



Climate Change Strategy

2016-2021

1.0 Executive summary

- 1.1 Our climate is changing. It has always changed in response to natural environmental processes, but it is now widely accepted that human activities are leading to climate change of a scale and pace that threatens our very way of life. Such a global challenge requires a global response, and the international framework for action is becoming stronger.
- 1.2 At the twenty first session of the Conference of the Parties (COP21) to the United Nation Nations Framework Convention on Climate Change (UNFCC), national governments, including the British government, agreed to strengthen the global response to the threat of climate change. This included a historic commitment to “holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels¹.” To achieve this, parties to the agreement agreed to reach net zero global emissions of greenhouse gases in the second half of this century.
- 1.2 Limiting global average temperature increases to 1.5 °C will require radical action by national governments, local organisations, businesses, communities and individuals across the world. The government has not yet outlined national targets for reducing UK emissions to a level which would contribute to limiting global temperature increases to 1.5 °C. However, it will require significantly more ambitious reductions than the current commitment in national legislation, which is to reduce greenhouse gas emissions by 80% on 1990 levels by 2050. This commitment is intended to help limit global temperature increases to close to 2°C by 2050.
- 1.3 Cambridge City Council has played a leading role in work to tackle climate change at the local level. The Council was a signatory to the Nottingham Declaration on Climate Change in 2006 and was amongst the first local authorities in England and Wales to sign the LGA’s Climate Local commitment in 2012. One of the ten corporate vision statements that guide the work of the Council is:
- ‘A city that takes robust action to tackle the local and global threat of Climate Change, both internally and in partnership with local organisations and residents, and to minimise its environmental impact by cutting carbon, waste and pollution’.
- 1.3 Through implementing its first and second Climate Change Strategies in 2008-2012 and 2012-2016, the City Council has already achieved a considerable amount, including:
- Delivering 47 carbon reduction projects across our estate and operations through our first Carbon Management Plan, ranging from a solar thermal system to heat water at Abbey Pools, to voltage optimisation technology at Grafton East Car Park and Mandela House. It is estimated that these projects have reduced our annual emissions by around 1,200 tCO₂e (or around 13%).

¹ UNFCC, 2015, Paris Agreement, Article 2, p2

- Spending over £4.3 million on improving the energy efficiency of Council homes, including replacing 1543 older boilers with more energy efficient condensing boilers and insulating the loft and cavity walls of more than 600 properties.
- Improving the energy efficiency of privately-owned housing in the city, by delivering 1402 insulation measures through a combination of the national CERT scheme and the Council-funded Cambridge Home Insulation Scheme, and delivering over 2000 assessments, 950 sales and over 550 installations up until the end of February 2016 across Cambridgeshire through the Green Deal as part of the Action on Energy partnership.
- Using planning policy to ensure that many of the new homes constructed on the urban extension sites in Cambridge will be constructed to high sustainability standards. Many new homes will meet Level 4 of the national Code for Sustainable Homes, with the University of Cambridge North West Cambridge development being constructed to Code Level 5.
- Taking steps to promote travel by sustainable transport, through: dedicated policies in the new Cambridge Local Plan; investing in 600 new city centre cycle parking spaces, programs of highway improvements for cyclists and improvements to bus shelters across the city; and working with Cambridgeshire County Council and local bus operators to ensure that buses meet progressively higher emissions standards.

1.4 The Council recognises that there remains much to be done if the challenging international targets agreed in Paris are to be achieved. This new Climate Change Strategy establishes the framework for action by the City Council to address the causes and consequences of climate change over the next five years. It sets out five key objectives to guide Council activity:

1. Reducing emissions from the City Council estate and operations
2. Reducing energy consumption and emissions from homes and businesses in Cambridge by promoting energy efficiency measures, sustainable construction renewable energy sources, and behaviour change
3. Reducing emissions from transport by promoting sustainable transport, reducing car travel and traffic congestion, and encouraging behaviour change
4. Reducing consumption of resources, increasing recycling and reducing waste
5. Supporting Council services, residents and businesses to adapt to the impacts of climate change

1.5 In this strategy the council has committed to a total of 46 wide-ranging actions to help reduce greenhouse gas emissions in Cambridge. These actions have been identified based on: an analysis of the sectors which currently contribute most to the city's carbon footprint; learning from current city council activity and good practice from other local authorities and organisations; and partnership or funding opportunities. They include:

- Reducing our emissions by 15% by 2021 through delivering 22 carbon reduction projects in our new Carbon Management Plan and rationalising our office estate,

with an aspiration to reduce our emissions by 20% through further projects that are still being developed.

- Supporting residents to access financial support for domestic energy efficiency improvements through the Action on Energy partnership
- Working with partners in Cambridge Retrofit to mobilise private finance for investment in large-scale retrofit of buildings and estates in Cambridge and promote exemplar projects and good practice
- Constructing new council homes to high sustainability standards and, where possible within the national planning policy framework, using local planning policy to secure high sustainability standards in new residential and commercial developments in Cambridge.
- Continuing to promote recycling and increase opportunities for residents and businesses to recycle.
- Investing £100m in improvements to public transport and cycling infrastructure through the City Deal with the aim of tackling congestion, reducing journey times, reducing greenhouse gas emissions and improving air quality
- Promoting low-emissions buses and taxis in partnership with the County Council, bus companies and taxi companies.
- Supporting residents and businesses to respond to the anticipated effects of climate change, including flooding, water shortages and heat waves.

1.5 The scale and scope of the actions outlined in the strategy are necessarily informed by a number of key constraints on the Council's ability to take action on climate change, including :

- The wider financial constraints placed upon the City Council by reductions in local government funding and the associated savings targets that the council needs to meet in coming years
- Recent changes in Government policy and reductions in national funding streams for climate change-related activity, including:
 - The reduction in Feed in Tariffs, which have been paid by Government for energy supplied to the National Grid from renewable energy installations. From January 2016, the subsidies for solar PV systems have been reduced by up to 71%, which has made many new solar energy schemes less viable.
 - The withdrawal of Green Deal Finance in July 2015, which was the primary source of funding available to homeowners for energy-efficiency measures.
 - Changes to national planning policy. Following the Government's national Housing Standards Review, the Code for Sustainable Homes has been discontinued and the introduction of the national zero carbon homes policy has been postponed. As a result, we will no longer legally be able to use planning policy to require new homes to be built to sustainable construction standard, although we will continue to actively promote high

standards to developers, including through the Council's developing Sustainable Housing Specification.

- 1.6 However, the City Council remains committed to playing a leadership role in relation to local efforts to address climate change. In our first climate change strategy we set a target of reducing carbon dioxide 6.2 tonnes per person in Cambridge in 2005 to 0.7 tonnes per person in 2050/51 (an 89% cut). This target was designed to contribute to national and international efforts to limit climate change to 2°C by 2050. In light of the more ambitious international commitments in the Paris agreement to limit global temperature increases to 1.5°C and the need to achieve zero net global carbon emissions by the second half of this century to achieve this commitment, we have set an aspiration in this strategy to achieve zero carbon status for Cambridge by 2050.
- 1.7 As shown in Figure 1 on page 8, carbon dioxide emissions per head in Cambridge have reduced by 13.5% over an eight year period from 2005 and 2013 (from 6.7 tCO₂ per person in 2005 to 5.8 tCO₂ in 2013). To be on an even path towards zero carbon status by 2050, carbon dioxide emissions would need to reduce by 18.9% (or 1.1 tCO₂ per person) on 2013 levels by the end of the period of this strategy in 2021.
- 1.8 This aspiration will be extremely challenging to achieve in the context outlined at 1.5 above. With the more limited policy tools and resources available to it, the Council will not be able to achieve the required levels of emissions reductions on its own. Achieving this aspiration will require the City Council, Cambridgeshire County Council, the Universities, local businesses, and voluntary and community groups to work together closely in partnership.
- 1.9 The council calls upon these stakeholders to collaborate with us to exploit opportunities and resources, in order to maximise our collective impact on greenhouse gas emissions from Cambridge. Only through working together can we achieve the level of reduction in emissions needed to avert dangerous levels of climate change.

2.0 Context

How has our climate changed?

- 2.1 Scientific evidence demonstrates that the earth's climate is changing, with average temperatures rising. The Intergovernmental Panel on Climate Change (IPCC) concludes in its Fifth Assessment Report that average surface temperatures have increased by 0.85 °C, over the period 1880 to 2012². Much of this warming has occurred since the 1970s, with each of the last three decades being successively warmer at the Earth's surface than any preceding decade since 1850³. The IPCC concludes that "it is extremely likely that human influence has been the dominant cause of the observed warming since the mid-20th century."⁴
- 2.2 A combination of economic and population growth have driven global greenhouse gas emissions from human activity since the pre-industrial era, and they are now higher than ever. This has led to atmospheric concentrations of greenhouse gases such as carbon dioxide, methane and nitrous oxide which are unprecedented in at least the last 800,000 years.⁵ These gases create the 'greenhouse effect', trapping the heat from the sun's light in our atmosphere and preventing it from escaping into space.
- 2.3 Climate change is having widespread impacts on human and natural systems⁶:
- Arctic sea-ice has decreased by between 3.5% to 4.1% or 0.6 million square kilometres (an area about the size of Madagascar) per decade between 1979 and 2012.
 - Glaciers all over the world are melting, and the Greenland and Antarctic ice sheets have been losing mass between 1992 and 2011, with the rate of shrinkage increasing in the last decade.
 - Global sea-levels have risen by 0.19 m between 1901 and 2010.
 - Changes in extreme weather events have been observed since 1950, including an increase in warm temperature extremes, an increase in extreme high sea levels, and an increase in the number of heavy rainfall and other precipitation events in a number of regions.
 - Changes in the seasons (such as the UK spring starting earlier, autumn starting later) are bringing changes in the behaviour of species, for example, butterflies appearing earlier in the year and birds shifting their migration patterns.

How will our climate change in future?

- 2.4 Surface temperatures are projected to rise over the 21st Century regardless of what action we take, but it is vital that we take steps now to limit the extent of global warming and reduce the harmful impacts it could have. The most recent report by the IPCC concluded that if we take no action to reduce greenhouse gas emissions,

² IPCC, 2013, Climate Change 2013: The Physical Science Basis, p3

³ IPCC, 2013, Climate Change 2013: The Physical Science Basis, p3

⁴ IPCC, Climate Change 2014: Synthesis Report: Summary for Policy Makers p4

⁵ IPCC, Climate Change 2014: Synthesis Report: Summary for Policy Makers p4

⁶ IPCC, Climate Change 2014: Synthesis Report: Summary for Policy Makers pp4-7

average global temperatures are likely to increase by between 2.6°C and 4.8°C by the end of the 21st Century (2081-2100) compared to 1986-2005.

- 2.5 A recent report by the World Bank concluded that the emission pledges made by national governments at the UN climate conventions in Copenhagen and Cancun in 2009 and 2010, if fully met, place the world on a trajectory for a global average warming of well over 3°C. If these pledges are fully implemented there is still about a 20 percent chance of exceeding 4°C in 2100, and if they are not met the likelihood would be considerably higher⁷.
- 2.6 If average global temperatures increase by 4°C, this could have devastating consequences, including⁸:
- inundation of coastal cities;
 - increasing risks for food production, potentially leading to global food shortages and higher malnutrition rates;
 - many dry regions becoming dryer, and wet regions wetter;
 - unprecedented heat waves in many regions;
 - substantially exacerbated water scarcity in many regions;
 - increased intensity of tropical cyclones; and
 - irreversible loss of biodiversity, including coral reef systems.
- 2.7 It could still be possible to limit temperature increases to less than 2°C by the 21st Century, but this would require radical action and “substantial and sustained reductions in greenhouse gas emissions”⁹ every year for the remainder of this century. The Copenhagen accord recognises that action to limit temperature increases to less than 2°C should be undertaken “on the basis” of equity. This means that developed countries will initially need to cut emissions at a faster rate than in developing countries, because social and economic development and poverty eradication are the first and overriding priorities of developing countries.¹⁰
- 2.8 It is harder to accurately project how the climate in local areas such as Cambridge will change, but in 2009 the UK Climate Projections (UKCP09) programme provided projections of how the climate will change in the East of England and other regions, based on low, medium and high emissions scenarios. The data from this programme suggests that by 2080 the East of England will experience:
- Increases in average summer temperatures of 1.3 to 4.7 °C under a low emissions scenario, and 2.4 to 7.5°C under a high emissions scenario.
 - Increases in average winter temperatures of 1.4 to 4.0°C under a low emissions scenario, and 2.0 to 5.7 °C under a high emissions scenario.
 - Increases in average winter precipitation of 16% under a low emissions scenario and 26% under a high emissions scenario.
 - Reductions in average summer precipitation of 14% under a low emissions scenario and 27% under a high emissions scenario.

⁷ World Bank, 2012, Turn Down The Heat: Why a 4°C Warmer World Must be Avoided, p23

⁸ World Bank, 2012, Turn Down The Heat: Why a 4°C Warmer World Must be Avoided

⁹ IPCC, Climate Change 2014: Synthesis Report: Summary for Policy Makers p10

¹⁰ UNFCCC, 2009, Copenhagen Accord, pp5-6

What action is being taken at an international and national level to address on climate change?

- 2.9 Man-made climate change is a global challenge that requires a global response. This Strategy aims to help stimulate action by individuals, communities and organisations in Cambridge that will contribute to these international efforts.
- 2.10 The United Nations has played a central role in coordinating international efforts to slow the pace of climate change and manage the risks associated with it. The international framework for action is built upon the **UN Framework Convention on Climate Change (UNFCCC)**, which was adopted at the Rio Summit in 1992. The Convention placed the onus on industrialised nations, as the major source of emissions to date, and directed funding to developing countries to address climate change.
- 2.11 By 1995, national governments realised that emission reductions provisions in the Convention were inadequate. In 1997 the **Kyoto Protocol** was adopted, which legally binds developed countries to emission reduction targets. The Protocol's first commitment period started in 2008 and ended in 2012. The second commitment period began on 1 January 2013 and will end in 2020.
- 2.12 As the scientific consensus around the causes of climate change has grown, the international framework for action on climate change has become stronger. Following the **Copenhagen Accord** in 2009, countries submitted further pledges to reduce emissions and manage climate change risks. These pledges were made binding in the **Cancun Agreements** in 2010, which aimed to limit global temperature increases to less than 2 degrees. At the **UN Climate Change Conference in Durban** in 2011, national governments agreed to adopt a new universal legal agreement to deal with climate change beyond 2020 as soon as possible.
- 2.13 At the twenty first session of the Conference of the Parties (COP21) to the UNFCCC in Paris, national governments, including the British government, agreed to strengthen the global response to the threat of climate change. The Paris agreement included a historic commitment to "holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels¹¹." To achieve this, parties to the agreement would need to reach net zero global emissions of greenhouse gases in the second half of this century.
- 2.13 In response to agreements at the international level, increased scientific consensus and greater public recognition of the need for action, the UK Government has introduced a significant amount of new national legislation, policies and initiatives. This refreshed Cambridge City Council strategy reflects and responds to the key legislation and policies that relate to local government.
- 2.14 The **Climate Change Act 2008** established a long-term framework for tackling climate change. It introduces a national target to reduce carbon emissions by at least 80% below 1990 levels by 2050, which represents an appropriate UK contribution

¹¹ UNFCCC, 2015, Paris Agreement, Article 2, p2

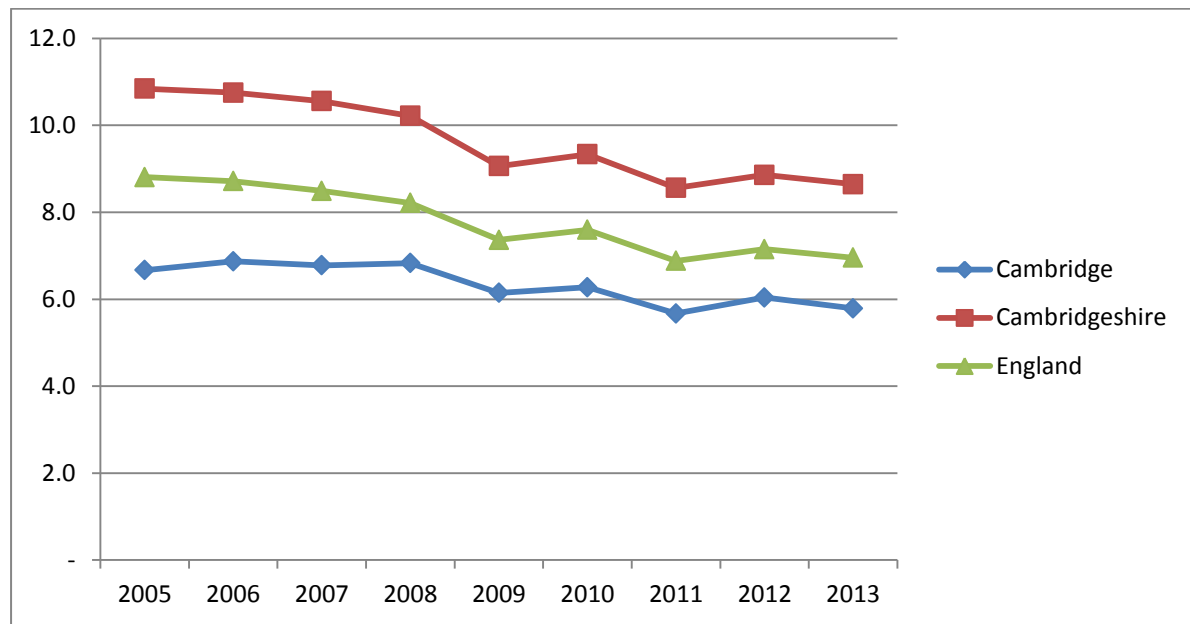
to global emission reductions consistent with limiting global temperature rise to as little as possible above 2°C. The Act introduces four carbon budgets, each covering a five year period, which set the level of emissions reductions needed between 2008 and 2027 in order to achieve these overall targets. The first three carbon budgets require an annual reduction of 2% on 2010 emissions levels up to 2020, and the fourth budget requires reductions of 5% per annum. The government has not yet outlined national targets for reducing UK emissions to a level which would contribute to the commitment in the Paris agreement to limiting global temperature increases to 1.5 °C. However, it will require significantly more ambitious reductions than the current commitment in Climate Change Act.

- 2.15 The **Carbon Plan**, published in 2011, sets out the Government's Plan for achieving the emissions targets set in the first four carbon budgets. It identifies the emissions reductions needed in five key areas of the economy (homes and buildings; transport; industry; electricity; and agriculture, land use, forestry and waste).
- 2.16 In recent years, a number of national initiatives have been introduced to help deliver the national emissions targets. For example, the Energy Act 2008 introduced measures to support renewable energy generation by households and the public and private sectors, such as **Feed In Tariffs** and the **Renewable Heat Incentive**. The Energy Act 2011 introduced measures to stimulate energy efficiency measures for homes and businesses, such as the **Green Deal** and **Energy Company Obligation**.
- 2.17 The Climate Change Act also introduced a number of measures to promote the management of climate change risks. The Act required the Government to produce a **UK Climate Change Risk Assessment (CCRA)**, which was published in 2012 and sets out the potential impacts of climate change at a national level. It also required the Government to produce the **National Adaptation Programme (NAP)**, which was published in 2013 and sets out proposals for how the Government, private sector and others should respond to the risks identified in the CCRA.

What can Cambridge City Council do locally to address climate change?

- 2.18 Cambridge has made significant progress in reducing emissions from the city in recent years. As shown in the chart below, emissions per capita in Cambridge have declined steadily from 6.7 tCO₂ per person in 2005 to 5.8 tCO₂ in 2013. Emissions per capita were significantly lower in Cambridge in 2013 than in Cambridgeshire as a whole (8.6 tCO₂ per capita) and the national average (7.0 tCO₂ per capita). However, as the chart below shows, the rate that emissions reduced levelled off towards the end of this period, and there is much more to be done to reduce emissions in the city further.

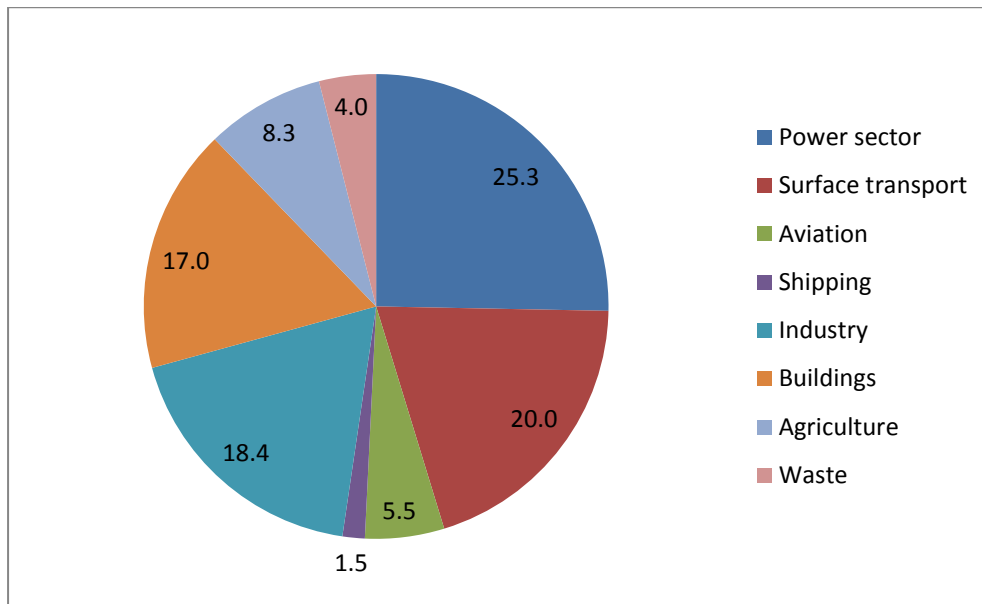
Figure 1 - Estimated per capita emissions (tCO₂) 2005-2013



Source: DECC, 2015, Per capita local CO₂ emission estimates

- 2.19 The Council can help address climate change by providing local leadership on the issue. In August 2012, Cambridge City Council was among the first local authorities to sign the 'Climate Local' declaration and publish an associated action plan, demonstrating the Council's commitment to tackling climate change. Climate Local was developed by the Local Government Association as the successor to the Nottingham Declaration on Climate Change, which the Council also signed in 2006.
- 2.20 The Council can also help reduce emissions in Cambridge by working with the largest producers of emissions. The Committee on Climate Change, an independent advisory body to Government on climate change matters, has calculated that the largest national producers of greenhouse gases are the power sector (25.3%), surface transport, including road and rail transport (20.0%), industry (18.4%) and buildings (17.0%).

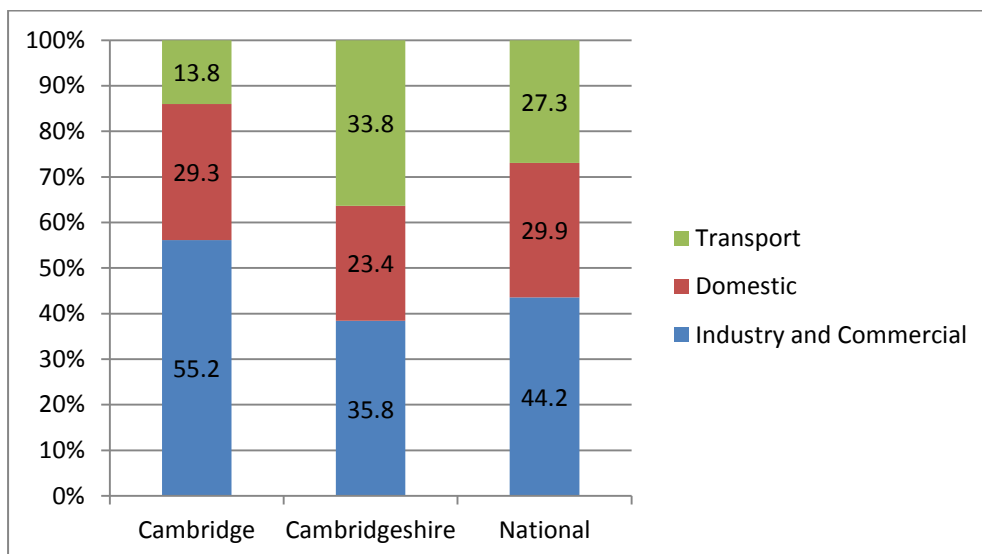
Figure 2 – Total UK greenhouse gas emissions produced by sector in 2013 (%)



Source: Committee on Climate Change, 2015, UK emissions by sector in 2013
<https://www.theccc.org.uk/charts-data/ukemissions-by-sector/>

2.21 As shown in the chart below, industrial and commercial consumption of energy and fuel is responsible for over half (55.2%) of the estimated per capita carbon emissions in Cambridge, which is significantly higher than in Cambridgeshire (35.8%) and England as a whole. Domestic consumption of electricity gas, electricity and other fuels is responsible for 29.3% of per capita carbon emissions in Cambridge, which is similar to England as a whole. Transport accounts for a smaller proportion of per capita carbon emissions in Cambridge (13.8%) than in Cambridgeshire (33.8%) and England (27.3%) as a whole.

Figure 3 – Per capita emissions produced by sector in 2013 (%)

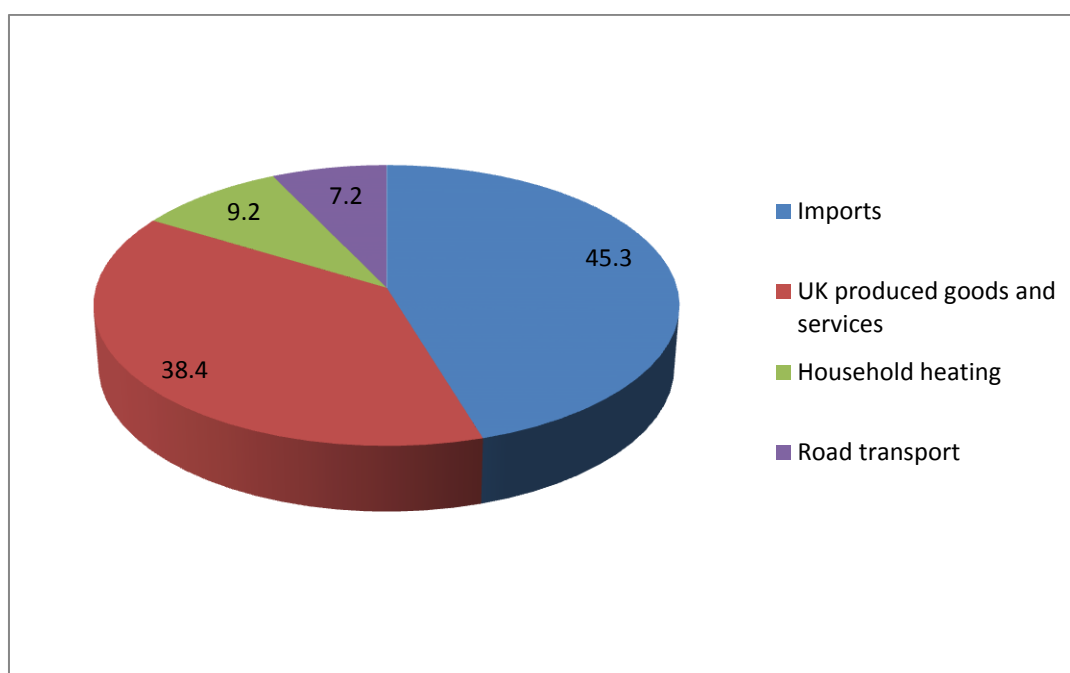


Source: DECC, 2015, Per capita local CO₂ emission estimates

2.22 The data presented in Figures 1, 2 and 3 above relates to carbon or greenhouse gas emissions produced in the United Kingdom, including emissions generated in producing goods for export to other countries. However, as the UK economy continues to move from a manufacturing base towards the service sector, an increasing proportion of the goods that we buy are produced overseas and imported to the UK. General conventions exist for estimating the carbon emissions embedded in imported goods, but the results cannot be viewed as being as robust as the estimates of carbon emissions generated domestically.

2.23 As the Figure 3 below shows, in 2012, DEFRA estimates that 45.3% of household greenhouse gas emissions in the UK were embedded in imports consumed directly by residents or used by UK businesses. Goods and services produced in the UK account for 38.4% of household greenhouse gas emissions, while heating homes (9.2%) and road transport directly associated with households were responsible for a much smaller proportion of household emissions. It is important, therefore, that local authorities focus on encouraging households to reduce consumption of goods, including both goods imported from overseas and those produced in the UK.

Figure 4 – Household greenhouse gas emissions in the UK in 2012 (%)



Source: DEFRA, March 2015, UK's carbon footprint 1997-2012 (next updated Dec 2015)

2.24 Based on the evidence outlined above, the Committee on Climate Change, an independent advisory body to the Government on climate change, identifies the following areas where local authorities have most scope to influence emissions¹²:

¹² Committee on Climate Change, 2012, How local authorities can reduce emissions and manage climate risk, <https://www.theccc.org.uk/publication/how-local-authorities-can-reduce-emissions-and-manage-climate-risks/>

- **Local authority estate** – reducing emissions from local authority buildings, estates and operations, as this makes a contribution to overall emissions reductions and demonstrates local leadership on climate changes issues.
- **Buildings** – through: programmes to improve the energy efficiency of residential and non-residential buildings; encouraging behaviour change amongst residents and businesses; and using planning and building control functions to secure high energy efficiency standards in new buildings.
- **Transport** - through: developing local sustainable transport plans; providing cycling infrastructure; providing better public transport and low-emissions vehicles; using parking charges to influence behaviour; supporting investment in electric vehicle charging infrastructure; and ensuring new residential and office developments are well served by sustainable transport.
- **Waste** – through: policies and campaigns to encourage waste prevention and recycling; implementing separate food waste and recycling collection systems; and facilitating recycling centres.
- **Adaptation** – by using planning policies to ensure that new development is located in low flood risk areas and that new buildings and infrastructure are resilient to heat stress; and managing natural resources to promote biodiversity and reduce the risk of flooding.

2.25 The Committee on Climate Change identifies a number of sectors where there is less scope for local authorities to influence emissions, including the power sector, aviation and shipping, as policies for the decarbonisation of these sectors are set at a national and European level. However, there is scope for local authorities to contribute to power sector decarbonisation and reduce energy consumption through planning approvals for renewable energy projects, involvement in low-carbon decentralised energy schemes (such as city centre district heating schemes) and information campaigns to encourage reductions in energy use.

Cambridge City Council climate change objectives

- 2.26 With this evidence in mind, the Council has identified the following objectives for this Climate Change Strategy, focussing on the areas where local authorities have most scope to influence carbon emissions:
1. Reducing emissions from the City Council estate and operations
 2. Reducing energy consumption and emissions from homes and businesses in Cambridge and tackling fuel poverty, by promoting energy efficiency measures, sustainable construction, renewable energy sources and behaviour change
 3. Reducing emissions from transport by promoting sustainable transport, reducing car travel and traffic congestion and encouraging behaviour change
 4. Reducing consumption of resources, increasing recycling and reducing waste
 5. Supporting Council services, residents and businesses to adapt to the impacts of climate change

Objective 1. Reducing emissions from the City Council estate and operations

3.1 The Committee on Climate Change identifies reducing emissions from local authority buildings, estates and operations as a key responsibility for local authorities, as this makes a contribution to overall emissions reductions and demonstrates local leadership on climate changes issues. Cambridge City Council has made significant efforts to reduce emissions from its estate and operations over the past five years and we will continue these efforts over the next five years.

Progress to date

3.2 In June 2012, the Council published a Carbon Management Plan for 2011-2016, which set out how it planned to reduce carbon emissions from its estate and operations. The Plan targeted the areas of the Council's activity which contribute most to our carbon emissions (e.g. swimming pools and leisure centres, car parks, vehicle fleet, offices and sheltered and temporary housing).

3.3 We have delivered a total of 35 carbon reduction projects across our estate and operations to between 2011/12 and in 2014/15. The projects delivered to date are:

- Energy efficiency improvements at Council-owned swimming pools and leisure centres, including Abbey Pool, Cherry Hinton Village Centre, Jesus Green Lido and Kings Hedges Learner Pool and Parkside Pools. The measures installed have included: pool covers; Building Energy Management Systems¹³; Variable Speed Drives¹⁴; heat pumps; and refurbishment of an existing Combined Heat and Power (CHP) unit¹⁵.
- Renewable energy systems, including solar photovoltaic (PV) panels¹⁶ to provide electricity at Cherry Hinton Village Centre, Brandon Court sheltered housing scheme, and New Street Hostel, and a solar thermal system¹⁷ to provide hot water at Abbey Pool.
- Replacing existing lighting at Abbey Pools, the Grand Arcade Annex car park and the Corn Exchange with more energy efficient LED lighting.

¹³ Building Energy Management Systems (BEMS) control and monitor a building's mechanical and electrical equipment, such as ventilation, lighting, power systems, fire systems, and security systems.

¹⁴ Variable Speed Drives (VSD) regulate the speed and rotational force of electric motors at the pools in response to changing levels of demand for energy from water and air pumps at the pools.

¹⁵ CHP captures and utilises the heat that is a by-product of the electricity generation process. By generating heat and power simultaneously, CHP can reduce carbon emissions compared to the separate means of conventional generation via a boiler and power station.

¹⁶ Solar photovoltaic (PV) panels capture the sun's energy and convert it into electricity, which is used to run electrical appliances and lighting.

¹⁷ Solar thermal systems use photovoltaic (PV) panels to capture solar energy and provide a renewable source of hot water for the pool.

- More efficient boilers and improvements to start controls and pipework at Llandaff Chambers and Mill Road Depot, and heating controls in the foyer at the Corn Exchange to ensure the heating is only on when and where it needs to be.
- A heat recovery system at the Crematorium.
- Voltage optimisation¹⁸ technology at Abbey Pools, Grafton East Car Park and Mandela House.
- Awareness raising campaigns at all swimming pools to promote a cultural of environmental responsibility amongst staff and customers, with the aim of reducing energy and water use.

3.4 It is estimated that the 35 carbon reduction projects delivered to date have achieved on-going carbon savings of around 1,150 tCO₂e per year. This figure is only an estimate, because prior to 2012, the Council does not have accurate data on our energy usage, so we are not able to reliably calculate our total carbon emissions for this period. This was because we were previously reliant on the data provided by our energy suppliers, which was based on a combination of irregular meter readings and estimated energy usage data.

3.5 During 2012/13, we took steps to ensure that in future we have accurate data for all City Council sites included in the baseline for the Carbon Management Plan. The Council has invested in the installation of Automatic Meter Readers (AMRs), which automatically and remotely read meters, at all major sites that did not previously have them. We also now take visual meter readings at all sites twice a year. As a result of these measures, we now have reliable energy usage data for 2013/14 and 2014/15, and are able to reliably identify our total carbon emissions for these years.

3.6 Our data shows that our total energy usage increased by 0.8% in this period, from 7,974 tonnes of carbon dioxide equivalent (tCO₂e) in 2013/14 to 8,041 tCO₂e in 2014/15. While energy use reduced at the majority of our sites between 2013/14 and 2014/15, our emissions increased slightly over this period due to a number of factors outside our control, including:

- Increased electricity use at the Grand Arcade annex car park, because there was an increase in the number of users in this period.
- Increased electricity usage at some of the Council's sheltered housing accommodation. The Council does not have control over the energy used by occupants.
- Increased energy usage at the crematorium, due to an increase in the number of cremations
- Increased energy usage of Brown's Field community centre, resulting from increased usage of the centre and longer opening hours.

3.7 Furthermore, although the Council implemented 7 projects carbon reduction projects during 2014/15, the majority of these projects were implemented towards the end of the 2014/15 financial year, so any reduction in emissions resulting from these projects will not be seen until 2015/16.

¹⁸ Voltage optimisation technology reduces the voltages received by appliances and lights running on electricity, in order to reduce energy use

3.8 By investing in energy and fuel saving projects, the Council has been able to achieve significant financial savings. The total cost of all 35 carbon reduction projects delivered in the first four years of the plan (between 2011/12 and 2014/15) is £1,448,397. Collectively these projects have achieved ongoing annual savings of £203,000 in the Council's energy and fuel costs, meaning that on average they will 'pay back' the original investment in just over 7 years. Many projects will continue to deliver savings beyond this point.

3.9 A further 10 projects were delivered during the final year of the current Carbon Management Plan in 2015/16. It is estimated that they will reduce our carbon emissions by a further 310 tCO₂e per year. These projects cost a total of £383,000 and deliver ongoing annual savings of £67,000 per year. The projects are:

- Installing solar PV panels at the crematorium.
- Installing LED lighting at Grand Arcade Main Car Park.
- Installing lighting sensors at Whitefriars sheltered housing scheme.
- Upgrading the boilers at the community centres to condensing boilers.
- Replacing the boiler at Abbey Pools.
- Replacing the boiler at Cherry Hinton Village Centre.
- Replacing 12 fleet vehicles with alternative with stop-start technology.
- Introducing a drive incentive scheme to encourage more efficient driving of fleet vehicles.
- Staff awareness raising campaign at our administrative buildings.
- Staff awareness raising campaign at the community centres.

Future action

3.10 In January 2016 the Council published a new Carbon Management Plan to provide the blueprint for reducing our emissions across our estate and activities between 2016/17 and 2020/21. The Council will invest over £1.7 million in 22 projects during the first two years of the plan, ranging from replacing 8 diesel vans with electric vehicles, to installing energy efficient LED lighting throughout the Grand Arcade Car Park and Grafton East Car Park. Investment will be targeted at the buildings and services which contribute most to the council's carbon emissions, including swimming pools, offices, vehicle fleet, car parks, community centres, sheltered housing, community centres and commercial properties. Further projects are currently being developed for implementation in the final three years of the Carbon Management Plan.

3.11 The Council has set a target for reducing carbon emissions from the Council's estate and operations by 15% by 2021 through the Carbon Management Plan. It has also agreed an aspiration to reduce our emissions by 20% by 2021, which could be achieved through the projects that are still under development.

3.12 As part of the Carbon Management Plan, we plan to install solar PV system at sites where the on-site electricity demand is high such as the Guildhall. We will also be exploring the viability of installing solar PV systems at further sites, including Parkside Pools. As part of this work, we will consider whether any such schemes are

viable following the Government's decision in January 2016 to significantly reduce the rate of Feed in Tariffs (FITs) for renewable energy provision. The Government has paid Feed in Tariffs to individuals, businesses and organisations for any electricity supplied to the National Grid from solar PV panels, wind turbines and hydro-electric power installations. FIT rates for solar PV installations have been reduced by between 59% and 70%, depending on the size of the array of panels.

- 3.13 We will also work with partners to develop joint partnership projects to reduce greenhouse gas emissions from our estate. For example, the Council is currently working with the University of Cambridge and Cambridge Live to explore the financial viability and potential for a new district heating scheme connecting the New Museums site and the Guildhall and Corn Exchange. Under this scheme, excess heat produced by the onsite electricity generators at the New Museums site could potentially be used to partially heat the Guildhall.
- 3.14 We will also take climate change considerations into account when making decisions about commercial properties in Cambridge that are owned by the Council and let to commercial tenants. The Council's Property Investment Report in January 2015 specified a minimum standard of Environmental Performance rating of C or better for all future commercial property acquisitions. The Council subsequently acquired the Orchard Park Local Centre, where the retail units achieved good environmental performance as evidenced by the Environmental Performance Certificates for each unit. The commercial units being constructed as part of the wider development of Council land at Clay Farm will be retained by the Council and will achieve very good environmental performance.
- 3.15 We will also take opportunities to improve the environmental performance of our commercial properties as the opportunity arises. For example, we have significantly improved the environmental performance of Barnwell House in recent years by replacing windows and boilers.
- 3.16 As part of the Council's developing Office Accommodation Strategy, we will reduce energy usage and carbon emissions through rationalising our office accommodation and consolidating staff in existing premises or relocating them to new accommodation or partners' premises. The Council has already vacated offices at Lion House, and intends to vacate offices at Hobson House and Mill Road depot during time period of the Climate Change Strategy.

Actions to deliver Objective 1 - Reducing emissions from the City Council estate and operations

Activity	Service	Performance measures/outcomes	Completion date
1.1 Delivering new Carbon Management Plan for 2016-2021, which sets out 22 new projects to reduce energy and fuel consumption and carbon emissions from the City Council's estate and operations.	Corporate Strategy Estates and Facilities	<u>Target of a 15% reduction in Greenhouse Gas emissions from the Council's estate and operations by 2021, measured against the 2014/15 emissions baseline</u> <u>Aspiration for a 20% reduction in Greenhouse Gas emissions from the Council's estate and operations by 2021, measured against the 2014/15 emissions baseline</u>	March 2021
1.2 Ensuring that the City Council's Office Accommodation Strategy takes into consideration opportunities to reduce emissions from City Council office buildings. The Strategy will set out plans for consolidating and improving the Council's office accommodation in response to changing service needs and arrangements.	Property Services Corporate Strategy	Hobson House and Mill Road Depot vacated, and staff relocated to retained premises, new operational premises, or the premises of our partner organisations	Buildings vacated in 2016 (Hobson House) and 2017 (Mill Road depot)
1.3 Taking opportunities to improve the energy efficiency of commercial properties owned by the Council as they arise, and ensuring that where the Council invests in new properties, these have high energy efficiency ratings	Property Services	All commercial properties acquired by the Council to have an EPC rating of C or higher	Ongoing from March 2016
1.4 Exploring the potential for introducing Environmental Management Systems in key services and sites (e.g. Streets and Open Spaces)	Streets and Open Spaces	Business benefit of Environmental Management Systems assessed as part of wider work on business transformation EMS introduced in Streets and Open Spaces service, subject to availability of external advice	March 2017 March 2018

Activity	Service	Performance measures/outcomes	Completion date
1.5 Implementing the Council's Employee Travel Plan, including promoting and incentivising alternative methods of transport for Council business, e.g. through provision of pool bikes, cycle mileage allowance, travel warrants for train travel, and access to car club vehicles	Human Resources	18 pool bikes provided 4,619 business miles travelled by bicycle per annum 626 travel warrants issued for train travel per annum 45 members of staff are signed up for lift share scheme	Ongoing to 2021
1.6 Reviewing the quick procurement guide for staff on sustainable procurement, and auditing a sample of contracts to check that they comply with the Council's Environmental Procurement Policies	Procurement Internal Audit	New quick procurement guide on sustainable procurement produced Audit of sample of contracts completed and actions identified and implemented by services	October 2015 March 2017
1.7 Working with partners such as the University of Cambridge to develop partnership projects to reduce greenhouse gas emissions from our estates, such as exploring the potential for District Heating Schemes	Director of Environment Planning	Business case explored for developing a district heating scheme linking the University of Cambridge's New Museums site, the Corn Exchange and the Guildhall as part of Phase 3 of the New Museums Site redevelopment Reduction in energy consumption and carbon emissions in the Guildhall due to heat provided by district heating scheme, subject to viable business case and implementation of the scheme	December 2017 Ongoing to March 2021 and beyond
1.8 Working with partner Councils in shared service arrangements and new delivery bodies (e.g. Cambridge Live, the Tourism Destination Management Organisation) to ensure climate change and environmental sustainability considerations are addressed	Director of Business Transformation	Climate change and environmental sustainability considerations are addressed in shared service arrangements and new delivery bodies	Ongoing to March 2021

Objective 2. Reducing energy consumption and emissions from homes and businesses in Cambridge and tackling fuel poverty, by promoting energy efficiency measures, sustainable construction, renewable energy sources and behaviour change

- 4.1 As shown in Figure 3 above, emissions produced by industrial and commercial emissions (55.2%) and domestic emission (29.3%) account for the majority of carbon emissions produced in Cambridge. As figure 2 above shows, 17% of greenhouse gas emissions in the UK are produced by buildings.
- 4.2 As identified by the Committee on Climate Change, local authorities have a key role to play in supporting residents and businesses to reduce their energy consumption by providing support for energy efficiency measures in existing homes, and using planning policy to ensure that new properties are as energy efficient as possible.

Progress to date

- 4.3 The City Council has assisted residents to reduce their carbon emissions through a range of measures to improve the energy efficiency of existing homes in the city.

Energy efficiency in existing council homes

- 4.4 The City Council owns and manages nearly 7200 homes in the city, and has invested significantly in improving the energy efficiency of these properties. Between 2012/13 and 2014/15 the Council spent over £4.3 million on improving the energy efficiency of Council homes. Over this period we have:
- replaced 1543 older boilers with more energy efficient condensing boilers;
 - insulated the loft and cavity walls of more than 600 properties;
 - installed external wall insulation to 62 properties; and
 - installed energy efficiency measures as part of wider housing maintenance work.
- 4.5 These energy efficiency measures helped the Council to meet its target of improving the overall Standard Assessment Procedure (SAP) energy rating for Council homes by at least one point per year. We are currently achieving an average score of 71, which is a 'C' rating (using SAP 2009 methodology).

Energy efficiency in existing private housing

- 4.6 We have also taken steps to improve the energy efficiency of privately-owned housing in the city. In 2012/13 the Council implemented the Heatseekers thermal-imaging project, which identified properties in the City which would benefit from improved insulation. The Council assisted the installation of 673 insulation measures in private properties using funding from the national CERT scheme. These measures have an estimated reduction in carbon emissions of 445 tonnes per year. The Council provided additional support to

residents beyond the CERT scheme through the Cambridge Home Insulation Scheme. This provided grant funding towards the cost of 729 loft and cavity wall insulation measures in 567 properties by October 2013. It is estimated that these measures will generate an estimated annual saving of 446 tonnes of CO₂.

- 4.7 In 2013 the Government introduced the Green Deal as a new framework for energy efficiency improvements. Green Deal Finance provided loans to property owners to cover the cost of installing green technology, with the loan paid back through energy bills over a period of time. Green Deal Finance was stopped in July 2015 with the future of the Green Deal scheme unknown. Government has committed to a review of energy policies with a potential replacement for Green Deal being suggested.
- 4.8 In 2013, the Government also introduced the Energy Companies Obligation (ECO), which required energy companies to provide support to vulnerable people, those on low incomes and residents in hard-to-treat housing. ECO will continue to provide support up until 31st March 2017.
- 4.9 The Council worked with the five other Cambridgeshire local authorities and a commercial provider in the 'Action on Energy' partnership to promote the Green Deal to residents in Cambridge. Since November 2013, the partnership has provided Green Deal and self-financed energy efficiency measures for privately-owned homes across Cambridgeshire.
- 4.10 In April 2014, Action on Energy was awarded £7.8m from the Government's Green Deal Communities Fund to promote uptake of the Green Deal. The targets for the project included support for homeowners to insulate 1000 hard-to-treat solid wall properties, and support for private landlords to make improvements to 800 properties. A limited amount of funding was also been provided for show homes in target streets, subsidised Green Deal assessments, and training for local SMEs.
- 4.11 Initially take-up of the scheme was slow, with quality and capacity issues with delivery partners and challenges securing interest from the private rented sector. However the ambitious delivery was recognised by the Department for Energy and Climate Change and a series of extensions agreed to provide funding until 30 June 2016, with installations to be complete by July 2016. Despite the initial delays, Action on Energy has been one of the most successful partnerships nationally, delivering over 2000 assessments, 950 sales and over 550 installations across Cambridgeshire up until the end of February 2016.
- 4.12 The Council is also delivering focussed activity on fuel and water poverty as part of its wider Anti-Poverty Strategy. Since the commencement of this work in March 2015, it has: assisted 400 Cambridge residents to join the Cambridgeshire County Council Collective Energy Switch scheme; implemented a water meter trial project to 10 properties, where results show a reduction in water usage and costs of between 50-60%; and established networks across Local Authority departments, the public health sector and

voluntary and community organisations to prioritise awareness of fuel and water poverty. This activity provides assistance and solutions that can make homes warmer and maximise household incomes, but can also help reduce carbon emissions.

Awareness raising activities

- 4.13 The Council has carried out a range of activities to raise the awareness of residents of energy-related issues. The Council initially delivered a range of neighbourhood energy efficiency events, but in recent years we have supported community and voluntary groups such as Cambridge Carbon Footprint and Transition Cambridge to engage with residents through projects and events such as Open Eco Homes, Trumpington Warm Homes and Home Energy Fairs. Since Action on Energy was launched at the end of 2013, we have focussed our own activities on promoting the funding available through the Green Deal, using a successful street to street marketing approach.
- 4.14 We have used regular articles in Cambridge Matters, local magazines and other publications to raise awareness, and in 2014 the Council published a comprehensive guide for residents on sustainable homes and living. The 'Greening Your Home' guide provides detailed information on saving energy in the home, but also includes sections on saving water, sustainable food, efficient use of resources, sustainable transport and greening your garden. The guide is available on the Council's website and has been distributed to community centres, libraries, residents associations and community and voluntary organisations.

Energy efficiency in commercial and public sector buildings

- 4.15 In 2007 the Council launched the Cambridge Climate Change Charter, is a voluntary pledge to address climate change. 34 businesses and public sector organisations signed the pledge, and a further 130 people, including many small and medium enterprises, took part in a series of workshops between 2009 and 2011, which provided advice on how to improve their environmental performance.
- 4.16 In 2013/2014 we worked with Resource Efficiency East to deliver a series of workshops on energy efficiency issues to tourism businesses from the Visit Cambridge partnerships. In 2015/16 we commissioned Peterborough Environment City Trust to work with up to 15 SMEs in Cambridge to reduce their carbon footprint, through carrying out energy audits, developing action plans and providing access to training. If this project is successful we will look to commission further activity of this nature.
- 4.17 The Council has played an active role in the Cambridge Retrofit partnership, which aims to demonstrate the business case for large scale 'retrofits' (energy efficiency improvements and low carbon technology installations) to private and public sector estates. A number of exemplar projects are currently being delivered, with Royal Bank of Scotland (RBS) and the University of

Cambridge taking forward retrofits at a number Cambridge buildings. A network of stakeholders (including many suppliers and installers) has been formed over the past 2 years, and it is anticipated that as projects are developed, the local supply chain of companies specialising in energy efficiency and low carbon technologies will grow.

- 4.18 In order to increase the number of exemplar retrofit projects in the city, in September 2015 the Council and the University of Cambridge submitted a joint bid to the Greater Cambridge Greater Peterborough (GCGP) Local Enterprise Partnership (LEP) for European Structural and Investment Funds (ESIF). If the bid is successful, the funding will support up to 15 businesses in Cambridge to deliver 'deep retrofits' to their property estates. The aim would be to achieve higher levels of carbon reduction (50% or more) than these businesses would be able to achieve without additional support.

Energy efficiency and sustainable construction in new developments

- 4.19 The City Council has assisted residents and businesses to reduce their carbon emissions by seeking high sustainability standards in new developments in the city. Work is ongoing to develop a new Cambridge Local Plan, which will set out the planning framework to guide the future development of Cambridge to 2031. It is anticipated that the Local Plan will be approved later in 2017. The draft Local Plan includes a range of policies to minimise the impact of future development in the city on climate change.
- 4.20 The draft Local Plan includes a policy requiring high standards of sustainable building design, construction and operation for all non-residential development, including business and commercial premises. A minimum of BREEAM¹⁹ 'very good' certification for all non-residential development is required from 2014, rising to BREEAM 'excellent' from 2016.
- 4.21 A policy requiring a minimum of Code for Sustainable Homes Level 4 for all new residential development was included in the draft Local Plan. However, as a result of the Government's national Housing Standards Review, the Code for Sustainable Homes has been discontinued from March 2015. The Government have also recently announced the postponement of the introduction of national zero carbon homes policy, which was due to come into force in 2016. As a result, we will no longer be able to use planning policy to require new homes to be built to the Code for Sustainable Homes standards, or any other sustainable construction standard.
- 4.22 Appropriate modifications to the Local Plan to take account of the Housing Standards Review will now be proposed. We are looking to retain policies which require new developments to demonstrate how they have: met the principles of sustainable design and construction: met specific water efficiency standards: and integrated climate change adaptation measures into their design. We will also continue to work with developers to deliver sustainable

¹⁹ BREEAM is an internationally recognised assessment method for sustainable building design, construction and operation

housing developments and to promote other construction methodologies, including the new Home Quality Mark standard currently being developed by the Building Research Establishment (BRE).

- 4.23 Despite the changes introduced following the Housing Standards Review, all new Affordable Housing developments completed in Cambridge in 2014/15 were constructed to Level 4 of the Code for Sustainable Homes. The national legacy arrangements put in place following the Housing Standards Review also mean that the Council can still require developments where planning permission was granted before 27 March 2015 to be certified against the Code for Sustainable Homes delivered to meet Code Level 4. This means that many of the new homes being constructed on the urban extension sites in Cambridge will be constructed to Code Level 4 and the University of Cambridge's North West Cambridge site being constructed to Code Level 5.
- 4.24 The City Council will continue to monitor new affordable housing completions against the standard in the future. Work is also underway to develop a new Sustainable Housing Standard for new social housing being delivered by the Council and our partners, using the requirements associated with Level 4 of the Code as a baseline standard.

Renewable and low carbon energy generation

- 4.25 The current Cambridge Local Plan includes a policy requiring all major developments to include at least 10% renewable energy provision. The draft Local Plan proposed a move away from this approach, with a greater focus on the hierarchical approach to reducing carbon emissions, which requires developers to prioritise investment in carbon reduction measures according to the level of likely impact. The level of carbon reduction proposed in the Local Plan was set at a level that would still require the use of renewable and low carbon energy generation.
- 4.26 However, in light of the Housing Standards Review, local planning authorities are no longer able to set standards for carbon reduction in new residential development. There is some uncertainty surrounding this element of the Housing Standards Review, given the Government's recent decision to postpone the introduction of national zero carbon policy. As such we are seeking clarity as to whether we can still pursue a policy to require specific levels of carbon reduction from new residential development.
- 4.27 For new non-residential development however, the requirement to meet the BREEAM excellent standard from 2016 will require renewable and low carbon energy generation. In addition, the draft Local Plan also contains a policy supporting additional renewable and low carbon energy generation, including community energy projects.
- 4.28 In 2012 the Council entered into a formal partnership with other local authorities in Cambridgeshire and Peterborough to gain access to technical assistance through the EU Mobilising Local Energy Initiative (MLEI) programme. The main activities to date have included a £5m programme to

retrofit Cambridgeshire schools with energy efficiency measures and generating low carbon energy on the public sector estate, including progressing a £10m solar farm on Cambridgeshire County Council-owned farmland in Soham. Through membership of the partnership the City Council has gained access to approved contractors who are assessing the business case for further energy efficiency measures at City Council properties to inform our new Carbon Management Plan.

- 4.29 The Cambridgeshire and Peterborough partnership is currently developing a bid for funding from the European Regional Development Fund (ERDF) to set up an Energy Services Company and a low carbon investment fund to deliver further projects.

Future action

- 4.30 We will take a range of action over the next five years to reduce energy consumption from homes and businesses in Cambridge and tackle fuel poverty (see the table below for details).
- 4.31 Action on Energy will continue to deliver energy efficiency improvements to private homes through the Green Deal Communities scheme until its completion in March 2017. Beyond Green Deal Communities, Action on Energy will continue as a route for working with other local authorities and other sector partners to secure funding and to provide energy solutions to private residents. Action on Energy is dependent on the outcome of changes to national energy policies, but it will continue to seek alternative funding, and focus on utilising the private rented energy regulations and fuel poverty assistance. The draft Local Plan also contains a consequential improvements policy, which requires residents who are seeking planning permission to extend their homes to also make energy efficiency improvements to the rest of their home.
- 4.32 We will also continue to improve the energy efficiency of Council homes. As outlined above, as a result of significant investment in recent years, the Council housing stock has an average 'C' energy efficiency rating, with 80% of properties meeting or exceeding this standard. It will be more challenging and costly in future to bring the remaining 1450 properties up to a C standard, because they are harder to treat solid wall properties which require external insulation to significantly improve their energy efficiency. Over the next five years, the Council will continue to progressively install external insulation to these properties.
- 4.33 We have also explored the possibility of large-scale installation of solar PV panels on Council homes and commercial properties. This would have provided a free source of renewable energy for tenants, whilst generating income for the Council through Feed in Tariffs (FITs). Under the provisions of the Energy Act 2008, the Government has made FIT payments to individuals, businesses and organisations for energy supplied to the National Grid from solar PV panels, wind turbines and hydro-electric power installations. However, in January 2016 the Government published proposals to reduce FIT

rates for solar PV installations by between 59% and 70%, depending on the size of the array of panels. This has made many new solar energy schemes financially unviable, including the schemes being developed by the Council. We will keep these schemes under review, in case the FIT rates change in future or the cost of solar panels continues to reduce.

- 4.34 We will also take steps to tackle fuel and water poverty in the city. The proportion of households in Cambridge estimated to be in Fuel Poverty in 2013 was 12.1%²⁰ which was worse than the national average (10.4%). There were 5,788 (12.1%) households in the City living in fuel poverty, with households in the private rented sector more likely to experience fuel poverty than those living in other tenures²¹. We will support residents in fuel poverty to reduce their fuel costs through the energy efficiency programmes outlined above, but we will also deliver a range of targeted actions outlined of the Council's Fuel and Water Poverty Action Plan, which is linked to the Council's wider Anti-Poverty Strategy. The draft Local Plan also includes a policy to ensure that all new development meets specific water efficiency requirements.
- 4.35 We will continue to promote energy efficiency and renewable energy provision in new developments in Cambridge. As outlined above, we will seek high sustainability standards in new developments in Cambridge by implementing the policies set out in the Local Plan, continuing to work with developers to deliver sustainable housing developments, and promoting sustainable construction methodologies, including the new homes standard currently being developed by the Building Research Establishment (BRE).
- 4.36 The Council has also recently become the first local authority Developer Member of the Good Homes Alliance, which is a group of housing developers, building professionals and other industry supporters who are committed to promoting and delivering sustainable homes. We will use the learning from members of the group to help develop the Sustainable Housing specification for the construction of new Council homes. In addition, the Council has recently become a member of the UK Green Building Council, an organisation that campaigns for a sustainable built environment.
- 4.37 We will also continue to work with development partners to ensure that new developments on City Council-owned land meet sustainable construction standards. For example, housing development on the Clay Farm site in Trumpington will be delivered to above Level 5 of the Code for Sustainable Homes, and the new joint community centre at Clay Farm will be constructed to at least BREEAM excellent standards.
- 4.38 We recognise that achieving the objectives of this strategy and significantly reducing carbon emissions in Cambridge also require significant behaviour change by residents and businesses in the city. The Paris agreement

²⁰ According to the Department of Energy and Climate Change's (DECC) 2013 subregional, low income - high cost fuel poverty statistics.

²¹ Cambridgeshire Insight, 2014, Cambridgeshire Atlas
<http://www.cambridgeshireinsight.org.uk/housing/existing-homes/fuel-poverty>

recognises: “that sustainable lifestyles and sustainable patterns of consumption and production.... play an important role in addressing climate change”.

4.39 We will build on our communications to date (see 4.11 and 4.12 above for more information) on climate change issues and learn from the experience of other local authorities to develop a more coordinated and comprehensive communications plan aimed at promoting practical steps for residents and businesses to reduce their carbon footprint and encouraging significant behaviour change. This could include:

- Working with Cambridge Retrofit to produce case studies of effective interventions by the Council and other partners.
- Producing a more attractive version of this climate change strategy, so that it can be used as a tool for engaging residents in climate change issues
- Poster campaigns, leaflets and regular articles in Council publications such as Cambridge Matters and the Council’s tenant’s magazine to raise awareness of the changes that the Council has made to its estate and highlight the steps that residents and businesses can take to reduce their carbon footprint.
- Campaigns linked to key international environmental days and celebrations.
- Encouraging the local media to include news items and features on climate change issues.
- Supporting local community and voluntary groups to deliver engagement and awareness raising events.

Actions to deliver Objective 2 - Reducing energy consumption and emissions from homes and businesses in Cambridge and tackling fuel poverty, by promoting energy efficiency measures, sustainable construction, renewable energy sources and behaviour change

Activity	Service	Performance measures	Completion date
2.1 Supporting residents to improve the energy efficiency of their property through the Action on Energy scheme.	Refuse and Environment	Number of completed installs of domestic energy efficiency measures facilitated through Action on Energy	Contract review November 2016
2.2 Progressively improving the energy efficiency of harder-to-treat City Council homes, with the aim of bringing them up to at least a C-rating.	Estates and Facilities	Number of hard-to-treat City Council properties where energy efficiency ratings have been improved Number of City Council properties with an energy efficiency rating of C or above	Ongoing to 2021 Ongoing to 2021
2.3 Implementing the City Council's Fuel and Water Poverty Action Plan (linked to the Anti-Poverty Strategy), including: <ul style="list-style-type: none"> • Piloting water meters in a selection of 1 or 2 bedroom council owned properties • Developing a water conservation information leaflet for inclusion in welcome packs for tenants moving into council-owned properties and at City Homes offices • Drop in sessions to distribute water and energy saving measures and provide information on energy efficiency measures to residents • Targeted promotion to private landlords on the benefits of installing energy and water savings measures. 	Refuse and Environment	Number of residents in low income target areas taking up either energy or water saving measures Number of residents in low income target areas taking up water meters or moving to an assessed rate	March 2017
2.4 Working with partners in Cambridge Retrofit to mobilise public and private finance for investment in large-scale retrofit of buildings and estates in Cambridge and promote exemplar projects and good practice	Refuse and Environment	Value of public and private finance invested in large scale retrofit of buildings in Cambridge Number of exemplar retrofit schemes	Ongoing to 2021

Activity	Service	Performance measures	Completion date
		delivered in Cambridge	
2.5 Commissioning voluntary and community groups to provide advice to businesses on reducing energy consumption and emissions as part of wider advice on sustainability	Corporate Strategy	Up to 15 businesses taking up advice on reducing their energy consumption and wider sustainability issues	March 2017
2.6 Requiring participating landlords in the Landlord Accreditation Scheme to bring their properties up to a D rating	Refuse and Environment	Number of participating Landlords in the Landlord Accreditation Scheme who have brought their properties up to a D rating	Ongoing to March 2021
2.7 Requiring new non-domestic properties to be constructed to BREEAM Excellent sustainability standards, through policies in the new Local Plan	Planning	Percentage of new non-domestic properties to constructed to BREEAM Excellent sustainability standards in Cambridge	Ongoing from adoption of the new Local Plan in 2016
2.8 Working with developers to deliver sustainable housing developments in Cambridge and promoting sustainable construction methodologies, including the new Home Quality Mark standard currently being developed by the Building Research Establishment (BRE) and the Council's own Sustainable Housing Specification once developed.	Planning	Numbers of new homes delivered by private developers which meet the BRE's Home Quality Mark, the Council's Sustainable Housing Specification, or other sustainable construction methodologies	Ongoing to March 2021
2.9 Working in partnership with social landlords, developers and architects through the Good Homes Alliance to share knowledge and learning on sustainable construction and promote the application of these principles in new developments in Cambridge	Planning	Successful engagement with partners in the Good Homes Alliance, including to inform development of Sustainable Housing Specification	March 2016
2.10 Constructing all new City Council homes and housing delivered with partners to a new Sustainable Housing Specification, incorporating the Good Homes Alliance standards, which seek to ensure homes which promote good health and wellbeing for residents, have proven performance and are low carbon	Strategic Housing and Planning	City Council Sustainable Housing Specification developed Sustainable Housing specification applied to new Council homes and promoted to private developers in the city	March 2016 April 2016 onwards
2.11 Promoting low carbon and renewable energy provision in	Planning	Number of low carbon and renewable energy installations by type requiring planning	Ongoing from adoption of the

Activity	Service	Performance measures	Completion date
new developments through Local Plan policies		permission Total installed capacity of low carbon and renewable energy technologies by type	new Local Plan in 2016
2.12 Engaging in partnership working where appropriate, including County-wide and EU funded projects, to promote energy efficiency and low carbon energy.	Planning Corporate Strategy	Whether we have engaged effectively in partnership working; and project-specific measures to be identified as projects are developed.	March 2021
2.13 Developing a coordinated and comprehensive communications programme to encourage behaviour change by residents and businesses and reduce their carbon footprint	Corporate Strategy	Awareness of climate change issues and changes in behaviour amongst residents and businesses and	March 2017
2.14 Introduce consequential improvements policy as part of the Local Plan	Planning	Numbers of applications to which the policy is applied and types of measures installed	Ongoing from adoption of the new Local Plan in 2017

Objective 3. Reducing emissions from transport by promoting sustainable transport, reducing car travel and traffic congestion and encouraging behaviour change

- 5.1 As shown in Figure 2 above, surface transport accounts for 20% of all greenhouse gas emissions in the UK, with aviation accounting for a further 5.5% of emissions. Car travel is responsible for the majority of surface transport emissions, with vans, HGVs, buses and trains making up a much smaller proportion.
- 5.2 As shown in Figure 3 above, when looking at carbon emissions alone, transport is responsible for 27.3% of emissions in the UK, but only 13.8% of emissions in Cambridge. This could be in part due to relatively high usage of sustainable modes of transport amongst Cambridge residents. For example, a significant proportion of the City's population already cycle regularly, with the 2011 Census data confirming that 31.9% of residents in the city cycle to work, the highest proportion in the UK.
- 5.3 Cambridge is a small, compact city, which suffers from congestion on most major radial roads at peak times. Increased economic, population and housing growth in the area over the next few years will place additional pressure on these roads. It is therefore imperative that the City Council continues to work with partners to promote a reduction in single car trips and a shift to more sustainable forms of transport, including walking, cycling and public transport.
- 5.4 As outlined above, the Committee on Climate Change recommends that local authorities should reduce emissions from transport by:
- developing local sustainable transport plans;
 - providing cycling infrastructure;
 - providing better public transport and low-emissions buses and vehicles;
 - using parking charges to influence behaviour;
 - supporting investment in electric vehicle charging infrastructure; and
 - ensuring new residential and office developments are well served by sustainable transport.
- 5.5 As outlined below, the City Council has delivered a number of projects over the past five years to help residents make more sustainable transport choices. These have ranged from installing new cycle racks and improving bus shelters, to using planning policy to promote sustainable transport options. The City Council recognises, however, that it cannot reduce emissions from transport in the city on its own. Transport is an area where the City Council has less direct influence because it is not primarily responsible for providing services in this area. The County Council is responsible for highways and transport matters in the city, while private companies provide public transport services such as buses and taxis.
- 5.6 However, the Council recognises that much more can be achieved on sustainable transport issues in future through working in partnership with other

local organisations from the public, voluntary and private sectors. As outlined in more detail below, the City Council has worked closely with the County Council on a range of policies and projects, from influencing the Transport Strategy for Cambridge and South Cambridgeshire, to jointly-funded projects to improve highways for cyclists and deliver on-street spaces for car clubs.

Progress to date

- 5.7 One of the key mechanisms to influence transport emissions available to the Council is planning policy. The draft Local Plan includes a strategic objective to ensure that all new development is “located to help minimise the distance people need to travel, and be designed to make it easy for everyone to move around the city and access jobs and services by sustainable modes of transport”. This objective is supported by a number of policies in the plan, including:
- Ensuring that major developments on the edge of the city and in the urban extensions are accessible to the city centre and major centres of employment by high quality public transport, cycling and walking;
 - Prioritising networks of public transport, pedestrian and cycle movement so these are the best and safest means of moving around Cambridge. Areas where these modes are difficult or dangerous will be improved and, where possible, have further capacity provided;
 - Safeguarding land for new public transport infrastructure, such as bus lanes, interchange facilities and junction improvements;
 - Safeguarding existing cycling and walking routes, identifying new cycle routes on land outside the public highway, for example the Chisholm Trail, and requiring developers to fund high-quality cycle paths;
 - Setting minimum standards for numbers and design of cycle parking spaces to be provided in all new developments;
 - Ensuring that new roads are designed to give high priority to the needs of pedestrians and cyclists and provide safe and appropriate access to the adjoining road, pedestrian and cycle networks.
- 5.8 The City Council has worked closely with partners, particularly with Cambridgeshire County Council in their role as Highways Authority, to help promote access to sustainable modes of travel and reduce transport-related emissions. For example, the City Council has helped to shape the Transport Strategy for Cambridge and South Cambridgeshire, which was adopted by Cambridgeshire County Council in March 2014. The strategy provides a detailed policy framework and programme of schemes to address current problems for the area. The aim of the strategy is for more journeys in Cambridge and South Cambridgeshire to be made by bus, train, bike and on foot so that traffic levels are not increased as the local economy and population continues to grow.
- 5.9 A number of partnership projects have also been progressed with Cambridgeshire County Council over the past five years which will help promote a shift to more sustainable modes of transport in Cambridge. These included:

- Installing new cycle racks in 2014/15 to provide an additional 600 cycle parking spaces in the city centre.
- Delivering a joint £500,000 programme of improvements to existing highways for cyclists between 2012/13 and 2014/15. This included: the Downham's Lane adoption and improvement scheme, which connects Milton Road and Kings Hedges; changes to the Perne Road/Radegund Road roundabout to reduce vehicle speeds and increase cycle safety; and the widening of the avenue path on Jesus Green. Public consultation has also recently closed on proposed improvements to the Green Dragon pedestrian and cycle bridge, which crosses the River Cam between Stourbridge Common and Chesterton.
- Awarding over £50,000 in cycling and walking promotion grants to local community and voluntary groups between 2012/13 and 2014/15. Projects included: software development for monitoring cycle usage in the city; bikes and cycle training for young carers; cargo bikes for a social enterprise run by a homeless support charity; and cycle storage facilities for the YHA.
- Ensuring that buses operating in Cambridge meet higher emissions standards. The City and County Councils worked closely with local bus operators through the Quality Bus Partnership to agree emissions standards for new buses for 2010-2015. Through introducing new engine technologies in bus fleets, these standards have been met for particulate matter and are very close to being met for nitrous oxides.
- Delivering a £267,000 programme of improvements to bus shelters across the city during 2012/13, including the installation of shelters at 12 new sites and the replacement of 60% of existing shelters.
- Completing work with the County Council to deliver new on-street spaces for car clubs in Cambridge.
- Contributing annual funding to the Travel for Cambridgeshire partnership, which works with employers to develop workplace travel and implement measures to reduce drive alone commuting and business travel. In 2014/15 the partnership worked with 119 employment sites in Cambridge which employ a total of 37,955 commuters.

Future action

- 5.10 We will take a range of action over the next five years to reduce emissions from transport in Cambridge by promoting sustainable transport and reducing car travel and traffic congestion (see the table below for details).
- 5.11 We will work with partners to secure major improvements to public transport and cycling infrastructure, which will increase opportunities for residents and visitors to travel by sustainable modes of transport and provide less incentive to travel by car.
- 5.12 One of the key mechanisms for achieving this over the next five years is the Greater Cambridge City Deal. The Council has signed a City Deal agreement with the Government and local partners, including Cambridgeshire County

Council, South Cambridgeshire District Council and the University of Cambridge, which will provide £100m extra funding for transport infrastructure in the Greater Cambridge area between 2015 and 2020. The Executive Board has prioritised investment in the following schemes from the Transport Strategy for Cambridge and South Cambridgeshire during this period:

- Milton Road bus priority
- Madingley Road bus priority
- Histon Road bus priority
- A428 to M11 segregated bus route/A428 corridor Park & Ride
- City Centre capacity improvements/cross-city cycle improvements
- A1307 corridor to include bus priority/A1307 additional Park & Ride
- The £8.4 million Chisholm Trail off-road walking and cycling route, which will link the North and South of Cambridge

5.13 We will also ensure that new housing and commercial developments in Cambridge are accessible by sustainable modes of transport by implementing the new Local Plan policies outlined above. We will safeguard existing cycling and walking routes and land for public transport facilities through the Local Plan, and will use planning policy to secure high quality cycle lanes, cycle parking and on-street spaces for car clubs as part of major new developments. For example, additional car club spaces have been secured through planning permissions for major new developments at the Clay Farm site in Trumpington and the North West Cambridge development.

5.14 We will work in partnership to significantly reduce emissions from buses in Cambridge over the period of this strategy. The City Council, County Council and local bus operators have agreed emissions standards for buses for 2015-2025 through the Quality Bus Partnership. Under this agreement, direct bus emissions of Nitrogen Oxides (NOx) within the Core Scheme Area are required to reduce by 5% each year. The agreement also requires the age and emissions standards of buses entering an Extended Core Area (based on the Euro standard) to improve progressively, as set out in the table below

<u>Euro Standard in Journey-Kilometres in the Core Area</u>	<u>Implementation Date</u>
<ul style="list-style-type: none"> • <u>90% km Euro 4 or better</u> • <u>100% km Euro 3 or better</u> • <u>No vehicles registered before 2000</u> 	<u>December 2015</u>
<ul style="list-style-type: none"> • <u>75% km Euro 6 or better</u> • <u>No vehicles registered before 2010</u> 	<u>December 2020</u>
<ul style="list-style-type: none"> • <u>100% km Euro 6 or better</u> • <u>No vehicles registered before 2014</u> 	<u>December 2025</u>

- 5.15 We will work with Cambridgeshire County Council and local bus operators in the Quality Bus Partnership to promote a shift from diesel powered buses to low emissions buses in the city over the next 10 years. A range of technologies will be explored, including Euro 6 Buses, hybrid vehicles, fully electric vehicles, and retrofitted flywheel technology, which delivers significant fuel savings by capturing the energy used in braking and uses this to power vehicles. We expect the first buses to be in place by 2020, with the ambition for 100% low emission buses accessing a controlled zone by 2025.
- 5.16 In October 2015 Stagecoach, Cambridgeshire County Council and the City Council have submitted an ambitious joint bid for £4.5m to the Office for Low Emissions Vehicles (OLEV) to support the earlier roll-out of low emissions buses in Cambridge. If the bid is successful, Cambridge would be one of the first cities in the UK to roll out low emissions hybrid buses across all frequent services. Over a five year period, 80 new buses fitted with flywheel technology would be introduced to replace the existing fleet on all Citi bus routes and Park and Ride routes. Flywheel technology will deliver a 30% reduction in carbon emissions and 25% reduction in all polluting emissions from buses. The most efficient buses (mainly Euro 5 and Euro 6 buses) from the existing fleet would then be reassigned to the remaining less frequent bus routes serving the city.
- 5.17 We will also take steps to promote a shift to low emissions vehicles for all taxis in Cambridge by 2025. During 2016 and 2017, we will tailor our Taxi Licensing Policy to incentivise low emission taxis. The Council will consider a range of incentives in consultation with taxi organisations in the city. Initial consultation with taxi organisations in Cambridge as part of wider feasibility study suggests that many taxi drivers are supportive of a transition to low emissions taxis, due to a combination of environmental benefits and lower running and maintenance costs.
- 5.18 As part of the first phase of a new funding programme by OLEV, the City Council secured funding for a feasibility study into the potential to roll out low emission taxis across Cambridge. In the second phase of the programme, Cambridge and 7 other local authorities have been invited to bid for a share of £20 million of funding to implement projects. The Cambridge bid is for up to £1m to provide additional subsidies to taxi drivers to make the purchase of low emissions vehicles cost effective, and to roll out rapid charging infrastructure for electric taxis, which is needed for them to be viable. The Council has also included a capital project on its Projects Under Development (PUD) list, which if implemented, would provide a further £100,000 over four years for taxi charging infrastructure.

Actions to support Objective 3 - Reducing emissions from transport by promoting sustainable transport and reducing car travel and traffic congestion

Activity	Service	Performance measures	Completion date
3.1 Investing in improvements to public transport and cycling infrastructure through the City Deal to tackle congestion, reduce journey times, reduce greenhouse gas emissions and improve air quality	Corporate Strategy	Key schemes progressed, including: <ul style="list-style-type: none"> • Milton Road bus priority • Madingley Road bus priority • Histon Road bus priority • A428 to M11 segregated bus route/A428 corridor Park & Ride • City Centre capacity improvements/cross-city cycle improvements • A1307 corridor bus priority/ additional Park & Ride • Chisholm Trail off-road walking and cycling route 	2020
3.2 Ensuring through planning policy that new developments are located in Cambridge or in locations served by high quality public transport connections, as well as making provision for cyclists and pedestrians	Planning	Monitoring of policy usage as part of the development management process.	Ongoing from adoption of the new Local Plan in 2017
3.3 Promoting low-emissions buses and taxis in partnership with the County Council, bus companies and taxi companies (including current funding bids to the Office for Low Emissions Vehicles)	Refuse and Environment	First low emission buses in place 100% of buses accessing controlled zone are low emissions buses 100% of vehicles in the private taxi fleet are low emission vehicles	December 2020 March 2025 March 2025
3.4 Delivering a programme of public realm improvements through a three-year Environmental Improvement Programme (EIP), including upgrading cycling facilities, improving cycle	Streets and Open Spaces	Number of cycling facilities improved in Cambridge	March 2019

Activity	Service	Performance measures	Completion date
routes, remodelling street corners and junctions, and changing yellow lines on streets		Number of cycle routes improved in Cambridge Number of improvements to street corners and junctions <i>N.B. all measures subject to continued availability of funding for EIP</i>	
3.5 Work with partners to facilitate provision of electric charging hubs for all types of vehicles in Cambridge, including bikes.	Refuse and Environment	Number of electric charging hubs provided in Cambridge	Ongoing to March 2021
3.6 Securing additional car club spaces through planning policy and planning permissions for major developments	Planning	Number of additional car club spaces delivered at major developments in Cambridge	Ongoing to March 2021
3.7 Providing core funding for the Travel for Work Partnership's work to develop travel plans for employers in the City and encourage employees to travel to work using sustainable modes of transport, until the Partnership becomes financially self-sustaining	Corporate Strategy	Number of employment sites that the Travel for Work Partnership has worked with to develop employee sustainable travel plans Number of commuters working at employers with sustainable travel plans supported by TfW	March 2017

Objective 4. Reducing consumption of resources, increasing recycling and reducing waste

- 6.1 As shown in Figure 2 above, waste accounted for 3% of all greenhouse gas emissions produced directly in the UK in 2013. However, as highlighted above, when the emissions embedded in goods produce overseas are taken into account, DEFRA estimates that 83.7% of greenhouse gas emissions from households in the UK result from the consumption of goods, produced either in the UK or imported from overseas.
- 6.2 The Commission on Climate Change recommends that in relation to reducing waste and consumption, local authorities should focus: implementing separate food waste and recycling collection systems; policies and campaigns to encourage waste prevention and recycling; and facilitating recycling centres (which is a County Council responsibility).
- 6.3 The key challenge for the City Council in Cambridge is encouraging and increasing participation in recycling. In 2014 we collected more than 21,000 tonnes of recycling from blue and green household bins and recycling points across the city. The recycling rate in Cambridge increased from 43.3% in 2011/12 to 44.1% in 2013/14, before dipping slightly to 43.8% in 2014/15. It is challenging to increase recycling rates in Cambridge further, because the city attracts a large number of visitors and has a high population turnover, making it difficult to embed key messages and change behaviour.
- 6.4 The recycling rate in Cambridge in 2013/14 (44.1%) was lower than in neighbouring local authority districts, such as East Cambridgeshire (45.3%), South Cambridgeshire (57.0%) and Huntingdonshire (57.5%). However, rates in Cambridge are similar to those in comparator authorities under the former Best Value performance regime. Comparable urban local authorities, such as Oxford (44.3%), Ipswich (41.2%) and Lincoln (42.2%), tended to have similar recycling rates in 2013/14 to Cambridge.

Action to date

- 6.5 The Council has assisted residents and businesses to reduce their carbon emissions through providing recycling and waste collection services. Over the past five years we have made a range of improvements to these services, including:
- Increasing the range of materials that can be collected and recycled from homes by adding plastic pots, tubs and trays to kerbside collections in 2012 and plastic bags and film in 2014.
 - Providing commingled recycling for many flats.
 - Providing mixed dry recycling banks at all 25 recycling points across the city, enabling a greater range of materials to be collected, and increasing the number of banks for recycling small electrical items and textiles.
 - Providing new food waste collection services and mixed recycling services (including food tins, drinks cans and aerosols; paper and cardboard; plastic bottles, pots, tubs and trays; glass bottles and jars; cartons; and

plastic bags, clean film and wrapping) to businesses. The mixed recycling service led to an increase in recycling of commercial waste collected by the Council from 21% in 2011/12 to 29% in 2013/14. Many schools have also been provided with commingled recycling.

6.6 We have also carried out a range of successful campaigns to encourage residents to reduce consumption and waste production, to reuse goods and to recycle waste. For example:

- Targeted recycling and waste reduction awareness campaigns, including promoting national Zero Waste week and Love Food Hate Waste, and campaigns to encourage greater recycling by Houses in Multiple Occupation
- Local volunteers from the Council's Recycling Champions scheme have carried out door-knocking exercises in blocks of flats to raise awareness of recycling, and have attended local events to provide information and communicate with residents about any barriers they may have to recycling.
- We have promoted textile recycling and food waste recycling to residents, including giving away kitchen caddy giveaways.
- We have promoted the Council's bulky waste collection service and local voluntary and community groups which recycle furniture, white goods, paint and other household items.
- We have promoted the Council's new food waste collection service and commingled recycling services to businesses.
- We have installed in-cab technology on most waste collection vehicles, which will enable the Council to identify areas where recycling rates are lower and target future campaign work at these areas of the city.

6.7 We have also worked with local partners to encourage residents to reduce consumption of goods and support locally produced goods. For example, in 2014/15 we worked with partners in the Cambridge Sustainable Food (CSF) partnership, including voluntary and community groups (e.g. Cambridge Carbon Footprint, Transition Cambridge, Foodcycle, Cambridge Cropshare, and Cambridge Past Present and Future), the University of Cambridge, Anglia Ruskin University and local businesses to reduce food consumption and waste and promote sustainably produced food.

6.8 As a result of work by the CSF partnership, the city of Cambridge has recently been awarded Sustainable Food City status by the national Sustainable Food Cities Network. Some of the activities carried out by CSF to date have included:

- Engaging over 1000 people in activities focussed on sustainable food and reducing food waste through 25 events delivered as part of a 2 week Pumpkin Festival in October 2015 sources
- Providing a directory of sustainable food businesses on its website.
- Launching and promoting a Sustainable Food Pledge for businesses.
- Delivering free family cookery workshops targeted at low income areas.

Future action

- 6.9 Following recent increases in the range of materials collected as part of our kerbside recycling scheme, we are currently collecting all the types of materials that can be recycled under current technology. We have recently let a joint contract with a commercial provider for the next 6 years to sort recycling waste collected from blue bins, and we will ensure that the contractor keeps the facility up to date with the latest technology needed to recycle new materials.
- 6.10 To address the challenge of embedding recycling messages in a city with a high level of population turnover, we will continue to carry out awareness raising campaigns, such as Love Food Hate Waste and Recycling for Cambridge. We will also carry out targeted campaigns to increase the amount of food waste and recycling collected from businesses, and from property-types where recycling rates tend to be lower, such as flats and houses in multiple occupation (HMOs). We will also explore opportunities to increase recycling at 'bring banks' through increasing the range of materials and the number of sites across the city.
- 6.11 We will continue to work with partners in the Cambridge Sustainable Food partnership to deliver a range of actions to reduce waste and promote sustainable and locally produced food. The partnership has developed a detailed action plan which contains a number of actions that will be led by the Council, including:
- developing a programme of cooking skills projects for residents around the city, with a focus on cooking healthy, sustainable meals;
 - promoting healthy and sustainable produce to food businesses as part of environmental health activities; and
 - promoting take-up of allotments and community gardens and encouraging residents to grow their own produce.

Actions to deliver Objective 4 - Reducing consumption of resources, increasing recycling and reducing waste

Activity	Service	Performance measures	Completion date
4.1 Working with partners in the Cambridge Sustainable Food network to achieve Sustainable Food City status for Cambridge and delivering key actions in Sustainable Food Action Plan	Corporate Strategy	Sustainable Food City status achieved for Cambridge Council-led actions in the Sustainable Food Action Plan delivered	April 2016 Ongoing to March 2021
4.2 Maintain the current level of occupancy rates at existing allotments and support take-up of new community gardens and allotments in growth sites to encourage residents to grow their own food	Streets and Open Spaces	Existing allotments continue to be fully occupied Numbers of new community gardens and allotments taken up in growth sites	March 2021 March 2021
4.3 Including guidance in the forthcoming update to the Sustainable Design and Construction Supplementary Planning Document (SPD) to encourage developers to incorporate food growing into existing and new developments through the creation of roof gardens and/or growing spaces in residential housing and commercial developments.	Planning	Sustainable Design and Construction Supplementary Planning Document adopted Number of developments including an element of on-site food growing provision.	Following adoption of Local Plan in 2016/17 Ongoing from adoption of the SPD
4.4 Developing and delivering a programme of local cooking skills sessions across Cambridge to encourage healthy eating and reduce reliance on processed and packaged food	Community, Arts and Recreation	Number of cooking skills sessions delivered, numbers of attendees benefitting from advice on sustainable cooking, and changes in eating behavior assessed through continuing contact with the individual and their family.	March 2017
4.5 Promoting healthy and sustainable produce to food businesses through the Healthier Catering Commitment for Cambridgeshire (HCCC) project, including food businesses providing eat-out food to lower income areas of Cambridge	Refuse and Environment	Number of businesses taking part in scheme and visible changes to menus or recipes	Ongoing to March 2021

Activity	Service	Performance measures	Completion date
4.6 Increasing food waste collections from commercial properties	Refuse and Environment	Increased the monthly tonnage of commercial food waste recycled to 40 tonnes Reduced the monthly tonnage of commercial food waste sent to landfill	March 2017
4.7 Exploring opportunities to increase opportunities to recycle at 'bring banks' through increasing the range of materials that can be recycled and the number of sites	Refuse and Environment	Opportunities for increased range of materials or new bring bank sites explored	Ongoing to March 2021
4.8 Continuing to carry out targeted recycling and waste reduction awareness campaigns, including promoting national Zero Waste week and Love Food Hate Waste, and campaigns to encourage greater recycling by Houses in Multiple Occupation	Refuse and Environment	Run 4 Love Food Hate Waste (LFHW) events dovetailing into Cambridge Sustainable Food initiative Visited 50 HMOs to carry out face to face engagement to increase recycling.	March 2017 March 2017
4.9 Helping to promote voluntary and community groups, e.g. Cambridge Reuse, Emmaus and other recycling and reuse charities	Refuse and Environment Corporate Strategy	Number of articles in Council publications and press release issued which promote local voluntary and community groups involved in recycling and reuse activities	March 2017
4.10 Reducing consumption of resources by working with community groups to engage and support people in choosing things carefully, making them last well and then re-homing or recycling them.	Corporate Strategy	Evidence of behaviour change amongst residents supported by community groups	Ongoing to March 2021

Objective 5. Supporting Council services, residents and businesses to adapt to the impacts of climate change

- 7.1 Our climate is changing and the impacts from it are likely to affect most of us in some way during our lifetimes. It is therefore vital that we work with local partners and communities in Cambridge to ensure that we are prepared for likely changes and are able to adapt to them as far as possible.
- 7.2 In 2012 the Government carried out the Climate Change Risk Assessment (CCRA) for the UK, which identified more than 100 significant risks. In 2013, it published a report on the National Adaptation Programme (NAP), which sets out the role of key sectors in responding to these risks. The report identifies a number of roles for councils to increase the resilience of local places and communities, including:
- Planning for the long term by reflecting climate risks and sustainable development in Local Plans
 - Building resilience to climate change risks into decisions on buildings, roads, businesses, parks and other public spaces
 - Building resilience into key services such as social care, emergency planning and public health
 - Increasing local authority resilience to extreme weather by building climate change risks into corporate risk registers
 - Making the best use of land, assets, investment and maintenance spending to manage risk better
 - Supporting retrofitting, green-build and the design and management of green spaces
 - Encouraging local businesses to be climate ready
- 7.3 The NAP recognises that the impacts of extreme weather and climate change will vary from location to location, so in many cases the risks will need to be managed locally. In response to the CCRA, DEFRA commissioned Regional Climate Change Partnerships to produce a summary of regional climate change risks. The summary for the East of England region²² identifies three key risks:
- flooding;
 - water shortages and droughts; and
 - increased summer temperatures and heatwaves;
- 7.4 Increases in the amount of rainfall in the winter are predicted to increase the area of severe flood risk in Cambridge from the River Cam. Intense rainfall in short periods could lead to flash flooding, with recent experience of flooding in other regions suggesting that rainfall exceeding the local drainage capacity can be as a great a risk as rivers bursting their banks.
- 7.5 The key impacts of any flooding would be:

²² Climate UK, A Summary of Climate Change Risks for East England: to coincide with the publication of the UK Climate Change Risk Assessment (CCRA), 2012

- Public health and safety risks for residents
- Long-term physical and mental health impacts for residents
- Damage to buildings and infrastructure
- Disruption of the local economy through lost work days, disruption of transport and supplies and insurance and repair costs
- Habitat changes and restoration costs

7.6 Our water supply is determined by the level of rainfall that feeds our rivers and recharges groundwater levels. The UKCP09 data outlined above suggests that in future the East of England will experience greater seasonal extremes in rainfall, with wetter winters and drier summers. Coupled with higher summer temperatures, which increase evaporation rates and water use by vegetation, the level of available water resources could decrease even more. The risk of water shortages and droughts can therefore be expected to increase as the climate changes. This would have varying impacts on water users, including:

- The need for water rationing
- Hosepipe bans
- Disruption of water-reliant businesses
- Closure of water-reliant recreational activities
- Reduced water quality standards
- Species and habitat stress and
- Deterioration of river and wetland ecology

7.7 Increased summer temperatures could lead to summer heat waves and the exceptionally hot years experienced in 2003 and 2006 could become the norm by the 2050s²³. This would have significant impacts on people, the economy and the environment. The CCRA²⁴ and the Government's Heatwave Plan²⁵ identify the following potential risks from increased summer temperatures:

- Increased incidence of heat-related illnesses including heat stroke, exhaustion, and cramps, and an increased risk of heat-related deaths.
- An increased health risk from water, vector and food borne diseases
- An increased risk in the number of skin cancer cases and deaths
- A loss of productivity for businesses due to overheating. Based on the medium or high UKCP09 emissions scenarios, the East of England and the South East are likely to face the highest loss of staff days due to heat²⁶
- Increased energy consumption from cooling and refrigeration

²³ Climate UK, 2012, A Summary of Climate Change Risks for East England: to coincide with the publication of the UK Climate Change Risk Assessment (CCRA),

²⁴ DEFRA, January 2012, UK Climate Change Risk Assessment: Government Report

²⁵ Department of Health, Heatwave Plan for England, 2007

²⁶ Climate UK, 2012, A Summary of Climate Change Risks for East England: to coincide with the publication of the UK Climate Change Risk Assessment (CCRA)

- Subsidence and heat-related damage or disruption to buildings, energy and transport networks
- Increased risk of wildfires
- Threat of extinction to some species, and the migration of some species, including the invasion of non-native species, pests and diseases for which we may not be prepared

7.8 However, it is important that we do not focus solely on the geographical risks to different communities from climate change. Recent research by the Joseph Rowntree Foundation²⁷ found that poverty can increase the vulnerability of individuals and communities to climate impacts. The extent to which individuals are able to cope with the impacts of climate change is influenced by the interaction between personal factors (e.g. health, age), social factors (e.g. income, neighbourhood cohesion, isolation), and environmental factors (e.g. building quality, green space).

7.9 It is important therefore for local authorities to consider the vulnerability of individuals and communities to climate change risks, and to focus on building the long-term resilience of vulnerable people and communities to climate change risks, rather than short-term disaster responses.

Progress to date

7.10 As part of the local government chapter of the NAP, a Local Adaptation Advisory Panel (LAAP) has been set up, the aim of which is to provide advice to central government to help enhance the capacity for local leadership in relation to climate change adaptation. Since January 2014, we have been a member of the LAAP steering group, and have helped provide advice to government in relation to proposals to update the NAP. A key piece of work that has recently been completed by LAAP members and the LGA has been the development of a Business Case for Climate Adaptation²⁸, which includes the Council's approach to the promotion of sustainable drainage systems (SuDS) as a case study of best practice.

7.11 We have worked closely with partners in the Cambridgeshire Flood Risk management partnership to manage climate change-related flood risks. Through this partnership, we have contributed to the development of Cambridgeshire County Council's Local Flood Risk Management Strategy, which sets out how partners will:

- Managing the likelihood and impact of flooding
- Helping Cambridgeshire's citizens to understand and manage their own risk
- Ensuring new development in Cambridgeshire does not increase flood risk
- Improving flood prediction, warning and post flood recovery.

²⁷ Joseph Rowntree Foundation, 2014, Climate Change and Social Justice: an Evidence Review

²⁸ Climate Ready Councils. 2015, The business case for managing the impacts of severe weather and a changing climate

- 7.12 The NAP and the National Planning Policy Framework 2012 (NPPF) highlight the importance of local planning authorities using planning policy to help manage climate change risks, including flood risk and water supply and demand considerations. We have worked with Cambridgeshire County Council to develop a county wide Flood and Water Supplementary Planning Document to provide guidance to developers, and a policy on flood risk management has been included in the draft new Local Plan for Cambridge.
- 7.13 Promoting SuDS is a key element of the policy on flood risk management in the draft Cambridge Local Plan. SuDS help reduce the risk of flooding in developed areas by replicating natural drainage systems to slow the rate that water drains and reduce the amount of runoff entering into sewers. Examples of SuDS include green and brown roofs, permeable paving and wetland areas within large open spaces. National planning policy already places an emphasis on the use of SuDS in new developments, and the policy in the draft Local Plan requires developments of all scales in Cambridge to include SuDS.
- 7.14 We have progressively established SuDS in open spaces that we are responsible for. We are ensuring through the planning process that non-adopted open spaces in major new developments on the fringes of Cambridge are permeable, and progress is also being made on major developments across the rest of the city. The Council's award winning Sustainable Drainage Design and Adoption Guide has been widely recognised as a case study in best practice in promoting the use of SuDS and is now being used by a number of other local authorities across the country.
- 7.15 The draft Local Plan also includes a broader policy on requiring climate change adaptation measures to be integrated into the design of new developments. The precise measures to be implemented will vary from development to development, taking account of the context of each specific proposal, but some example measures have been included in the Local Plan, with further detail due to be included in the updated Sustainable Design and Construction Supplementary Planning Document.
- 7.16 To manage the impact of new development on water supply in Cambridge and to reduce the risk of water shortages in future, the draft Local Plan included a policy requiring water consumption in new homes to be no more than 80 litres per head per day. However, the Government's Housing Standards Review (HSR) recommended limiting the extent to which local planning authorities in areas of water stress can set water consumption standards for new homes. It is likely, therefore, that we will only be able to set a standard of 110 litres per head per day through planning policy, which was the optional standard identified by the HSR. However, we will continue to work with developers to attain higher levels of water efficiency and sustainable construction, including in the delivery of new Council housing in the city, where work on a new Sustainable Housing specification will include requirements related to water efficiency.

7.17 We have carried out a range of other work to help manage climate change risks, including:

- Production of a city wide Surface Water Management Plan, which has identified the areas at greatest risk of surface water flooding. This has led to the implementation of specific retrofit projects working with partners including Cambridgeshire County Council, the Environment Agency and Anglian Water. Specific projects include property level protection measures in Coleridge/Cherry Hinton (e.g. flood doors). Funding is also being sought for projects at Riverside, Kelvin Close and Brunswick Walk.
- Carrying out public consultation on issues and options for the Council's forthcoming arboricultural strategy, which will include a focus on increasing the numbers of trees in Cambridge.
- Working with volunteers and wildlife organisations to protect, enhance and restore a network of 12 Local Nature Reserves in the city to provide sustainable habitats for a range of wildlife.
- Working with partners in the Cambridgeshire Resilience Forum to develop, review and implement emergency response plans, including: a Flood Plan; a Heatwave Plan; a Severe Weather Plan; and City Emergency Plan.
- Developing community capacity and resilience through providing a total of £125,000 funding to local community and voluntary groups through our Sustainable City Grants for a range of projects focussing on both climate change mitigation and adaptation.

Future action

7.19 While it is important that the City Council contributes to international and national efforts to mitigate climate change and restrict global temperature increases, we recognise that irreversible changes to our climate have already taken place and there will be further impacts regardless of the action we take now to limit climate change.

7.20 As outlined above, we have already taken action to manage some of the predicted risks facing Cambridge, but in the light of evidence from the CCRA and the NAP, together with a growing body of good practice from other local areas, we recognise that there is a need for the Council to focus more on climate change adaptation in the coming years. In particular, it is essential that we support residents and communities who are most vulnerable and least able to take steps to manage risks themselves.

7.21 The table below sets out some of the steps we will be taking in future to manage local risks, but we will also be doing further work to develop our approach. In July 2015 we submitted a bid to the Environment Agency's Climate Ready service for targeted support in relation to climate change adaptation. While this bid was not successful, the work that informed the bid can now be used to develop an evidence base for climate change to enable us to have a better understanding of the climate risks facing the city and the adaptation actions that will have the greatest benefit across the city.

Actions to deliver Objective 5 - Supporting Council services, residents and businesses to adapt to the impacts of climate change

Activity	Service	Performance measures	Completion date
<p>5.1 Including policies in the Local Plan which will support residents to adapt to the impact of Climate Change, including policies on:</p> <ul style="list-style-type: none"> • Designing buildings which are simple to keep cool and do not overheat in hotter weather; • Requiring applications to include Sustainable Drainage Systems (SuDS) and ensuring that development is not at risk from flooding and that it does not increase the risk of flooding elsewhere; and • Requiring new domestic properties to meet high water efficiency standards (no more than 110 litres of water to be consumed per day) along with standards for non-domestic properties 	Planning	<p>Local Plan adopted, including policies on heat management, SuDs and water efficiency in new buildings and developments</p> <p>Policies on heat management, SuDs and water efficiency in new buildings and developments implemented</p>	<p>2016</p> <p>Ongoing from 2016 onwards</p>
5.2 Exploring opportunities to install Sustainable Drainage Systems (SuDs) on Council property and open spaces as part of any new developments	Streets and Open Spaces	Percentage of SuDs installed on Council property and open spaces as part of any new developments – target 100%	Ongoing to March 2021
5.3 Working with Cambridgeshire County Council and other partners in the Cambridgeshire Flood Risk Management Partnership to manage climate change-related flood risks	Streets and Open Spaces	Attendance at Cambridgeshire Flood Risk Management Partnership quarterly meetings. Target 100%	Ongoing to March 2021
5.4 Contributing to Cambridgeshire-wide planning advice on minimising flood risk and incorporating this into local planning policy through the new Local Plan	Streets and Open Spaces and Planning	Cambridgeshire-wide planning advice on minimising flood risk written. Local Plan submitted for examination, including policies on minimising flood risk	December 2016
5.5 Providing advice for residents on how to reduce health risks during heat waves and minimise risks of surface water flooding, including via the Council's website and the Cambridge Matters	Planning	Information for residents on how to reduce health risks during heat waves and minimise risks of surface water flooding	Ongoing to March 2021, with timing

Activity	Service	Performance measures	Completion date
residents magazine. Promotion of advice to be linked to specific climate events (e.g.heat wave guidance to be published in spring ahead of possible heatwave events).		published in Cambridge Matters and regularly updated on the Council’s website	linked to specific climate events
5.6 Implementing the City Council’s new tree strategy, which sets out the Council’s policies for managing and increasing the city’s tree stock	Streets and Open Spaces	New tree strategy completed Tree strategy reviewed, including assessment of numbers of trees in Cambridge Increase tree canopy cover across the city centre by 2%	October 2015 March 2021 March 2030
5.7 Ensuring that planting in open spaces owned or managed by the City Council is drought resistant and requires less watering	Streets and Open Spaces	Percentage of planting in open spaces owned or managed by the City Council that is drought resistant and requires less watering	March 2021
5.8 Working with members of the Cambridgeshire Resilience Forum to ensure that plans are in place to respond to climate change risks (including issuing alerts in the event of severe weather, increased temperatures and flooding) and that these are regularly tested and reviewed	Emergency Planning, Human Resources	Plans are in place to respond to severe weather, heatwaves and flooding emergencies and are regularly reviewed and tested	Ongoing to March 2021
5.9 Management of watercourses to enhance their flow and storage capacity and deliver wider biodiversity benefits	Streets and Open Spaces	Annual maintenance undertaken – target 100% Projects undertaken to increase flow, storage capacity and biodiversity benefits – target 2 per year	March 2021 March 2021
5.10 Develop an evidence base for climate change adaptation to enable us to have a better understanding of the climate risks facing the city and the adaptation actions that will have the greatest benefit across the city.	Corporate Strategy, Planning and Streets and Open Spaces	Evidence base on climate change adaptation developed and further actions identified to manage climate change risks	March 2017

8.0 Measuring and monitoring impact

- 8.1 It will be important to measure the contribution of this strategy to mitigating climate change and managing its impacts in Cambridge. We will assess whether the action we have taken and the investment we have made has made a difference.
- 8.2 Where possible, we have identified or proposed potential targets for individual actions included in the action plan below. These targets relate to the expected outputs from these activities. For example, for action 1.5 on the Council's Employee Travel Plan, we have identified a target of '4,619 business miles travelled by bicycle per annum'. Similarly for action 3.3 on low emissions taxis we have set a target of '100% of vehicles in the private taxi fleet are low emission vehicles' by 2025.
- 8.3 Where projects are still in the early stages of development, or it is more difficult to identify tangible outputs due to the nature of the project, we have identified clear project milestones that will be achieved by the completion date. For example, one of the key milestones for action 5.4, which focuses on producing planning advice on flood risk, is: 'Cambridgeshire-wide planning advice on minimising flood risk written' by December 2016.
- 8.4 In our new Carbon Management Plan, we have set a target of reducing carbon emissions from the Council's operations and estate by 15% by 2021²⁹, with an aspiration to reduce our emissions by 20% by this date. This target will be measured against our carbon emissions in the baseline year of 2014/15. We will report progress towards this target annually as part of our Greenhouse Gas Report to Government, which we will publish on the Council's website each year.
- 8.5 In our first climate change strategy published in 2008 we set a target of reducing carbon dioxide from 6.2 tonnes per person in Cambridge in 2005 to 0.7 tonnes per person in 2050/51 (an 89% cut). This target was designed to contribute to national and international efforts to limit climate change to 2°C by 2050.
- 8.6 In light of the more ambitious international commitments in the Paris Agreement to limit global temperature increases to 1.5°C and the need achieve zero net global carbon emissions by the second half of this century in order to meet this commitment, we have set an aspiration in this strategy to achieve zero carbon status for Cambridge by 2050.
- 8.7 As shown in Figure 1 on page 8, carbon dioxide emissions per person in Cambridge have reduced by 13.5% over an eight year period from 2005 to 2013 (from 6.7 tCO₂ per person in 2005 to 5.8 tCO₂ in 2013). To be on an even path towards zero carbon status by 2050, carbon dioxide emissions

²⁹ See action 1.1 on page 16 and paragraphs 3.10 to 3.12 on page 18 for more information on the development of the Carbon Management Plan

would need to reduce by 18.9% (or 1.1 tCO₂ per person) on 2013 levels by the end of the period of this strategy in 2021.

- 8.8 As outlined at 2.23 above, the Council can help support residents and businesses in Cambridge to reduce their carbon footprint through a range of activities, ranging from improving the energy efficiency of homes to promoting recycling and reduction of waste. The actions set out in this strategy are intended to have an impact on these key areas.
- 8.9 However, as explained at 2.24 above, the City Council will not be able to achieve the required level of emissions reduction on its own, because policies for some major carbon-emitting sectors of the economy (e.g. the power sector, aviation and shipping) are set at a national and European level. It is widely accepted that the commitment in the Paris Agreement to limit global temperature increases to 1.5°C would require decarbonisation of energy supplies at a national level. As outlined at 5.5, the City Council is also not directly responsible for key areas of local policy and service provision which impact on climate change (e.g. transport), although we work closely in partnership with other agencies on these issues.
- 8.10 The aspiration to achieve zero carbon status for Cambridge by 2050 will also be extremely challenging to achieve in the context of changes to national planning policy on sustainable housing standards, the removal of national funding for domestic energy efficiency improvements through the Green Deal, and the significant reductions in national subsidies for renewable energy provision.
- 8.11 Reducing carbon emissions by this amount will also be challenging in the context of the expected future growth of Cambridge. The population of Cambridge is expected to increase from 123,900 in 2011 to 154,200 in 2031³⁰. The draft Cambridge Local Plan makes provision for 14,000 new homes and 12 hectares of commercial development over this period and forecasts 22,100 new jobs by 2031. While some of the major proposed developments are likely to include innovative carbon reduction schemes, including district heating schemes, renewable energy provision and on-site energy centres, it is likely that this development and growth will bring associated carbon emissions.
- 8.12 Achieving the aspiration for zero carbon status by 2050 will require the City Council, Cambridgeshire County Council, the Universities, local businesses, and voluntary and community groups to work together closely in partnership. The council calls upon these stakeholders to collaborate with us to exploit opportunities and resources, in order to maximise our collective impact on greenhouse gas emissions from Cambridge. Only through working together can we achieve the level of reduction in emissions needed to avert dangerous levels of climate change.

³⁰ Population projections taken from Population Forecasts 2013 Districts and Wards.xls at <http://www.cambridgeshireinsight.org.uk/population-and-demographics/population-forecasts>