Chapter 36 Respecting Environmental Limits
Climate change, flooding, waste, biodiversity, air quality and noise and vibration

36.1 Introduction

36.1.1 Changes to our climate have an impact on lifestyles, the economy and our natural and built environments. Furthermore, changes in the world's climate pose a major threat to our long-term well-being. The Council acknowledges that man-made climate change is a global challenge that requires a global response and a call for action at all levels, from governments, local authorities and citizens alike[120]. Continued emission of greenhouse gases will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe and irreversible impacts for people and ecosystems. Locally, there is already an increasing risk of flooding from intense rainstorms, and during heatwaves the elderly may be exposed to life threatening heat stress but there is a lot that the Council, residents and those who work here can do together to reduce their carbon footprint more quickly and in a sustainable way. The Council is determined to contribute to the achievement of international, European, national and regional CO_2 reduction targets. Poor air quality is damaging our health at every stage of life. The report: Understanding the Health Impacts of Air Pollution in London estimates that 25% of early deaths are attributable to high concentrations of nitrogen dioxide (NO2) and fine particles (PM2.5) within the borough[121]; this equates to approximately 200 early deaths every year due to these pollutants. There is an increasing recognition that the problems caused by air pollution and climate change need to be treated together, not least because the emissions that pollute our air and warm our planet originate from common sources such as vehicles, buildings, power generation and industry. The Council intends to give a high priority to the twin issues of climate change and poor air quality through a joint Air Quality and Climate Change Action Plan (2016-2021[122]).

36.1. 2 "Planning plays a key role in helping shape places to secure radical reductions in greenhouse gas emissions, minimising vulnerability and providing resilience to the impacts of climate change, and supporting the delivery of renewable and low carbon energy and associated infrastructure. This is central to the economic, social and environmental dimensions of sustainable development." National Planning Policy Framework, March 2012 (paragraph 93). "Planning policies should sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas. Planning decisions should ensure that any new development in Air Quality Management Areas is consistent with the local air quality action plan." National Planning Policy Framework, March 2012 (paragraph 124).

36.1.3 Across the planet, we are using natural resources too quickly and at a rate beyond the capacity of our planet to replenish them at the same rate. It is important that we all play our part to reduce the impact of human activity on the global and local environment. Respecting Environmental Limits is therefore about ensuring that we live within our means and make decisions to help future generations meet their needs. This will contribute to achieving the environmental elements of sustainable development.

[120] Air Quality and Climate Change Action Plan 2016-2021, Technical Appendices. RBKC, 2016
[121] www.london.gov.uk/sites/default/files/hiainlondon_kingsreport_14072015_final.pdf July 2015
[122] Air Quality and Climate Change Action Plan 2016-2021, RBKC, 2016

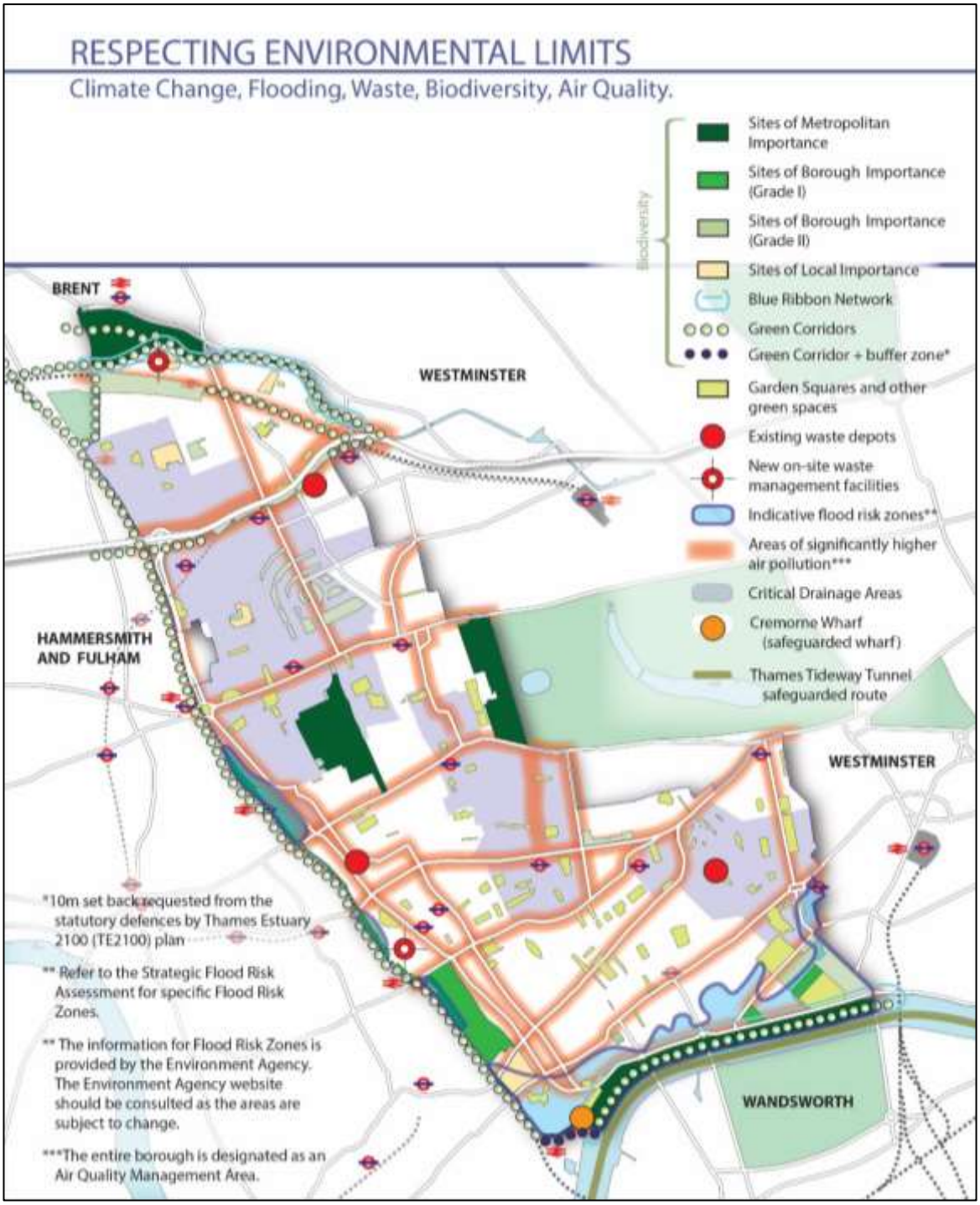
36.1.4 The social, economic and other environmental elements of sustainable development are considered elsewhere in the Local Plan, including encouraging the use of public transport, sustainable economic growth, providing local employment opportunities, providing a diversity of housing, providing community facilities and opportunities within walkable neighbourhoods, protecting open space and encouraging greater opportunities for pedestrians and cyclists.

36.1.5 Most of our energy and fuel, including for the production and transportation of food, comes from non-renewable fossil fuels (coal, oil and gas) which emit carbon dioxide, nitrogen dioxide and fine particles when burned. Carbon dioxide is one of the six principal greenhouse gases, which contributes to global warming resulting in climate change. This leads to less predictable weather conditions and more extreme weather events, which may reduce food production and increase the risk of flooding. Nitrogen dioxide and fine particles are the primary pollutants of concern, and have a variety of health effects associated with exposure. Nitrogen dioxide irritate the airways of the lungs, increasing the symptoms of those suffering from lung diseases. Fine particles can be carried deep into the lungs where they can cause inflammation and a worsening of heart and lung diseases. Three quarters of our waste is currently transported by barge down the River Thames to the Belvedere Energy Waste plant. The remaining waste is either composted and recycled.

36.1.6 Vehicles, including those passing through the borough, the heating and cooling of buildings, especially the use of old inefficient boilers, the use of biomass and biomass / gas fired Combined Cooling, Heating and Power (CCHP) and Combined Heat and Power (CHP) for heating/electricity generation and comfort cooling are all significant emitters of gases (some of which are also greenhouse gases) and increase air pollution. The ambient noise levels in many parts of the borough are high, which are exacerbated by noise from plant and equipment attached to buildings, road traffic, construction, noisy neighbours and pubs/clubs. Vibration is also an issue in parts of the borough, mostly caused by surface and underground trains, but also by plant and equipment which has not been properly attenuated.

36.1.7 Respecting Environmental Limits is an integral part of the Royal Borough's vision of Building on Success. Tackling these issues is central in upholding our residents' quality of life.

CO7 Strategic Objective for Respecting Environmental Limits
Our strategic objective to respect environmental limits is to contribute to the mitigation of, and adaption to, climate change; significantly reduce carbon dioxide emissions; maintain low and further reduce car use; carefully manage flood risk and waste; protect and attract biodiversity; improve air quality; and reduce and control noise within the borough.



36.2 What this means for the borough

36.2.1 We have one of the most cherished historic townscapes in London. If we do not adapt to and limit climate change the historic assets will be irreparably damaged, and the cultural, social and economic benefits will be lost[123]. We have a statutory duty to contribute to the mitigation of, and adaptation to, climate change[124]. Therefore, we need to carefully

[123] Climate Change and the Historic Environment, English Heritage. January 2008. See also Assessment of Heritage at Risk from Environmental Threat: Key Messages Report, English Heritage. November 2013.
[124] Section 19(1A) of the Planning and Compulsory Purchase Act 2004 as inserted by section 182 of the Planning Act 2008.

manage development to ensure that the natural and historic environments do not conflict but complement one another.

36.2.2 The borough is designated as an Area Quality Management Area as levels of nitrogen dioxide and particulate matter exceed national government standards. The Council will therefore take action to carefully control emissions, including emissions from alternative fuel sources.

36.3 Planning Policies

Climate Change

36.3.1 The Climate Change Act 2008 requires a reduction in CO_2 emissions of at least 34 per cent by 2020 and at least 80 per cent by 2050, against a 1990 baseline. 36.3.2Climate change is emerging as one of the major challenges and one of the biggest health threats of the twenty-first century. The Council acknowledges that urgent action is required to limit temperature rises to 2ºC above pre-industrial levels. Global average temperatures have risen by nearly 0.8ºC since the late nineteenth century, and have risen by about 0.2ºC per decade over the past 25 years[125].

36.3.3 The CO_2 emissions in the borough since 2005 have fallen at a lower rate than in other local authorities in London. In 2013, The borough emitted 7.09 tonnes of CO_2 per capita, which was the third highest emission level per capita in Greater London. This was above the national average of 7.0 tonnes. Since 2008 the emissions per capita in the borough have been consistently higher than national levels.

36.3.4 According to the latest carbon dioxide emissions data (CO_2) published by the Department for Energy and Climate Change (DECC) for the period 2005-2013, the industry and commercial sector continues to be the largest emitting sector accounting in 2013 for 57% cent of total borough emissions. The sector includes all non-domestic assets; in this borough this includes offices, Council operations, museums, hotels, retail units, schools etc. 31% of CO_2 emissions come from residents' domestic consumption and 12% come from transport[126].

36.3.5 Although a higher proportion of the borough's emissions arise from industrial and commercial uses, the Department for Environment, Food and Rural Affairs (DEFRA)'s projections show that a significant proportion of CO_2 savings can be made within the domestic sector[127].

36.3.6 Environmental policy suggests that greenhouse gas emissions can be greatly reduced by significantly reducing the amount of heat and energy we use in our buildings, through energy efficient design, materials and construction, such as maximising natural heating and ventilation. Supplying the heat and energy we require locally, through decentralised district heat and energy networks and renewable sources, also minimises greenhouse gas emissions, minimises heat and energy lost during its transportation and contributes to securing heat and energy supply for the future. Where decentralised district heating using CCHP/CHP is proposed careful consideration needs to be given to the air quality implications especially those burning solid or liquid fuel in-line with the Mayor's Sustainable design and Construction SPG, April 2014[128].

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[125] Air Quality and Climate Change Action Plan 2016-2021, Technical Appendices. RBKC, 2016
[126] Department of Energy and Climate Change, UK Local Authority and regional carbon dioxide emissions statistics for 2005-2013
[127] Analysis to support climate change indicators for local authorities, April 2008. Prepared by AEA Technology PLC for the Department for Environment, Food and Rural Affairs
[128] See section 4.3 and Appendix 7 of the Mayor's Sustainable Design and Construction SPG, April 2014

36.3.7 The borough consumes an average of 159 litres of water per person per day, which is greater than the average for England and Wales (149 litres per person per day) but less than the London average (162 litres per person per day)[129]. London Plan policy requires designing residential development so that mains water consumption would meet a target of 105 litres or less per head per day[130]. This reflects the 'optional requirement' set out in Part G of the Building Regulations[131]. Since the London Plan is part of the Council's development plan, the 'optional' requirement applies to new residential development in the borough. Therefore, planning conditions should trigger the 'optional requirement' in Part G of the Building Regulations.

36.3.8 Following the Housing Standards Review, the Government policy[132] is that local planning authorities should not require energy efficiency standards that exceed the energy requirements of Building Regulations for the construction or adaptation of buildings to provide dwellings or the carrying out of any work on dwellings. This national policy is subject to the commencement of amendments proposed to the Planning and Energy Act 2008 in the Deregulation Act 2015. The Government has also withdrawn its commitment to 'zero carbon homes'[133].

36.3.9 The Mayor's Housing SPG, March 2016 (Paragraph 2.3.57) confirms, however, that the London Plan policy on 'zero carbon' homes[134] remains in place. It states that, *"This approach will also help ensure that the development industry in London is prepared for the introduction of 'Nearly Zero Energy Buildings' by 2020. (As required by the European Energy Performance of Buildings Regulation which requires periodic review of Building Codes to ensure cost optimal review of energy efficiency standards and that all new buildings are 'nearly zero energy buildings' by 2020)."*

36.3.10 Paragraph 2.3.58 of the Mayor's Housing SPG, March 2016 defines 'zero carbon' homes as "homes forming part of major development applications where the residential element of the application achieves at least a 35 per cent reduction in regulated carbon dioxide emissions (beyond Part L 2013) on-site (in line with policy 2.5B). The remaining regulated carbon dioxide emissions, to 100 per cent, are to be off-set through a cash in lieu contribution to the relevant borough to be ring fenced to secure delivery of carbon dioxide savings elsewhere (in line with policy 5.2 E)."

36.3.11 The Council supports the approach in the London Plan and the guidance in the Mayor of London's Housing SPG, March 2016. The Council policy therefore requires compliance with the London Plan for major residential development. Advice on how to complete an Energy Assessment is provided in the Mayor's Energy Planning guidance[135].

36.3.12 In line with the guidance in the Mayor's Housing SPG, March 2016 the Council will accept payments in lieu for offsetting any remaining carbon, over and above the 35 per cent reduction on-site, in regulated carbon dioxide emissions (beyond Part L 2013) to meet the zero carbon standard. The carbon offset price[136] of £60 per tonne of carbon dioxide for a period of 30 years will be used.

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[129] Environment Agency, RBKC Fact Sheet, prepared as part of the Environment Agency's State of the Environment - London.
[130] London Plan Policy 5.15: Water Use and Supplies. Excluding an allowance of 5 litres or less per head per day for external water consumption.
[131] Requirement G2 of Schedule 1 to the Building Regulations 2010. HM Government 2015.
[132] Announced in the Written Ministerial Statement of 25 March 2015
[133] Fixing the foundations: creating a more prosperous nation, HM Treasury, July 2015
[134] London Plan Policy 5.2: Minimising Carbon Dioxide Emissions
[135] Mayor of London, Energy Planning, GLA guidance on preparing energy assessments, GLA, 2015
[136] Evidenced by the Mayor's Housing Standards Viability Assessment, 2015

36.3.13 The Royal Borough contains over 4,000 listed buildings and over 73 per cent of the borough has conservation area status. Re-using historic buildings may significantly reduce energy consumption as existing buildings represent the 'embodied' energy used to produce them; whereas demolishing a brick building wastes the embodied energy and uses up more energy in demolition and rebuilding. The embodied energy in the bricks of a typical Victorian terraced house would drive a car more than ten times around the world[137].

36.3.14 Historic England acknowledges the importance of making reasonable alterations to the existing building stock to mitigate climate change and state that often the energy efficiency of the historic buildings can be increased in ways sympathetic to their historic character[138].

36.3.15 While listed buildings generally represent a greater challenge in terms of retrofitting for carbon reduction, it is possible in most cases, by careful selection of credits to avoid causing harm to the special architectural character or historic interest of the building. However, this may not be possible in all cases and where it is not possible to demonstrate that harm to the building will not result then the Council is likely to resist such proposals.

36.3.16 The ecological footprint in the borough is 6.39 global hectares per capita, which is the second highest in London (The London average is 5.48 and national average is 5.30). The primary contributors in the borough are food (28 per cent) and housing (21 per cent)[139]. This, together with the greenhouse gases emitted during the transportation of food and manufacture of packaging, makes food production close to its consumption an important consideration for the borough. There is opportunity, even in small developments, to use private garden space, green/living roofs and sheds to facilitate small scale on-site food production, and larger developments present different opportunities.

36.3.17 The evidence on climate change shows that we need a policy to ensure that development mitigates against, and adapts to, climate change without inhibiting the Council in achieving a reduction in local air quality pollutants. The Council also intends to take a leading role in identifying new and existing opportunities for decentralised heat and energy networks through heat and energy masterplanning, ensuring that their application of decentralised heating specifically using CHP/CCHP does not inhibit the Council in achieving a reduction in air quality pollutants.

Policy CE1 Climate Change

The Council recognises the Government's targets to reduce national carbon dioxide emissions by 34 per cent against 1990 levels by 2020 in order to meet a 80 per cent reduction by 2050 and will require development to make a significant contribution towards this target.

To deliver this the Council will:

a. require an assessment to demonstrate that major residential development meets the carbon reduction requirements set out in the London Plan.
b. require an assessment to demonstrate that non-residential development of 1,000 sq m or more meets BREEAM very good with 60 per cent of the unweighted credits available in the energy, water and materials sections and conversions and refurbishments of 1,000sq.m or more non-residential development achieve BREEAM very good rating.

[137] Heritage Lottery Fund. Written Evidence for Heritage White Paper, 19 January 2006.
[138] Climate Change and the Historic Environment, English Heritage. January 2008
[139] Environment Agency: RBKC Environmental summary factsheet, quoting REAP (Resources and Energy Analysis Programme) 2004

c. require that carbon dioxide and other greenhouse gas emissions are reduced in accordance with the following hierarchy:

i. energy efficient building design, construction and materials, including the use of passive design, natural heating and natural ventilation;
ii. provision of on-site renewable and low-carbon energy sources;
iii. decentralised heating, cooling and energy supply, through Combined Cooling Heat and Power (CCHP) or similar, while ensuring that heat and energy production does not result in unacceptable levels of local air pollution in particular on site allocations such as Kensal, Wornington Green, Latimer and Earl's Court;

d. require all CCHP plant or similar to connect to, or be able to connect to, other existing or planned CCHP plant or similar to form a district heat and energy network;
e. require development to connect into any existing district heat and energy network, where the necessary service or utility infrastructure is accessible to that development;
f. require development to incorporate measures that will contribute to on-site sustainable food production commensurate with the scale of development;

Do you consider this policy: satisfies the **tests of soundness (positively prepared**; **justified**; **effective**; and **consistent with national policy)**; is **legally compliant**; and is in accordance with the **duty to cooperate**?

Please complete the Response Form at **https://planningconsult.rbkc.gov.uk/consult.ti/LPPRPP/**

Flooding and drainage

Flood Risk

36.3.18 Global temperatures are predicted to continue rising, bringing changes in weather patterns, rising sea levels and increased frequency and intensity of extreme weather for the UK[140]. Climate projections show that London will experience warmer, wetter winters and hotter, drier summers in the future. As well as the gradual change in overall climate, we can expect to see more frequent and intense episodes of extreme weather, meaning that we will need to consider adapting our buildings, communities and lifestyles to prepare for more frequent heatwaves, flooding and droughts[141].

36.3.19 In the medium to longer term it is likely that the height of flood defences along the River Thames will have to be raised[142]. Setting buildings back from the river's edge will enable this to be done in a more cost-effective, aesthetically acceptable and more sustainable way[143].

36.3.20 The updated Strategic Flood Risk Assessment 2014 (SFRA) and the Surface Water Management Plan 2014 (SWMP) show the flood risk zones in the borough which are Flood Zones 1, 2, and 3 for fluvial and tidal flooding and the Council's designated Critical Drainage Areas. The threat of tidal flooding is low but the consequences could be very significant. Sewer flooding occurred in the Holland and Norland wards in 1981 and

[140] www.gov.uk/government/uploads/system/uploads/attachment_data/file/69257/pb13274-uk-climate-projections-090617.pdf
[141] http://climatelondon.org.uk/climate-change/
[142] Environment Agency: TE2100 Local Council Briefing Document – Royal Borough of Kensington and Chelsea, April 2015
[143] London Plan Policy 5.12.

2007[144]. Groundwater could also be a potential source of flooding depending on the soil composition, weather and ground conditions. Land use factors such as groundwater extraction for industry use could also affect groundwater levels. The discharge of groundwater to a public sewer will require approval from Thames Water. To ensure that development is directed first to sites at the lowest probability of flooding from all sources, the Council has carried out the 'Sequential Test' on a range of sites[145]. However, sites within Flood Risk Zones 2 and 3 and Critical Drainage Areas that are not included within this appraisal may have to undertake a 'Sequential Test'. In some cases, the Exception Test will also be required. As new information becomes available nationally or regionally such as breach analysis and climate change allowances and guidance, this should also be considered both, by the Council and applicants. This is particularly relevant for sites at risk of surface water flooding.

36.3.21 Flood Risk Assessments are required for development within Critical Drainage Areas. However, this is only relevant if the development has any drainage implications which could lead to flooding elsewhere or could be more vulnerable as a result of the development proposed (due to the land use being more vulnerable or to the infrastructure proposed). For example, Flood Risk Assessments will be required for basement applications; when the development is at ground level and could potentially lead to a decrease in the site's permeability or an increase in the site's vulnerability to flooding; or if the proposed development could have an impact on any physical structure which could reduce the effect of flooding in the area (flood risk assets). Most development at first floor level and above may not require a Flood Risk Assessment. However, the requirement for an assessment will need to be considered at an early stage. It will be expected that any proposed flood risk measures and flood risk assets are protected and maintained to remain operational and built to a standard where they would provide adequate protection for the lifetime of the development.

36.3.22 There is a wealth of available guidance regarding flood defence and flood mitigation measures which may be suitable for developments contained in Building Regulations and British Standards. Any proposed measures should take into consideration the predicted flood depth in different storm scenarios and reflect site conditions in relation to contributing to, or suffering from, flooding, or both. Measures can affect the materials, layout and design of buildings so it is important that they are shown as part of planning applications.

36.3.23 The Thames Estuary (TE2100) plan, produced by the Environment Agency, was reviewed in 2014. The TE2100 Local Council Briefing Document specific for the borough was produced in April 2015 and includes key messages and actions to help the Environment Agency deliver the TE2100 Plan. The Council is committed to work with the Environment Agency and others to ensure the recommendations of the TE2100 Plan are implemented in new and existing developments, to keep communities safe from flooding in a changing climate and improving the local environment. The key policy messages for our borough are:

- Raising existing flood defences to the required TE2100 Plan levels in preparation for future climate change impacts or demonstrate how tidal flood defences protecting sites can be raised to the required TE2100 levels in the future through submission of plans and cross-sections of the proposed raising;

[144] RBKC Strategic Flood Risk Assessment. Flood Zones refer to the probability of river and sea flooding, ignoring the presence of defences.

[145] www.rbkc.gov.uk/planning-and-building-control/planning-policy/flooding/strategic-flood-risk-assessment

- Demonstrating the provision of improved access to existing flood defences and safeguarding land for future flood defence raising and landscape, amenity and habitat improvements;

- Maintaining, enhancing or replacing flood defences to provide adequate protection for the lifetime of development;

- Where opportunities exist, re-aligning or setting back flood defence walls and improving the river frontage to provide amenity space, habitat, access and environmental enhancements.

- Securing financial contributions towards the anticipated costs of flood risk management infrastructure required to protect the proposed development over its lifetime.

Surface Water Run-off and Sustainable Drainage Systems (SuDS)

36.3.24 Thames Water has identified a 17 per cent increase in the amount of impermeable area in the borough between 1971 and 2009, which increases the amount of rainfall discharging to the storm water sewer. This, together with surface water and foul flows from upstream development, may contribute to surface water and sewer flooding, as the Counters Creek sewer catchment does not currently have the capacity to discharge storm water during extreme rainfall. Thames Water is currently looking at improving capacity in the Counters Creek storm water sewer by 2020[146]. Moreover, this risk is increased by the use of impermeable surfaces as they decrease the capacity of the ground to drain water. The misuse of drains to discharge construction materials[147], oils and other substances could block them exacerbating the risk of flooding.

36.3.25 There is evidence which shows the lack of capacity of the Counters Creek sewer system and this should be addressed to ensure that residents are protected from future flooding due to further development in its catchment and climate change. Furthermore, surface water run-off and any other flows such as groundwater, which could potentially end up in the sewer system, should be controlled to future proof the capacity of the sewer and reduce flood risk. The use of permeable surfaces and removal of existing impermeable surfaces is necessary as it will have a positive cumulative impact and will future-proof any sewerage infrastructure project. Surface water run-off should be reduced in order to reduce surface and sewer water flooding in the borough. The reduction rate should be maximised taking into consideration the site's constraints. It should be noted that the policy refers to major and minor development. For the purposes of flooding and drainage, minor development includes up to 9 dwellings (under half a hectare); up to 999m^2 of commercial floorspace (under 1 hectare); up to 9 Gypsy/Travellers pitches; household applications; change of use applications (no operational development) and listed building extensions and alterations.

36.3.26 The Flood and Water Management Act 2010 and the Flood Risk Regulations 2009 placed new duties on Councils. As a Lead Local Flood Authority (LLFA), the Council has a responsibility for leading the co-ordination of local flood risk management within the borough. This includes ensuring that flood risks from local sources, including surface water runoff, groundwater and ordinary watercourses and their interactions, are identified and managed. The Council has the duty, under Section 9 of the Flood and Water Management Act 2010, to put in place a Local Flood Risk Management Strategy

[146] www.thameswater.co.uk/counterscreek/17222.htm
[147] www.rbkc.gov.uk/environment/drainage-and-flooding

(LFRMS) to manage all sources of flood risks consistent with a risk management approach. The Council adopted the LFRMS in July 2015[148].

36.3.27 Local planning authorities should consult the LLFA on the management of surface water (including SuDS); satisfy themselves that the proposed minimum standards of operation are appropriate and ensure through the use of planning conditions or planning obligations that there are clear arrangements in place for ongoing maintenance over the lifetime of the development. SuDS should be designed to ensure that the maintenance and operation requirements are economically proportionate. It is very important that SuDS are well designed from the outset, when the site layout has not been defined to ensure their design will maximise their benefits for water attenuation, water quality, ecology, etc. SuDS should be maintained in order to be effective. Their maintenance is normally the responsibility of the owner or maintenance company.

Water Infrastructure Projects

36.3.28 The Thames Tideway Tunnel is a sewerage infrastructure project which will capture the flows of storm sewage from sewer overflow points along the River Thames. The tunnel will run approximately 25 kilometres through the heart of London, and up to 75 meters beneath the River Thames, broadly following the path of the river. A Development Consent Order for the project was granted on the 12 September 2014. The Thames Tideway Tunnel will be built by Bazalgette Tunnel Limited - the 'infrastructure provider'. The importance and London-wide benefits of the Thames Tideway Tunnel are recognised by the Government and the Greater London Authority[149]. On this basis, the Council will ensure that the impacts of the works associated with the tunnel are carefully managed.

36.3.29 To address sewer flooding in the borough, Thames Water is proposing to build the Counters Creek Storm Relief Sewer. Ofwat approved the funds needed to undertake the Counters Creek Sewer Alleviation Scheme in December 2014. Thames Water's proposal includes four elements: a new storm relief sewer to increase the sewer capacity; SuDS to reduce surface water run-off; anti-flooding (FLIP) devices to stop the sewers surcharging into lower properties; and, local sewer improvements to increase the capacity of local sewers.

36.3.30 The evidence on flooding shows that we need a policy to ensure that development considers potential flood risk from all sources and incorporates measures to reduce and mitigate this risk, especially the risk of surface water and sewer flooding.

Policy CE2 Flooding
The Council will require development to address and reduce flood risk and its impacts.

To deliver this the Council will:

Flood Risk

a. resist vulnerable development, including self-contained basement dwellings, in Flood Risk Zone 3 and Critical Drainage Areas as defined in the Strategic Flood Risk Assessment and the Surface Water Management Plan;
b. require a site-specific Flood Risk Assessment, including an 'Exception Test' for all development in Flood Risk Zone 2 and 3 as defined in the Strategic Flood Risk Assessment, for sites in Critical Drainage Areas and for all sites greater than one hectare;

[148] www.rbkc.gov.uk/planning-and-building-control/planning-policy/flooding/local-flood-risk-management-strategy
[149] London Plan Policy 5.14.

c. where required undertake the 'Sequential Test' for planning applications within Flood Risk Zones 2 and 3, and for sites in Critical Drainage Areas;
d. require development at risk from flooding in Flood Risk Zones 2 and 3, in Critical Drainage Areas, or sites greater than 1ha to incorporate suitable flood risk measures to account for site conditions in accordance with Building Regulations, existing guidance and the recommendations of the site-specific Flood Risk Assessment, the Strategic Flood Risk Assessment and the Local Flood Risk Management Strategy. These measures should:
   i. address all flood depths for the 1 in 100 year storm event plus climate change to ensure the development will remain safe during a flood event throughout its lifetime;
   ii. take into account access, egress and emergency exit routes;
   iii. ensure buildings remain safe for occupants in case of flooding;
   iv. consider the measures and actions included in the Local Flood Risk Management Strategy Action Plan
e. require that flood risk measures and flood risk assets are protected and maintained to remain operational and provide adequate protection for the lifetime of development;
f. require development adjacent to the Thames to be set back from the Thames flood defence to enable the sustainable and cost effective upgrade of flood defences and to implement any other recommendations of the Thames Estuary 2100 plan (TE2100).

Surface Water Run-off and Sustainable Drainage Systems (SuDS)

g. require major development to achieve greenfield run-off rates and minor development to achieve a reduction of 50% of existing rates, ensuring that surface water run-off is managed as close to its source as possible, through:
   i. the increase of permeable surfaces;
   ii. recognising opportunities for SuDS to provide other environmental benefits;
   iii. factoring all flows into the sewer system (including swimming pools discharges, groundwater or other flows) in the calculations of greenfield run-off rates.
h. require SuDS to have regard to DEFRA non-statutory SuDS standards and local guidance to ensure SuDS are adequately designed, built and maintained for the lifetime of development;
i. resist impermeable surfaces in gardens and landscaped areas;
j. encourage the retrofitting of SuDS in buildings even if the development will not have drainage implications;

Water Infrastructure Projects

k. support the Thames Tideway Tunnel in principle
l. support the provision of water and sewage infrastructure which will lead to a substantial and long-term reduction of local flooding, providing the need outweighs any adverse effects during construction and operation and appropriate mitigation measures are in place.

Do you consider this policy: satisfies the **tests of soundness (positively prepared**; **justified**; **effective**; and **consistent with national policy)**; is **legally compliant**; and is in accordance with the **duty to cooperate**?

Please complete the Response Form at **https://planningconsult.rbkc.gov.uk/consult.ti/LPPRPP/**

Waste

36.3.31 In 2015-16, the Council collected 79,068 tonnes (26,797,000 tonnes nationally) of Local Authority Collected Waste[150] (including 54,094 tonnes of domestic waste), of which 74.1 per cent was sent to Belvedere Energy from Waste (EfW) plant and 25.9 per cent of this waste was recycled or composted, which is lower than the national average of 44.9 per

[150] Household, commercial & industrial waste collected by the Council

cent. No waste was sent to landfill. The average residual waste produced per household in 2015-16 was 445kg in the Royal Borough, this has decreased from 449kg in 2013-14 and 461 kg in 2014-15[151]. In a highly built up borough such as the Royal Borough, it is important that well designed and functional refuse and recycling storage space is allocated and integrally designed into all developments to ease collection and keep the streets litter free. Such storage space will need to be fully functional to the end user.

36.3.32 Major development in Kensal and Earl's Court will have an impact on the borough's population, with an increase in the production of waste. It is important that waste management is taken into account in all development to handle waste arisings from the new uses.

36.3.33 The borough is very accessible by river and rail, which can provide opportunities for sustainable transportation of residual waste. All the borough's residual waste is transported from Wandsworth by barge to Belvedere EfW plant.

36.3.34 Considerable volumes of waste come from the construction process. Over the last two and a half years, almost 2,000 incidents of dumped builders waste were reported in the borough. Ensuring this waste is managed responsibly is therefore important.

36.3.35 The Waste Management Plan for England confirms a 'waste hierarchy' setting out how waste should be dealt with (prevention, preparing for re-use, recycling, other recovery and disposal) and confirms the importance of the National Planning Policy for Waste (NPPW). The evidence on waste management shows that we need to examine new ways of dealing with waste in the borough including promoting the principles of a circular economy (i.e reduce, reuse and recycle). Moreover, the Mayor of London requires that the borough meets its waste apportionment figure which is set out in the London Plan[152]. 36.3.36 The Council is statutorily required to deliver its Local Authority Collected Waste to places as directed by the Western Riverside Waste Authority (WRWA). Currently all of the Local Authority Collected Waste goes to WRWA facilities in Wandsworth for transfer and treatment (Western Riverside Transfer Station near Wandsworth Bridge and Cringle Dock Transfer Station next to Battersea Power Station). Since 2011, recyclables go to a Materials Recycling Facility at Smugglers Way in Wandsworth and residuals are barged down river to the Riverside Resource Recovery Limited (RRRL)'s facility at Belvedere, in the London Borough of Bexley where the waste is incinerated to generate electricity. It is the largest EfW facility in the UK and one of the largest in Europe, which will eventually generate 72MW of power. This is confirmed by the WRWA's Policy Statement[153] (July 2013) which also states that the facility can handle 670,000 tonnes of waste per year although the WRWA supplies around 300,000 tonnes of residual waste to it. The contract runs until 2031 meaning that, in reality, waste arisings from the borough and the other WRWA Waste Planning Authorities (WPAs) are dealt with in Bexley. The Belverdere Energy from Waste plant opened in Bexley in May 2012. The Council is working jointly with the WRWA to agree with the Waste Planning Authority that its apportionment gap is met at the plant.

36.3.37 The London Plan sets out the waste apportionment to be managed by London Boroughs. The apportionment figure includes household and commercial & industrial waste, but not other waste streams.

[151] The residual household and domestic waste tonnage are RBKC figures and not the figures submitted to DEFRA by WRWA. The recycling rates are figures submitted to DEFRA.
[152] London Plan Policy 5.16, 5.17. The apportionment target covers household and commercial & industrial waste.
[153] www.wrwa.gov.uk/media/44808/waste-policy-statement-july-2013.pdf

	Apportionment (tonnes per annum)				
	2016	**2021**	**2026**	**2031**	**2036**
RBKC	138,000	160,000	190,000	194,000	198,000
WPAs in the WRWA	683,000	790,000	944,000	961,000	981,000

London Plan Waste Apportionment target for RBKC and the WPAs in the WRWA area

36.3.38 The Council has prepared a joint Waste Technical Paper with the other WPAs in the WRWA area. The Technical Paper sets out the waste arisings within the WRWA area for waste streams[154] and the ability to meet the London Plan apportionment. The available waste treatment capacity in the borough to help meet the waste apportionment is 30,660 tpa.

36.3.39 The Waste Technical Paper concludes that there is a shortfall of 167ktpa of capacity to meet its apportionment within the borough. The borough's apportionment gap increases to 2036, this is a result of the increasing London Plan apportionment target over the period. Due to the constrained nature of the borough and competing land use demands there are currently no opportunities to allocate waste sites of a combined size able to produce this level of capacity development within the borough. However as a group of WPAs in the WRWA area the apportionment is being met with an apportionment capacity surplus of 48ktpa in 2036.

	Apportionment Capacity Gap (-ve figure) / Surplus (+ve figure) (tonnes per annum)				
	2016	**2021**	**2026**	**2031**	**2036**
RBKC	-107,340	-129,340	-159,340	-163,340	-167,340
WPAs in the WRWA	+345,919	+238,920	+84,919	+67,920	+47,920

Apportionment capacity gap / surplus for RBKC and the WPAs in the WRWA area

36.3. 40 The Waste Technical Paper also covers other waste streams (construction, demolition and excavation, low level radioactive, agricultural, hazardous, waste water). The London Plan does not set an apportionment target for these. It is concluded in the Technical Paper that there is little or no waste arising from low level radioactive and agricultural waste therefore there is no need for additional management capacity for these waste streams. No additional facilities are required in the borough for waste water treatment during the plan period as this is being addressed by Thames Water through the upgrade and expansion of the Beckton Sewage Treatment Works.

36.3.41 In respect of construction, demolition and excavation waste the Waste Technical Paper forecasts arisings of 175,980tpa in the borough and a total of 507,646tpa in the WRWA area by 2036. There is no existing capacity within the borough to address construction, demolition and excavation arisings. However there is a capacity of circa 1.1million tonnes to manage this waste stream within the WRWA area, indicating between 593,956 tonnes and 627,083 tonnes of surplus capacity to manage this waste stream by 2036.

[154] Municipal/household, Commercial & industrial, Construction, demolition and excavation, Low Level Radioactive, Agricultural, Hazardous, Waste water

36.3.42 The Council is working jointly with the WPAs in the WRWA area to meet the pooled London Plan apportionment and to manage waste arisings from other waste streams.

Policy CE3 Waste
The Council will plan for the sustainable management of waste streams, including meeting the waste apportionment figure as set out in the London Plan and will ensure that waste is managed in accordance with the waste hierarchy, which is to reduce, reuse or recycle waste as close as possible to where it is produced.

To deliver this the Council will:

a. work with the WRWA Waste Planning Authorities (WPAs) and other London boroughs to continue to monitor the pooled arisings, apportionment, available capacity, shortfall and/or surplus capacity for all waste streams;
b. work in partnership with the GLA and other London boroughs to manage any shortfall to meet the apportionment figure;
c. safeguard Cremorne Wharf, maximising its use for waste management, water transport and cargo handling purposes;
d. require on-site waste management facilities as part of development at Kensal and Earl's Court to handle waste arising from the new uses on the site (this could include facilities such as recycling facilities anaerobic digestion and other innovative waste management facilities which are fully enclosed where practicable);
e. seek the potential for other small scale and innovative waste management facilities on residential, commercial or mixed use developments where practicable;
f. require all new development to provide innovative well designed, functional and accessible refuse and recycling storage space which allows for ease of collection in all developments, such facilities must;
   i. be within each flat to allow for short term separate storage of recyclable materials
   ii. include communal storage for waste, including for separated recyclables, pending its collection
   iii. manage impacts on amenity including those caused by odour, noise and dust
   iv. set out adequate contingency measures to manage any failure of such facilities in a waste management strategy[155] for the development.

g. require that development proposals make use of the rail and the waterway network for the transportation of construction waste and other waste;
h. require applicants for major developments to prepare and implement Site Waste Management Plans for demolition and construction waste.

Do you consider this policy: satisfies the **tests of soundness (positively prepared**; **justified**; **effective**; and **consistent with national policy)**; is **legally compliant**; and is in accordance with the **duty to cooperate**?

Please complete the Response Form at **https://planningconsult.rbkc.gov.uk/consult.ti/LPPRPP/**

No changes are proposed to the existing Local Plan section and policy on Biodiversity (Policy CE4).

[155] See www.lwarb.gov.uk/wp-content/uploads/2015/05/Template-waste-management-strategy-new-build-flats-FINAL.pdf for a template recycling and waste management strategy for new build flats.

Air Quality

36.3.49 Poor air quality is damaging our health at every stage of life. The report: Every Breath We Take – The Lifelong Impacts of Air Pollution[156] underlines the harm that air pollution is causing not only to people with respiratory and cardiovascular diseases, but also impairing lung development in children. The Public Health Outcomes Framework[157] identifies the mortality associated with exposure to concentrations of PM2.5 as a key indicator of health.

36.3.50 The entire borough is designated as an Air Quality Management Area (AQMA) due to seriously elevated levels of nitrogen dioxide (NO2) and particulate matter (PM10 and PM2.5) which are harming residents' health. New developments can have an impact on air quality, through building design, construction techniques, energy, heating and cooling systems and vehicle movements associated with the construction and operational phases of the development. Occupants of new developments may also be impacted by poor air quality in the local area.

36.3.51 Nitrogen dioxide levels in the borough remain unacceptable. The 2015 Air Quality Annual Status Report[158] shows that four out of the five continuous monitoring sites exceeded the national objective for NO_2 set at 40 µg/m^3 The annual average concentrations in 2015 have been recorded as high as 91 µg/m^3 at some road side locations.

36.3.52 Within the borough the largest source of NO2 emissions are from vehicle transport (55.7%). 9.5% of this is from heavy goods vehicles (Local Atmospheric Emission Infantry, LAEI 2016)[159] many of which are associated with vehicle trips to and from construction sites. The second largest source is domestic and commercial gas burning (31.5%). Non Road Mobile Machinery (NRMM) used on construction sites provides a significant source of NO2 (6.8%)[160]. The largest source of PM10 emissions within the borough is from vehicle traffic (56%). It is estimated that 40% of these emissions are from tyre and brake wear with 16% form exhaust emissions. Resuspension of PM10 is the second largest source (22%). Construction sites that operate non-road mobile machinery (NRMM) are a significant source of PM10 at (12%)[161].

36.3.53 The worst air quality is found along the main vehicle routes, with poor air quality found in the areas between these routes. Typical annual average concentrations of nitrogen dioxide at many roadside locations are twice the Government's air quality objective level of 40 micrograms per cubic meter. Daily exceedences of the 24 hour fine particle (PM10) objective continue to occur at some roadside locations.

Updating and Screening Assessment report: RBKC 2015

36.3.54 Some carbon reduction measures for energy generation and spatial heating introduced may have an adverse impact on local air quality. The use of biomass, derived from biological materials such as plants and timber, is a renewable source of fuel for producing heat and power that delivers significant reductions of CO2. However, the use of biomass and biomass/ gas fired Combined Cooling, Heating and Power (CCHP) and Combined

[156] Royal College of Physicians and Royal College of Paediatricians and Child Health, 2016 www.rcplondon.ac.uk/projects/outputs/every-breath-we-take-lifelong-impact-air-pollution
[157] www.gov.uk/government/collections/public-health-outcomes-framework
[158] www.rbkc.gov.uk/environment/air-quality/air-quality-reports-and-documents
[159] https://data.london.gov.uk/dataset/london-atmospheric-emissions-inventory-2013
[160] https://data.london.gov.uk/dataset/london-atmospheric-emissions-inventory-2013
[161] www.rbkc.gov.uk/sites/default/files/atoms/files/AQCCAP_Technical%20Appendices.pdf

Heat and Power (CHP) increases NO2and particle emissions [162] therefore, their use in an Air Quality Management Area is undesirable. There are sustainable energy, heating and cooling sources that reduce CO2, NO2 and PM10 emissions which should be used instead. Diesel generators, which can be used routinely or to feed electricity to the grid also emit high levels of NOx and particulates. This is also undesirable in an Air Quality Management Area and Smoke Control Area. Poor construction techniques have a negative impact on local air quality. Fugitive emission of construction dust elevates local PM10 and PM 2.5 concentrations and the use of non-road mobile machinery (NRMM) such as diesel generators and construction transport both emit high levels of both PM10 and NO2 if left uncontrolled.

36.3.55 The Kensington and Chelsea Joint Health and Wellbeing Strategy 2016-2021 highlights the need to tackle air pollution in the borough to improve health and wellbeing. The Strategy stresses that air pollution in the borough disproportionately affects vulnerable groups, notably young children and people living with chronic heart and lung diseases and that mitigating this impact is one of the Council's 'population health priorities'[163].

36.3.56 The evidence on air quality shows that we need to ensure that development proposals address the potential impact on air quality both as individual development proposals alongside their combined cumulative impact with neighbouring developments. Any air quality assessment and low emission strategy must set out the potential impact of the development on local air quality for both the construction and operational phases of the development. Given the ongoing exceedences of air pollutants throughout the borough, every opportunity must be taken to improve air quality. The Council has a specific policy to take decisive action to reduce emissions of greenhouse gases and air pollutants which is set out in the Air Quality and Climate Change Action Plan 2016-2021[164]. Air quality improvements can be made as part of public realm improvements.

Policy CE5 Air Quality

The Council will carefully control the impact of development on air quality, including the consideration of pollution from vehicles, construction and the heating and cooling of buildings. The Council will support measures to improve air quality and will require development to be carried out in a way that minimises the impact on air quality and mitigates exceedences of air pollutants.

To deliver this the Council will:

a. require an air quality assessment for all major developments;

b. require developments to be 'air quality neutral' and resist development proposals which would materially increase exceedence levels of local air pollutants and have an unacceptable impact on amenity or health unless the development mitigates this impact through physical measures, or financial contributions to implement proposals in the Council's Local Air Quality and Climate Change Action Plan;

162 www.london.gov.uk/sites/default/files/gla_migrate_files_destination/Sustainable%20Design%20%26%20Construction%20SPG.pdf (paragraph 4.3.23).

163 www.rbkc.gov.uk/committees/Meetings/tabid/73/ctl/ViewMeetingPublic/mid/669/Meeting/7082/Committee/1553/Default.aspx

164 www.rbkc.gov.uk/environment/air-quality/air-quality-and-climate-change-action-plan-2016-2021-0

c. resist biomass combustion and combined heat and power technologies/CCHP, which may lead to an increase in emissions, and seek to use greater energy efficiency and non combustion renewable technologies to make carbon savings, unless its use will not have a detrimental impact on air quality;

d. require that emissions of particles and NOx are controlled during demolition and construction, and risk assessments are carried out to identify potential impacts and corresponding mitigation measures, including on site monitoring, if required by the Council.

Do you consider this policy: satisfies the **tests of soundness (positively prepared**; **justified**; **effective**; and **consistent with national policy)**; is **legally compliant**; and is in accordance with the **duty to cooperate**?

Please complete the Response Form at **https://planningconsult.rbkc.gov.uk/consult.ti/LPPRPP/**

No changes are proposed to the existing Local Plan sections and policies Noise and Vibration (Policy CE6) and Contaminated Land (Policy CE7).

36.4 Corporate And Partner Actions

Introduction

36.4.1 Delivering the strategic objective of Respecting Environmental Limits will take more than the planning policies above. A range of activities undertaken across the Council and by our partner organisations will also deliver this objective. This section sets out the main strategies and action plans that have been prepared and that will play a part in delivering this objective. It then sets out specific actions that will be undertaken to further the objective.

Corporate or Partnership Strategies that will contribute to the delivery of the Strategic Objective

Air Quality and Climate Change Action Plan (2016-2021)

36.4.2 The Council's Environment, Leisure and Residents Services Department has produced a plan which is a combination of measures aimed at reducing emissions of greenhouse gases and urban air pollutants. The plan includes the Council's aims and objectives for the next five years to tackle poor air quality and climate change and a list of actions to meet these aims and objectives.

Carbon Management Programme

36.4.3 This Council is part of the Carbon Trust's Local Authority Carbon Management Programme. Through the programme the Council is committed to setting targets for carbon reduction and monitoring carbon emissions. The Carbon Management Plan published in August 2009 set out the Council's ambition to reduce carbon emissions from its own operations by 40 per cent by 2020.

Western Riverside Waste Authority Waste Policy July 2013

36.4.4 This policy was produced by the Western Riverside Waste Authority and its constituent councils (the London Boroughs of Hammersmith and Fulham, Lambeth, Wandsworth and

the Royal Borough of Kensington and Chelsea). It seeks to embrace the concepts of waste provision, reduce waste produced, increase waste re-use, recycle waste that is collected, minimise environmental impact, encourage job opportunities, minimise disruption to others and reduce costs of operations.

Biodiversity Action Plan 2010/11 to 2014/15

36.4.5 The Royal Borough's Local Biodiversity Action Plan is a strategy and set of objectives that has been produced in consultation with conservation experts, local organisations and individuals, and linked to the Mayor's Biodiversity Strategy for London. The key aims and objectives of the Biodiversity Action Plan are to:

(a) audit and monitor the ecological status of habitats and species,
(b) raise awareness of the importance of biodiversity and protect and enhance the borough's biodiversity resource.

The National Air Quality Strategy 2007 and Air Quality Plan for Nitrogen Dioxide (NO2) in UK 2015

36.4.6 Some years ago the National Air Quality Strategy was prepared by the Department for the Environment and Rural Affairs and sets out air quality objectives and policy options to improve air quality in the UK. The strategy provides a long term vision for improving air quality in the UK and offers options for further consideration to reduce the risk to health and the environment from air pollution. In certain respects the Government may need to revisit the strategy in view of the continued failure to meet some EU air quality objectives in inner urban areas such as central London. The updated Air Quality Plan for Nitrogen Dioxide (NO2) aims to achieve the nitrogen dioxide annual mean objective in London by 2025.

The Mayor of London's Ambient Noise Strategy

36.4.7 The Ambient Noise Strategy sets out a comprehensive agenda and policy aims to secure support for minimising noise and improving soundscape quality across the capital. The important issues considered securing noise reducing surfaces on Transport for London's roads; securing a night aircraft ban across London; and reducing noise through better planning and design of new housing and for road traffic noise and fostering better and quieter driving styles.

Corporate or Partnership Actions for Respecting Environmental Limits

1. The Council as a whole, and the Department of Environment, Leisure and Residents Services and the Environmental Health Directorate in particular, will implement the Council's Air Quality and Climate Change Action Plan.

2. The Council as a whole, and the Environment, Leisure and Residents Services Department in particular, will implement the Carbon Management Plan.

3. Planning and Borough Development and the Environment, Leisure and Residents Services Department will work with the Greater London Authority, London Development Agency and London Councils to take a leading role in identifying new and existing opportunities for decentralised heat and energy networks through heat and energy masterplanning.

4. Planning and Borough Development along with the Environment, Leisure and Residents Services Department will explore the potential for partnerships for

delivering decentralised energy networks through Energy Service Companies (ESCo) and/or Multiple Utility Service Companies (MUSCo).

5. Planning and Borough Development will work with Thames Water and Bazalgette Tunnel Limited to ensure that the timely implementation of the Thames Tideway Tunnel has a minimal impact on the borough.

6. Planning and Borough Development together with the Environment, Leisure and Residents Services Department will actively support Thames Water in the delivery of short-term mitigation against sewer flooding and will continue to support the planning and development of a long-term solution to reduce the risk of sewer flooding in the borough.

7. Planning and Borough Development will lead the Council's Lead Local Flood Authority duties to reduce and manage the risk of flooding thorough the borough.

8. The Council as a whole, and the Directorate of Panning and Borough Development in particular, will implement the Council's Local Flood Risk Management Strategy.

9. The Environment, Leisure and Residents Services Department will work in partnership with constituent authorities within the Western Riverside Waste Authority to implement its policy.

10. Environment, Leisure and Residents Services, and the Council as a whole, will strive to manage waste as effectively as possible, and aim to increase the recycling rate and reduce recyclate contamination to under 14 per cent. In 2015-16 the recycling rate was 22.9 per cent and the recyclate contamination rate was 14.09 per cent.

11 The Environment, Leisure and Residents Services Department will regularly review the sites of Strategic Nature Conservation Importance (SINC) as part of the implementation of the national, regional and local Biodiversity Action Plans.

12. The Environment, Leisure and Residents Services Department will work with the GLA and the Port of London Authority (PLA) to enhance the function of the Blue Ribbon Network, and particularly the use of the Thames for transport.

13. The Department of Transport and Technical Services will implement the Air Quality and Climate Change Action Plan objectives during the life of the Local Plan;

14. The Environment, Leisure and Residents Services Department will work with partners to encourage greater use and provision for lower emission vehicles.

15. The Department of Transport and Technical Services will implement the Mayor's Ambient Noise Strategy and work with the GLA in their responsibility for preparing London Agglomeration Noise Action Plans and other strategic initiatives on regional noise mitigation.

16. The Department of Transport and Technical Services will explore the feasibility of preparing a Local Ambient Noise Strategy, incorporating resident surveys to identify priority noise issues in the borough.

17. The Department of Transport and Technical Services will provide comments on various consultation documents, including Heathrow Aviation Noise.