

Surrey Climate Change Strategy

2010-2020

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Foreword

Sustainability and positive action to reduce CO₂ emissions are priorities for many local authorities in Surrey and across the South East. This is evident from the many projects and activities in our county that contribute to our climate change targets. The wish to contribute to a more sustainable future for Surrey has been at the centre of the Surrey Climate Change Partnership (SCCP) since it formed in 2008, bringing together members and officers from across the county to share their knowledge and experience.

Thanks to funding and support from the Surrey Improvement Partnership (SIP) and Improvement and Efficiency South East (IESE), the SCCP has commissioned this joint strategy to formulate a new and far reaching agreement for Surrey local authorities.

At its foundation is a core strategy, which recognises the established and ongoing work of authorities and their partners. It also aligns shared goals and objectives to better enable us to tackle climate change together looking ahead to 2020 and beyond.

Whilst we have established a common purpose, we have recognised that what makes our union special is our differences. In this way, our action plan represents a menu of activities and actions that can form a tailor made approach for individual authorities to meet our collective aspirations.

We believe that this approach will help us to build capacity and bring about efficiencies in addressing our local climate change targets and help to make significant contributions to the regional and national picture. Regional estimates developed by Defra showed that in 2006 residents, business and visitors in Surrey produced 8,545 kt CO₂. This strategy will be at the centre of all that we do to reduce our county-wide environmental footprint.

We believe that this strategy is a true partnership product that has cemented an innovative agreement supported by our Members and officers across the county.

Here's to tackling climate change together!

Cllr Jean Pearson
Chair of the Surrey Climate Change Partnership

Executive Summary

This first Climate Change Strategy for Surrey has been developed by the Surrey Climate Change Partnership (SCCP) as a focal point for the County's future action on climate change. The strategy seeks to provide a framework to effectively address climate change across Surrey over the period to 2020. It will be delivered through the Partnership approach that has been successfully established between the members of the SCCP.

The Strategy highlights the potential impacts of climate change and their relevance to Surrey. There are significant economic, social and environmental risks presented by not acting to reduce emissions and adapt to climatic changes, but also substantial opportunities for Surrey to champion and benefit from a low carbon economy.

The structure of the Strategy is based on three core objectives:

- **Reducing Emissions** - The Strategy highlights the need to understand, monitor and manage Surrey's carbon footprint, targeting major sources of emissions by:
 - Improving home energy efficiency;
 - Improving energy efficiency in the business, public and voluntary sectors;
 - Managing and developing land and infrastructure through a low carbon approach;
 - Minimising energy use and emissions from transport;
 - Managing resources sustainably; and
 - Supporting innovation and development of renewable energy.
- **Adapting to Climate Change** - Planning for and responding to extreme weather events and longer term climatic trends will reduce the cost to the County's:
 - Public Services;
 - Industry & Commerce; and the
 - Built and Natural Environment.
- **Raising Awareness** - How effectively we respond to climate change will be determined by our level of understanding of the various impacts, and what to do in order to address them. Hence a key aspect of the strategy is to inform, engage and involve all parts of the County. The Strategy specifically aims to:
 - Raise awareness of climate change with public, community and partnership organisations and businesses; and
 - Promote awareness and embed principles throughout Surrey's educational system.

The objectives and aims highlighted above form a strategic framework that will be used by the SCCP to address climate change consistently and comprehensively. Workstreams will be developed under these aims that allow members to reflect their own priorities, whilst working collectively to maximum effect. For each of these workstreams the strategy illustrates opportunities to develop good practice through examples of current activity in both Surrey and the UK.

The Strategy also sets out suggested programmes for the workstreams that are based on key government performance indicators and targets for carbon reduction and climate change adaptation. The intention is that SCCP and other partners will take forward these programmes, reviewing and refining them accordingly during the strategy period, in order to respond to new requirements and a growing understanding of climate change impacts.

1. Introduction

1.1 Purpose of the Strategy

This Climate Change Strategy aims to provide a focal point for future action to address climate change throughout Surrey. The Strategy has been developed and endorsed by the members of the Surrey Climate Change Partnership (SCCP), who by doing so will seek to work together to lead the delivery of the objectives and programmes that are highlighted. The SCCP is committed to the need for a partnership approach and will continue to work with the wider Surrey Strategic Partnership (SSP) and other organisations with a role to play in its delivery.

The strategy shares the vision for Surrey and the principles of improving quality of life for people living and working in Surrey by addressing social, economic and environmental well-being. Climate change will challenge this vision and thus requires a cohesive response to the wide range of potential impacts. To achieve this, the Strategy establishes a comprehensive framework for consistently addressing climate change across Surrey, with central objectives of:

- **Progressive and permanent reductions in carbon dioxide (CO₂) and other climate changing emissions;**
- **Effective adaptation to the impacts of climate change; and**
- **Raising awareness of climate change impacts and solutions.**

Under each of these objectives the strategy identifies clear policy aims and necessary actions structured as a range of common workstreams. For each workstream the Strategy highlights the importance of the issue for Surrey, summarising what has been done to date and actions that will be necessary. The intention is that SCCP members will apply these policies, participating both collectively and individually in a collective plan that supports them. Appendix I suggests a range of programmes that can be developed further to establish this plan.

The Strategy covers a twelve year period from 2009 until 2020, recognising the need for a longer term approach that can be taken into account by shorter corporate planning cycles. During this period the strategy will be monitored annually by the Partnership to inform member plans, with full review every 3 years to update objectives, actions and targets in order to plan for the next three year period. This will enable the strategy to respond to changing legislative requirements and understanding of climate change.

1.2 Climate Change Overview

This Strategy has been developed in recognition of the fact that the global and local significance of climate change is now widely recognised, with increasing calls for action at all levels of government. To stabilise the general trend of global warming there must be substantial and rapid reductions in greenhouse gas emissions (GHG). Even if the current ambitious targets are met, scientific consensus suggests global temperatures will continue to rise for at least the next 20-30 years, highlighting the need to adopt effective measures for both adapting to climate impacts as well as reducing GHG emissions.

The implications of not responding were recently highlighted by the Stern Review, estimating that in financial terms the costs would be equivalent to losing at least 5% of GDP and potentially up to 20% of GDP if a wider range of risks and impacts is considered. In contrast, the Review argued that the costs of action to reduce emissions and avoid the worst impacts of climate change can be limited to around 1% of global GDP each year.

1.3 *Implications for Surrey*

Reflecting the findings of the UK Climate Impacts Programme, regional planning for the South East has highlighted key climatic changes for this part of the UK, including:

- Hotter, drier summers with more frequent extreme high temperatures; and
- Milder, wetter winters, with more frequent extreme winter rainfall and storminess.

As these climatic trends continue, increasing pressure will be put upon Surrey's natural and built environment, with a range of potential effects including:

- **Biodiversity:** changing conditions may favour some species but harm others;
- **Housing and Buildings:** potentially less heating demand but increased cooling requirements;
- **Land Use:** problems caused by flooding, erosion and drought, with changing patterns of crop suitability and land use;
- **Transport:** disruption to road and rail services from flooding and temperature changes;
- **Health:** potential increase in heat-related deaths, but a possible decrease in excess winter deaths related to cold. Sources of disease such as bacteria and pests may thrive in warmer conditions and lead to new or exacerbated health problems.

The effects on Surrey may be particularly severe due to the unique characteristics of the County's social, economic and environmental structure. With one of the highest non-metropolitan densities of population, 85% of whom live in just 15% of the County's area, urban temperatures and health effects are likely to be significant. Whilst Surrey's population generally have better health and higher life expectancy than the UK average, there are more older people and they may be more affected by these climatic trends.

The problems associated with this concentration of population, coupled with housing growth and already strained environmental and transport infrastructure, will be exacerbated by climate change, potentially leading to significant disruption and economic loss. These potential effects highlight the risks to the County of not responding and adapting to climate change. However, opportunities may also arise that could provide a range of benefits. A warmer climate may promote healthier lifestyle changes, and increase the economic value of leisure and tourism. Other business opportunities may exist for developing new technologies to reduce emissions and adapt infrastructure. Climate shifts are likely to affect agriculture and horticulture in both positive and negative ways.

1.4 *Drivers for Change*

Focal points and the main drivers for the strategy are the targets set nationally, regionally and locally for reducing emissions and adapting to climate change. These are being given increasing weight through UK legislation and as performance measures for government organisations and local areas as a whole.

Nationally, the UK Government previously set non-statutory targets for reducing greenhouse gases; however the Climate Change Act 2008 has established legally binding targets for greenhouse gas emissions. It requires UK carbon dioxide emissions to be reduced by at least 34 per cent by 2020¹ and at least 80 per cent by 2050, relative to 1990 levels. This legislation requires the Government to assess the risks of climate change, implement a national adaptation programme, establish further carbon trading schemes and follow five yearly national carbon budgets.

¹ Climate Change Act 2008 states a 26% reduction; however since then the Climate Change Committee has revised this figure and recommended 34%.

Legislation and regulation related to climate change is either in force or being introduced, such as the Carbon Reduction Commitment and the Heat and Energy Saving Strategy which aims for emissions from existing buildings to be approaching zero by 2050 and identifies a 30% cut in domestic emissions by 2020, compared to 2006.

Of key relevance to this strategy are the national performance indicators adopted by the UK Government in 2008. Of particular importance are:

- NI 185 - CO₂ reduction from Local Authority operations;
- NI 186 – Reduction in per capita CO₂ emissions in the LA area; and
- NI 188 – Adapting to climate change.

Further indicators are also relevant in terms of mitigating climate change, including NI 175 (increasing access to services and facilities by public transport, walking and cycling), NI 187 (Tackling Fuel Poverty) and NI 193 (Reducing the amount of municipal waste sent to landfill) and NI 194 (Air quality – % reduction in NO_x and primary PM₁₀ emissions through local authority's estate and operations).

Regionally, the South East Plan (2006 – 2026) proposes CO₂ reductions of at least 25% below 1990 levels by 2015 and will establish a further target for up to 2026.

At local level, the national indicators have been increasingly recognised and adopted as references for addressing climate change. Local Authorities are currently establishing baselines for determining their own CO₂ emissions under NI 185 and the Surrey authorities collectively have adopted NI 186 through the Local Authority Agreement (LAA).

The current LAA establishes a target of a 10% reduction by 2011 from the CO₂ baseline of 6.9 tonnes per capita in 2005. The adoption and delivery of this joint target is a central aim of the strategy, requiring a partnership approach across Surrey to achieve both this and further future targeted reductions. Recognising that different levels of activity currently exist amongst organisations, the Partnership and this strategy are seeking to adopt a consistent approach for delivery against these Government targets.

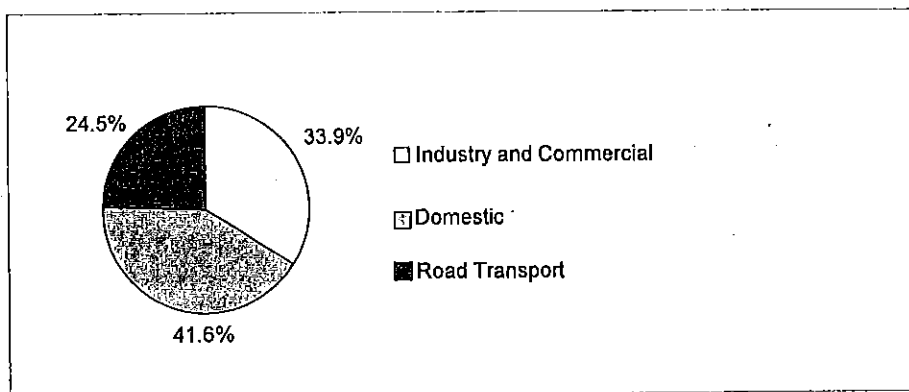
In order to meet the Government's target of 34% by 2020, it will be necessary for local authorities to set and achieve reduction targets beyond the current LAA. The Partnership will establish further targets during the life cycle of the strategy as part of the review process to ensure Surrey contributes to meeting this national target.

2. Reducing Emissions

2.1 Surrey's Emissions

Data provided by DEFRA for 2006 indicates Surrey's annual CO₂ emissions as 7,285,000 tonnes, equating to 6.7 tonnes per capita. When compared with per capita emissions for the South East region (8.02 tonnes) and nationally (8.78 tonnes) this indicates below average emissions for Surrey as a whole, recognising a variation between individual local authorities. The main emission sources are summarised in Figure 2.1 below.

Figure 2.1: Allocation of total CO₂ emissions in Surrey by Source



This clearly highlights the priority emission sources that need to be addressed. All twelve local authorities across Surrey are working towards developing a more detailed understanding of emission sources in order to identify opportunities to reduce carbon emissions across their areas.

2.2 Improving Home Energy Efficiency

Housing is the highest contributor of carbon emissions in the County, responsible for 42%, or 3,030,000 tonnes CO₂ per annum. This compares to a national average of 28.9% and a South East average of 31.9%. Surrey's emissions reflect the residential nature of the County, the poor energy efficiency of housing and modern energy-intensive lifestyles. As well as the environmental and economic costs of energy use, the social costs of fuel poverty² have also become increasingly significant as a result of rising energy costs.

The housing stock of Surrey may have a comparatively younger overall age profile than other counties due to higher levels of recent development; however a significant proportion of the housing stock was built prior to the adoption of sustainability standards and recent Building Regulations requirements for energy performance. As a result there is a key requirement to address the energy performance of the hard to treat, hard to heat proportion of Surrey's housing stock.

The Strategy therefore highlights housing as a priority target for tackling a large proportion of emissions. Key actions must focus on increased energy efficiency of domestic housing stock, ensuring widespread installation of insulation and high efficiency appliances. Appendix I sets out recommended programmes and steps that organisations across Surrey should consider implementing to contribute towards improved household energy efficiency.

² In the UK, fuel poverty is said to occur when in order to heat its home to an adequate standard of warmth a household needs to spend more than 10% of its income on total fuel use.

Surrey Good Practice Examples - Tackling energy efficiency in homes

- **Warmth 1000** – Hard to treat, hard to heat properties. Involving collaborative work with numerous Councils within Surrey. A three year programme to tackle priority groups and give them access to funding to improve the energy efficiency rating of houses
- Loaning out of energy meters for residents through local libraries.

2.3 Improving Energy Efficiency in the Business and Public Sectors

Businesses and public sector organisations are responsible for 34% of Surrey's carbon emissions, resulting from both buildings and operational activities, with further emissions arising from procurement and transport. This compares with a contribution to emissions from the industrial and commercial sector of 46.1% nationally and 37.6% in the south east.

Public and private organisations are increasingly seeking to reduce energy use, in response to rising prices and tougher economic conditions. These sectors also face substantial challenges to adapt their infrastructure and operations and with so many major organisations located in the County, the need for widespread and co-ordinated action is clear. However, given Surrey's high value economy that includes large multi-nationals, clusters and specialist sectors, the capacity to respond should enable significant progress to be made through individual and partnership action.

An important part of this process is for these sectors to establish CO₂ emissions baselines and action plans to reduce them. As well as doing this themselves through NI 185, local authorities can help to support businesses and other organisations to understand and manage their emissions by providing information and guidance. Surrey Economic Partnership also seeks development of a sustainable business economy, highlighting the need to reduce carbon emissions and waste and can, with other networks, support and promote this aim.

The financial resources and effort in reducing emissions will realise energy and cost efficiencies if applied using good practice principles, hence the strategy seeks for all business and public sector organisations in the County to understand and address their energy consumption. To achieve this, a range of individual and partnership actions will be required, including promoting carbon and energy assessments with better monitoring systems, training programmes and investment in new, cleaner technologies.

Surrey Good Practice Examples – Energy Efficiency

- Installation of PowerPerfactor equipment in Council buildings.
- Development of a sustainable energy strategy which incorporates an energy action plan for implementation for Councils
- Installation of smart metering in Council offices to better manage energy data to enable detailed monitoring and targeting of energy.
- Installation of sub-metering again to enable improved energy management across their estate.
- Installation of smart energy monitors in office buildings to display real-time gas and electricity consumption to visitors and staff in order to encourage energy saving practices

2.4 Sustainable New Development

New development in the County for housing, public or commercial purposes offers an important opportunity to provide low carbon solutions with reduced overall emissions and operational costs. For the London Fringe, covering most of Surrey, the South East Plan identifies a preferred approach of efficient re-use of previously developed land and buildings within urban areas to meet housing requirements and protect the green belt. The Plan aims to ensure that new and refurbished development achieves sustainable levels of resource use and reduces greenhouse gas emissions.

Various policy standards exist to deliver sustainable design and construction, including the Code for Sustainable Homes, tightening Building Regulations and renewable energy policies. Within Surrey, as across the UK, there has been an inconsistent approach to setting performance requirements for developers when applying these standards.

With all Surrey Authorities at various stages in the production of their Local Development Frameworks it would be unrealistic to have a uniform policy approach to sustainable development across the County. However, following the adoption of the South East Plan and the Government's stepped approach to achieving carbon zero homes by 2016, new development across the County will be designed, constructed and operated at increasingly higher standards of sustainable performance.

This strategy therefore aims for all new development across the County to achieve consistently high sustainability standards for energy and resource performance and use of renewable or low carbon technologies. To achieve this, the Partnership will work with relevant partners to seek to establish common planning guidance, promote good practice and demonstrate the value and achievability of sustainable design and construction.

Surrey Good Practice Examples - Planning

Development of incentive schemes to raise funds to encourage low carbon developments. Where low carbon policy is not met by developers they must invest into a pot which will be used to fund large scale renewable projects across the borough.

2.5 Reducing Energy Use and Emissions from Transport

Transport is not only a significant contributor to overall CO₂ emissions; it also contributes other atmospheric emissions that impact on air quality. In Surrey, transport accounts for 24.5% of CO₂ emissions, very much in line with the UK average of 25.4%. This is a reflection of the affluent, rural nature of the County where car ownership is higher than the national average. Surrey is also a host to key parts of national transport infrastructure, with major motorways and adjacent airports influencing emissions within the County.

Recognising the critical importance of providing and maintaining an effective transport network, significant priority and investment is being applied across the County through the Local Transport Plan. Objectives of better management and maintenance of the highways network and reducing congestion are helping to reduce emissions, however tackling the trend of increasing traffic growth is central to minimising future climate change impact.

Surrey Good Practice Examples - Transport

- A number of organisations have produced and rolled out green travel plans to encourage sustainable transport for its employees.
- CO2 restrictions on lease cars
- Waste fleet mileage and route review to ensure optimum efficiency
- Smarter travel team dedicated to introducing initiatives to reduce staff and business mileage within organisations
- Cycle demonstration town status within Surrey – providing investment for the improvement of cycle routes and cycle parking in and around Woking over the next few years.

The Strategy seeks further improvements in transport provision to reduce emissions and promote cleaner transport options, highlighting aspects including reducing single occupancy car travel and business mileage and adoption of more efficient vehicles and fuels. The transport workstream in Appendix I sets out suggested programmes and steps that organisations across Surrey could implement to contribute towards reduced emissions from transport across the County.

2.6 Land Use

Land management is a further factor that influences the balance of CO₂ in the atmosphere. Land usage can be both a source of carbon and other climate influencing emissions and a mechanism for capturing carbon in plants and soil. The extent of these effects vary between different types of habitats and crops and their management. The opportunity exists to adopt land use and management practices that will contribute to a net reduction in carbon emissions.

About 80% of Surrey is countryside, much of which is protected greenbelt and designated for landscape or biodiversity value. Surrey is also England's most wooded county (22.4% of land area), hence there may be considerable potential to positively manage these resources if this can be achieved in accordance with the objectives of protecting and enhancing the countryside.

Urban green infrastructure can also play a role in both climate change mitigation and adaptation. The increased provision of green infrastructure through proposed development and increased housing provision in the South East creates opportunities as well as challenges. Green infrastructure can assist also in addressing the modal shift required in transport provision. There is considerable attention within Surrey on the role of green infrastructure, with a number of projects such as the South West Green Arc, aiming to bring enhancement to over 100,000 hectares of Green Belt land in north Surrey and south west London.

The Strategy highlights the need for further evaluation of the role of land management in reducing carbon emissions and the impacts of climate change to be fully considered within all land management programmes and infrastructure design. The potential to expand carbon capture initiatives and the role of biomass in providing energy across Surrey should also be fully explored.

2.7 Minimising Resource Use

Providing goods and services, using energy and water and disposing of waste are all significant causes of carbon emissions. Tackling opportunities at procurement stage of

projects, improving the sustainability of waste management processes and reducing both resource use and waste generation are important targets to achieve the emission reductions necessary. Both the public and private sectors have recognised the need to improve resource efficiency, driven further by recent government policies and the need to reduce operational costs as the price of utilities and costs of waste disposal escalate. For Surrey this problem is arguably more significant given recent economic growth, increasing affluence and the density of both population and economic activity.

The County's high reliance on landfill has been identified as a major issue that must be addressed through waste minimisation, re-use, recycling and diversion of waste to other forms of treatment. The Joint Municipal Waste Strategy aims to halt waste growth and restrict landfill to less than 26% of arisings by 2015. The amount of waste generated in Surrey has however risen marginally in recent years, although recycling rates have improved. During 2007/08 Surrey's residents generated on average 380 kg of household waste per person, of which approximately 34% was recycled. There are some nationally high levels of recycling amongst Surrey districts, and recent trends of increasing recycling will be needed to continue in order to achieve the County's target of 50% by 2015.

Within the County, businesses and local authorities are increasingly adopting more sustainable procurement policies. The Strategy highlights a need to further embed sustainable procurement principles throughout industry and the public sector, whilst promoting these values to the public as consumers. Similarly further co-ordinated action is required to implement more sustainable waste management practices.

Good Practice Examples - Procurement

Introduction of an initial sustainability appraisal to be undertaken as a mandated step in a formal project management process to identify environmental impacts and apply management processes to reduce these.

2.8 Increasing Renewable Energy Generation

Low carbon or renewable energy generation offers significant potential for contributing towards future emissions reductions. The Government is increasingly supporting development of these technologies for use in new and existing infrastructure and communities. The main challenge currently is to make these systems financially and technologically viable for widespread adoption and environmentally acceptable.

Surrey has a number of examples of installed renewable technologies and where economically viable recognises that increased renewable energy generation offers a low carbon solution for the future. The workstreams in Appendix I set out suggested programmes and steps that organisations across Surrey should consider for implementation to contribute towards increasing the generation of renewable energy.

Good Practice Examples - Renewable Installations

Integration of photovoltaic panels within numerous Council buildings.

3. Adaptation

Adaptation is a critical element of our response to climate change. Recent events such as the 2000 floods and the 2003 heatwave demonstrated the country's and the County's

vulnerability to extreme weather events. Such events are projected to occur more frequently as a result of a warming climate. To tackle this problem a series of risk management actions will be considered throughout which are as follows:

- **Prevent:** reduce the probability of an impact or change occurring, e.g. raising flood defences, or retrofitting window shades;
- **Prepare:** understand the climate risk or opportunity, to reduce vulnerability and improve resilience, e.g. through good planning and public communication
- **Respond:** action taken to limit the consequences of an event, e.g. water restrictions for non-essential water use during a drought.
- **Recover:** rapid and cost effective action to return to a normal, or more sustainable state, e.g. improving properties flood resilience when undertaking flood damage repairs.

3.1 Managing Change (incl. risk management, emergencies, flooding)

Local authorities are constantly required to manage change, and the impacts caused by climate change must become an additional consideration. It is therefore essential that existing risk management and business continuity structures incorporate the potential influence of climate change to ensure that Surrey is prepared for this issue and manages it as efficiently as possible.

This strategy will help to co-ordinate a drive to climate proof services, assets and the community to the effects of extreme weather. Central to this response will be to understand the impacts of past extreme events which are documented within the region's Local Climate Impacts Profile (LCLIP). Through this review Surrey will be well placed to prioritise and implement a series of adaptive responses.

Adaptation is not necessarily about major new investment. To help deliver resilience, effort needs to be focused on making the most of opportunities to factor in any potential change to the plans, policies and practices that are currently being implemented.

Within its current consultation document Surrey Strategic Partnership recognises the importance of mitigating the impacts of climate change. With its membership including the police and planners it is well placed to lead the integration of climate change impacts and adaptation work into risk and emergency management for the region.

3.2 Public Services

There is clear evidence that extreme weather has many impacts on both district and county councils, with the potential to paralyse the delivery of essential services and significantly impact finances. Service areas that have historically been affected by extreme weather have started to adapt. However this generally occurs after the incident, and the cost is usually absorbed within operating budgets. A more proactive approach will be required as the impacts of climate change start to become more extreme. If adaptive approaches have not been taken specific contingency will be required.

A review of the current vulnerability of public services in the region is required and a prioritised response should be developed from this review. This response will seek to provide consistent adaptive actions across the region, and will seek to draw similar services together to share understanding and to minimise resource expenditure. The action plan highlights a number of suggestions that should be taken to facilitate this approach.

3.3 Industry & Commerce

Climate change has the potential to fundamentally affect how our society operates. More extreme weather will bring disruption to businesses' ability to operate - primarily through disruption to transport infrastructure. It also has the potential to affect markets through changing customer behaviour and resource availability. Some of these impacts may not be negative and one sector that might stand to benefit is Industry and Commerce.

Hot summers appear to have a positive effect on leisure activities and tourism in the UK, reducing the need for people to travel abroad; potentially milder winters may reduce what were traditional health (fuel poverty), transport infrastructure and waste collection issues.

The Business & Economy Working Group within Climate South East is currently working on providing simple messages about adaptation to small businesses in the food and drink area of the hospitality sector. This sort of initiative will help build resilience within local businesses and ensure the region is best placed to manage the affects of climate change.

Such initiatives need to be rolled out to key sectors across the region to ensure that information is available to those that are interested. Key partners such as trade associations should be engaged through a range of media to help improve uptake of simple adaptive measures.

3.4 The Built Environment

Warmer summer temperatures are likely to cause overheating of buildings, increasing the demand for mechanical air conditioning. Higher winter precipitation is likely to mean increases in the frequency of floods and the length of the flood season. Flooding can cause adverse health effects such as diarrhea, trauma, depression and shock, as well as damaging property. Predicted increases in short intense periods of rainfall will risk inundating drainage and sewer systems, causing flash flooding.

New development in the County offers an important opportunity to build resilience to climate impacts and limit expensive retrofitting measures. It is therefore vital that the effects of climate change are considered over the life time of any development to ensure long term sustainability. Climate South East, in collaboration with two other climate change partnerships produced 'Adapting to climate change: a checklist for development'. This provides detailed adaptive solutions for the built environment and through the action plan its recommendations should be integrated into the regions planning and design for any new development.

For existing infrastructure the review of maintenance programmes will be essential to maximise ongoing performance, with minimal additional cost. Climate South East, again in partnership, has undertaken a comprehensive review of appropriate solutions to retrofitting adaptive measures in to existing housing stock. The recommendations from this report should be used to inform and promote the adaptation of the existing residential building stock, including private and social housing. Emphasis is placed on water conservation, drainage, flood risk and ventilation.

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. Support should be provided for the use of sustainable drainage systems (SuDS) within new and existing developments to provide additional water storage and provide valuable wetland habitats in areas susceptible to flooding. Wide scale use of SuDS, along with other sustainable water management practices are an important part of the strategy to cope with changing patterns and intensity of rainfall, enhancing and using the natural environment to minimise future potential risks.

To help ensure that public sector consider the potential impacts of climate change, climate proofing criteria could be attached to all public sector capital spend through grant conditions.

3.5 *The Natural Environment*

The impacts on the natural environment have been widely studied but the picture is complex. The effects of climate change on the movement of species and habitats and on ecological productivity will be influenced by, and interact with, other environmental and socio- economic factors, such as water availability and land use.

With the prospect of drier, hotter summers, there is likely to be a greater need for irrigation and water resource management. Government predictions for future water availability in the south east show that the region will suffer from high water stress. Efficient use and management of water is essential if both the natural environment and human resource needs are to be sustained.

Warmer winters will influence the length of the growing seasons in the region, with evidence to suggest that this has already started. In response maintenance and management programmes for local authority green spaces will need to take such change into account to ensure for example that verges are maintained in a safe manner and green space is managed to maximise its potential to the general public.

Climate South East's Biodiversity Working Group is currently looking at ways of supporting local authorities in addressing requirements of NI 197 (Improved Local Biodiversity, monitoring the proportion of Local Sites where active conservation management is being achieved). With such a large proportion of the regions countryside having some form of designation or protection it will be very important that specialist groups (both national and local) are engaged and utilised to support the delivery of this strategy.

4. Raising Awareness

4.1 *Raising awareness with the general public, community, businesses and across the public sector*

Communicating climate change is vital to increase understanding, influence and change the habits and behaviour of people living and working in the County.

Communicating a clear and consistent message across the County is a challenge but one that can be addressed most effectively through the work of the Partnership. In order to communicate climate change and raise awareness of this agenda key target audiences need to be identified and a communications plan developed to set out the most appropriate messages and mechanisms to achieve the results required. Messages will need to relate clearly to those messages supported nationally by media such as newspapers, television and the internet.

In 2008, Surrey County Council commissioned research into the attitude of Surrey residents to climate change. One aspect of this research highlighted residents' need for information. Older people were the most likely to feel they needed more information, with 21% of over 50s saying so compared with 9% and 3% for 18-29s and 30-50s respectively. Younger respondents were more likely to feel they had a personal commitment to reducing climate change; one reason for this may be that they feel better informed on the issue. There was some variation between local authority areas on how well informed respondents felt about climate change. This suggests there could be particular scope for increased communications in certain local authorities.

This demonstrates that the communications need to be tailored to meet the needs of different aged residents and supply them with the information that they require, as well as concentrating activity more in certain areas of Surrey. To date, authorities have undertaken ad-hoc, stand alone communication campaigns targeting specific neighborhoods. This has used a number of media including:

- Articles in local press;
- Quarterly magazines for Council staff;
- National campaigns e.g. greening campaign and energy savings week;
- Stalls at markets.

A communications plan will sit beside this climate change strategy and will outline how best to communicate climate change issues across the County to the different audience groups. A communications workstream will lead on delivering a county-wide communication campaign on behalf of the Partnership which will build on authorities' existing and previous campaigns ensuring consistency.

4.2 *Raising awareness through Education Settings*

Education has a central role to play in acting on climate change by imparting sustainable values to current and future generations, particularly as young people will be the decision makers of the future. The Partnership is committed to delivering climate change in the education system through two routes:

- Embed climate change learning within local curricula at all levels of education and work with education providers to develop effective resources; and
- Adopt low carbon and energy efficiency measures in the building and management of educational facilities.

Central Government wants every school to be a sustainable school by 2020. Their Sustainable Schools Framework launched in 2006 sets out challenging long-term aspirations for schools to mainstream learning about sustainable development issues and sustainable practices into everyday school life. Further to this, Eco-Schools is an international award programme that guides schools on their sustainable journey, providing a framework to help embed these principles into the heart of school life.

There is currently no county-wide programme to deliver learning on climate change issues however; ad-hoc activity has been undertaken by several local authorities.

Surrey Good Practice Examples - Communications

- Many raising awareness activities rolled out with schools across Surrey. This has included speakers at school assemblies, and poster campaigns.
- Engagement with Youth Councils - one is undertaking a climate change awareness poster campaign.
- Engagement with local businesses to share best practice with Councils and other organisations across the county.

5. Delivering the Strategy

5.1 *The role of SCCP and other Partners*

The Partnership has representation from the twelve local authorities across Surrey. Wider community representation will be invited to participate in the Partnership to help deliver the carbon reductions required and provide ongoing focus on this issue moving forward. The most effective means of tackling climate change across Surrey is through joint solutions to the problems and delivering these through a partnership approach, involving multi agencies across the County. The objectives of the Surrey Improvement Partnership to enhance collaboration of local authorities and agencies working together is reflected in the objectives for this strategy and action plan.

The SCCP will seek to pool resources, identify funding and make efficiencies in reducing carbon emissions, adapting to climate change and raising awareness of climate change issues.

The Partnership will meet every 6-8 weeks and the workstreams identified below will be further developed to drive through action plans and programmes. A sub-working group with a nominated lead will be assigned responsibility for delivery of the workstreams and will feedback progress to the Partnership meeting.

The officers partnership group will report to the Surrey Climate Change Members Group, who will provide direction and encourage partnership working between the Surrey authorities and other community/public sector bodies in order to deliver the strategy and the long term targets of reducing carbon emissions.

5.2 *Strategy Implementation, Review and Milestones*

Appendix I sets out a number of suggestions for organisations involved in the Partnership to help them work towards the objectives of this strategy. It is recognised that for some organisations, activity against these actions is at various stages of development and in some cases, actions may not be feasible and this will be down to each organisation to assess. The framework for the forward plan is based on nine priority workstreams that apply the objectives and structure of the strategy:

- Domestic Energy
- Public Sector and Business Energy Management
- Land Use and Planning
- Transport
- Resource Management
- Renewable Energy
- Adaptation
- Schools and Education
- Communication.

The overall plan highlights a range of programmes and deliverables, indicating where they are short, medium and long term actions. This reflects the estimated time and effort required to implement the actions to deliver short term LAA targets and longer term carbon reduction targets to meet national and international requirements.

The Plan also identifies the level of participation within the County that would support delivery of the programme. This can be furthered within the SSP and SCCP accordingly.

Appendix I – Strategy Workstreams

Objective 1: Reducing Carbon Emissions	
<p>Workstream 1: Domestic Energy</p> <p>To date there have been numerous programmes to target and reduce domestic energy across the County. Councils have engaged independently on projects and campaigns and also jointly through collaborating together on examples such as Warmth 1000 and Warmfront. NI187 provides a reporting framework for domestic energy, which provides a common approach for all Councils in reporting and striving to reduce domestic energy levels.</p>	
Programme	Deliverables
Improving housing performance	<ul style="list-style-type: none"> • Deliver programmes for improving efficiency of existing housing stock (insulation, lighting and heating systems)
Promoting innovation	<ul style="list-style-type: none"> • Demonstration projects. • Engagement with housing developers, estate managers.
Monitoring energy use	<ul style="list-style-type: none"> • Infrared detection. • Free/loan energy meters for residents
Providing Guidance to residents	<ul style="list-style-type: none"> • Distribution of guidance. • Media campaigns.
<p>Workstream 2: Public Sector and Business Energy</p> <p>Energy management on the Council's own estate has been adopted widely across the County. Many Councils have an energy management strategy and reduction programme which is being implemented. NI185 has provided a common structure for energy reporting and the Partnership has collaborated to ensure good practice energy efficiency measures and ideas for county-wide roll outs are captured. Several Councils have also targeted business energy consumption and information so businesses can initiate schemes to reduce their energy.</p>	
Programme	Deliverables

Local Authority carbon reduction (NI185)	<ul style="list-style-type: none"> • Carbon reduction programme. • Establish internal working group. • Service delivery plans. • Effective metering, monitoring and reporting
Community Engagement	<ul style="list-style-type: none"> • Establish network of community champions. • Co-ordinate and support funding opportunities for community groups to access
Public sector decision making	<ul style="list-style-type: none"> • Undertake sustainability appraisals for new projects and programmes. • Climate proofing criteria applied to all public sector capital spend through grant conditions.
Private / Public sector engagement	<ul style="list-style-type: none"> • Develop partnership approach with major businesses.
Guidance for business	<ul style="list-style-type: none"> • Utilise and develop business guidance networks. • Produce guidance for businesses on carbon reduction.
<p>Workstream 3: Land Use Planning</p> <p>Planning policy to ensure reduced carbon emissions is being developed by many Councils across Surrey. Currently there is little collaboration in this workstream area but the Partnership could bring wider benefits to sustainable housing through shared policy and targets.</p>	
Programme	Deliverables
Strategic Planning	<ul style="list-style-type: none"> • Co-ordinate mitigation in and between spatial plans. • Target neighbourhoods for increased funding and investment to reduce carbon emissions 'Green Action Zones'
Planning Guidance	<ul style="list-style-type: none"> • Develop countywide good practice guidance. • Development of a carbon reduction fund to raise funds for investment through low carbon planning requirements
Land Use and Biodiversity	<ul style="list-style-type: none"> • Evaluate scope for increased carbon capture through land use. • Guidance for land managers.

<p>Workstream 4: Transport</p> <p>Emissions from transport is a significant area for Surrey to tackle. There is little collaboration on this currently and Councils have been tackling a variety of areas to reduce the impact of transport, for example many Councils have produced green travel plans with the aim to reduce staff mileage, other Councils have undertaken fleet mapping tasks to increase efficiency in delivery and reduce mileage and a couple of Councils have looked to incentivise the use of cleaner vehicles through provision of pool cars.</p>	
Programme	Deliverables
Transport Planning	<ul style="list-style-type: none"> Evaluate carbon impacts of transport plans / options
Travel Plans	<ul style="list-style-type: none"> Produce company green travel plans
Fleet and Vehicle performance	<ul style="list-style-type: none"> Enforce restrictions on lease car carbon emissions Increase environmentally friendly fuel mixes in fleet vehicle use Fleet mileage mapping exercise
Public Transport	<ul style="list-style-type: none"> Launch incentives to promote school buses to reduce car mileage across the County
Walking and Cycling	<ul style="list-style-type: none"> Encourage staff to cycle through incentives and improved facilities. Provide a number of pool bikes and fuel efficient cars
<p>Workstream 5: Resource Management</p> <p>There are some good examples of Councils in Surrey assessing the sustainability impacts of resource use and disposal. One Council undertakes a top-level sustainability appraisal on all new Council projects to assess the impacts and develop impacts mitigation and management programmes. Other Councils are developing sustainable procurement policies to put some standards in place to promote a whole life costing approach which will ensure reduced carbon emissions over project lifecycles.</p>	
Programme	Deliverables

Sustainable Procurement	<ul style="list-style-type: none"> • Develop sustainability procurement policy. • Develop whole life costing procedure for procurement. Engagement programme with the major suppliers.
Waste Management	<ul style="list-style-type: none"> • Assess carbon impacts of waste disposal operations • Promote waste minimisation • Energy from waste
Water Management	<ul style="list-style-type: none"> • Engage with water management industry • Promote water efficiency measures
Workstream 6: Renewable Energy	
Small scale renewable energy projects have been installed throughout Council properties across the County. A number of these are for demonstration purposes to promote renewable energy to residents and business across the County. Where feasible a couple of Councils have looked into the viability of installing more large scale renewables. These projects are in the early stages of development and collaboration between the Councils across Surrey could help to promote and support these applications in the future.	
Programme	Deliverables
Policy and Planning	<ul style="list-style-type: none"> • Adopt strategy and principles for designing in and retro-fitting where feasible • Assess renewable energy options in strategic plans
New development	<ul style="list-style-type: none"> • Undertake feasibility studies on all new development and refurbishment
Community schemes	<ul style="list-style-type: none"> • Incorporate technologies for generation / distribution, where feasible
Renewables supply chain	<ul style="list-style-type: none"> • Investigate viability and large scale fuel supply
Objective 2: Adaptation	
Workstream 7: Adaptation	

<p>Surrey is producing a county wide LCLIP report which will assess the risks, threats and opportunities for Surrey in future climate change scenarios. This report, commissioned by Surrey County Council will be a starting point for all Councils to work together and prepare a joint workstream action plan on Climate Change adaptation with a focus on integrating this into other workstream areas.</p>	
Programme	Deliverables
Risk Management	<ul style="list-style-type: none"> • Incorporating climate change adaptation within emergency planning • Delivery under NI 188
Research	<ul style="list-style-type: none"> • LCLIP
Public Services	<ul style="list-style-type: none"> • Service adaptation plans • Public health implications
Industry & Commerce	<ul style="list-style-type: none"> • Engagement plan to target SME's within key sectors to promote their role in adaptation.
Built Environment	<ul style="list-style-type: none"> • Sector adaptation guidance
Natural Environment	<ul style="list-style-type: none"> • Biodiversity impact assessment • Land management plans • Promotion of sustainable drainage systems and flood management
Objective 3: Raising Awareness	
Workstream 8: Schools and Education	
<p>Surrey County Council is the lead authority for delivering school and education programmes. To date Councils have engaged with schools in parts of the County to raise awareness on climate change and carbon reductions through workshops, assemblies, energy audits and more. This will be built on through this workstream so a joint programme to address climate change can be delivered.</p>	
Programme	Deliverables
Carbon Management for Schools	<ul style="list-style-type: none"> • Individual school policies and action plans • School travel plans

Facilities Improvement	<ul style="list-style-type: none"> • Participation in eco-schools • Programme of energy audits and advice for schools • Funding mechanism for capital investment • Certification for new schools and refurbishments
Educational Resources	<ul style="list-style-type: none"> • Teaching programme in schools • Education in public buildings and spaces • Programme for developing educational resources using new media
Engagement	<ul style="list-style-type: none"> • County-wide engagement programme with schools • School awards / competitions
<p>Workstream 9: Communication</p> <p>The focus to date on communication has been to raise awareness of climate change issues and the importance of reducing energy to residents across the County. This has been undertaken via several means including leaflet deliveries to households, articles in local press, radio advertisements and more. Engagement with the community through local green awards, market stalls and small grants for community groups are other examples of how some Councils have been raising awareness across the County. To date, the formation of the Partnership has resulted in wider dissemination of best practice ideas and joint roll out initiatives across the councils.</p>	
Programme	<p>Deliverables</p>
Raising Profile	<ul style="list-style-type: none"> • Dedicated SCCP website • SCCP quarterly newsletter • Invite businesses, schools and community groups to make pledges
Promoting Best Practice	<ul style="list-style-type: none"> • Set of Surrey best practice case studies • Host Surrey wide best practice tours • share best practice with other partners / adjacent authorities • Host an annual green awards ceremony to recognise business, school and community groups
Engagement	<ul style="list-style-type: none"> • Champions network • Sector based information sharing workshops • Facilitate or fund voluntary, neighbourhood groups to raise awareness
Information Resources	<ul style="list-style-type: none"> • Inform public through library access and services: information sharing, energy meter loans etc

Appendix II – Good Practice Examples

A range of examples of good practice on climate change is presented below for each of the workstreams in the Climate Change Strategy.

1. Domestic Energy

Domestic energy efficiency is being addressed across the country through local programmes that either offer general support to householders or focus on less efficient housing. For example Bradford's **Community Warmth Scheme** provides free home energy surveys, aiming to visit 170,000 homes over the next 2 and half years across the whole Bradford district. The Scheme provides free cavity wall insulation measures to all residents and free loft insulation for residents aged 60 or over. **Warmth 1000** is a Surrey scheme that addresses hard to treat and hard to heat properties, comprising a three year programme to tackle priority groups and give them access to funding to improve the energy efficiency rating of houses.

Providing support on this scale illustrates the value of partnership working to create efficient service delivery that maximises use of available funds. Communities are exploring various mechanisms to provide these services such as arms-length or charitable organisations and a number of locations including Leicester, Ayrshire, Marches, Stroud and Severn Wye have either established energy agencies or contracted out the delivery of their climate change programme. This approach also enables support to be provided for the business and public sectors as well as domestic users.

2. Public Sector and Business Energy Management

The Partnership-based approach has been demonstrated as an effective way to bring local communities together to deliver a common strategy and action plan, in order to achieve a specific long term goal. This can be applied at county, city, town or village level. Authorities such as Monmouthshire are encouraging their towns to develop their own climate change plans and the concept of 'Transition Towns', where communities seek to adopt lower carbon living, is rapidly spreading across the UK, including Dorking and Farnham within the county.

Some localities and organisations are making major commitments on carbon management. For example since 2002 Newcastle has stated a long term aim to become the world's first carbon neutral city. The village of Ashton Hayes in Cheshire is aiming to become England's first carbon neutral community and has already cut CO₂ emissions by 20% since 2006 by working together. Eastleigh Borough Council intends to become carbon neutral for its key business activities by 2012 through both reducing emissions and compensating for unavoidable emissions. To achieve this, the Council has set up CarbonFREE – an offsetting fund for local partners to support local sustainable energy projects

3. Land Use and Planning

The current production of local development frameworks provides local authorities with opportunities to set standards for low carbon development to consider how integrated solutions can be adopted. For example local authorities in Leicestershire grouped together in 2008 to commission a joint study on climate change to underpin future planning and policy. This study assessed the development options identified by each authority and considered how climate change mitigation and adaptation could be addressed across these options for energy, renewables, waste and water impacts.

Many authorities are now adopting developer guides on sustainability and climate change to promote consistent good practice within the planning system. A number of authorities in Surrey and elsewhere in the UK are also looking into incentive schemes to raise funds to encourage low carbon developments. Where low carbon policy is not met by developers they must invest into a pot which will be used to fund large scale renewable projects across the borough.

4. Transport

The impacts of business travel are being progressively addressed as public and private organisations undertake green fleet reviews, seeking to achieve substantial carbon and cost savings by improving efficiency and better travel planning. To focus attention on what needs to be achieved through these collective efforts, the CBI has recently published a roadmap for reducing UK transport emissions by 29 MtCO₂ by 2020. Development of cleaner technology and fuels are identified as the most significant factors for achieving this target, combined with managing demand for road travel.

At local level efforts are being made to understand the carbon impacts of travel planning. Islington has recently produced a carbon footprint of their transport operations, including their own fleet, contracted out services and employee travel for both business and commuting. Suffolk has also benchmarked their travel against other local authorities, identifying opportunities for reducing business mileage and costs. Bristol have assessed the CO₂ impact of their joint Local Transport Plan to demonstrate how far the plan would restrict growth in emissions and highlight further measures that would be need to reduce emissions.

Shifting to lower carbon transport options is also a key aspect of current transport planning. Smarter Travel Sutton is London's first sustainable travel behaviour change programme seeking to reduce congestion and environmental impacts in Sutton by boosting levels of walking, cycling and public transport use. Central to the programme is a partnership of the council, TfL and local stakeholders, each with various roles in planning, promoting and delivering the programme.

5. Resource Management

Public and Private Sector organisations are increasingly adopting sustainable procurement strategies, project impact assessments, supplier questionnaires and green purchasing guidance. However many suppliers either do not measure or do not disclose information on their carbon emissions, although as much as 60% of a company's total greenhouse gas emissions can result from supply chain activities such as processing, packaging, and transportation.

An increasing number of companies such as Cadbury, Colgate-Palmolive, Johnson & Johnson, Unilever and Vodafone are now requiring that major suppliers report their emissions, asking for detailed information on their carbon risks and opportunities, reduction targets, governance, and product lifecycles.

In the Public Sector, Lewisham Borough Council has gone beyond measuring its own direct CO₂ emissions and has mapped the carbon footprint of its entire supply chain. This has been calculated as 89,000 tonnes of CO₂, equivalent to that of 10,000 homes. The analysis enables the Council to identify the significant contributors to this footprint and target reductions by working with these suppliers.

6. Renewable Energy

Local renewable energy partnerships and projects are being set up across the country from Cornwall to East Sussex, aiming to encourage more widespread use of new low carbon technology, providing advice on renewable energy, grants and feasibility studies.

Biomass is being increasingly adopted to provide low carbon energy solutions. The Environment Agency has recently reported that the best biomass plants could cut emissions by up to 98% compared to using coal. However poorly designed facilities that do not utilise Combined Heat and Power (CHP), and where large amounts of energy are required to produce and transport the biomass, may actually increase net emissions.

These schemes are being developed at various levels. For example Barnsley MBC is implementing the largest programme of biomass-fired community heating in the country, with an adopted policy of pursuing biomass as the preferred heating option for all new and refurbished public buildings, provided lifetime costs are favourable. To support this, a 700-tonne capacity wood chip store has been established where tree waste is brought to dry naturally. This supplies public buildings, industrial and housing sites and has helped kick-start a local woodchip supply business using sawmill and forestry waste.

Durham County Council have phased out solid fuel in their buildings and 7 schools now use wood pellet fuel for heating. The installation costs of £50,000-£100,000 are met from the council's schools maintenance budget. At community level, Kielder village in Northumberland has its own biomass district heating system which uses wood from Kielder forest and supplies heat to the school, Youth Hostel, workshops, homes and Kielder Castle.

7. Adaptation

The City of London has developed a Climate Change Adaptation Strategy to assist the City in preparing for the likely impacts of climate change. The strategy aims to 'climate-proof' the City of London by undertaking a number of actions:

- Initiating research and monitoring to help develop appropriate policy and actions on climate adaptation;
- climate proofing policies, practices, assets and infrastructure; and
- working in partnership with utilities and service providers, other public sector bodies, residents and businesses in achieving this.

The strategy outlines the major risks from climate change to the City, giving an indication of the severity and likelihood of the threat along with recommendations on actions that need to be taken and who should be involved in the delivery.

A key feature of the strategy is the checklist for 'climate-proofing' the City of London Corporation policies and projects. The checklist summarises the main 'climate-proofing' principles that should be considered by the City Corporation Departments when developing policies and projects. This checklist is generic and can be adapted for use by any organisation. The document is being sent out to all Chief Executives of local authorities in England and Wales and presentations have been given to, or are planned for, a number of special interest groups.

Redhill first school in Worcester has been designed by the County Council as a climate change ready school. It was one of the first in the UK to use the UKCIP adaptation wizard as part of the design process. This led to a low profile, wide guttering, overhangs, SUDs scheme and solar powered ventilation stacks.

The building has a variety of features which aim to make it as 'carbon-neutral' as possible, acting as a test bed for technologies. It is the first school in the county with ground source heating and hot water systems. The school also uses rainwater harvesting for flushing toilets and has mechanical extract ventilation using small photovoltaic panels. Classroom ventilation uses an assisted stack ventilation system, which uses air tempered in the winter using the groundsource system. The ICT suite is cooled in summer using a ground source heat pump in reverse mode. A sustainable drainage system provides habitat enhancements on the site using swales and ponds. The building makes extensive use of timber framed external and internal walls. A recycling target of 26 per cent by value of materials has been set.

Kent County Council recently undertook a case study as part of the BRANCH (Biodiversity Requires Adaptation in Northwest Europe under a CHanging climate) project, aiming to develop a planning method to enable stakeholders to design a climate change proof ecosystem network. The Kent study assessed the existing connectivity of terrestrial habitats through scientific modelling. This modelling was undertaken at both a European Scale and locally to identify areas where action is needed to re-connect habitats and restrict any further fragmentation, in order to allow biodiversity to adapt to climate change.

A method for working with stakeholders to design ecological networks for the future was developed. A group of species, chosen with stakeholders to represent different characteristic habitats in Kent, were assessed for their response to climate change and the connectivity of their habitat. Opportunities for the improvement or creation of habitat networks for these indicator species were then identified and designs for ecological networks suggested.

The key findings of the case study:

- Kent's habitats are not sufficiently connected at present to allow some species to adapt to climate change and that ecological networks will play a key part in helping wildlife to adapt;
- These networks will only be fully effective when adopted in the planning process and when planners and stakeholders collaborate on their design;
- Stakeholder involvement will be vital to the ongoing design, success and implementation of the Kent ecological network;
- Different species will respond to climate change in different ways and will require specific strategies to adapt.

The project has highlighted the importance of stakeholder input when devising spatial planning decisions. It has also stimulated debate in Kent on issues such as climate change and ecological networks. The case study has emphasised the need for further action on reconnecting Kent's habitats.

8. Schools and Education

Resources available for education on climate change are becoming increasingly available to support the national curriculum and promote awareness through a range of innovative ways outside of the classroom.

Programmes for education on climate change are being developed in a number of places in the UK. Worcestershire for example has run an internationally respected Education for Sustainable Development (ESD) service for many years, seeking to empower children to take action on climate change.

They aim to do this in different ways - the most high profile of which is the EcoSchools Programme. WCC operates a network of 206 EcoSchools (28 of which have achieved the top green flag award) and more than 100 schools have run eco days of action within their own communities. Eco Meetings are held in districts every term, where teachers look at issues such as energy waste transport under the heading of climate change. Working with Peace Child international, a climate change advocacy scheme has been set up to train high school students to become advocates within their own communities. Through this programme children have run evening events on climate change for their local communities. They have engaged with other schools within their cluster groups and with parents, primary head teachers and other year groups.

Online resources include interactive websites such as the Royal Geographical Society's <http://www.yourclimateyourlife.org.uk/index.html>. Several authorities such as Daventry and Carbon Neutral North East have also supported the development of computer games, such as "The Carbon Challenge", which uses a mix of illustration and animation to present complicated messages in a stimulating way. Players can test their skills, dexterity and knowledge over four challenging levels and can win prizes such as bikes and carbon free white goods. The game is being circulated to hundreds of local schools across the region, who will also receive a DVD film which highlights the challenges faced by the North East in respect to climate change.

9. Communication

A number of authorities have developed programmes for raising awareness of climate change in the community, seeking to influence public behaviour. For example Devon has established a 'Do it for Devon' community communication programme that includes TV adverts, distribution of a householder's guide and providing free room thermometers and low energy bulbs. Other examples include dedicated local websites, distribution of energy efficiency DVDs and photographic competitions on climate change impacts in Lincolnshire.

Birmingham City Council are focusing on raising individual awareness and action through an online pledge programme and setting a 100kg per person challenge as part of their 100,000 kg CO₂ reduction target for 2008/9.

First Draft
Surrey Climate Change Strategy

Waverley Action Plan						
Work stream	Programme	Actions	Target /Timescale			Ownership
			Year 1 2009-2010	Year 2 2010-2011	Year 3 2011-2012	
1. Domestic Energy		<ul style="list-style-type: none"> Participating to Warmth 1000 scheme. This is a free home insulation grant scheme. 	Install measures in 500 ¹ properties in Waverley	Install measures in 500 properties in Waverley	Review scheme	Simon Brisk
		<ul style="list-style-type: none"> HeatSeekers scheme. Thermal imaging scheme that will encourage residents to insulate their properties on a subsidised rate. Free for people ion the priority group. 	Project start - Insulate 500 ¹ properties	Insulate x number of properties	Review scheme	Fotini Kallipoliti
		<ul style="list-style-type: none"> Double-glazing programme for council housing stock. 	Completion of programme for 1330 properties			Peter Brockhurst
		<ul style="list-style-type: none"> Double Glaze council owned properties in Ockford Ridge, Godalming 	Tender work and appoint contractor	Carry out 115 installation Spring / Summer		Peter Brockhurst
		<ul style="list-style-type: none"> Upgrade energy Efficiency to Waverley Owned Sheltered Housing Units 	Carry out Energy audit, secure funding and upgrade one unit	Carry out Energy audit, secure funding and upgrade a second unit	Carry out Energy audit, secure funding and upgrade a third unit	Andrew Booker

¹ Number will be reviewed and adjusted depending on year 1 results

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		<ul style="list-style-type: none"> Energy monitors loan scheme. Energy monitors are available from libraries for free. 10 Energy monitors made available to Transition Town Haslemere for families to use. 	<p>Project start - 100 people to borrow the monitors</p> <p>First phase of project currently in progress</p> <p>Average 5% reduction on CO2 (towards 25% target by 2015)</p>	<p>200 people to borrow the monitors</p> <p>Average 5% reduction on CO2 (towards 25% target by 2015)</p>	<p>Review and set new target</p> <p>Average 5% reduction on CO2 (towards 25% target by 2015)</p>	<p>Fotini Kallipoliti</p> <p>Carbon Management Team</p>
	Monitoring Energy Use	<ul style="list-style-type: none"> Local Authority Carbon Management Programme. This programme will enable us to embed carbon management into Waverley's operations. A 5-10 year plan will be produced with targets on how Waverley BC will be reducing its carbon emissions. Organise business event in partnership with Carbon Trust to encourage and promote carbon management. 	<p>Organise event</p> <p>First general meeting held, with 22 attendees. Organise and deliver a stall market event</p>	<p>Deliver one event</p> <p>Plan and hold 2 events</p>		<p>Carbon Management Team</p> <p>Sustainability Team and various other officers</p>
2. Public Sector and Business energy	Local Authority carbon reduction (NI185)					
	Community Engagement	<ul style="list-style-type: none"> Working closely with a number of community groups such as Transition Towns and/or Greening campaigns. 				
3. Land Use and Planning	Planning Guidance	<ul style="list-style-type: none"> TBC 				

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4. Transport	Travel Plans	<ul style="list-style-type: none"> Waverley's Corporate Transport action plan. Have a variety of options in place to encourage Greener transport options. 	Complete all actions under corporate travel plan	Investigate further measures	Achieve a 5% ² reduction (from 2008 figures)	Sustainability Team coordinating
	Fleet and Vehicle performance	<ul style="list-style-type: none"> Existing restrictions in CO2 emissions of lease cars 	Limit in place	Investigate further reductions		HR
		<ul style="list-style-type: none"> Provision of Pool cars 	Encourage 10% use of the pool car ³			
5. Resource Management	Walking and cycling	<ul style="list-style-type: none"> Cycle to work scheme 	Scheme started Oct 09 - Sign up 5-10 people in year one	Sign up 5 people	Review scheme	Karen Booker/Charlotte Lee
	Sustainable procurement	<ul style="list-style-type: none"> Incorporating sustainable procurement aspects in our procurement policy. 				New procurement officer
		<ul style="list-style-type: none"> Inform contractors and suppliers with the Councils commitment to reducing carbon/tackling climate change 	Complete during quarterly meetings	Organise an event with presentation on sustainable procurement		
Waste Management	<ul style="list-style-type: none"> Renegotiations for the new Waste collection contract will be including carbon reduction expectations. 	Negotiations start	Negotiations continue-write up new contracts		Implementation of new agreement	Rob Anderfion

² Target to be finalised

³ Investigate quantification method further

		<ul style="list-style-type: none"> New kitchen waste collection scheme will divert more waste from landfill 	Set up and roll out scheme ⁴			Rob Andretton
6. Renewable energy	Policy and Planning	<ul style="list-style-type: none"> 10% renewable requirement for new developments 	Set up process to record developments that implement requirement	Record all proposed savings from implementing requirement		Matthew Evans
		<ul style="list-style-type: none"> Godalming Leisure centre rebuild will incorporate high standards of energy efficiency measures and possibly renewables. 				Kelvin Mills
		<ul style="list-style-type: none"> LDF? 				Matthew Evans
7. Adaptation	Risk management	<ul style="list-style-type: none"> Delivery under N1188 	Maintain level 2 (of 4)	Achieve level 3 (of 4)	Maintain level 3	Fotini Kalipoliti to coordinate Surrey CC
	Research	<ul style="list-style-type: none"> Local Climate Impact Projection (LCLIP) assessment carried out for the area of Surrey. 	Complete	Investigate need for a Waverley LCLIP		
8. Schools and Education	Engagement	<ul style="list-style-type: none"> School visits are currently taking place on Waste and recycling on an ad-hoc basis 	Achieve 15 visits	Achieve 15 visits	Achieve 15 visits	Waste and recycling coordinator
		<ul style="list-style-type: none"> Encourage schools to sign up to eco schools programme 	Initiate contact with Schools	Encourage 4 schools every year		Sustainability Team

⁴ Still under consultation and approval

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9. Communication	Raising profile	<ul style="list-style-type: none"> • Improve Waverley Website to include our achievements and guidance for public on current projects. 			Sustainability Team and Comms
		<ul style="list-style-type: none"> • Invite residents to form groups and actively help their communities 	Develop policy for working with community groups	Sign up 2 new groups every year	Sustainability Team
	Engagement	<ul style="list-style-type: none"> • Working closely with community groups in the Borough and integrating their help into our activities. 	See action under section 2		
	Internal Communication	<ul style="list-style-type: none"> • Draft communications plan in place for general communication and activities. 	Complete a number of campaigns	Complete a number of campaigns	Communications Team

