

17. CLIMATE CHANGE AND FLOOD RISK MANAGEMENT

Introduction

- 17.1 The Local Plan's development strategy needs to be adaptable in how it deals with the causes and impacts of climate change and how to reduce vulnerability to issues such as flood risk, water shortages and rising global temperatures. Where possible development should be directed to the most sustainable locations that are easily accessible without the use of the car and also promote a safe, healthy and sustainable lifestyle. The strategy also seeks to promote sustainable design and construction, including measures to achieve energy efficiency, water efficiency and increased use of renewable energy. The Council will also promote investment in supporting infrastructure.

Policy context

- 17.2 The National Planning Policy Framework (NPPF) sets a presumption in favour of sustainable development and states that Local Planning Authorities should adopt proactive strategies to mitigate and adapt to climate change. It also supports local authorities in having a positive strategy to promote energy from renewable and low carbon sources, design policies to maximise renewable and low carbon energy development while ensuring that adverse impacts are addressed satisfactorily. Community-led initiatives for renewable and low carbon energy are supported.
- 17.3 The Council's Residential Extensions SPD (2010) recommends that sustainable construction and renewable energy measures should be considered in all extensions.

Mitigation - Energy Efficiency & Water Minimisation

- 17.4 The Government has set a target under the Climate Change Act 2008 to reduce CO₂ emissions by 80% in 2050, with an interim target of 34% by 2020, both against a 1990 baseline. The Act was supported by the UK Low Carbon Transition Plan (LCTP) (2009) which set out the Government's strategy for climate and energy and proposes measures to reduce carbon emissions across all sectors. The Act introduced a system of 'carbon budgets' which provide legally binding limits on emissions that could be produced in successive five-year periods. The first three budgets were –
- 2008-2012: 23% reduction below 1990 levels
 - 2013-2017: 29% reduction below 1990 levels
 - 2018-2022: 35% reduction below 1990 levels
- 17.5 A fourth budget, covering the period from 2023 to 2027 was set in law in June 2011 and aimed for a 50% reduction below 1990 levels.
- 17.6 The *Carbon Plan: Delivering our low carbon future* (December 2011) updated and superseded the LCTP and presented the Government's strategy for meeting all four budgets, with a particular focus on the fourth.

- 17.7 The Climate Change Strategy of the Surrey Transport Plan (2011-2026) sets a target of 10% reduction in CO₂ emissions by 2020 increasing to 25% reduction by 2035 on 2007 levels. The Council is working in partnership with Surrey County Council to reduce the need to travel, encourage alternative forms of transport to the car and reduce emissions. This links to the need to tackle air pollution.
- 17.8 Following a fundamental review of technical housing standards, the Government withdrew the Code for Sustainable Homes in March 2015. It was replaced by a new set of streamlined national technical standards. The Home Quality Mark, based on similar principles as the Code, provides impartial information on a new home's quality and performance. It indicates the overall expected costs, health and wellbeing benefits and environmental footprint associated with living in the home.
- 17.9 Based on a rating scale of up to 5 stars, the Mark will give a householder a clear picture of the home's quality. It has three sections, each allowing for a degree of pre-approval to maximise the cost effectiveness of the assessment process whilst taking account of issues that are site specific in the final assessment of the development.

KNOWLEDGE SHARING	OUR SURROUNDINGS	MY HOME
<ul style="list-style-type: none"> • Concept and Detailed Design, Construction • Handover and close out 	<ul style="list-style-type: none"> • Site Context • Movement & Connectivity • Safety & Resilience • Outdoors 	<ul style="list-style-type: none"> • Home Comfort • Predicted In use energy • Materials • Water • Space

- 17.10 It should be noted, however, that the Mark is still a new concept and has not yet been subject to the degree of testing necessary for Waverley to consider its adoption. Nevertheless, as of December 2015, home builders can register developments with the Council under the Mark.
- 17.11 Energy efficiency improvements equivalent to the Code for Sustainable Homes energy standards have been introduced through stepped changes to the Building Regulations. In 2010, the Government introduced a 25% energy efficiency improvement requirement compared to the 2006 Part L Building Regulations (Conservation of fuel and power). Further amendments to meet the 2013 target came into force in 2014. Notwithstanding the cancellation of the Code for Sustainable Homes, the Council has published its own [design standards and specification for new Council homes](#) (based on the relevant Code level) and is successfully implementing energy efficiency standards well above the Part L minimum.

- 17.12 Energy efficiency measures should also be promoted to existing buildings. This can include a change in human behaviour such as lowering thermostat temperatures and using less energy by purchasing energy and water efficient appliances or retrofitting with renewable energy technology.
- 17.13 The Environment Agency's classification of water stressed areas (2013 update) confirmed that all three water companies¹ that serve Waverley have serious water stress issues. Combined with higher than average levels of water consumption in the Borough, this emphasises the local importance of water minimisation. The status of water resources within Waverley is classified within the Environment Agency's Wey Catchment Abstraction Licensing Strategy (2012). This shows that, at low flow levels, part of the catchments have either restricted or no water availability for abstraction.
- 17.14 Average water usage in Waverley in 2008-09 was estimated to be 160-170 litres per person per day across three different water companies. Changes to the Building Regulations in April 2010 required a whole building standard of 125 litres per person per day. National Planning Practice Guidance (Para 014; revised March 2015) states that, where there is clear local need, Local Plan policies can require new dwellings to meet the tighter Building Regulations option of 110 litres per person per day. Sources of evidence of local need include the Environment Agency's Water Stressed Areas classification.

Mitigation - Renewable Energy and Low Carbon Technologies

- 17.15 The EU Renewables Directive sets a target for the UK of generating 15% of all its energy from renewable energy sources by 2020. The Government's strategy for how to achieve this is set out in its National Renewable Energy Action Plan.
- 17.16 The Government's Renewable Heat Incentive was set up in 2014 to encourage the take-up of renewable heat technologies amongst householders, communities and businesses through financial incentives. It is the first of its kind in the world and is expected to contribute towards the Government's 2020 ambition of 12% of heating from renewable resources.
- 17.17 *A Review of Renewable and Decentralised Energy Potential in South East England* by TV Energy and Land Use Consultants in 2010 concluded that the key opportunities for Surrey were commercial scale wind energy, biogas, energy from waste and heat pumps.
- 17.18 A report by TV Energy and RPS indicates that there is low potential for Combined Heat and Power and distributed heat systems in Waverley following a heat mapping exercise of the region. An adequate base heat demand is required to maximise the efficiency of CHP and other forms of community heat network. What potential there may be is more likely to occur in the larger settlements of the Borough or larger high density developments, industrial parks or leisure centres.

¹ Thames Water, Southern Water and South East Water

- 17.19 Waverley is probably the most wooded Borough in the most wooded County in the UK. With over 31% of Waverley's land under woodland (10,874 ha), there is an opportunity to utilise woodfuel from the existing woods. The Forestry Commission estimates that if only half of the annual growth were to be harvested through sensitive management and used for woodfuel this would embody an energy value of 50,000,000 kW hours per year, enough to heat more than 3,000 homes.
- 17.20 A small number of individual wind turbines have been permitted in the Borough, but it is probably because of the Borough's highly wooded landscape, as well as the important national and local landscape designations (see chapter 16), that the Council has never received any applications for larger wind farm developments. It is reasonable to assume, therefore, that the wind energy industry does not consider Waverley to be potentially suitable for wind farms. In that respect, it has not been considered necessary for the Local Plan to investigate or identify areas suitable for wind energy development. In the event of any future applications (involving one or more turbines), the Council will have regard to the Secretary of State for Communities and Local Government's Written Statement² whereby permission would only be granted if, following consultation, it can be demonstrated that the impacts identified by affected local communities have been fully addressed and the proposals therefore has their support.
- 17.21 Photovoltaic and solar thermal energies are considered to have good potential in Waverley due to the favourable insulation levels in the south east of England. PV provides a good complementary energy source to CHP and, along with wind energy, provides a higher level of carbon emissions reduction than heat-based renewable energy sources.

Adaptation

- 17.22 The latest scientific evidence suggests that extreme weather events and other impacts, including a warmer climate and increased risk of water shortages, are likely to become more prevalent. Surrey County Council have carried out a Local Climate Impact Profile (LCLIP) in partnership with all the Surrey districts. This examined the impacts of extreme weather events in Surrey from 1999 to 2009.
- 17.23 New development offers an important opportunity to build resilience to climate impacts and limit expensive retrofitting measures. Emphasis is placed on water conservation, drainage, flood risk and ventilation.
- 17.24 The availability and efficient use of water should be a central consideration for both new and existing building, ensuring that their potential to store rainwater (water butts), and reuse water (grey water recycling) is maximised.
- 17.25 Sustainable drainage systems (SuDS) are designed to control surface water run off close to where it falls and mimic natural drainage as closely as possible. They provide opportunities to:

² House of Commons Written Statement (HCWS42), June 2015

- reduce the causes and impacts of flooding;
 - remove pollutants from urban run-off at source; and
 - combine water management with green space with benefits for amenity, recreation and wildlife.
- 17.26 The Government has strengthened planning policy on the provision of sustainable drainage. As of April 2015, all ‘major’ developments should ensure that, wherever appropriate, SuDS for the management of run-off are put in place. Surrey County Council is now the Lead Local Flood Authority and, working in partnership with the Local Planning authorities in Surrey, has prepared an [advice note](#) to support planning authorities and developers in meeting the new requirements.
- 17.27 Green Infrastructure such as trees, green roofs, wetland habitats and woodland can help mitigate climate change by providing opportunities to manage water resources, by reducing run-off, providing flood storage and acting as a natural soakaway. It also has a role in absorbing carbon dioxide, reducing ‘urban heat island’ effects, improving air quality and providing opportunities for increasing habitats and connections to help enable wildlife to adapt. Policy NE2 seeks to encourage the provision of green infrastructure.
- 17.28 The Council’s Strategy reflects a wider policy move away from requiring a proportion of renewable energy to be provided on developments to focusing on reducing carbon emissions generally which can be achieved both by greater energy efficiency and, where appropriate, use of renewable and low carbon technology.

Policy CC1: Climate Change

Development will be supported where it contributes to mitigating and adapting to the impacts of climate change by incorporating measures that -

- 1. Reduce energy use in construction and incorporating the “fabric first” approach in terms of energy efficiency in order to minimise the need for expensive technologies.**
- 2. Use renewable and low carbon energy supply systems;**
- 3. Provide appropriate flood storage capacity;**
- 4. Address issues of flood risk through the application of Policy CC4;**
- 5. Provide high standards of sustainable design and construction with built-in resilience to climate change (e.g. from flood risk, storms, higher temperatures and drought);**
- 6. Use green infrastructure and SuDS to help absorb heat, reduce surface water runoff and support habitat networks.**

Policy CC2: Sustainable Construction and Design

The Council will seek to promote sustainable patterns of development and reduce the level of greenhouse gas emissions by:

- 1. Ensuring all new development, including residential extensions, include measures to minimise energy and water use through its design, layout, landscape and orientation;**
- 2. Encouraging the use of natural lighting and ventilation;**
- 3. Being designed to encourage walking, cycling and access to sustainable forms of transport;**
- 4. Building at higher densities where appropriate and supporting mixed-use development;**
- 5. Incorporating measures that protect and, where possible, enhance the biodiversity value of the development**
- 6. Minimising construction and demolition waste and promoting the reuse and recycling of building materials.**
- 7. Requiring the design of new development to facilitate the recycling and composting of waste.**

17.29 In support of Policies CC1 and CC2, the Council will,

- take measures to reduce its own carbon footprint through energy and resource efficiency improvements to Council buildings and awareness-raising initiatives
- collaborate and engage with communities, the renewable energy industry and other stakeholders to undertake more detailed assessments of local potential for decentralised and renewable or low-carbon energy sources and energy saving within the Borough;
- encourage small scale community-based schemes;
- encourage development of local supply chains, especially for biomass;
- raise awareness, ownership and understanding of renewable energy.

17.30 Where developers, for technical or financial reasons, considers it not possible to achieve the standards required by this policy, the onus will be on them to provide appropriate evidence in support any planning application.

Policy CC3: Renewable Energy Development

Renewable energy development should be located and designed to avoid significant adverse impacts on landscape, wildlife, heritage assets and amenity. Appropriate steps should be taken to mitigate any adverse impacts, such as noise nuisance, flood risk, shadow flicker and interference with telecommunications, through careful consideration of location, scale, design and other measures. The Council particularly encourages applications from community-led projects.

Development in the Green Belt will be considered in accordance with advice in the NPPF³.

- 17.31 In implementing this policy, the Council will take into account:
- i. the contribution the development will make towards achieving national, regional and sub-regional renewable energy targets and carbon dioxide savings
 - ii. the potential to integrate the proposal with existing or new development
 - iii. the potential benefits to host communities and opportunities for environmental enhancement
 - iv. the proximity of biomass combustion plant to fuel source and the adequacy of local transport networks
 - v. availability of a suitable connection to the electricity and gas distribution network
 - vi. the visual impact of the development on the character and appearance of the surrounding area
 - vii. the effect of the proposal on the amenities of any nearby residential properties.

Flood Risk Management

- 17.32 Waverley includes the catchments of four main watercourses: the River Wey Cranleigh Waters (a tributary of the Wey), the River Lox (a tributary of the upper River Arun, and to a minor extent the River Blackwater.
- 17.33 As well as the main watercourses, there are a number of smaller tributaries including the Holdhurst Brook, Littlemead Brook, Nanhurst Stream, Hascombe Stream, Alderbrook Stream, Royal Brook, Truxford Brook, Farnham Bourne and Frensham Vale Stream (all within the Wey catchment); and the Hambledon Brook within the Arun catchment. The Wey and Arun Canal, managed by the Wey and Arun Canal Trust, passes through the south east part of the Borough.
- 17.34 Flood risk in Waverley originates from a number of sources - rivers, surface water, sewers, groundwater and artificial water bodies (e.g. Frensham Ponds, Broadwater Lake and the Wey and Arun Canal). Although a greater emphasis is placed on flooding from rivers, surface water flooding and groundwater emergence also present a significant flood risk.
- 17.35 In the past, watercourses within the catchment areas of the River Wey have broken their banks as a result of storms. However, a significant proportion of these incidents occurred in rural areas where little risk to people or property exists. Areas within the catchment with known flooding problems include the towns and parishes of Bramley, Chiddingfold, Cranleigh, Dunsfold, Farnham, Godalming and Haslemere.

³ Para 91

- 17.36 Groundwater related flooding is also an issue in this catchment due to the significant area of permeable Lower Greensands (sandstone, mudstone and siltstone) in the central northern and north-west areas of the Borough.
- 17.37 The Level 1 Strategic Flood Risk Assessment (SFRA) for Waverley (2010) has been updated for the new Local Plan⁴. In keeping with the NPPF and its accompanying Technical Guidance (Flood Risk and Coastal Change Planning Practice Guidance [PPG]), the updated assessment' objectives were to –
- Identify the extent of all Flood Zones;
 - Identify areas at risk of flooding from all flood sources present in the study area, providing the Council with the tools required to apply the Sequential Test;
 - Provide evidence-based reports to inform the preparation of the Local Plan regarding potential flood risk and which are also suitable to inform the Sustainability Appraisal of related documents;
 - Advise on suitable policies to address flood risk management in a consistent manner across its administrative area;
 - Advise on the requirements of site specific flood risk assessments based on local conditions and policy recommendations;
 - Advise on the principles, objectives and applicability of Sustainable Drainage Systems (SuDS) throughout the study area; and
 - Present information to inform the Council of the flood considerations necessary in developing and progressing flood emergency planning.
- 17.38 The application of the Sequential Test⁵ as part of the Level 1 update showed that it was not possible to accommodate all the objectively assessed development (housing) needs in areas with lower probability of flooding (i.e. EA Flood Zone 1). The Exception Test⁶ can therefore be applied. Because a number of potential development sites were identified with an element of flood risk (Flood Zones 2 and/or 3), the Council commissioned a Level 2 SFRA to assess those sites in more detail in order to provide the information necessary for the application of the Exception Test.

Policy CC4: Flood Risk Management

In order to reduce the overall and local risk of flooding in the Borough,

- 1. Development must be located, designed and laid out to ensure that it is safe; that the risk from flooding is minimised whilst not increasing the risk of flooding elsewhere; and that residual risks are safely managed. In locations identified as being at risk of flooding, planning permission will only be granted, or land allocated for development, where it can be demonstrated that,**

⁴ Waverley Borough Council SFRA (Volumes 1, 2 and 3) (2015)

⁵ NPPF para 100

⁶ NPPF para 102

- a. through a sequential approach, it is located in the lowest appropriate flood risk location in accordance with the NPPF and the Waverley Strategic Flood Risk Assessment (SFRA);
 - b. it would not constrain the natural function of the flood plain, either by impeding flood flow or reducing storage capacity; and
 - c. where sequential and exceptions tests have been undertaken and passed, any development that takes place where there is a risk of flooding will need to ensure that flood mitigation measures, including a site specific flood evacuation plan, are integrated into the design both on-site and off-site, to minimise the risk to property and life should flooding occur.
2. Sustainable drainage systems (SuDS) will be required on major developments and encouraged for smaller schemes. A site-specific Flood Risk Assessment will be required for sites within or adjacent to areas at risk of surface water flooding as identified in the SFRA. There should be no increase in either the volume or rate of surface water runoff leaving the site. Proposed development on brownfield sites should aim to reduce run off rates to those on greenfield sites. There should be no property or highway flooding, off site, for up to the 1 in 100 year storm return period, including an allowance for climate change.

Delivery

The policies will be delivered through:

- Working in partnership with planning applicants and delivered through the development and building control processes.
- The detailed application of policies through Part 2 of the Local Plan (Non-strategic Policies and Sites).

Evidence

- The Climate Change Background Evidence Paper
- Waverley Local Development Framework: Affordable Housing Financial Viability Assessment Addendum
- Waverley Residential Extensions SPD (2010)
- Review of Renewable and Decentralised Energy Potential in South East England, TV Energy & LUC, 2010
- Surrey Draft Transport Climate Change Strategy, SCC, 2010
- UK Low Carbon Transition Plan 2009
- Building a Greener Future, CLG 2007
- European Water Framework Directive 2000
- Waverley Air Quality Action Plan 2008
- Making Space for wildlife in a changing climate - Natural England 2010
- Future Water, the Government's water Strategy for England, Defra, February 2008
- Waverley Strategic Flood Risk Assessment (update), March 2015
- The Wey Catchment Abstraction Management Strategy, Environment Agency, March 2008

- Water stressed areas – final classification (Environment Agency, July 2013)

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