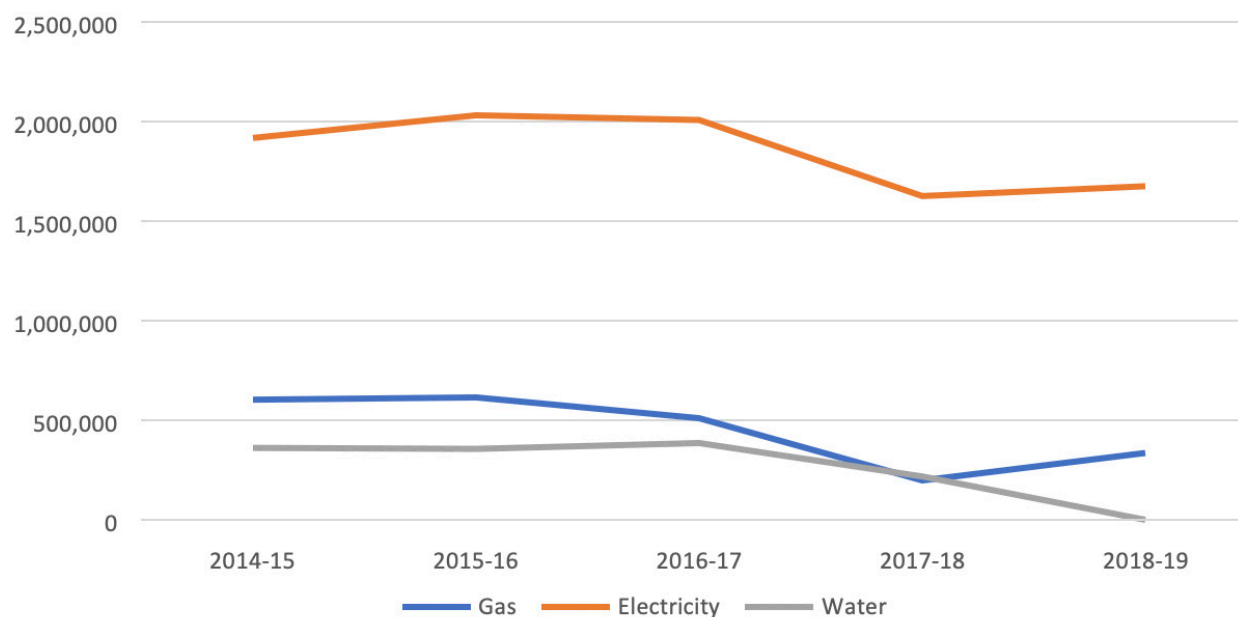
Where Richmond is now

Calculating CO2 emissions accurately is a challenge as data on emissions from every aspect of the Council’s activities is not available, therefore it is difficult to give a true and accurate picture

of the overall emissions from the Council as an organisation. We have data on emissions from our buildings, which shows a reduction in our gas and electricity consumption and spend and resulting decrease in carbon emissions. The reduction in CO2 emissions from 2013/14 to date is largely due to improvements in staff knowledge and behaviours and management of Council buildings, technological improvements that have allowed flexibility in working practices (remote working) and greater decarbonisation of the electricity grid.

Our total spend on fuel and water is shown below: Our energy supplies are generally purchased corporately on a centrally managed contract. These contracts allow for competitive tariffs, improved data management services and reduced administration costs.

Fuel and Water Consumption



Our emissions from transport can be seen below:

	2017/18	2018/19
CO2	1,184,253.71	1,210,357.23

This shows an increase in CO2 emissions from transport. Factors behind this has been a growth in the fleet size as additional vehicles have been added for the Facilities Management team, as well as the relative age of the vehicles being used, with older vehicles being less efficient and generating more emissions. In addition, our waste contractor uses dustcarts to collect missed collections, where this was previously carried out by smaller vans.

The Mayor of London has set carbon associated with waste management savings targets expressed in Carbon dioxide equivalent (CO2eq) for the next 12 years.

2020/21	2024/25	2030/31
-0.069	-0.085	-0.178

In 2017/18, our data showed that each tonne of Richmond’s waste is associated with a CO2eq impact (or saving) of -0.015 tonnes per tonne of waste managed.

These figures relate to London Borough of Richmond upon Thames as an organisation, and we do not currently collect any information on the CO2 emissions of the borough as a whole. We will explore opportunities to collate this data.

Linked Strategies

The London Borough of Richmond upon Thames Local Plan sets out policies and guidance for the development of the borough over the next 15 years and includes how the borough can minimise and mitigate the effects of climate change by requiring high levels of sustainable design and construction including reductions in carbon dioxide emissions by minimising energy consumption, promoting decentralised energy and the use of renewable energy as well as requiring high standards of water efficiency. The Local Plan also promotes safe and sustainable transport choices, including public transport, cycling and walking, for all people, including those with disabilities. It encourages improvements to public transport, including quality and connectivity of transport interchanges, and the use of Smart City technology and practices.

In addition, our Cycling Strategy supports measures to support the development of an integrated, comprehensive and high-quality cycling network and encourage cycling as a sustainable form of transport.

Key Actions

Our key action is to drastically reduce our amount of carbon emissions, with the long-term goal of being carbon neutral by 2030 and zero carbon by 2050.

We will create an accurate system for recording the true CO2 emissions of the Council as an organisation in order to be able to show how we are progressing to become zero carbon. We will also develop a measure for CO2 emissions for the borough as a whole.

We will ensure that the energy hierarchy is embedded in the way we approach managing our facilities, so we reduce our emissions as much as possible:



1. ENERGY CONSERVATION

Reducing demand by changing behaviour to reduce demand

2. ENERGY EFFICIENCY

Use energy efficient systems such as boiler insulation and more efficient appliances

3. RENEWABLE ENERGY

Generate heat and electricity from renewable resources (solar PV, biomass, thermal etc)

4. LOW CARBON RESOURCES

Use of low carbon technologies (heat pumps, CHP etc)

5. CONVENTIONAL RESOURCES

Source from conventional resources

Our buildings

We will evaluate the Council's current energy consumption and cost with an energy audit to identify opportunities for energy conservation, efficiencies and cost savings. The energy audit will enable the Council to develop energy investment strategies for its facilities, which will be monitored to ensure continuing viability, carbon reduction and cost savings from 'invest to save' projects, including use of the existing Climate Change Fund.

We will improve staff awareness so that all employees adhere to good energy management and housekeeping. We will ensure consistency in how we manage our buildings. All Council buildings will:

- Be installed with a Building Energy Management System (BEMS) to monitor and control services such as heating, ventilation and air-conditioning, ensuring the building operates at maximum levels of efficiency and removing wasted energy usage.
- Only operate offices between the hours of 7am to 8pm, unless otherwise required
- Ensure building heating systems run to match office peak occupancy hours
- Have building specific energy plans and/or targets to ensure council owned buildings minimise excess energy use
- Have Display Energy Certificates (DEC) to show the public how well the building is performing year on year and as a means of auditing building performance.

- Fit all buildings with automatic meter readers which will help lower meter reading costs and provide real-time billing information

In May 2019 Richmond established a Carbon Offset Fund in line with guidance from the Greater London Authority. This fund collects money from new residential developments that have not reached zero carbon standards and makes it available for the Council to use for its own carbon offsetting purposes. We will utilise the Carbon Offset Fund, in addition with other sources of funding, to maximise the impact to use carbon offset monies provided by developers to deliver energy efficiency projects within our buildings.

We will review all buildings that we currently lease to ensure that we are using energy efficient properties and will develop a long-term plan for reducing emissions and improving the energy efficiency in Council owned properties which we currently lease to other organisations or are used by other organisations/tenants.

Our streets

We will continue to work to replace all our street lighting with LED and also use photo-electric control unit (PECU) arrays which will accurately calculate energy consumption. We will deliver £11m of improvements to our street lighting across the borough.

We will develop an electric vehicle infrastructure by ensuring a faster roll-out of electric vehicle charging points for residents and continue to install lamp column charging points across the borough. While we do not have direct control over the number of electric vehicles that residents use, we can ensure that we create an environment where use of an electric vehicle is as easy as possible.

Our vehicles

On March 1st, 2019 we introduced fines for drivers who refuse to turn off their idling engines when asked. Engine idling is a source of carbon emissions as well as air pollution and we will continue to promote this enforcement action.

We will work towards the replacement of all diesel vehicles in our fleet with vehicles that are ULEZ compliant before October 2021.

We will develop long-term plans to ensure all Council vehicles are powered by electric or renewable fuels sources.

We will maintain the borough's Fleet Operator Recognition Scheme (FORS) Bronze accreditation, which focuses on good driver behaviour such as avoiding speeding and harsh braking and establish improved monitoring of fuel consumption.

We will install robust management of our whole contract fleet to increase efficiency in usage and reduce emissions, including our vehicles covering

waste, highways, grounds maintenance, street cleansing, engineering, building contractors, school buses, day care transport.

Our approach to the way we work

We will invest in smart technology that will help our business group and allow colleagues to make smart choices. Implementing new Skype, teleconferencing and OneDrive will help colleagues working from home and not need to undertake unnecessary journeys.

The Council will work with all departments to deliver associated strategies, share good practice and knowledge, foster greater engagement and spirit of working together and investigate the viability of funding opportunities that will help facilitate energy efficiency initiatives such as SALIX, Minimum Energy Efficiency Fund (MEEF) and the Carbon Offset Fund.

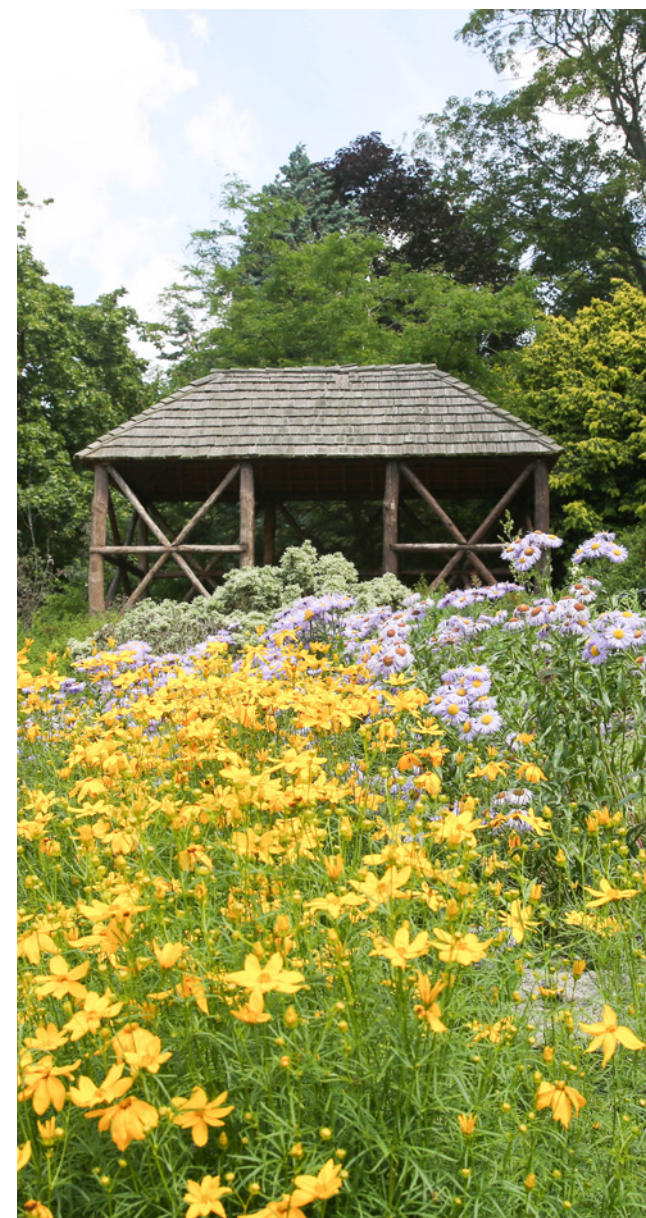
We will work with pension funds and other investors to divest from fossil fuels and increase investment in energy efficiency, low carbon transport and low carbon heat solutions. The legal requirement for the Richmond Pension Fund to detail how it approaches environmental, social and governance issues is currently being actively reviewed by the Pensions Committee, who have engaged consultants to look at options for enhancing the current arrangements and have tasked Officers with procuring services which will evaluate the Funds current carbon footprint.

Our partners

We will develop a Richmond Climate Charter, outlining a commitment to reducing emissions through improved energy efficiency, reduced use of vehicles emitting CO2 and particulates and a commitment to sustainability through the integration of environmental, social and economic considerations into all aspects of the activities. We will encourage schools and colleges, key businesses, visitor attractions (such as Kew Gardens, Hampton Court Palace and sporting venues like Twickenham Stadium and the Stoop) and social housing providers in the borough to sign up to Richmond Climate Charter and actively encourage members to conduct their activities in an environmentally, socially and economically responsible manner.

We will work with private sector landlords to improve standards. We will work with key housing partners, including the Greater London Authority (GLA), Private Registered Providers (PRPs) and the local voluntary sector.

In order to help address Fuel Poverty, our Richmond Climate Charter will establish a sustainability charter that will encourage housing providers within the borough to help the most vulnerable members of our community. We will continue to offer a household winter fuel grant to those on low income including pensioners to protect residents who are at risk from living in fuel poverty during the winter.



Key Targets

- Increase in the percentage of energy consumed generated by renewables
- Decrease tonnes of CO2 emissions from Local Authority operations (including consumption of gas, electricity, emissions from council-owned transport and business travel) in line with being carbon neutral by 2030.
- Increase in number of buildings with an energy performance operational rating of E or above

Get Involved

Here's how residents and partners can do their bit to improve energy efficiency and lower their carbon output:

- Get a Smart meter installed and monitor your household energy consumption
- Minimise energy use at home and at work through switching off lights and electric devices and reduce heating bills by layering up and reducing thermostat settings
- Make sure vulnerable neighbours are winter-ready and keep an eye out for them during periods of extreme heat or cold
- Where possible, purchase the most energy efficient appliances you can

Our Future Plan

3- 5 Years

- Work with the GLA to deliver the Ultra Low Emission Zone
- Development of a Decarbonisation Strategy to help the Council reach carbon neutral by 2030
- Engage with all staff to ensure they become more aware of the environmental impact of their actions

5- 10 Years

- Ensure the Council is well on its way to being carbon neutral as an organisation by 2030
- Ensure that there will be no Council investment or operational properties that fall below an Energy performance Certificate of "E" rating



IMPROVING AIR QUALITY

Our Ambition

We will develop and deliver an ambitious air quality plan that will make a meaningful change to air quality in the borough with an emphasis on reducing air pollution around schools, and town centres. We will lead by example, shifting to cleaner modes of transport within our operations and developing policies and infrastructure that reduce pollution from transport and buildings in the borough. By 2026, we aim to have less polluting traffic on our roads, contributing to an improvement in air quality across the borough.

The Context

The whole of Richmond has been declared an Air Quality Management Area (AQMA) for both nitrogen dioxide (NO₂) and particulate matter (PM₁₀). Air pollution is currently a significant challenge facing London and a high priority issue for residents. In Richmond 60% of nitrogen dioxide (NO₂) comes from transport.

In addition to the AQMA, Richmond has four Air Quality Focus Areas (AQFA). An AQFA is a location that has been identified as having high levels of pollution and human exposure. The focus areas are on the main transport links along Hammersmith Bridge Road

at Castelnau; the road between Richmond Circus and Richmond Bridge up to Sheen Road; Chalkers Corner and King Street, Twickenham.

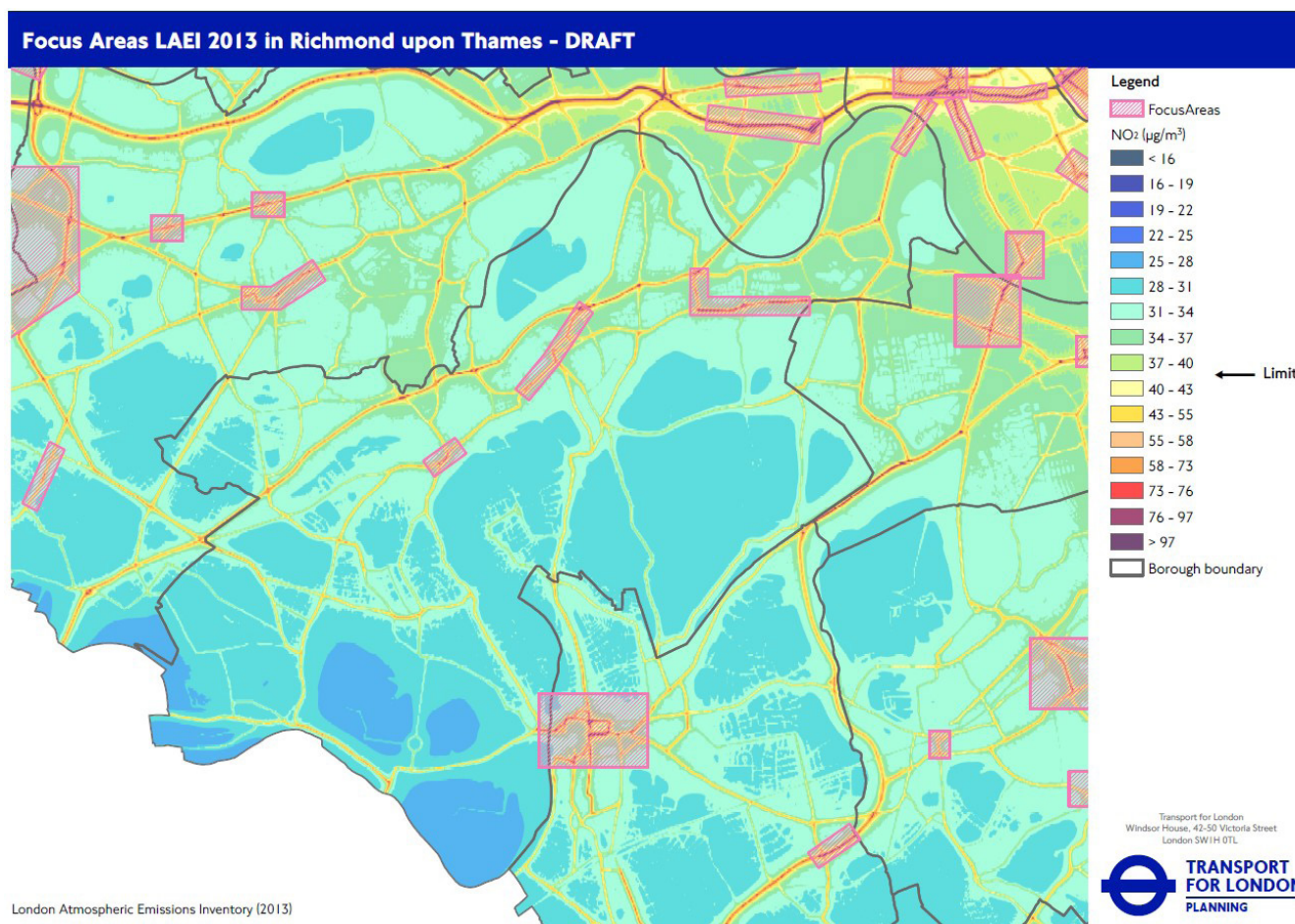
Air quality and climate change are closely interrelated with many common air pollutants being 'climate active'. A warming climate also threatens to make air quality worse with the prevalence of harmful photochemical smog likely to increase throughout longer and hotter summers. On top of that, air pollution is a major contributor to global warming and climate change, the abundance of carbon dioxide in the air is one of the causes of the greenhouse effect.

Pollution in Richmond comes from a variety of sources. This includes pollution from sources outside of the borough, and, in the case of particulate matter, a significant proportion comes from outside of London and even the UK. For these sources the council has limited control however, local sources are primarily from road transport and from development and buildings for which Richmond may be able to influence.

Sources of air pollution in Richmond include:

- Buildings; heating and cooling of homes and workplaces
- Construction; dust and emissions from construction and demolition activities including non-road mobile machinery
- Road transport; private vehicles, public transport, taxi's and private hire vehicles, HGVs (delivery and service vehicles)
- Wood burning, such as garden waste bonfires and domestic wood burning (open fireplaces and stoves)

Long term exposure to air pollution can cause chronic conditions such as cardiovascular and respiratory diseases as well as lung cancer, leading to reduced life expectancy. Short-term exposure to elevated levels of air pollution can also cause a range of health impacts, including effects on lung function, exacerbation of asthma, increases in respiratory and cardiovascular hospital admissions and mortality.

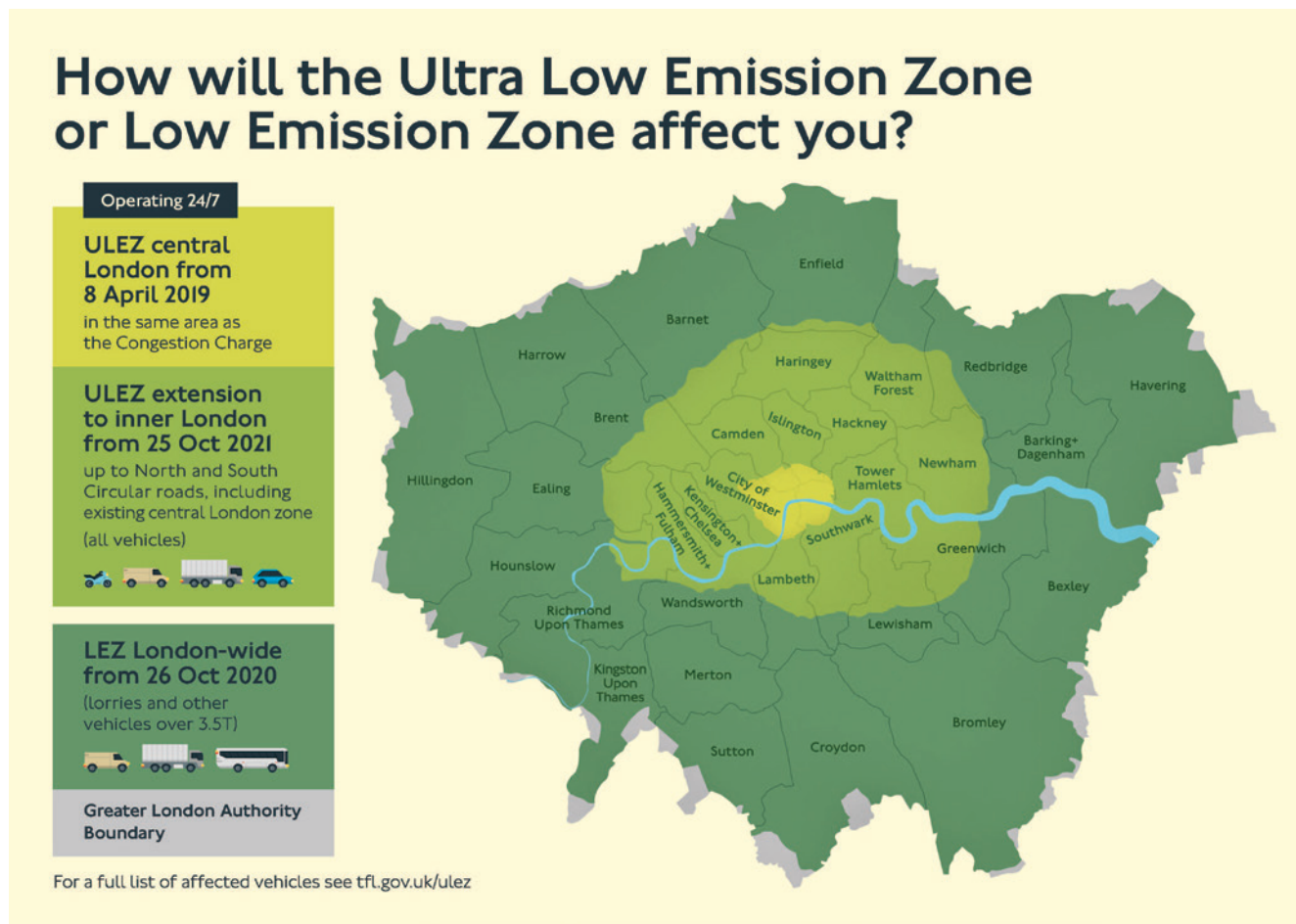


Map of London Borough of Richmond upon Thames - Air Quality Focus Areas (GLA 2013)

Richmond is developing an Air Quality Action Plan (AQAP) as part of our duty under the London Local Air Quality Management statutory process and in recognition of the legal requirement on the local authority to work towards air quality objectives under Part IV of the Environment Act 1995, where local authorities are required to assess air quality and act to reduce pollution where it is in excess of the EU Limit Values.

From 8 April 2019 the ULEZ replaced the T-Charge and operates within the current Congestion Charging Zone (CCZ). From 25 October 2021 the ULEZ will expand to the inner London area bounded by the North and South Circular roads, including existing central London zone (all vehicles). The ULEZ expansion will dissect Richmond along the south circular and the part of the borough within the zone will have to adhere to the standards set. For those areas that fall outside of the ULEZ we can use policies under our control to tackle vehicles in the borough through the use of parking permits and charges. In those areas of highest pollution, we can create Clean Air Zones that can directly tackle the individual type of vehicle passing through these areas.

In addition to this, Heathrow airport is less than ten miles away from Richmond and its proposed expansion is highly likely to affect the borough in a number of ways, including impacting on air quality due to additional passenger and freight journeys. Pollution levels in the area surrounding Heathrow already exceed statutory levels and will not be below



ULEZ Map, TFL, 2019

legal limits for many years to come, even without a third runway. Richmond Council with its partners continues to challenge the proposed Heathrow airport expansion on the grounds of air quality, climate change, strategic environmental assessment

including the failure to properly deal with the noise consequences and surface access impacts. Although our original application for Judicial Review was unsuccessful earlier this year, we have lodged an appeal to the Court of Appeal on several key grounds.

Policy drivers

Air Quality Management is a statutory responsibility for local government and Part IV of the Environment Act 1995 sets out the legal requirements upon local authorities to assess air quality and act to reduce pollution where it is in excess of the EU Limit Values. The government's Clean Air Strategy 2019, sets out how the UK's plans for dealing with all sources of air pollution, making air healthier to breathe, protecting nature and boosting the economy. The strategy covers improved monitoring, targets for reducing exposure to particulate matter, protecting the environment, clean growth and actions for different sectors of the economy.

The Mayor of London's Environment strategy sets out a roadmap of how London is to become a zero-carbon city by 2050, and includes the aim for London to have the best air quality of any major world city by 2050, going beyond the legal requirements to protect human health and minimise inequalities changes needed to achieve increasingly more ambitious targets. The Mayor's actions include phasing out fossil fuels in London's transport system, introducing and expanding the ULEZ, seeking additional powers to enforce air pollution controls and working in partnership.

Our Baseline

The latest monitoring results for 2018 confirm that air pollution in Richmond still exceeds the EU Limit Values, and therefore there is still a need for Richmond to be designated as an Air Quality Management Area and to pursue improvements in air quality. The Council routinely monitor; nitrogen dioxide (NO₂), particulate matter (PM₁₀ and PM_{2.5}) and Ozone (O₃).

The air quality team have been working on a comprehensive body of work with the aim of improving air quality in the borough. This includes a robust boroughwide monitoring programme to measure and assess air quality, a series of awareness raising programmes at schools in hotspot areas have been delivered over the last 24 months. There has been tree planting alongside St Stephens Primary School (Twickenham), installation of a green screen in East Sheen Primary School (Sheen) and school travel plans have been encouraged through the TFL Sustainable Travel: Active, Responsible, Safe programme (STARS). The Council's team of instructors offer training that is in line with National Standards bikeability standards all year round to Year 6 pupils in all borough and some independent schools. The Council will also work with any school that requests air monitoring in the immediate area.

"No idling" signage has been erected at the following hotspots – Manor Road, Sheen Lane, White Hart Lane, Vine Road, the level crossing at Percy Road,

Hampton and Richmond taxi ranks in addition to ad hoc hotspots around the borough. Very successful idling action events held with help from Mayor's team with more action events planned for the future and enforcement for idling vehicles to commenced on March 1st 2019 in the form of a fine if drivers refuse to switch off their engine when asked by an 'authorised person'.

Richmond upon Thames aspires to be particularly cyclist friendly. There are cycle paths on or along many roads, while Richmond Park offers traffic-free cycling on designated routes on a variety of terrain, and cyclists are also welcome on the stretch of Thames Path that runs through the borough.

Linked Strategies

The Air Quality Action Plan examines the key pollutants of concern and the health risks associated with them and reviews the concentrations of these pollutants in the borough looking at the legal framework which can protect health, along with actions that can, and are, being taken at national, regional, local and individual level to improve air quality and protect individuals.

The Cycling Strategy, the Active Travel Plan and School Travel Plan produced by the borough or schools promotes sustainable ways for the whole community to travel sustainably around the borough. The Local Plan adopted in 2018, sets out Policies and guidance for the development of the borough.

Air quality improvement is a key feature within the Local Plan as the whole borough is an Air Quality Management Area. The Local Plan ensures that air quality impacts are duly considered, and that specific requirements or limitations be placed on new development particularly in areas of existing poor air quality and Air Quality Focus Areas.

Richmond's Electric Vehicle Recharging Strategy 2016-2026 realises the latent and potential demand and addresses the concerns of EV users. Our vision is that, by 2026, Richmond's residents and businesses will be able to use electric vehicles every day and for any purpose. They will be confident that they will be able to recharge them quickly and conveniently, taking advantage of their lower cost operation and in doing so helping to improve air quality in the borough.

Key actions

The Council will deliver an Air Quality Action plan (AQAP) to tackle all sources of pollution borough wide over the next 5 years 2019 – 2024 which will help the Council continue to meet its statutory obligations for managing air quality, provide a framework for how the Council teams will work to minimise emissions from transport, from existing buildings and new developments, including regeneration projects and how the Council will continue to raise awareness of air quality issues to the public and help them to both do their bit to reduce levels of pollution and help them reduce their exposure to poor air quality.

The AQAP is divided into six measures;

- Monitoring Air Quality - measurement is an essential part of gaining insight into the nature of air pollution within our borough. We will develop an effective measuring and verification system to allow us to fully understand the problem, develop an accurate diagnosis and propose solutions.
- Leading by example - We will pursue opportunities to influence air quality policy across London and lead by example to improve local air quality and reduce exposure to air pollution in Richmond.
- Reducing Emissions from Road Transport -
- We will investigate measures that promote improvements to the emissions performance of private vehicles and those that promote the utilisation of modes of transport other than private cars in the borough.
- Reducing Emissions from Buildings and New Developments - We will identify measures that make a significant contribution to the reduction air pollution in new developments and existing buildings.
- Protecting Our Schools - We will develop focussed plans for improving air quality and reducing the exposure to pollution of children who attend schools, including School Streets and School Travel Action Plans.
- Raise awareness and tackle pollution in our borough - we will deliver projects and services that raise awareness of air quality issues around the borough.

The Council has banned bonfires in allotments which was a factor in poor air quality in some areas and we will continue to enforce this.

We will improve our infrastructure for electric vehicles by providing a network of fast chargers and lamp column chargers for both residential and commercial users, including car clubs.

We will consult on the introduction of a diesel surcharge on CPZ parking permits and review and evaluate experiences of other boroughs who have trialled diesel surcharges to draw on lessons learned and inform next steps and commission an independent report on the nature of diesel parking in the borough, to include; the numbers and makeup of vehicles subject to parking authorisation in the borough, the contribution of these vehicles to air pollution in the borough, the latest health implications of diesel vehicle, and options for influencing change in vehicle choice in the borough.

We will tackle engine-idling by exploring feasibility and costs of a number of potential approaches to dealing with the issue on a Borough wide level and continue to oppose the third runway and further night flights at Heathrow.
We will trial Green Wall installations around nurseries and primary schools in the borough with the aim of expanding this subject to funding and performance.

We will continue to oppose the expansion of Heathrow Airport, its third runway and further night flights. We will work with other councils, Greenpeace and the Mayor of London to draw attention to the significant impacts an extra 250,000 flights per year will have on residents' lives

Key targets

- Increase number of monitoring stations that measure annual air quality objectives
- Increase number of schools in areas of poor air quality that have been subject to an air quality audit
- Improve Air Quality in Parks
- Increase % of trips by borough residents made by sustainable modes (walking, cycling and public transport).
- Increase number of Electric Vehicle charging points (EVCP) approved in the Borough
- Increase number of new on-street and off-street cycle parking spaces installed
- Increase number of cycle parking facilities added through cycle parking programme
- Increase the % of primary and secondary school journeys done by bicycle

Our Future Plan

3- 5 Years

- Pilot Clean Air Zones (CAZ's) and their use and impact in an Air Quality Focus Areas such as Richmond Town Centre with a view to extend
- Encourage more walking, cycling and use of public transport for council business, instigate a new active travel plan for all staff"

5- 10 Years

- Continue to monitor air quality across the borough through or monitoring stations and adopting robust mitigation measures as required
- Manage the transport needs for businesses, visitors and residents so they reflect the need to deliver the boroughs need to deliver air quality targets
- Ensure that we work to address emissions from diesel engines

Get Involved

Here's how residents and partners can do their bit to improve air quality in the borough:

- Walk and cycle around the borough when possible.
- Protect existing gardens and when possible, plant living walls or roofs.
- Keep your car well-tuned and maintained. Follow the manufacturer's instructions on routine

maintenance, such as changing the oil and filters, and checking tyre pressure and wheel alignment. Drive within the speed limit and drive without harsh breaking and accelerating and avoid excessive idling.

- Buy green electricity - purchase electricity generated from renewable energies i.e. solar, hydroelectric or wind.



GREEN INFRASTRUCTURE AND BIODIVERSITY

Our Ambition

We will improve and protect the biodiversity and ecology of our green spaces and protect them against the negative impacts of climate change. We will facilitate and support quality networks of green infrastructure capable of supporting biodiversity and resilience against climate change and ensure the consideration of biodiversity both in policy and practice across the Council's services. We will maintain the parks and open spaces of Richmond as centres of excellence, make them fully accessible, ensuring high standards across all parks and opens spaces managed by the council.

The Context

Key Drivers and the Richmond Context

Richmond upon Thames is one of the richest boroughs in London in terms of the total area of green space, the quality and diversity of parks, open spaces and conservation areas and the wealth of different habitats and species these areas support. The borough is also very rich in both private and publicly owned trees, all of which are key in providing ecosystem services that benefit society and biodiversity. These ecosystem services include cooling of the local environment through

evapotranspiration, providing refuge from harmful solar radiation through shade, sequestering and storing carbon, alleviation of storm water through rain interception and capture within canopies and through root system uptake as part of the trees natural process, reducing the cost of heating and cooling requirements of buildings through insulation and shade, reduction of the urban heat island effect, interception of harmful pollutants and providing habitat for a wide range of biodiversity⁹.

Within development sites, protection of existing trees and provision for sustainable tree planting, that includes sufficient soil volume to support mature

⁹ GLA: www.london.gov.uk/press-releases/mayoral/air-quality-audits-to-protect-school-kids Hill A. C. (1971). Vegetation: a sink for atmospheric pollutants. Journal of the Air Pollution Control Association, 21, 341–346

specimens, is essential in ensuring that the current population of trees in private property is sustained and enhanced.

In Richmond, like other London boroughs, there are ever-increasing demands on land for new housing, schools, industry, commerce and recreation which could potentially threaten habitats and species. Biodiversity and sustainable development are inextricably linked, as the wealth of species and habitats can be seen as an indicator of our environment and general wellbeing.

Regional climate has a major influence on biodiversity and a potentially changing climate could have a major impact on the borough's biodiversity. Richmond is biodiversity rich, however managing biodiversity in the borough is challenging due to a number of competing factors, including:

- The demand from key infrastructure requirements such as transport and utilities
- Shortage of available land for development in the borough potentially puts pressure on existing green space to be developed, a pressure which has generally been resisted
- Increasing usage of existing green space and parks and the need to protect from over use
- The social value and benefit of access to parks and open spaces upon the health and wellbeing of our population

- The borough has the largest amount of public open space per head of population of any London Borough, which is hard to maintain in terms of effort and cost
- More than two thirds of Richmond is protected by either open space or conservation area status, resulting in the highest land values of any outer London borough¹⁰.

There is considerable evidence that there has been a decline in biodiversity on a global, national and local scale over the years. Therefore, there is a need to conserve the complex and dynamic systems in Richmond which support a wide range of fauna and flora, many of which, such as the Skylark, are threatened on a local and global scale. This is why local Biodiversity Action Plans are considered so important, as they are an aid to reverse this decline and help conserve, protect and enhance species and habitats that are rare, in decline, of importance locally.

Green Infrastructure (sometimes in the form of wildlife corridors), provide important movement and feeding resources for plants and animals. They strengthen gene pools, provide better species resilience from climate change and can improve resistance to invasive non-native species. Research on urban vegetation suggests that it can help reduce the impact of pollution on people and buildings by acting as a pollution sink. Furthermore, the transport of

pollutants from nearby traffic sources in urban areas can be effectively reduced by using green barriers. Thus, green infrastructure might be a cost effective and easy way to reduce the impact of pollution in near road environments. This is especially important for vulnerable members of the population, such as children, whose lung growth is slowed in areas with high pollutant concentrations. Therefore, a measure to reduce pollution levels at schools situated at roadsides will be of particular benefit.

There are at least 1500 species of insect pollinators in the UK. Insect pollinators are very important for food production and biodiversity. The most commonly known pollinators are bumblebees, mason bees, wasps, mosquitoes, flies, beetles, bats and to a lesser extent butterflies and moths. Pollinators transfer pollen from plant to plant while they forage for food, allowing plant fertilisation and the production of seeds in many nuts and fruits that are essential for a healthy diet. Crops such as blueberries, raspberries and grapes need insect pollination to produce good yields of high-quality fruit. The declining numbers of pollinators will make it harder and costlier for farmers to produce crops at the scale that is required for today's demands. Insect pollinators are also responsible for the diversity of plants and wildflowers, creating pleasant countryside and gardens.

Doctors are now prescribing gardening over drugs and it is benefiting people's mental health.

¹⁰ <https://data.london.gov.uk/dataset/average-house-prices>

Healthy food along with dietary and nutritional improvements can be had from seeking healthier and more sustainable catering through to switching from intensive farming methods to types of local permaculture/ agroecology and re-wilding farming methods. Creating greater access to nature improves both health and wellbeing. Moving from a fossil fuel dependent economy to an inclusive, restorative and Circular Economy as well as protecting natural resources enables people and the environment to flourish sustainably. There needs to be increased understanding of the importance of the health-related risks and impacts of climate change and wider environmental determinants of health within the council so that this strategy and future strategies dealing specifically with Public Health issues of climate change could be effectively taken forward.

Legislation and Policy

Richmond has a duty under the Natural Environment and Rural Communities Act 2006 (NERC Act 2006) to consider biodiversity conservation within all its functions as a public body. The Council is committed to meeting its statutory obligation which govern the protection of biodiversity.

The 2011 publication 'Biodiversity 2020: A strategy for England's wildlife and ecosystem services' sets out the biodiversity approach for England, which provides a comprehensive picture of the national actions needed to improve biodiversity and includes responsibilities for Local Authorities to implement

international and EU commitments. The Mayor of London's environment strategy was published in May 2018. It specifically highlights green infrastructure and that London will be the world's first National Park City, where more than half of its area is green, where the natural environment is protected, and where the network of green infrastructure is managed to benefit all Londoners.

The DEFRA 25 Year Environment Plan sets ambitious targets for an increase in the number of trees within the UK. The recently announced Urban Tree Challenge Fund will support the planting of trees in urban areas. The London Plan, Policy 7.21 (Trees and Woodlands) states that trees should be protected, maintained and enhanced. The Town and Country Planning Act 1990 provides a legislative framework for the protection of trees.

Where Richmond is now

Richmond upon Thames is the only London Borough on both sides of the River Thames, containing both tidal and non-tidal river habitats, and contributes to over 50% of the Lowland Acid Grassland in London, a National Priority Habitat.

The London Borough of Richmond upon Thames is one of the greenest London boroughs with over 57% of the borough as green open space, including over 130 Council owned and managed parks. 27 Council owned sites are managed primarily for nature conservation and many more are partially managed

for biodiversity and wildlife. The Council Parks Service is directly responsible for the management of over 25% of this land.

The borough is responsible for over 26,000 trees within Highways, Parks & Open Spaces, Cemeteries and Corporate Property. Within private property the population and composition of trees is not known. However, the borough is host to some large land owners such as the Royal Botanic Gardens at Kew, Royal Parks, Historic Royal Palaces and many golf clubs, all of which are rich in canopy cover. Various species of tree within the borough are particularly vulnerable to the effects of climate change, this was evidenced in 2018 where a long, hot summer resulted in high mortality rates of trees both native and non-native, including Rowan (*Sorbus aucuparia*) and the common horse chestnut (*Aesculus hippocastanum*).

Whilst we are able to quantify the number of trees within Richmond Council's ownership we are not able to state the ecosystem services that are being provided, so an ecosystem study should be a key ambition for the borough as it will help to identify services that are currently being provided (for example how much carbon is sequestered and stored) and identify areas that are vulnerable to the effects of climate change (for example areas susceptible to flooding, pollution and heat extremes).

A period of significant investment has seen the standard of parks and facilities improve to be amongst the best in the country, as recognised by a series of prestigious awards including the Green Flag award. There are currently over seventy Friends' groups in the borough and it is important that the Council continues to harness and develop these groups to deliver upon the environmental agenda.

There are twenty-four allotment sites across the Borough which provides a number of environmental benefits including the support and regulation of ecosystem services. Allotment gardening also results in more sustainably produced food, promotes healthy eating and acts as an educational resource.

The London Borough of Richmond is a population 'hotspot' for bats and Stag Beetles and the only place in London where the rare Tower Mustard (*Arabis galabra*) can be found.



Linked Strategies

Richmond's Nature Conservation Policy Statement 2019 sets out Richmond Council's policies for the protection and enhancement of nature conservation in the borough, with a specific emphasis on maintaining and improving biodiversity and wildlife habitats. This includes a biodiversity consideration for all planning applications, the creation of new opportunities for wildlife to thrive, encouraging landowners to manage their green space well, raising awareness of local nature and importantly working in partnership with others including the Richmond Biodiversity Partnership.

The Richmond upon Thames Biodiversity Action Plan was launched in May 2019 and sets out the framework for the protection, conservation and enhancement of wildlife within the borough. Its three main aims are to conserve and enhance the variety of habitats and species in the London Borough of Richmond upon Thames; to ensure that Richmond upon Thames' residents become aware of, and are given the opportunity to become involved in, conserving and enhancing the biodiversity around them; and to raise awareness and increase stakeholder involvement in maintaining and enhancing species and habitats of importance.

Other Council policies include the Tree Policy, which clearly identifies the value of trees and sets out how the Council meets and will continue to meet its

statutory duties in relation to tree management and protection.

The Local Plan sets out the strategic vision and objectives for the borough as a whole when it comes to planning and development. This includes improving the borough's parks and open spaces to provide a high quality environment for local communities and provide a balance between areas for quiet enjoyment and wildlife and areas to be used for sports, games and recreation. In addition, the Local Plan highlights how we the Council will protect and enhance the borough's network of green infrastructure that performs a wide range of functions for residents, visitors, biodiversity and the economy, as well as protecting and enhancing the borough's biodiversity, including trees and landscape, both within open spaces but also within the built environment and along wildlife corridors. The Supplementary Planning Document for front gardens and other off-street standards places an emphasis on tree retention ahead of the creation of cross overs.

Our Parks and Open Spaces Principles are a set of eight principles that govern the way in which the borough manages the parks and open spaces in the borough and keeps the 'parks culture' embedded as a strong contributing factor in much of the policy and decision making within the Council.

The Allotment Strategy 2019 seeks to optimise the use of allotment sites for existing and future plot holders.

It puts in place a framework to develop and manage allotments in partnership with users.

Key actions

London Borough of Richmond upon Thames will ensure the rich biodiversity in the borough is supported through the delivery of the Local Biodiversity Action Plan (LBAP). In addition to individual habitat action plans (HAP) and species action plans (SAP) which provide specific actions for addressing these specialisms, the LBAP identifies a set of generic actions needed, including:

- Promote available grant schemes to encourage appropriate habitat management.
- Improve public engagement and publicly available information by updating and distributing biodiversity leaflets, including publishing them on the RBP/SWLEN website and promoting and supporting a programme of guided walks, events, talks and articles, posts and blogs.
- Contribute to database of species records in London
- Prepare a connectivity strategy and map of LBRuT identifying key habitats, known features (e.g. bat roosts), good/poor connectivity, light pollution etc.
- Commission and develop arrangements with Friends' groups and organisations to promote and ensure sustainable management of our green spaces.

- Seek alternative soil treatments and work towards withdrawal of the use of peat.
- Encourage planning applications to preserve/ enhance wildlife corridors within their scheme.
- Promote encouragement of species that have not been found during surveys, if within their range, as well as maintaining species already found to be present.
- Ensure that all planning applications are accompanied with appropriate information as requested by the LBRuT validation checklist.
- Require mitigation for increased urban surfaces in any development: green roof, green wall etc. to offset increased urbanization.

Our trees

We will identify areas of opportunity for planting more trees across the borough as a whole, with a focus on areas where they may mitigate the effects of climate change, for example incorporating sustainable urban drainage systems (SUDS) to minimise flooding and providing shaded avenues to enable elderly residents to travel to and from amenities without suffering from heat stress.

We will commission an Ecosystem Services Study to better understand the composition of the borough's tree stock and to identify vulnerabilities to climate change associated weather extremes, pest and disease and mortality due to over maturity. This

understanding will allow us to better plan to ensure that the canopy cover is sustained.

We will launch a Tree Warden Scheme to help the community support and nurture trees in their local area. We will also continue to support management of our canopy by suitably qualified and experienced tree professionals and partnership organisations, such as the London Tree Officer Association.

Veteran and Heritage trees should be identified and celebrated through the creation of educational material and walks.

Our parks

Building on the success of the Parks Improvement Programme, we will continue to encourage residents and visitors to not only access parks for recreation and leisure but to also become a part of their day to day life within the borough. We will strive to meet all Parks Strategic Principles. In order to retain the current high standards of parks, existing facilities will be improved, and new facilities developed in partnership and consultation with borough residents.

We will maintain and increase the standards of parks and associated facilities, maximise investment and ensure high quality sustainable solutions will be specified for parks and open spaces.

We will strive to recognise good work through awards and accolades and continue to be a leader nationally and locally in Green space management and innovation.

We will ensure accessibility, continue good practice and strengthen maintenance of our green spaces through our pioneering Parks Framework Contract and promote renaturalisation of private gardens.

Given the current need to identify pollinator species, Richmond will contribute by;

- Creating a database of species records in London
- Distributing and promoting Richmond biodiversity leaflets and relevant online advice to all LBRuT planners and key developers
- Carrying out a review of existing local policies (LBRuT Local Plan & Nature Conservation Policy) as required
- Surveying habitats, including brownfield, parks, verges etc. to assess their importance for pollinators.
- Developing green spaces and habitats that are pollinator friendly by liaising with landowners of roundabouts and verges to discuss mowing regimes and landscape management to benefit pollinators; encourage public use of 'bee and bug hotels' and the reduction of pesticide use in private gardens.

Key targets

- New tree planting opportunities quantified and targets set for increased planting
- Net number of Trees planted annually
- Number of development schemes incorporating new biodiversity features or creating new habitats
- Total number of parks Friends' groups
- Increased number of Friends' groups
- % of Satisfaction with parks and open spaces
- Total number of Green Flags awarded

Our Future Plan

3- 5 Years

- Continue to work to improve Green infrastructure in the borough and achieve optimal balance between use by general public and by organised groups
- Continue to implement new cycle routes in accordance with Transport Strategy, seeking green infrastructure gains in implementation
- Identify the potential for new tree planting and increasing canopy cover within the borough
- Ensure high rates of establishment of new trees
- Creation of a 'Tree Warden' scheme
- Identification of veteran and heritage trees and production of educational material
Produce a strategy that builds on the findings of the ecosystem services report to create a tree stock that is resilient and showing useful tolerance to the projected climate for this region of the UK

5- 10 Years

- Promote a range of access opportunities, including public rights of way, encourage healthy walking groups and walking to school and further engagement with biodiversity.
- Continue to maintain Richmond's open spaces and green infrastructure network
- Produce a strategy that builds on the findings of the ecosystem services report to create a tree stock that is resilient and showing useful tolerance to the projected climate for this region of the UK
- Trees will become enshrined in policy relating to the management of other services areas within the Council

Get Involved

Here's how residents and partners can do their bit to promote biodiversity in the borough and protect green infrastructure:

- Support biodiversity by restoring habitat in your garden or outdoor space. If you have a garden, consider turning it into a mini-wildlife sanctuary. The National Wildlife Federation has a programme to help you attract wildlife whether you have a balcony or a 20-acre farm or by simply hanging a bird feeder and planting bee-friendly flowers.
- Get rid of outdoor pests using natural soil and composting-this allows you to grow plants and vegetables without the use of products including chemicals and pesticides.
- Water communal plants and street trees with your waste water during drought
- Make a request for new tree planting in the Borough
- Help our new trees to thrive through watering recent plantings and keeping tree pits weed free





WASTE AND PLASTICS AND THE CIRCULAR ECONOMY

Our Ambition

We will embed reduce, reuse, recycle into everything Richmond does around waste. We will work with our residents, businesses and schools to reduce the overall amount of waste generated in the borough and will aim to be one of the top performing boroughs in London for recycling. We are committed to supporting residents in being able to make a significant contribution in the management of waste and will make services accessible, inclusive and comprehensive. We are committed to becoming single use plastic free in our operations by 2022 and will work with residents, businesses and schools to reduce consumption of single use plastics. We will ensure our waste and recycling operations are

conducted in the most sustainable way possible and available through working with contractors, operators and waste disposal authorities. We will look for opportunities to promote a Circular Economy in Council operations including the way we procure goods and services.

The Context

Key Drivers and the Richmond Context

Richmond's challenges include a growing and diverse population, increasing numbers of visitors and population, as well as increasing pressure on resources such as parks, open spaces and

infrastructure. All these pressures contribute more waste into the borough, which needs to be collected and disposed of appropriately. Litter, fly tipping, graffiti, flyposting and dog fouling are all forms of "Envirocrime" that affect us all, causing damage to our environment, our neighbourhoods and our economy.

As a Council, we are responsible for providing a wide range of refuse collection services to our residents and businesses, including recycling and the collection of food, garden and residual waste. The challenges associated with providing such a varied service will need to be tackled using a mixture of measures which include increasing awareness of recycling

practices and encouraging residents to reduce overall waste produced. Richmond's new waste contract is due to start on April 1st 2020 and provides the opportunity to ensure our focus and emphasis is upon recycling and improving public recycling facilities within our streets and parks.

We must also tackle management of waste in our own operations and ensure we set a high standard for partners, businesses and residents in the borough. The positive environmental impacts of waste prevention and increased recycling have long been realised. However, there is now a greater focus on (and growing understanding of) greenhouse gas emissions (such as carbon dioxide, methane and other greenhouse gasses) associated with waste management activities.

There are over 150 million tonnes of plastics in oceans and rivers worldwide. This is of great importance to Richmond because the River Thames runs for over 10 miles through the borough, linking Hampton Court Palace, Richmond Town Centre and Kew Gardens with London. In January 2018, Richmond passed a cross-party motion to combat the problem of plastics by removing single use plastics from Council operations by 2022 and supporting our residents and business to do the same.

The main areas where single plastics are currently prolific are single-use food and beverage packaging and tableware. However, one of the most significant

LINEAR ECONOMY



ENERGY FROM FINITE SOURCES

challenges with eliminating single use plastics is that the scale of the issue is so ingrained into daily activities its scale is hard to realise.

The Circular Economy is an alternative to the traditional linear economy (make, use, dispose) in which resources are kept in use for as long as possible, we extract the maximum value from them whilst in use, and recover and regenerate products and materials at the end of each service life. The Circular Economy integrates sustainability from sourcing raw materials through design and manufacture to end-of-life re-use as part of the input

CIRCULAR ECONOMY



ENERGY FROM RENEWABLE SOURCES

to the next generation of products. Today's economy is built on a "fast turnover" principle, where the faster we replace our goods and products the better, the Circular Economy moves away from fast turnover towards a more sustainable model.

In the context of a circular economy, reducing and recycling waste should become less important as waste is designed out of the system. In the shorter-term, it will continue to be important for residents and businesses to reduce their waste and recycle as much of it as possible. Tackling behaviour change is essential to shifting the way we as a society

consume products and the demand consumers place on producers and retailers. The Council's role in this process is to help 'close the loop' of product lifecycles through waste prevention, and greater recycling and re-use. by applying the Waste Hierarchy. Procurement will play an important role in developing and promoting a Circular Economy, with a greater emphasis required on minimising the environmental impact from resource use including procurement and supply chain, use and lifecycle and end of life management. Taking these approaches should ultimately deliver improved cost management.

Legislation and Policy

The Mayor of London's expectation for local authorities are for them to develop Reduction and Recycling Plans (RRPs) by 2020 and be hitting the 65 per cent recycling target by 2030 which should include local reduction and recycling targets that contribute to the Mayor's London wide targets within the London Environment Strategy 2018.

The Council has very little control over the quantity or recyclability of plastics in the household waste stream and/or how that is likely to be affected by "Extended Producer Responsibility" proposals contained in the Government's waste strategy published in December 2018, although it does have full control over its own procurement and contractors.

DEFRA has published its 25 Year Environment Plan, presenting their target of "achieving zero avoidable

plastic waste by the end of 2042". During the 2018 Budget, the government announced that from April 2022 it would introduce a new tax on the production and import of plastic packaging with less than 30% recycled content, subject to consultation.

The London Waste and Recycling Board Circular Economy roadmap is designed to accelerate London's transition to become a Circular Economy city. The Route Map is an action-orientated document that recommends actions for a wide range of stakeholders, including London's higher education, local authorities and community sectors.

Where Richmond is now

According to the DEFRA 2018 annual report, Richmond is ranked 6th in London for the highest percentage of waste sent for recycling, composting or reuse:

	Local Authority	%
1	Bexley LB	52%
2	Sutton LB	50%
3	Bromley LB	50%
4	Ealing LB	49%
5	Royal Borough of Kingston upon Thames	48%
6	Richmond upon Thames LB	42%

DEFRA, 2018

Richmond undertakes circa 293,000 household waste collections per week with the most significant source is waste collected from households. The Waste Management Team have been able to decrease municipal waste from approximately 89,234 tonnes in 2015/16 to 88,785 tonnes in 2017/18. Our performance in terms of residual household waste per household can be seen in Fig. 1.

The drop in residual household waste per household experienced in 2011/12 and 2012/13 (Fig.2) was due to a revised approach to quantifying the tonnage of fly-tipped waste, which is deducted from the total household waste figure used as the denominator for the average calculation.

In addition, Richmond collected 1332.65 tonnes per annum of plastic waste from collections 2017/18.

We currently do not collect any monitoring information or performance data on the Circular Economy.

Linked Strategies

The 2015 West London Waste Plan acts as a framework for all waste in six West London Boroughs (Brent, Ealing, Harrow, Hillingdon, Hounslow and Richmond upon Thames) and the Old Oak Common and Park Royal Development Corporation (OPDC) up to 2031. The Plan contains policy to support site development and promote sustainable waste management has been designed to ensure consistency and compliance with national Government policy and general conformity with the London Plan (2011).

The Local Plan 2018 forms part of the development plan for the borough. The plan will guide decision making on planning applications and inform investment in social and physical infrastructure and cover a number of areas including protecting the local character of the borough, looking towards a sustainable future and meeting the needs to the local residents all of which are interlinked to the issues around waste management and the Circular Economy.

Key actions

The Waste (England and Wales) Regulations 2011 applies the requirements of applying the waste hierarchy in priority order.

We will work towards avoiding waste where possible as well as reducing and reusing waste and improving recycling and recovery.

Residual household waste per household (kg/household)

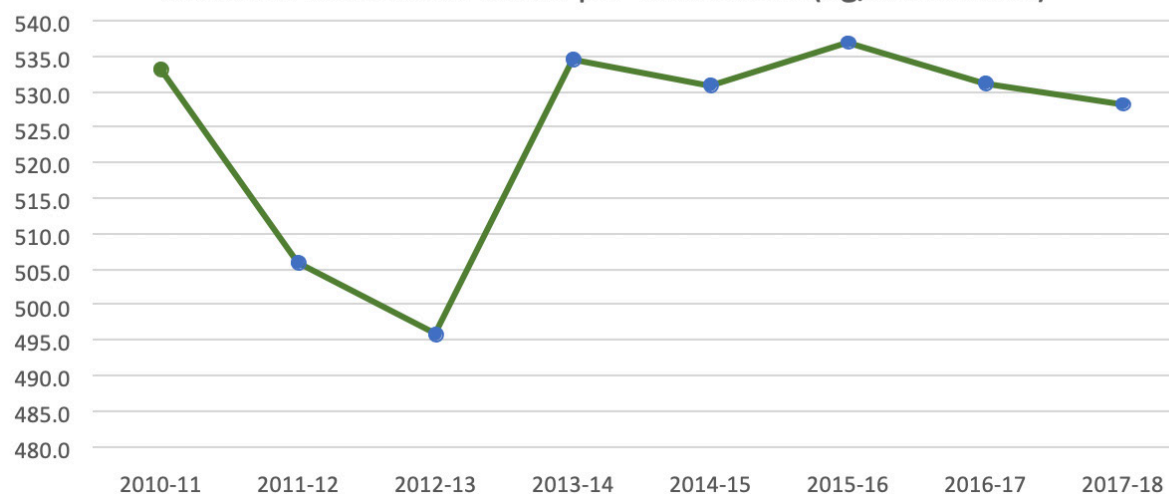


Fig. 1

Collected household waste per person (kg)

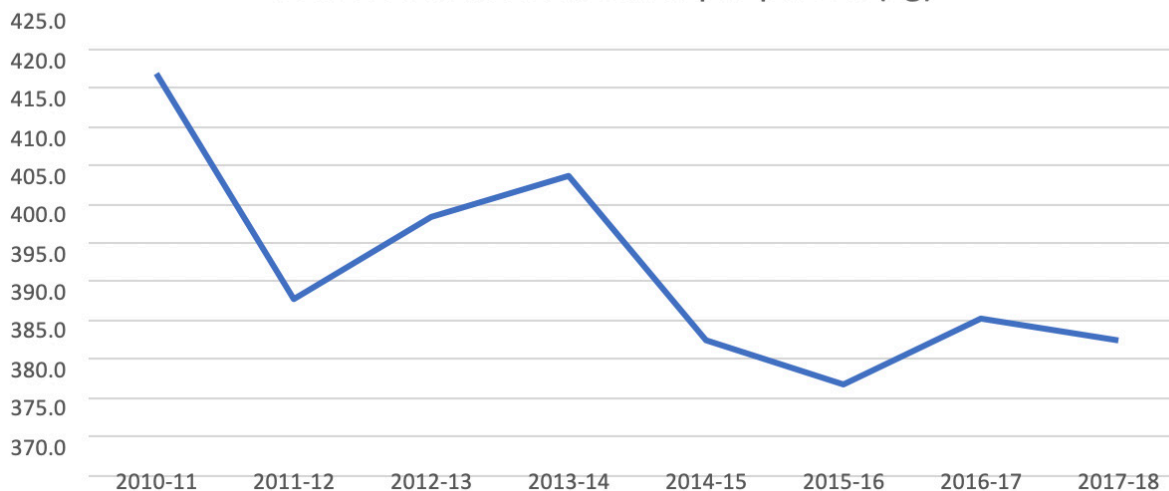


Fig. 2

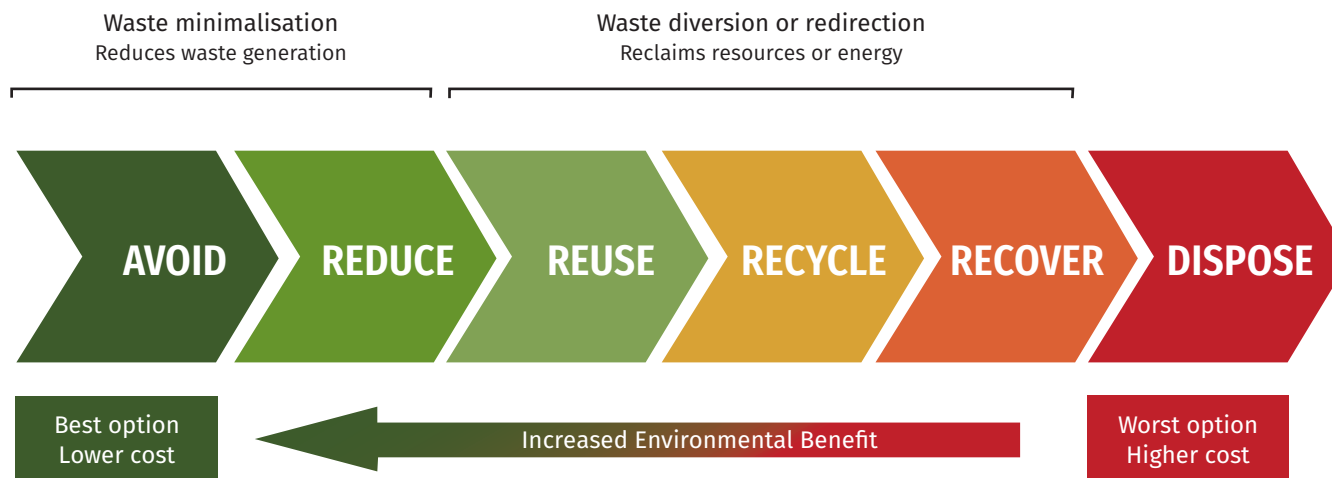
Our approach to reducing waste

Improved rates cannot be achieved without help of residents, employees and businesses so we will improve our communication and knowledge sharing by communicating with residents and business in a drive to reduce the amount of waste produced and increase the recycling rate amongst waste that is produced. We will also review the suite of policies and contracts around the hiring of our environmental strategies objective, including the separation and disposal of waste and prohibition of single use plastics.

In a bid to further support the Circular Economy, we will seek ways to encourage positive behaviours to achieve a better environmental outcome and encourage more people to consider reducing and reusing before purchasing recycled goods.

We are currently undertaking a number of changes and trials to the service provided to residents and businesses. These include;

- A food waste collection trial involving approximately 1800 properties in the borough.
- Commercial food waste collection service
- Sack option for comingling of waste
- Saturday recycling collection
- Sack option for mixed commercial container recycling
- Capacity of public recycling sites



The waste hierarchy

- New contract for textile collections
- Responsible participation of schools and educational establishments
- Future options for operation of the Civic Amenity site

We will work to tackle fly tipping by adopting a zero-tolerance approach to enforcement so that the Fixed Penalty Notice is a first warning and increase awareness to drive behaviour change.

The cleaning contract for the municipal buildings will be designed to enable better management of waste streams, including the installation of uniform duo bins that are strategically placed with buildings.

Our Parks

One of the main barriers to recycling at the parks is the provision of recycling bins across the sites. We will implement practical measures to address this including improved location and signage for bins across the parks, making make correct waste disposal easy for park visitors.

Our approach to plastics

We will work towards eliminating single use plastics from our operations by 2022. The task of becoming single use plastics free will be divided into two distinct areas.

1. Working towards removing these plastics from Council operations
2. Working with residents and businesses to limit the amount of single use plastics in the borough

We will start by getting our own house in order. This will mean focusing on all Council operations and removing single use plastics from waste streams from municipal buildings and all buildings owned and managed by the Council.

We will establish an officer working group to undertake an audit of the Council's single use plastics items and packaging to establish baseline of single use plastics consumption and identify actions to take. Our actions will form a 3 step approach:

- **Step 1. Prevention** – We will reduce and eliminate single-use items through behaviour change, such as removing items from our buildings or making non-single use items more available and convenient, and by engaging staff and visitors so reusable items become preferable.
- **Step 2. Disposal/Recycling** – We will reduce the amount of recycling and improve the way these items are disposed of, again through

staff engagement and education, as well as by working with cleaning contractors and identifying specific mitigation measures around challenging items.

- **Step 3. Replacement** – Where specific single-use items cannot be easily removed, more sustainable alternatives will be identified and replaced.

The second part of becoming a plastic free borough will involve working with residents and businesses. As a Council we acknowledge that there is a difference between consumer driver SUP consumption and a need driven consumption. Single use plastics have a number of uses where alternatives do not match the usefulness of plastic products, including low-cost hygienic medical plastics and flexible plastic straws to assist or enable drinks and liquid food consumption in older adults and disabled groups. We will work towards helping to raise awareness across Richmond of the ten most common consumer single use plastics items and how to reduce their use, including working with Surfers Against Sewage local champions and supporting plastics free community campaigns.

We will work towards achieving Single Use Plastic free accreditation for the Borough. Richmond passed a motion to remove single use plastics from its operations and this strategy formalises the way in which will be achieved.

Our approach to the Circular Economy

Development of a more sustainable approach to procurement will be an essential component of developing a Circular Economy in Richmond. We will develop a Sustainable Procurement Strategy which will provide a framework against which we have set measurable aims and objectives for integrating environmental and social considerations into our procurement policies and practices allowing the continuous process of accessing our products and suppliers. It will detail the mechanisms that will be used to keep resources in use for as long as possible, extract the maximum value from them whilst in use, then recover and regenerate products and materials at the end their life.

We will also encourage suppliers in our supply chain to minimise their environmental impact and deliver community benefits in relation to their own operations and throughout the supply chains in which they operate.

Key targets

- Decrease the amount of total waste per household (tonnes)
- Increase the % of household waste sent for reuse, recycling and composting
- Achieve 'Plastic free' accreditation from Surfers against Sewage
- Increase domestic food waste recycled as % of total household waste

Get Involved

Here's how residents and partners can do their bit to reduce the amount of waste they produce and reduce plastic usage:

At home:

- Prioritise reduce and reuse over purchasing new items, particularly single use items.
- Buy recycled goods;
- Always use bins and recycle waste as much as possible.
- Take reusable bags to the store when shopping.
- Take reusable coffee cups with you when you buy your morning coffee
- Reduce or eliminate the use of paper plates and cups
- Purchase fruits and vegetables that are not pre-packaged in containers and plastics
- Dispose of appliances responsibly; recycle appliances through WEEE collection services

At work:

- Instead of printing hard copies of your documents, save them to your hard drive or email them to yourself to save paper.
- Make your printer environmentally friendly. Change your printer settings to make double-sided pages. Use small point fonts when possible and use the "fast draft" setting when possible to save ink.
- Reuse envelopes with metal clasps and reuse file folders by sticking a new label over the previous one.

Our Future Plan

3- 5 Years

- Continue to work with businesses and stakeholders in the borough to eliminate single use plastics from use
- Continue to work towards achieving 50 per cent Local Authority Collected Waste recycling by 2025
- Work towards maintaining of performance in the DEFRA league table

5- 10 Years

- Continue to work to ensure Richmond is provided with additional funding, to take faster action to help cut waste, increase recycling rates, and accelerate transition to a Circular Economy



WATER MANAGEMENT AND FLOOD ABATEMENT

Our Ambition

We will ensure that development across Richmond addresses flood risks and promotes sustainable drainage. We will promote and encourage development to be fully resilient to the future impacts of climate change in order to minimise vulnerability of people and property, including risks of flooding, water shortages and the effects of overheating.

The Context

Key Drivers and the Richmond Context

Climate change is likely to lead to increasingly erratic weather patterns, meaning less certainty over river flows and rainfall, and more floods and droughts. This casts doubt on the assumptions around the reliability of traditional water sources like groundwater abstraction or reservoirs. An increasing population also means a greater demand for public water supply now and in the future as the way in water is used is changing, and some of these ways use more water and sewage resources.

In addition to concerns around water supply, the borough is susceptible to a number of different types of flooding. Fluvial flooding occurs when excessive rainfall over an extended period of time causes a river to exceed its capacity but can also be caused by heavy snow melt. Surface water flooding is caused when heavy rainfall creates a flood event independent of an overflowing water body. Also known as pluvial flooding, this results from overland flow before the runoff enters a watercourse or sewer. It is usually the result of high intensity rainfall but can occur with lower intensity rainfall when the land has a low permeability and/or is already saturated, frozen or developed. Typically, this type of flooding

is localised and happens very quickly, making it very difficult to predict and give warnings.

Surface water flooding is becoming a regular issue. With large impermeable surfaces and with climate change predicting more frequent short-duration, high intensity rainfall and more frequent periods of long-duration rainfall, coupled with an ageing Victorian sewer system and increasing pressure from growing populations, surface water flooding is likely to be an increasing problem. Surface water quality is already under pressure from increasing development and population growth. Climate change is likely to alter the frequency and distribution of rainfall.

Reductions in river flows would impact their ability to dilute pollutants, in turn lowering water quality. It is likely that this will increase the costs of water treatment services to meet increasingly tighter effluent discharge standards and to prevent deterioration of water quality. Higher water temperatures increase the risk of eutrophication and algal blooms, which harm aquatic flora and fauna. Increased and intense rainfall will mean more sewage effluent entering waters, affecting bathing water quality. Construction of the Thames Tideway Tunnel will prevent millions of tonnes of sewage entering the River Thames, meaning cleaner water for river users and a healthier environment for wildlife.

Legislation and Policy

The Department for Environment, Food and Rural Affairs (Defra) is the policy lead for flood and coastal erosion risk management in England. New or revised policies are prepared with other parts of government such as the Treasury, the Cabinet Office (for emergency response planning) and the Ministry of Housing, Communities and Local Government (for land-use and planning policy). These national policies are then delivered by Risk Assessment Management Authorities (RMA) which are Environment Agency, Lead Local Flood Authorities, District and Borough Councils, Coast protection authorities, water and sewerage companies, Internal Drainage Boards and Highways authorities.

The Flood and Water Management Act 2010 requires these Risk Management Authorities to co-operate with each other act in a manner that is consistent with the National Flood and Coastal Erosion Risk Management Strategy for England and the local flood risk management strategies developed by Lead Local Flood Authorities exchange information.

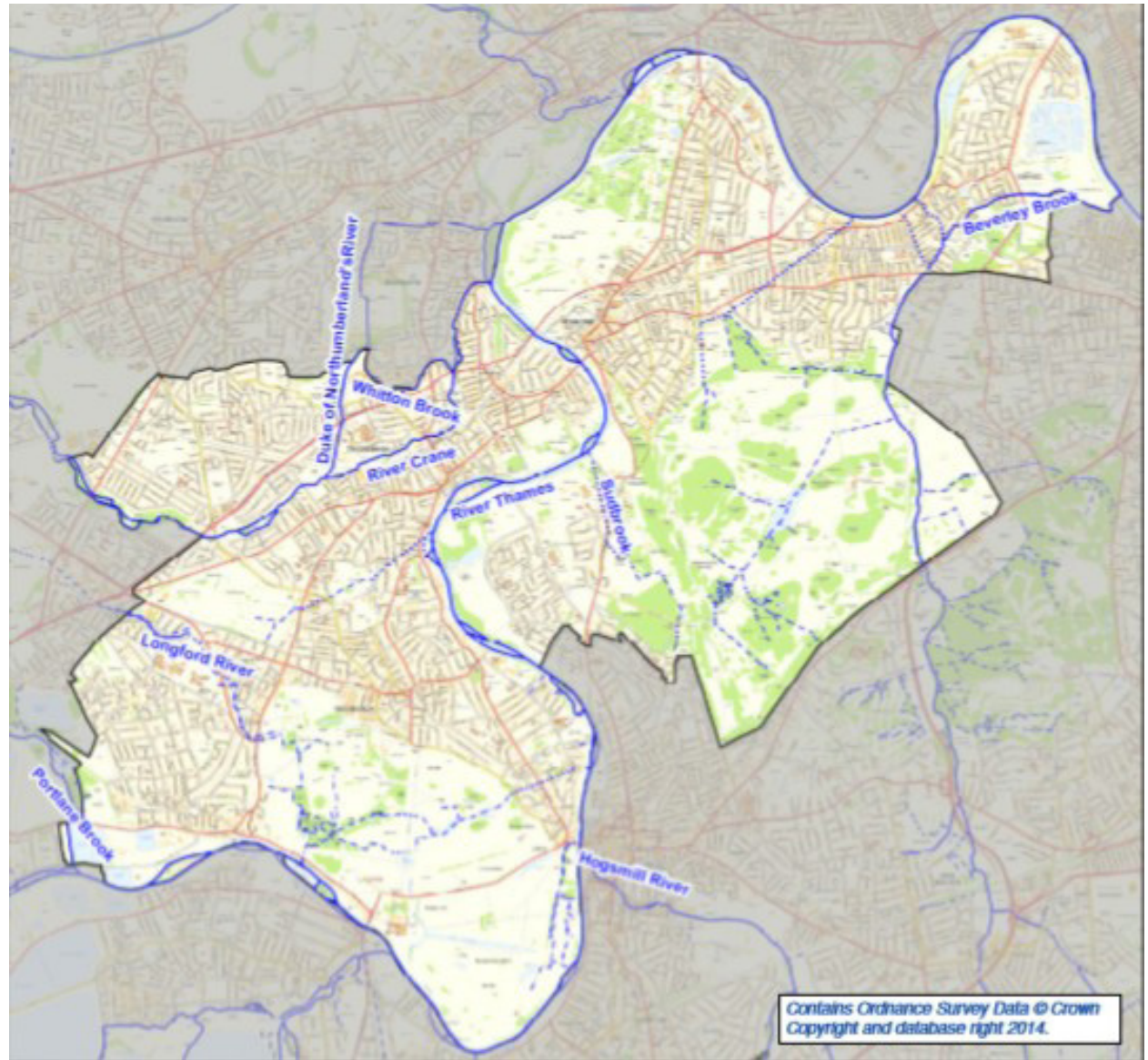
The FWMA and the Flood Risk Regulations 2009 gives Richmond Council, as the LLFA for Richmond Borough, a strategic role in overseeing the management of local flood risk within its area. As an LLFA, Richmond Council is required by the Act (2010) to produce a LFRMS (“Strategy”) which must be maintained, applied and monitored.



Where Richmond is now

A large proportion of the borough is situated in close proximity to the River Thames and its tributaries (River Crane and Beverley Brook). A considerable proportion of the London Borough of Richmond upon Thames is at risk of flooding. The risk of flooding posed to properties within the Borough arises from a number of sources including river flooding, localised runoff, sewer and groundwater flooding. In addition to fluvial and tidal flooding, properties and infrastructure within the borough are also at risk of flooding from other, more localised sources, such as surface / groundwater / sewer flooding due to surcharging of sewers and drains or due to the failure of infrastructure. Many existing water mains, sewerage systems and treatment works are becoming overloaded. It is essential to ensure that such infrastructure is in place ahead of development to avoid unacceptable impacts on the environment such as sewage flooding of residential and commercial property, pollution of land and watercourses plus water shortages with associated low-pressure water supply problems.

Water efficiency has a significant role to play in addressing the challenges faced by the water sector and beyond. It is one of the few tools that can address both climate change mitigation and climate change adaptation. During 2017/18 Richmond's buildings consumed 108,092m³ of water. These are essential supplies to staff, residents, contractors and visitors to the borough



Map of water courses in Richmond

Linked Strategies

A Surface Water Management Plan (SWMP) assesses the surface water flood risk across an area using both historical information and undertaking pluvial modelling to determine the future flood risk for a range of rainfall events. These identify the areas of significant surface water and groundwater risk and options to address the risk of flooding. A SWMP has been produced for the London Borough of Richmond upon Thames, along with the Preliminary Flood Risk Assessment, as part of the Drain London project which a GLA- led, £3.2m DEFRA-funded, London-wide programme to identify, prioritise and manage areas and assets at surface water flood risk.

Richmond's Local Plan highlights that all developments should avoid, or minimise, contributing to all sources of flooding, including fluvial, tidal, surface water, groundwater and flooding from sewers, taking account of climate change and without increasing flood risk elsewhere. Flood risk assessments (FRA) will be required in line with national policy and guidance, this will help minimise vulnerability and provide resilience to flooding in the future.

We are required to carry out a Strategic Flood Risk Assessment (SFRA) for our area, which assesses the risk of flooding from all sources, now and in the future, taking account of the impacts of climate change. The SFRA supports and informs the Local Plan, including the site allocations, by assessing the

impact that land use changes and development in the area will have on flood risk. The SFRA provides the basis for applying the Sequential Test to development sites, thereby directing development away from areas at highest risk. In March 2016 the Council updated its SFRA. The report includes a series of maps that define areas of flooding in the borough according to various levels of risk from the River Thames, its tributaries and other sources such as surface water.

The Local Flood Risk Management Strategy, Strategic Environmental Assessment - Environment Report (2015) considers of all areas within the Richmond Borough administrative boundary, as these areas are covered by the main LFRMS document. The SEA also takes into consideration the wider environment around and in close proximity to Richmond Borough, since environmental boundaries and margins do not necessarily follow man made administrative boundaries.

Key actions

Our approach to reducing flood risk

We will provide Sustainable Drainage Systems (SuDS) to avoid rapid rain run-off into drains and rivers and improve water quality. Richmond is one of three South London boroughs that have been shortlisted for funding from Thames Water for development of SuDs in vulnerable and problematic areas. The fund of £20m will be invested in sustainable drainage projects which will work by slowing rain water down

before it enters the sewers or letting it drain away naturally into the ground thus easing pressure on the sewer network. The work will also help reduce the risk of sewer flooding and pollution following heavy rainfall.

We will use our Local Plan to apply planning solutions to flood risk management wherever possible by steering vulnerable development away from areas affected by flooding in accordance with the NPPF Sequential Test. Specific planning recommendations have been provided for all urban centres within the Borough which include tree planting and discouraging the replacement of soft landscaping and lawns by paving or decking. in front and rear gardens.

We will continue to promote green infrastructure to act as flood storage areas, holding large volumes of water in temporary ponds to protect built up areas from flooding.

Richmond Borough forms part of the South West London Flood Group, along with the five South West London Boroughs of Merton, Sutton, Croydon, Wandsworth and Kingston upon Thames. We will continue to work and partner with the Environment Agency and Thames Water as well as other organisations such as the Local Resilience Forum and the Drain London Forum.

Our water usage

We will improve water efficiency of Council buildings through retrofitting simple, cost-effective water saving measures for employee washing and toilet facilities and will work to create a water-saving culture to accomplish wide scale water efficiency

We will seek funding to deliver new public drinking fountains in Richmond in appropriate locations where people can access safe and free water. We currently have water fountains in Hatherop Park and Carlisle Park in Hampton, Kneller Gardens in Twickenham, North Sheen Recreation Ground in Kew, Kings Field in Hampton Wick and Palewell Common, East Sheen with fountains in Richmond Green, Buccleugh Gardens and Barnes Green to follow in summer 2019. We aim to continue the roll out of fountains by continuing to look for opportunities of funding and suitable locations.

We will maintain a rolling programme of leak detection and repair and investigate new technological developments which may help to increase the efficiency of water use and swiftly repairing water supply pipes to reduce leakage.

We will develop robust measuring and verification of consumption and monitor and measure water usage across sites in order to identify the most significant areas of use and prioritise these areas for reduction measures.

Our Future Plan

- | | |
|--------------------|--|
| 3- 5 Years | <ul style="list-style-type: none">• Continue to maintain and manage the borough's drainage assets• Continue to implement a robust system of leak detection to save money and reduce waste |
| 5- 10 Years | <ul style="list-style-type: none">• Continue to promote water efficiency in the borough• Update the borough's Strategic Flood Risk Assessment |

Key targets

- Water consumption (cu m) – % reduction from previous year
- Reduce the total water consumption per staff (litres)
- Increase Number of water fountains in public spaces

Get Involved

Here's how residents and partners can do their bit to reduce their water usage:

- Turn off the tap when brushing your teeth. A running tap wastes over 6 litres of water per minute.
- Only fill your kettle with the water you need
- Drop a hippo in your cistern: About a quarter of all the clean, drinkable water we use in our homes is flushed down a toilet. Putting a hippo into an average toilet cistern could save up to 2.5 litres with every flush. <http://freebies.thameswater.co.uk/>.
- Install a water butt at home to water plants with collected water
- Report any leaks so they can be fixed quickly

GLOSSARY

Term	Definition
AMR	Automatic meter reading (AMR) is the technology of automatically collecting consumption, diagnostic, and status data from water meter or energy metering devices (gas, electric) and transferring that data to a central database for billing, troubleshooting, and analysing.
AVOID	AVOID is a climate change research programme funded by the Department of Energy and Climate Change and the Department for Environment, Food and Rural Affairs.
Building Energy Management (BEMS)	Building Energy Management Systems monitor and control services such as heating, ventilation and air-conditioning, ensuring the building operates at maximum levels of efficiency and removing wasted energy usage
Carbon dioxide (CO₂)	Carbon dioxide is a gas in the Earth's atmosphere. It occurs naturally and is also a by-product of human activities such as burning fossil fuels. It is the principal greenhouse gas produced by human activity
Carbon Neutral (also known as net zero carbon)	Carbon neutral, also called carbon neutrality is a term used to describe the action of organizations, businesses and individuals taking action to remove as much carbon dioxide from the atmosphere as each put in to it. The overall goal of carbon neutrality is to achieve a zero-carbon footprint
Carbon offset	Carbon offset is a way to compensate for your emissions by funding an equivalent carbon dioxide saving elsewhere.
Climate Active	
Climate change	A pattern of change affecting global or regional climate, as measured by yardsticks such as average temperature and rainfall, or an alteration in frequency of extreme weather conditions. This variation may be caused by both natural processes and human activity. Global warming is one aspect of climate change.
Display energy certificate (DEC)	DEC's show the energy performance of a building based on actual energy consumption. For certain types of building, they must be displayed prominently in a place visible to the public and are intended to raise public awareness of the energy use of buildings.
EU Emissions Trading Scheme (EU ETS)	The trading greenhouse gas emissions allowances. Launched in 2005, it covers some 11,000 power stations and industrial plants in 30 countries, whose carbon emissions make up almost 50% of Europe's total.

Term	Definition
Evatransvaporation	Evapotranspiration, Loss of water from the soil both by evaporation from the soil surface and by transpiration from the leaves of the plants growing on it. Evapotranspiration accounts for most of the water lost from the soil during the growth of a crop.
GHG	Greenhouse gases, or GHGs, are compound gases that trap heat or longwave radiation in the atmosphere. Their presence in the atmosphere makes the Earth's surface warmer. The principal GHGs, also known as heat trapping gases, are carbon dioxide, methane, nitrous oxide, and the fluorinated gases. Carbon dioxide composes 64.3% of GHGs.
IPCC	The international body for assessing the science related to climate change. It was set up in 1988 by the World Meteorological Organization (WMO) and United Nations Environment Programme (UNEP) to provide policymakers with regular assessments of the scientific basis of climate change, its impacts and future risks, and options for adaptation and mitigation
LED	Light Emitting Diodes - are a form of energy efficient lighting that offers greater efficiency and effectiveness than traditional incandescent and high intensity discharge (sodium) based lamp technology.
Local Plan	The Local Plan sets out the Council's local planning policies and identifies how land is used, determining what will be built where providing a framework for development across the whole borough.
Minimum Energy Efficiency Fund	The Mayor of London's Energy Efficiency Fund (MEEF) is a new £500m investment fund established by the GLA with funding from the European Commission, which will help achieve London's ambition of being a zero-carbon city by 2050.
SALIX	Salix Finance Ltd. delivers 100% interest-free capital to the public sector to improve their energy efficiency and reduce their carbon emissions.
STARS	TfL's accreditation scheme for London schools and nurseries. STARS inspires young Londoners to travel to school sustainably, actively, responsibly and safely by championing walking, scooting and cycling.
T-Charge	'Toxic' charge. It is a levy aimed at improving air quality in the capital and mainly applies to diesel and petrol vehicles registered before 2006
ULEZ	Ultra-Low Emission Zone (ULEZ) Charging zone in which vehicles that do not comply with emissions standards for air pollutants will be subject to a daily charge.
United Nations	The UN is an intergovernmental organization that was tasked to maintain international peace and security, develop friendly relations among nations, achieve international co-operation and be a centre for harmonizing the actions of nations.