

RBK Environmental Management Plan

2018 - 2023

Executive Summary

This plan is the Councils overarching approach to tackling current and future environmental challenges through integration and collaboration

Our key message is for enabled community partners and networked Council services working together to improve and protect our environment.



Introduction

The Royal Borough of Kingston upon Thames is currently home to 173,500 residents and is expecting an 8% increase by 2025. Locally identified 'key areas of change' like Tolworth, Kingston Town Centre, the Hogsmill Valley and Cambridge Road Housing Estate are targeted for major and ambitious regeneration.

Kingston Town Centre is a vibrant regional shopping destination where most high-street brands have an outlet. The Borough is fairly affluent with pockets of deprivation, household waste recycling (47.8%) is within the best among London Boroughs. Communities lead a growing number of 'placemaking projects', over £30 million is being invested in sustainable transport through the Go Cycle programme and Crossrail 2 will improve public transport links.

Kingston provides a rich and diverse natural environment with river leisure activities, green open spaces and long walking routes that can take you as far afield as the South Downs. The Hogsmill River and the Beverley Brook are part of Kingston landscape. It is not surprising that Kingston is referred to as a 'green and wealthy' suburb of Greater London, attracting a much higher number of developments than regionally set delivery targets.

Kingston is growing and as a result, pressure on all aspects of environmental management is also growing. Environmental management needs an overarching framework that makes links between individual measures, contracts, programs or policies so that additional value and benefits can be generated through integration.

To this end, connected and targeted environmental management will contribute to making Kingston a desirable and enjoyable place for people.

WHY A PLAN?

Residents, visitors, and business shape the quality of the places we live. Councils have a responsibility to have regard for the environment and therefore good environmental management is integral to many Council services. A piecemeal approach to managing our environment dilutes the impact and savings that coordination and common principles can bring about. This plan ensures the environment is properly considered by everyone working towards making Kingston a better place.

We now need to think more imaginatively about avenues of coordination and match funding for maintaining and improving the environment. Using a variety of innovative and different delivery models for funding environmental management can result in better use of public money, and greater community involvement.

Environmental management is relevant across a number of Council services and functions. From the wellbeing agenda of Public Health to Waste looking at 'zero waste', Carbon reduction that links into low natural resources use, district heat networks and combined heat and power plants and reducing fuel poverty. The list continues with the management of parks and open spaces, urban trees, biodiversity through to Town Planning within the RBK Core Strategy, the London Plan and 'key areas of development' and through to sustainable transport and 'Go cycle' programme.

Outside of the Council there is a groundswell of people who are engaged and interested in the borough's urban environment, and who want to get closer to the decision making process. Without a strategic and practical direction this exceptional resource will go untapped.

Aligning with GLA policies and plans

The nine themes were generated by analysing council centric issues and by aiming to work in tandem and integrate solutions in line with the headings of the Mayor of London Environment Strategy (2018) (LES), and other GLA initiatives such as Healthy Streets London and Fuel Poverty Action Plan. A range of policy evidence reviews and stakeholders consultation undertaken for the Core Strategy during 2016-17 were also used to design the content.

VISION and AIM

Vision: Kingston is cleaner, greener and ready for the future

Aim: Green infrastructure and sustainable management is seamlessly integrated in the built environment. Communities will be enabled to deliver positive change in their local area.

Key Themes Summary

1	Enable integration of the built and natural environment
2	Enable community and voluntary group participation in environmental management.
3	Enable integrated measures reducing water wastage and river pollution
4	Protect and enhance biodiversity and the natural environment
5	Enable local businesses or cooperatives to deliver corporate social responsibility
6	Ensure that all soft landscaping that occurs as a result of the growth agenda has a costed and budgeted long term maintenance programme, and that a range of provider mechanisms are explored and implemented
7	Actively and strategically support local energy security
8	Energy and water use for service operations are managed to deliver security of supply, minimise environmental impacts and cost
9	Care for home energy conservation through integrated solutions

Nine Key Themes

Enable integration of the built and natural environment

1

Kingston is growing at an unprecedented rate, building more places for people to live. The environmental pressure on the space is great, but this does not mean that the natural environment should be overlooked in place of the built environment. This theme is about ensuring all considerations and opportunities are explored and grasped to ensure we integrate natural resources into this inevitable growth.

Carbon offsetting

Arguably, early design advice to developers is key in enabling this first strategic principle to deliver multiple benefits for people living in Kingston. The pre-application advice should be informed and comprehensive covering topics such as land management, site layout and design, water efficiency, energy use and carbon dioxide emission, local air quality impacts, materials and construction waste, nature conservation and green infrastructure. The discussion should also cover potential cash in lieu through Section 106 for carbon offsetting. This will contribute to fund a strategically planned network of green Infrastructure incrementally contributing to energy and water efficiency along with the wider health benefits.

The fund will be managed by the Carbon Reduction team who will oversee the carbon offsetting projects such as green corridors, tree lined pedestrianised roads, vegetated and permeable cycle lanes, wildlife overpasses over large road links like the A3 and many more (more details at pages 15-16).

Green Infrastructure

There is an expectation that major residential developments have zero carbon targets. If these are not met the Local Planning Authority (LPA) require written economic and/or technical reasons for non delivery. As these major residential developments are requested by the LPA to provide full Standard Assessment Procedures (SAP) calculations with Head Terms at early application stages, the LPA should require a very high proportion of insulation and cooling being provided through green infrastructure. Green roofs and walls should be following GLA guidance in the 'Living Roofs and Walls' report and GRO Green Roof Code (2014).

Proposed developments should calculate the proposed Urban Greening Factor. This is calculated in the following way: (Factor A x Area) + (Factor B x Area) + (Factor C x Area) etc. divided by Total Site Area. In line with London Plan Policy G5 Urban greening UGF

acceptable target is 0.4 for residential and 0.3 for commercial. Factors for each urban greening element are in table 8.2 in the Draft London Plan 2018.

Air Quality

Air quality and biodiversity should be also integrated into conditions to developers about construction methods and site layout/design by LPA. Trees and vegetation can help to trap pollutants thus reducing people's exposure to poor air quality and improving public health. Setting the facades of new development back from roadsides and creating a vegetative barrier between the road and the building will benefit future occupants of the development. Where construction will take place over a long period of time, the use of temporary vegetative barriers on the site hoardings can help to trap dust emissions from the site.

Decentralised Energy

Decentralised energy supply in Kingston, where high density developments are expected, should be maximising the possibility of a networked distribution. Such intense growth is an opportunity that won't present itself in several years to come and when retrofitting is possible it tends to be more expensive.

Waste

Local plans, early planning advice to developers and the South West London Waste Partnership Action Plan should enforce that new and existing / refurb developments should allow for the separation of a minimum of 4 material groups, including food, paper & card, tins/can/glass and residual waste. Early planning advice could promote that medium to large developments design in community gardening and composting for use on site.

What will success look like?

Kingston benefits from a healthy and dynamic environment with a secure, affordable low carbon energy future and where all development adds economic and environmental value

2 Enable community and voluntary group participation in environmental management.

Friends of Parks' groups help create better open spaces across the borough. In partnership with the Council's Green Space Service, they can support their local community to have a greater say in what goes on in their estates, streets, high density building complexes and parks.

Not-for-profit organisations and voluntary and community groups can contribute time and labour, and importantly have access to raise funds and encourage community development and local ownership of urban green space.

The Community Group toolkit is available on the RBK public website and will provide groups with the information they need to make a sustainable success.

What will success look like?

Vibrant, engaged groups that make things happen.

3

Enable integrated measures reducing water wastage and river pollution

Kingston was built around a network of rivers, several of which have since been lost underground within the sewer network. As more of the borough is developed, the amount of naturally permeable area is reducing, causing more rainwater to enter the sewers. This increases the risk of flooding, reduces biodiversity in our rivers and makes the delivery of drinking tap water more expensive.

The solution lies in giving rainwater somewhere to soak into rather than running into the nearest drain. Everyone can have a green roof on their shed at home, have rain harvesting waterbutts attached to any gutter and reduce the amount of hard surface paving in their gardens. This will help to reduce the risk of local flooding, improve plant tolerance, increase biodiversity and keep their home cool. Constantly encouraging private gardens to make space for water will make a contribution to improving water quality as runoff will be filtered by plants and bacteria, also creating valuable urban wildlife habitats at the same time.

In Kingston, 70% of the green spaces with larger more mature trees are along streets, brownfields and in public open spaces. The Green Spaces Strategy, Tree Strategy and Best Practice Guide for Planning and Biodiversity are to complement this strategy in informing regeneration, development control and developers. Planners are required to give informed early advice to enable incorporation of these benefits into designs so that new development will be contributing to themes 1 and 4. Green roofs, communal food growing areas, rain gardens and grey-water reuse through plant filtration will be encouraged to be included in all developments, particularly major applications. These will include a maintenance arrangement as in theme 7.

Green, quiet routes encourage an active lifestyle, reducing avoidable trips made by car, and increasing walking and cycling. Planned maintenance and infrastructure works done to any

road is encouraged to seek early advice from the Flood Risk Reduction Lead for the inclusion of porous surfaces.

In dry periods London's water supply is pushed to its limits. All new homes, refurbishments and non-residential should be built to best practice as in AECB's Water Standards document available at www.aecb.net.

What will success look like?

All water use is respected, there is less waste and flooding as water friendly measures become the norm.

Protect and enhance biodiversity and the natural environment

4

Our network of rivers corridors, green spaces, private gardens, green roofs and walls protect the habitats and species that give us our rich ecological heritage. Kingston is fortunate to have committed network of wildlife groups working under the Kingston Biodiversity Network (KBN) banner. We will work with them to protect and enhance our ecological networks by encouraging a Kingston Biodiversity Action Plan including the development of a set of robust biodiversity targets.

The continuation of the Higher Level stewardship grant from Natural England will develop some wild spaces that benefit both biodiversity and people.

Development adjacent to or within areas identified as part of the Green Grid Framework is required to contribute to the enhancement of the Green Grid. A rolling project list will ensure the the Arcadian Thames Green Grid Framework is progressed.

The RBK Good Practice Guide - Biodiversity and the Development Process provides a comprehensive guide to all developments on the approach the Council requires when considering biodiversity in the growth agenda.

What will success look like?

Kingston supports a healthy biodiverse environment where urban species and habitats thrive.

Enable local businesses or cooperatives to deliver corporate social responsibility

5

We support businesses to deliver Corporate Social Responsibility by recommending their commercial business model adds value to environmental quality and resource management. By focusing on environmental protection and enhancement, businesses and their operations will

- Ensure resources are used efficiently and sourced ethically
- Minimise waste, include reuse and recycle
- Reduce risk of ill health from a poor quality environment
- Reduce environmental pollution
- Upskill staff and supply chain staff to implement local policy

We envision that businesses will be able to make a profit taking advantage of the circular economy, in which we 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 of each service life.

There a number of ways that business can minimise their environmental impact for example supply chain impact, environmental management measures as part of contract performance and impacts on air quality from vehicle deliveries (fuel consumption) investment in the fabric of their building to reduce energy consumption and in renewable electricity generation to contribute to a decarbonised grid.

What will success look like?

The Borough's business community contributes to Kingstons' healthy environment

6

Ensure that all soft landscaping that occurs as a result of the growth agenda has a costed and budgeted long term maintenance programme, and that a range of provider mechanisms are explored and implemented

Most infrastructure and built development benefit from soft landscaping. Whether it is for ascetics or to mitigate temperature fluctuations, rainwater harvesting, excessive ambient noise suppression or traffic management any new introduction requires long term maintenance provision. Early discussions with developers and designers about how green infrastructure will be maintained in the long term is imperative so that extra pressure is not put onto on revenue budgets as a result of the improvements.

Councils now have less money to spend on implementation and maintenance, acting now to stop decline, increase resilience to maintain and protect sites will ensure facilities meet local needs we have to explore a range of new provider options.

What will success look like?

An attractive and functional landscape that is well managed and maintained through long term Community Partnerships and Trusts

Actively and strategically support local energy security

7

Central government set a target of 17% of national heating requirements provided by a self-sustaining heat network market by 2050. The London Plan 2016, RBK Core Strategy 2012 and Mayor of London Environment Strategy (2018) show regional commitment to develop energy security capacity locally.

Regional policy aims to fully decarbonise London by 2050. To do so, greenhouse gas emissions will need to be reduced from around 38 megatons today to near zero by 2050.

- This will involve changes including how energy is sourced and generated.
- Energy efficiency will have to increase dramatically.
- The fossil fuels used for heating and powering buildings, transport, and industry will have to be replaced by renewable electricity and gas.
- London's grids will need to become smarter at balancing energy demand with available supply.

RBK will contribute to a zero carbon London by 2050 through developing these two strategic objectives:

1. Developing a district heating network in Kingston to help achieve a decarbonised self-sustaining local heat network market.
2. Enabling community and business mapping of solar PV and heat PV possible locations.

District Heating Network

A Kingston Town district heating network has been an ambition since 2011/12. In 2015 Kingston produced a feasibility study and business case for a district heating network in Kingston Town using the British Land development in Eden Street as the vehicle. At the time RBK was not in a position to take the proposals forward, however, the Core Strategy Policy DM 2 states that *"The Council will seek to develop District Heating Networks in the following areas: The Hogsmill Valley Area, Kingston Town Centre and Tolworth Regeneration Area."* It also states what development proposals in these areas should undertake in case a DHN is *"not in place"* or is *"planned"* or is *"present"*.

Developers, designers, planners, residents will all have an important role to play in Kingston meeting these policy objectives. The alignment of developments with national and regional initiatives offers a window of opportunity. Among key developments there are the Cambridge Road Estate, the Meyer Homes development in Tolworth and the council campus only to mention a few.

Solar technologies

Energy generated from solar technologies will be part of the mix of making London zero carbon by 2050.

Solar energy is energy obtained by capturing the radiant light and heat from the sun. Photovoltaic (PV) cells generate electricity, and solar thermal technologies collect the thermal energy from the sun and use this heat to provide hot water or space heating. Combining solar energy generation technologies with storage technologies (like batteries) enables onsite use of heat or power to meet demand at any time of day.

The Mayor's current initiatives are to help install around an extra 100 megawatts (MW) of solar energy generation in London by 2030 doubling London's existing solar energy generation capacity (95 MW). To achieve London zero carbon target, 2000 megawatts (MW) are estimated to be installed by 2050, and around 1000 megawatts (MW) by 2030.

Alongside these, the GLA is in the final stages of setting up its own licensed electricity supplier which could buy excess power and sell it back at preferential rates.

Kingston developed a feasibility studies for possible locations where PV's could be installed. In the past, these installations were focused on school buildings financed through RE:FIT. Interested schools were Chessington Community College, Coombe Hill Junior, Grand Avenue Primary & Nursery, Tolworth Girls School & Sixth Form, Burlington Infant and Nursery School and Malden Manor.

What will success look like?

Kingston has a secure, affordable low carbon energy supply.

8

Energy and water use for service operations are managed to deliver security of supply, minimise environmental impacts and cost.

Energy and water are part of the core utilities needed by a business to deliver services. The supply of energy and water is part of national network.

The Council energy and water procurement includes purchasing on behalf of the Corporate Estate, Schools, Street Lighting, and the energy needs RBK Social Housing communal areas, and is led by the Council property service.

There are opportunities to minimise utility costs which include

- accurate energy and water monitoring

- Billing and payment management
- day to day energy and water management from service operations

The Council's Total Facilities and Property Management (TFPM) Service Provider, Engie, is committed to reduce energy consumption by a minimum of 11.4% (Kwh) from a 1990 baseline year, during the Contract Period from October 2015-September 2022. The Carbon Reduction Team monitor ENGIE's performance from 2018 alongside the Property Team.

Energy and water contracts are secured

- as part of a regional partnership of Local Authorities and Public Sector organisation to provide greater purchasing power, and
- for more than one year to provide security to the market, and enable suppliers to provide competitive utility price.

The Property team are responsible for energy and water procurement of the Council's corporate estate, and can seek impartial advice from internal and external specialists to identify procurement options. The Council's TFPM Contract also provides the opportunity for the service provider, ENGIE, to offer energy and water procurement service, under the Energy Procurement Services Specification.

There is a need for the Council to maintain collaboration and support the aggregation of pan-London expenditure, procurement practice and use of resources (estimated £450m p.a., 48,000 supply points) to reduce risk and back-office transaction costs to deliver overall best value for money and improved commercial outcomes, now and in the future.

The energy and water contracts have the opportunity to integrate the environmental impacts of energy generation and water sources into the cost and environmental value of the utilities, which could include energy from renewable or nonrenewable sources.

What will success look like?

Well managed TFPM contract that supplies best and added energy and water value across the RBK corporate estate, schools, street lighting and the communal areas in RBK social housing estate.

9 Care for home energy conservation through integrated solutions

Fuel poverty itself is defined as a household that cannot afford to heat their home to an adequate standard of warmth in order to maintain good health and wellbeing and is determined by a myriad of factors including the energy efficiency of a property, the household income, energy use, energy costs and heating-related health needs (LBBD, 2016).

Those at risk of fuel poverty may include households with occupants over 75s, families with children under the age of five, and those with long term illness.

There are health inequalities which drive action led by Public Health and Social Care teams; the outcome to ensure residents can have a healthy, active and independent increasing the opportunity to enjoy time with family and friends, be part of our communities, and rely less on care services later in life.

The link between health impacts and home energy efficiency is recognised by the National Institute of Care and Excellence, which seeks to optimise positive actions by working in partnership across departments and specialisms within Public Health, Housing, Social Care and Sustainability.

Statutory compliance with Housing health and safety rating system (HHSRS) ensures homes with a risk of damp and risk of excess winter deaths are targeted and actions enforced.

Statutory targets to improve the energy efficiency standards of the private rented sector provides pressure on landlords to deliver better quality living standards. The regulation state Private non-domestic (and domestic) landlords must ensure that properties they rent in England and Wales reach at least an Energy Performance Certificate (EPC) rating of E until 2020, D until 2025 and aiming at C/B by 2030 before granting a tenancy to new or existing tenants enforceable from April 2018*.

Funding can be sought to address the causes of fuel poverty and negative health impacts of poor quality homes. These include addressing the need for affordable heating in the winter and cooling needs in the summer, which responds to extreme seasonal temperature, taking account of resident's physical and mental wellbeing.

What will success look like?

Cash poor homeowners and private rented properties tenants are supported to improve the house fabric energy performance.

Partnership work enables private landlords and estate agents' criminal records to be publicly available and their properties' EPC meets National targets.

There is a single-point-of-contact health and housing referral service for people living in cold homes, which addresses issues such as fuel debt, and ill health and wellbeing.

*(“Cutting the cost of keeping warm” (Private Rented Property)(England and Wales) Regulations 2015)

A CONNECTED APPROACH

Our approach to environmental management focuses on enabling synergies between housing growth, economic prosperity, biodiversity rich green infrastructures, sustainable transport, waste reduction, reuse & recycling.

Maintaining and creating a good quality environment in an ever decreasing financial situation is challenging. Nevertheless, the ecosystem services that a quality environment provides are the strategic assets of any council and should be given priority when considering spending money.

Environmental management choices have had little overarching strategic coordination, and arguably are beginning to show their patchy and opportunistic nature.

When the RBK Energy Strategy was written in 2008, the public building carbon reduction contract had not been awarded. The vision at the time was limited to the three National Indicators and Carbon Reduction Commitment. This translated in putting in place easy-wins like retrofitting or selling council buildings and embedding behavioural changes in our council employees like switching off our computer screens. However, by 2016 reductions reached a plateau, the London Plan and the 2018 London Environment Strategy mainstreamed the idea of a number of far reaching targets and aspirations such as a National Park City, zero carbon city and low pollution.

RBK

Tree Strategy
Allotment Strategy
Health and Wellbeing
Air Quality Action Plan
Fuel Poverty on Kingston
Database
Mini Holland Project
RBK Core Strategy 2012
Biodiversity Guidance for
Planning
River Safety Plan
RBK Planning Obligations
RBK Environmental Management
Plan 2018-23
SWLP Strategy Implementation
Plan
Strategic Flood Risk Assessment

Business Kingston First

Relationship of Kingston
strategies and plans important to
environmental management

Environmental Management Plan

National/Regional influencers

London Biodiversity Action Plan
MoL Environment Strategy 2017
MoL Fuel Poverty and Solar
Energy Action Plans 2017
Clean Growth Strategy 2017
MoL District Heating Manual
The Natural Choice - *securing the
value of nature 2011*
The London Plan 2016
Sustainable Communities Act
2007 (Amended)
Sustainable Design and
Construction
Energy Planning Guidance 2018

Community led initiatives

Kingston Biodiversity Network
Surbiton Wildlife Group
Environment Trust
Thames Landscape Strategy
CARA
Lower Mole Project
Young Place Shapers (SWC)
Kingston Community Furniture

Relationship to
legislation and external
organisations

A FUNDING APPROACH

A key message winding throughout this document is that the financial situation of local authorities is unlikely to improve within the life of this plan. Therefore, much has to be made, of seeking other ways of funding the necessary capital projects and maintaining them. Successful environmental management resourcing has to be underpinned by a strategic approach to funding and management that incorporates a portfolio of different sources, mechanisms and partnerships.

To this end, the Council has recently taken a more dedicated professional approach to attract grants and funding opportunities. All opportunity both internal and external will be explored to apply for grants and funds.

As part of the s106 planning contributions a carbon dioxide offset fund has been set up. The overseeing of the fund will be achieved internally by officers and reported through the current governance structure. The ability to deliver success as described in this document and to facilitate incremental benefits throughout the Borough are to guide the carbon offsetting fund allocation. Guidance about this fund is available on the RBK public website (SPD documents).

The Mayor of London announced in the Fuel Poverty Action Plan (2017) that he will provide clear guidance to boroughs on how they can most effectively use offset funds.

Projects eligible to be funded by the Carbon Offsetting Fund

Impact	Measure
Artificial connectivity features	Green bridges, road verges, ecological management of surface water/treatment works corridors
Natural connectivity features	Hedgerows, stone walls, small woodlands, ponds, wildlife strips, riparian river vegetation, transitional ecosystems between cropland, grassland and forests
Green urban and peri-urban areas	Street trees and avenues, city forests/woodlands, high-quality green public spaces and business parks/premises; green and

	brown roofs, green walls and vertical gardens; allotments and orchards; storm ponds and sustainable urban drainage systems; rain harvesting systems, Local Natural Reserves.
Cash poor homeowners known to our services or self referred slightly falling out of Energy Company Obligation funding flexible eligibility criteria set by RBK	Low NOx high performance boilers for heating/hot water, home-visit offering information about purchasing the best energy contract, replacement of single glazing to double glazed windows, loft/ground floor/cavity walls/solid walls insulation.
Private rented properties tenants known to RBK housing service and who live in hard to heat homes excluded from other fundings.	Low NOx high performance boilers for heating/hot water, home-visit offering information about purchasing the best energy contract, replacement of single glazing to double glazed windows, loft/ground floor/cavity walls/solid walls insulation.
Energy security	Decentralised energy networks, smart energy systems.
Long term amenity value and benefits	All projects listed here will include a minimum of five year maintenance cost covered through a commuted sum.

Proposed projects will calculate their predicted carbon reduction, by using the values in the recent Valuing London's Urban Forest by i-Tree Eco Project (2015) and by using the water industry carbon emissions in A Low Carbon Water Industry in 2050 by Environment Agency (2009). Stormwater attenuation volumes should be expressed in m³ for each m² of development area. Each million litres of surface water prevented from or slowed down on the way to go into the sewer system reduces the energy delivery & disposal needs & associated carbon emissions by 0.576 tCO₂e (Thames Water 2017).

London's Urban Forest - Key Statistics				Total
Number of Trees	Inner London	1,587,000		8,421,000
	Outer London	6,834,000		
Tree Cover	Inner London	13%		14%
	Outer London	14%		
Canopy Cover	Inner London	18%		21%
	Outer London	21%		
Most Common Species	Inner London	Beech, Lime, Apple		
	Outer London	Sycamore, Oak, Hawthorn		
Pollution Removal (per annum)	Inner London	561 tonnes	£58 million	£126.1 Million
	Outer London	1080 tonnes	£68.1 million	
Stormwater Alleviation (per annum)	Inner London	705,000m³	£588,935	£2.8 Million
	Outer London	2,705,000m³	£2.2 million	
Carbon Storage (whole value)	Inner London	499,000 tonnes	£30.9 million	£146.9 Million
	Outer London	1,864,000 tonnes	£116 million	
Carbon Sequestration (per annum)	Inner London	15,900 tonnes	£967,000	£4.79 Million
	Outer London	61,300 tonnes	£3.8 million	
Building Energy Savings (per annum)	Inner London	£273,000		£280,800.00
	Outer London	£37,600		
Building Avoided Carbon Emissions (per annum)	Inner London	£23,600		£54,800
	Outer London	£31,000		
Replacement Cost (whole value)	Inner London	£1.35 billion		£6.12 billion
	Outer London	£4.77 billion		
Amenity Value (CAVAT) (whole value)	Inner London	£17.6 billion		£43.3 billion
	Outer London	£25.7 billion		
TOTAL ANNUAL BENEFITS	Inner London	£59.54 Million		£132.7 Million
	Outer London	£73.16 Million		

Notes

Number of trees: Total number of estimated trees extrapolated from the sample plots.

Tree cover: Total tree canopy cover taken from direct measurements from within plots, this value excludes shrubs (shrub cover was estimated at 4.9% in Inner London, 7.2% in Outer London and 6.7% for Greater London).

Canopy cover: is the total of tree and shrub cover. Please note that due to the survey methodology (using 721 plots) we acknowledge that the reported canopy cover figures are lower than other reported studies using a random point method (typically 10,000 plots) and therefore this report provides a statistically robust while still conservative estimate of the natural capital of London and the ecosystem services that it provides.

Most common species is based on field observations.

Pollution removal value is calculated based on the UK social damage costs (UKSDC) and the US externality prices (USEC) where UK figures are not available; For Inner London these were; £927 per metric ton CO (carbon monoxide - USEC), £6,528 per metric ton O₃ (ozone - USEC), £98,907 per metric ton NO₂ (nitrogen dioxide - UKSDC), £1,633 per metric ton SO₂ (sulphur dioxide - USEC), £273,193 per metric ton PM₁₀ (Particulate matter less than 10 microns and greater than 2.5 microns - UKSDC), £7,482 per metric ton PM_{2.5} (particulate matter less than 2.5 microns - USEC).

For Outer London these were; £927 per metric ton CO (carbon monoxide - USEC), £6,528 per metric ton O₃ (ozone - USEC), £64,605 per metric ton NO₂ (nitrogen dioxide - UKSDC), £1,633 per metric ton SO₂ (sulphur dioxide - USEC), £178,447 per metric ton PM₁₀ (Particulate matter less than 10 microns and greater than 2.5 microns - UKSDC), £7482 per metric ton PM_{2.5} (particulate matter less than 2.5 microns - USEC).

Stormwater Alleviation is based on the amount of water held in the tree canopy and re-evaporated after the rainfall event (avoided runoff). The value is based on the Thames Water volumetric charge of £0.807p per cubic metre.

Carbon Storage: the amount of carbon bound up in the above-ground and below-ground parts of woody vegetation.

Carbon sequestration: the removal of carbon dioxide from the air by plants.

Carbon storage and carbon sequestration values are calculated based on 2015 DECC figures of £62 per metric ton.

Building Energy saving value is calculated based on the prices of £149.20p per KWH and £14.06 per MBTU.

Replacement Cost: is the value of the trees based on the physical resource itself (e.g., the cost of having to replace a tree with a similar tree).

Amenity Value: is calculated using the Capital Asset Valuation for Amenity Trees (CAVAT) method.

Further details are found within the relevant chapters of the report and a summary of the calculations is included within appendix IV.

HOW THIS PLAN HELPS YOU

Each theme in this strategy makes explicit the need for a common vision and aim integrating services, programmes, residents and businesses that contribute to environmental

management in Kingston. In developing the plan services were asked about what environmental management principles would help them achieving their aims and vision. All services contributed to the text. The view is that services will continue use the document to guide their daily work or the part of it that helps them enable the London Environment Strategy 2018 in Kingston .

COMMUNICATION

RBK website and other social media offer an opportunity to enable a cleaner, greener and future proof Borough by providing information about the opportunities available. Work will be done to improve information and provide regular updates.

ANNEXES

Annex 1 - Map and list of decentralised energy

Annex 2 - Engie carbon reduction projects - report 2017

Annex 3 - Good Practice Guide (GPG) Biodiversity and the Planning Process

Annex 4 - Kingston Biodiversity Network Habitat Action Plans (available at end of year one)

Annex 5 - Community Group Toolkit (Friends of Parks)

Annex 6 - Waste Planning Guidance

Annex 7 - Air Quality Action Plan

Annex 8 - Strategic Flood Risk Assessment

Annex 9 - All London Green Grid

Annex 10 - [RBK Social Value toolkit](#)

Annex 11 - FUEL POVERTY ACTION PLAN FOR LONDON, (GLA) August 2017

Annex 12 - Equalities Impact Assessment