



To: Executive Councillor for Finance and Resources:
Councillor Richard Robertson

Report by: Janet Fogg, Climate Change Officer

Relevant scrutiny
committee: Strategy & 9/10/2017
Resources
Scrutiny
Committee

Wards affected: Abbey Arbury Castle Cherry Hinton Coleridge
East Chesterton King's Hedges Market Newnham
Petersfield Queen Edith's Romsey Trumpington
West Chesterton

ANNUAL CLIMATE CHANGE STRATEGY, CARBON MANAGEMENT PLAN AND CLIMATE CHANGE FUND UPDATE REPORT

Key Decision

1. Executive summary

- 1.1 This report provides an update on progress during 2016/17 on actions to deliver the five objectives of the City Council's Climate Change Strategy, which covers a five year period from 2016/17 to 2020/2021. As part of this, the report includes an update on progress in implementing the Council's Carbon Management Plan. The Plan sits under the Strategy and plays a key role in achieving its first strategic objective, which is to reduce carbon emissions from the City Council's estate and operations.
- 1.2 The report also provides an update on the current position of the Climate Change Fund, which provides support to projects that help to reduce the Council's own carbon emissions and/or manage climate change risks to Council staff and property.

2. Recommendations

The Executive Councillor is recommended to:

1. Note the progress achieved during 2016/17 in implementing the Climate Change Strategy and the Carbon Management Plan.
2. Note the Climate Change Fund Expenditure Status Report

3. Background

- 3.1 The Climate Change Strategy 2016-21 focusses on reducing carbon emissions in 4 key areas that contribute most to the city's carbon footprint and where the council has the most scope to influence emissions. It also sets out actions to help residents and businesses adapt to the impacts of climate change, particularly those who are most vulnerable. The strategy's five strategic objectives are:
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
- 3.2 As part of the performance management arrangements for the Climate Change Strategy, it was agreed that officers would provide an annual update on progress in delivering the Climate Change Strategy to the Executive Councillor for Finance and Resources at Strategy and Resources Scrutiny Committee. This report provides details of progress on some of the key actions during the first year of the new strategy. A full list of progress towards all the 49 actions in the strategy is available on the Council's website at: www.cambridge.gov.uk/climate-change-strategy, under the heading: '2016/17 Climate Change Strategy Progress Report'.

4. Progress in delivering the key actions under Objective 1

- 4.1 Objective 1 of the Climate Change Strategy, 'Reducing emissions from the City Council estate and operations', has been delivered primarily through the Council's Carbon Management Plan for

2016/17-2020/21, which was approved at Strategy & Resources Scrutiny Committee by the Executive Councillor for Finance and Resources on 18 January 2016.

Carbon Management Plan 2016/17- 2020/21

- 4.2 The Council has set a target in the Carbon Management Plan (CMP) 2016-2021 to reduce carbon emissions from its buildings and services by 15% by the end of March 2021, with an aspiration to reduce emissions by 20% over this period. This is being achieved through developing and investing in carbon reduction projects and rationalising our estate.
- 4.3 The CMP sets out 22 projects for 2016/17 and 2017/18. An updated plan, with progress on each originally identified and newly developed projects is included at Appendix B.
- 4.4 A total of 13 projects were planned for delivery by Council services in 2016/17. Of these, 5 projects were completed in 2016/17. These projects were
- LED (light emitting diodes) lighting upgrades and motion sensors were installed at the Grand Arcade and Grafton East multi-story car parks. The new lighting is expected to reduce energy consumption by approximately 520,000 kWh at the car parks, and save approximately £46,000 and 280 tonnes of carbon every year. Meter readings for the Grand Arcade show that electricity use reduced by almost 50% between August 2016, when the LED lighting was installed, and March 2017.
 - Loft Insulation at the Crematorium's main office was topped up with 200mm of insulation, the loft hatch draught-proofed and 50m of pipes re-lagged.
 - Heating controls were installed at 171 Arbury Road. The system is now fully programmable and will adjust in response to the weather, which should reduce gas consumption. The boilers were also replaced with energy efficient condensing boilers
 - In 2016/17, the Council replaced 7 existing Euro 4 diesel vehicles with electric vans. The Council now has a total of 9 electric vehicles in its vehicle fleet. 2 more Euro 4 emissions standard diesel vans were replaced with Euro 6 diesel vans.
- 4.5 The 5 projects completed in 2016/17 cost a total of £743,262 and it is estimated that they will reduce our carbon emissions by 295

tCO₂e and deliver on-going annual savings of approximately £50,795 per year.

4.6 8 of the projects in the Carbon Management Plan that were scheduled for delivery in 2016/17 have been either rephrased for operational reasons. 3 projects in the CMP for 2016/17 have had to be removed. These include projects identified for 2 community centres as a result of the Community Centres Review and an external wall insulation project on a sheltered housing building which is on hold following the Grenfell fire.

4.7 The following 2 projects have been installed so far in 2017/18:

- Project 11) Abbey Leisure Complex – Solar Thermal Upgrade: In 2013 a solar thermal system was installed at Abbey Pool, which provides a renewable source of heated water for the two indoor pools. An upgrade to the system has recently been completed, which allows the leisure centre to utilise all the heat generated in the summer months by the system providing hot water for use in the showers and for other uses in the building.
- Abbey Leisure Complex – Air Handling Unit (AHU): This project is an additional project that was identified and included in the plan. The centre's AHU, which supplies, extracts and circulates air around the building, has recently been replaced with a much more energy efficient system that recycles and re-uses more of the heat that previously was extracted, reducing gas and electricity consumption. A new control system enables better control of the heating and the programming of the Pool Hall temperatures, which also helps to reduce energy consumption and therefore the carbon emissions of the centre.

4.8 11 further projects are scheduled to be installed during 2017/18, including some projects rephased from 2016/17 and other new projects which have been identified since the CMP was produced:

- Project 9) School Court: Replacement of existing heating systems with separate communal and flat heating systems.
- Mandela House: the LED lighting replacement (Project 16) and boiler upgrade (Project 17) are due to commence when the building refurbishment starts in September 2017.
- Vehicle Fleet: A procurement exercise is underway in 2017/18 to replace 19 Euro 4 panel vans within the Estates & Facilities fleet. 1 of these will be electric and the other 18 will be Euro 6

emissions compliant. 2 Euro 4 caged tippers will be replaced with Euro 6 versions within the Streets and Open Spaces fleet. 9 Euro 4 refuse trucks are also being replaced with Euro 6 compliant vehicles in the Shared Waste Service fleet.

4.9 As reported to Strategy and Resources Committee on 3 July 2017, a number of energy efficiency and renewable energy generation technologies will also be installed at the Guildhall in 2017/18 as part of a single set of works procured through the County-wide RE: FIT framework. It is estimated that in total the projects to be installed at the Guildhall will save 426,767 kWh and 118 tCO₂ per annum and reduce energy costs by £27,462. The following 4 projects listed in the CMP will be delivered as part of this package of works:

- Project 1) Roofing replacement and additional insulation;
- Project 2) 30kw solar photovoltaic (PV) system;
- Project 15) Warm air heating system improvements (mechanical works to improve the efficiency of the heating and hot water system)

4.10 In addition, 3 additional projects identified by the contractor as having the potential to deliver significant energy, carbon and financial savings will also be installed at the Guildhall as part of this package of works. These include:

- building automation measures to increase the level of control over the heating systems, including installing a new Building Energy Management System (BEMS);
- insulation of pipework and valves in plant rooms to reduce heat loss;
- a combined heat and power system (CHP). The CHP unit uses gas to generate electricity which is used on site. This achieves carbon savings, because gas is a lower carbon fuel than electricity. The heat generated through the electricity generation process, which would otherwise be wasted, will also be utilised in the building, reducing the gas consumption of the Guildhall.

4.11 The potential for further carbon reduction projects will be investigated further during 2017/18, with a view to installing during 2018/19 or 2019/20 if viable, including:

- Parkside Pool – solar PV and/ or solar thermal system

- Kings Hedge Pool – Biomass boiler
- Corn Exchange – Heating and lighting improvements
- Grand Arcade Car Park - AHU replacement
- Replacing fleet vehicles with vehicles with lower emissions

4.12 As shown by the table below, the total estimated savings from projects completed during 2016/17 (295 tCO₂) is lower than the total estimated savings for projects scheduled for completion in 2016/17 in the Carbon Management Plan (359 tCO₂). As explained above, this is a result of some projects being rephrased due to wider operational requirements or removed from the Plan because they proved to be unviable on further investigation.

4.13 However, the total estimated savings for projects completed during 2016/17 and projects that are now scheduled for completion in 2017/18 (658 tCO₂) is higher than the total estimated savings for projects scheduled for completion in 2016/17 and 2017/18 in the Carbon Management Plan (526 tCO₂). This is because a number of new projects have been identified for completion during 2017/18 which will achieve significant carbon reductions, including the Guildhall works.

Table 1 - Total carbon estimated carbon emission savings – Carbon Management Plan savings compared with estimated savings from projects installed in 16/17 and in development to be installed in 17/18 and 18/19:

Year	Estimated savings for projects listed in CMP (tCO ₂)	Estimated savings from installed/ to be installed projects (tCO ₂)
2016/17	359.1	295
2017/18	166.5	363.1
Total:	525.6	658.1
2018/19	0	19.9 (total savings calculated so far for identified measures)
Total:	525.6	678

Greenhouse Gas Report

4.14 We are required to submit the Council’s carbon emissions from its estate and operations, to Government in our annual Greenhouse Gas report. The reports for 2015/16 and 2016/17 are available on

the Council's website here: www.cambridge.gov.uk/climate-change-strategy.

- 4.15 The Council's total gross greenhouse gas emissions for the financial year 1st April 2016 to 31st March 2017 was 7,234 tonnes of carbon dioxide equivalent (tCO₂e). This is a reduction in emissions of 807 tCO₂e from the 2014/15 baseline when the emissions total was 8,041 tCO₂e. Our emissions have therefore reduced a further 4.6% in 2016/17 from 2015/16 (emissions total was 7,584) and overall have reduced by 10% from the 2014/15 baseline.
- 4.16 From October 2016, the council signed up to a 100% green electricity contract for all its electricity meters. As the electricity for the tariff is being provided from 100% renewable sources (solar, wind and hydro/wave energy) which do not produce carbon emissions, the council has included this reduction in its 'net' carbon emissions total reported in its Greenhouse Gas report.

Total carbon emissions per capita in Cambridge

- 4.17 The Government published carbon emissions for local authority areas on an annual basis, two years in arrears. The carbon emissions data per capita in Cambridge has declined steadily over the last 10 years, from 6.7 tCO₂ per person in 2005 to 4.2 tCO₂ in 2015, which is a reduction of 29%.

Climate Change Fund status

- 4.18 The Council's Climate Change Fund, established in 2008, was set up to fund measures that will reduce the carbon footprint of the Council's buildings, fleet and services. Since 2009, an annual status report on the Climate Change Fund has been presented to either Environment Scrutiny Committee or Strategy and Resources Scrutiny Committee depending on the Executive Councillor and Portfolio at that time.
- 4.19 To date, a total of £1,233,820 has been invested in the Climate Change Fund since 2008/9. This includes a total of £420,000 added to the fund in 2016/17 and 2017/18.
- 4.20 A full break down of all expenditure from the Fund is provided in Appendix D. This shows that, to date, a total of 32 projects have

been supported by the Fund, representing a total investment of £789,186. Since 2011/12, the Fund has primarily been used to support the delivery of projects in the Carbon Management Plan.

- 4.21 The current remaining balance of the Fund is £404,623. The 11 projects identified at 4.9 for delivery during the remainder of 2017/18 will be funded through a combination of the Climate Change Fund, the Repairs and Renewals Fund and the Housing Revenue Account. These projects will require £326,198 from the Climate Change Fund, which will leave £78,425 remaining in the Climate Change Fund at the end of 2017/18.

The Global Covenant of Mayors for Climate & Energy

- 4.22 The Global Covenant of Mayors for Climate & Energy formally brings together the Compact of Mayors and the European Union's Covenant of Mayors. There are three carbon emissions reporting platforms supporting the Global Covenant of Mayors. To date the Council has submitted our 2014/15 and 2015/16 greenhouse gas emissions to CDP (formally the Carbon Disclosure Project), which is one of the Global Covenant of Mayors' three official reporting platforms.
- 4.23 To register intent of compliance, cities must commit to reporting their emissions using the Global Protocol for Community-Scale Greenhouse Gas Emissions Inventories (GPC) and reporting on both the current and future climate hazards that they face within 12 months of committing. Emissions of carbon dioxide (CO₂) from all stationary energy used and generated in the city and all travel within the city boundary must be collated and reported. Within 3 years emissions from all waste generated in the city must be included.
- 4.24 All cities must register a city-wide target to reduce local GHG reductions within 2 years and a climate action plan needs to be submitted within 3 years. The Council already has a Climate Change Strategy agreed in 2016 and which details the actions that will be delivered under 5 objectives up to 2021 and has set an aspiration to achieve carbon zero in Cambridge by 2050.
- 4.25 The council is already able to access and use estimates of carbon dioxide emissions for Local Authority (LA) areas published by National Statistics annually (www.gov.uk/government/statistics/uk-

[local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-2015](#)). Estimates of carbon dioxide emissions are produced for each Local Authority in the UK. Details of the most up to date data for Cambridge are provided at 4.17 above. The available data is 2 years in arrears due to the complexity of the data collection and calculations involved.

- 4.26 The purpose of these estimates is to assist those wishing to understand and assess changes in Local Authority emissions. These statistics, allow Local Authorities to track their GHG emissions trends over time, and measure progress against any targets they have. The local estimates are designed to be as consistent as possible with the national inventory for the UK, which is used to report the UK's progress against international emission reduction commitments. The aim of the publication is to provide the most reliable and consistent possible breakdown of CO₂ emissions across the country, using nationally available data sets, which is therefore comparable with other cities in the UK.
- 4.27 Given the significant staff resources that would be needed in order to produce the inventory, within the timescale, and the fact that data on the city's emissions is already produced and available to monitor reductions in emissions, the council does not believe that it would be beneficial for the council to sign up to the Global Covenant of Mayors for Climate & Energy at this time.

5. Progress in delivering the key actions under Objective 2

- 5.1 Objective 2 of the Climate Change Strategy, 'Reducing energy consumption and emissions from homes and businesses in Cambridge by promoting energy efficiency measures, sustainable construction, renewable energy sources, and behaviour change' is being achieved by:
- using opportunities for funding for projects
 - promoting available government schemes
 - implementing a number of actions where the Council has responsibility and influence to improve the efficiency of homes and businesses.
- 5.2 Improving energy efficiency of domestic properties is key to reducing carbon emissions, with a third of carbon emissions coming from heating draughty buildings. A report to Parliament by the Green Building Council states that nationally 25 million existing

homes will not meet the insulation standards required by 2050 and will need refurbishing to the highest standards at a rate of 1.4 homes every minute in order for government carbon reduction targets to be met.

5.3 The City Council has assisted residents to reduce their carbon emissions through a range of measures in 2016/17 to improve the energy efficiency of existing homes in the City, including:

- Action 2.1: The Council supported residents to access financial support for domestic energy efficiency improvements through the Action on Energy partnership (including the five other Cambridgeshire local authorities) which received over £6million in funding from the government's Green Deal Communities Fund in 2014. In Cambridge, the project benefitted from over £2 million of the funding award and assisted 433 homes in Cambridge through retrofitting of energy efficient measures, including the installation of 422 solid wall installations by the end of the project in September 2016. Green Deal Communities has now closed, but Action on Energy is still active and is currently seeking other opportunities for external funding. There may be funding available through the revised Energy Company Obligation, and through the recently released Warm Homes Fund.
- Through the Anti-poverty Strategy we have employed a Fuel and Water Poverty officer to provide tailored advice and home visits predominately to residents in areas of high deprivation with the aim to reduce the cost of household energy and water consumption. The achievements to date include:
 - Working with Cambridge Water to increase uptake of water meter installations. In 2016/17 800 residents installed water meters in total, and a further 220 residents have installed water meters so far in 2017/18
 - Developing leaflets on the savings that can come from adopting a water efficiency approach, and switching to water meters
 - Utilising data to target areas of high deprivation, areas of low water meter uptake, and low occupancy properties
 - Promoting the benefits of water meters and water efficiency at events, through marketing, and through

providing a home visits and advice service. In 2016/17 121 energy or water saving measures installed as a direct result of this activity, with a further 77 measures installed so far in 2017/18.

- Action 2.4: Previously, the Council played an active role in the Cambridge Retrofit project, which aimed to demonstrate the business case for large scale energy efficiency improvements to public and private sector estates. Following the departure of the project lead from the University of Cambridge the project has not been progressed, but the Council will continue to monitor any opportunities to collaborate with the University and other public and private sector partners in future.
- Action 2.12: Since January 2017 we have been working with colleagues from Cambridgeshire County Council, other Cambridgeshire authorities and the LEP to develop closer working arrangements with UK Power Networks to facilitate improvements to grid capacity across the area to help facilitate additional low carbon energy generation. A growth protocol for utilities provision is currently under development.
- Action 2.13: The Council has carried out a number of communications actions designed to encourage behaviour change by residents and businesses and reduce their carbon footprint, including:
 - Website: The Sustainability section on the Council's website (www.cambridge.gov.uk/sustainability) has been revised and updated, providing information for residents and businesses in Cambridge to reduce their carbon emissions and help us to achieve the objectives of the Climate Change Strategy.
 - Press Releases: A number of press releases have been produced to promote the measures that have been carried out by the Council, including the LED lighting upgrades at the car parks and the new green electricity contract.
 - Articles: Cambridge Matters, the Council's newsletter, has regularly featured sustainability-related articles on the activity of the Council and how residents can act, often linking with national awareness-raising campaigns such as World Environment Day.

- Sustainability-themed posters: these have been produced and displayed on the noticeboards on the outside of the Guildhall and Mandela House buildings - one to raise awareness of solar PV installed at Brandon Court and one on the Council's fleet, which is increasingly upgrading to electric vehicles.
- The Council's publication 'Greening Your Home', which provides advice for residents on reducing their carbon emissions, has continued to be made available at the Customer Service Centre, libraries, events, through community-action groups, and has been promoted on the Council's social media channels. The guide is available to download at: www.cambridge.gov.uk/greening-your-home.

5.4 The Council has used planning policy and guidance to promote sustainable development, where possible within the context of national planning policy. For example:

- The Cambridge Local Plan, which will set out the planning framework to guide the future development of Cambridge to 2031, is anticipated to be approved in late 2017/ 2018. It includes a range of policies to minimise the impact of future development in the City on climate change:
 - Policy 5: Strategic transport infrastructure
 - Policy 27: Carbon reduction, community energy networks, sustainable design and construction, and water use
 - Policy 29: Renewable and low carbon energy generation
 - Policy 30: Energy-efficiency improvements in existing dwellings
 - Policy 31: Integrated water management and the water cycle
 - Policy 32: Flood risk
 - Policy 63: Works to a heritage asset to address climate change
 - Policy 66: Paving over front gardens (re: surface water flooding)
 - Policy 81: Mitigating the transport impact of development
- Action 2.8: Cambridge Sustainable Housing Design Guide: All new homes being built in Cambridge by the Housing Development Agency will be built to the requirements set out in the Cambridge Sustainable Housing Design Guide. The guide

will help to ensure new homes are energy and water efficient, have a positive impact on the health and wellbeing of residents, and can cope with future changes to our climate. The Council is also promoting the guide to partners and developers.

- 5.5 The Council has also taken a number of steps to support local businesses to reduce their carbon emissions. The Council hosted two free Carbon Trust energy management workshops in June 2016 (Action 2.5). The workshops helped 15 attendees from local businesses to identify behavioural and low cost opportunities to reduce energy costs in their workplace. They were also signposted to available, including the Carbon Trust Green Business Fund which provides a capital contribution of up to £10,000 towards the cost of energy efficiency projects that comply with the requirements of the fund.
- 5.6 The Council will also host a free energy efficiency training session for SMEs to be delivered in November 2017 by the Carbon Trust Start2Act programme, which has received funding from the European Union's Horizon 2020 research and innovation programme.

6. Progress in delivering the key actions under Objective 3:

- 6.1 Objective 3 of the Climate Change Strategy, 'Reducing emissions from transport by promoting sustainable transport, reducing car travel and traffic congestion, and encouraging behaviour change' is being achieved through a number of activities to encourage the use of sustainable travel modes and ensure new developments
- 6.2 A number of projects were progressed in 2016/17 that will help reduce congestion and promote a shift to more sustainable modes of transport in Cambridge, including a number of major projects being implemented through the Greater Cambridge Partnership (formerly the City Deal):
- The Chisholm Trail off-road walking and cycling route. Phase 1 of the scheme has been granted planning consent and other inter-related work on the Chesterton-Abbey bridge project is anticipated to be completed by the end of 2018.

- The cross-city cycling project. The Hills Road/ Addenbrooke's corridor scheme is expected to be completed in 2017, with the four other schemes anticipated for completion in 2018 or 2019.
- Madingley Road and A428-M11 – A shortlist of Park & Ride sites have been approved for public consultation and further development work is progressing on alignment options for the corridor.

6.3 Other projects delivered in 2016/17 which will promote a shift to sustainable transport included:

- Action 3.5: Installing electric charging points for taxis. In 2017, the Government announced that Cambridge has been chosen as one of 10 cities in the UK to be awarded funding to install new rapid electric charging points for taxis. The council was successful in its bid for funding and has been awarded £426,000 by OLEV (Office for Low Emission Vehicles) to install 18 rapid charge points and 3 fast charge points over the next 3 years. 25% match funding of £100,000 was required and was provided by the Greater Cambridge Partnership (formerly the City Deal). The Council is also funding the installation of a number of additional charging points for taxis.
- Action 3.3: Using the Council's powers as the taxi licensing authority to encourage taxi drivers to drive low-emission vehicles in a number of ways, including by offering them discounts and fee exemptions if they adopt petrol/electric hybrid vehicles or fully electric vehicles. The Council has set a target for all taxis in Cambridge to be hybrid or fully electric within 10 years.
- Action 3.6: Using planning policy for major developments, to secure car club spaces as part of the Clay Farm development (1 space for each of the 3 character areas with additional spaces in high demand areas). Car club spaces will also be delivered as part of the new local centre at Trumpington Meadows, and a minimum of 12 car club spaces at the University of Cambridge's North West Cambridge development have been secured through the use of a planning condition.
- Action 3.7: Contributing funding to the Travel for Cambridgeshire (T4C) partnership, which works with employers to develop workplace travel and implement measures to reduce

drive alone commuting and business travel. In 2016/17 the partnership worked with 156 employment sites in Cambridge which employ in excess of 83,000 commuters.

- Writing to all schools in Cambridge in July 2017 to encourage them to communicate to students and parents the importance of switching off their engines at drop-off and pick up times to reduce unnecessary idling outside schools. Links to nationally available guidance and resources was included in the letters. The Council is currently developing a new Air Quality Action Plan for Cambridge and one of the areas that is under consideration is how to address the issue of traffic idling in Cambridge more generally.

7. Progress in delivering the key actions under Objective 4:

7.1 Objective 4 of the Climate Change Strategy, 'Reducing consumption of resources, increasing recycling and reducing waste' is being achieved through encouraging residents to recycle more of their waste, grow and purchase sustainable food and helping businesses to recycle their food waste.

7.2 The Council has taken a number of actions to promote sustainable food in Cambridge during 2016/17. For example:

- Action 4.1: The Council has been an active member of the Cambridge Sustainable Food Network and has supported them to gain Sustainable Food City status - Bronze award in April 2016. The award is subject to renewal every 3 years by the national Sustainable Food City parent body. Cambridge Sustainable Food is keen to improve food sustainability in the City and is looking to apply for the Silver Award in 2019, which has more challenging targets for local partners to achieve. Preparations for this submission are presently being undertaken.
- Action 4.2: The 300 existing allotments managed by the Council will be increased with the addition of approximately 450 plots at the new development sites at Clay Farm, Trumpington Meadows, Glebe Road and Nine Wells, which are expected to be transferred in 2017/18.

- Action 4.4: As part of the Cambridge Sustainable Food Network an action plan was developed including a programme of cooking skills projects for residents around the city, with a focus on cooking healthy, sustainable meals. 171 adults and children have completed six-session cookery skills courses, plus one off sessions.
- Action 4.5: The Council actively supports the Cambridgeshire Healthier Options Programme, which promotes health and sustainable produce to food businesses, in conjunction with neighbouring Cambridgeshire authorities. The Council advises businesses during routine inspections to gauge interest, and then supports them in applying. The Council also undertakes assessment visits and ensures they are listed on the website once they have passed. There are currently 4 businesses in Cambridge that have achieved the award: www.healthier-options.org.uk/members.

7.3 The Council has carried out a number of campaigns to promote recycling to residents and businesses during 2016/17. These have included:

- Action 4.6: promoting the Council's new food waste collection service to food-related businesses, which has resulted in 405 tonnes of waste food being diverted from landfill in 2016/17.
- Action 4.8: The Council is supporting Cambridge Sustainable Food which includes supplying them with food collection caddies and leaflets for various events. We will be working with them to promote the Pumpkin Festival. We are promoting both Recycle Week and Zero Waste Week this autumn.

8. Progress in delivering the key actions under Objective 5:

8.1 Objective 5 of the Climate Change Strategy, 'Supporting Council services, residents and businesses to adapt to the impacts of climate change' aims to improve the resilience of the Council and the city to extreme weather events and is being embedded through a number of projects:

- Action 5.2: Surface water flooding and river flooding is a significant risk for Cambridge and will become more frequent and more damaging. The Council is working with developers to

secure installation of sustainable drainage systems to mitigate the impacts of new developments and is retrofitting property level flood protection at some properties. For example, in the Nine Wells residential development a number of SuDS features have been installed such as, filter drains, swales, wet ponds and dry ponds. They have been carefully designed so that the SuDS form part of a multifunctional space. Any proposed new City Council developments will also contain SuDS, such as the proposed Mill Road development.

- Action 5.3: Continuing to work with partners in the Cambridgeshire Flood Risk management partnership to manage climate change-related flood risks. Key actions have included:
 - Including a policy on flood risk management and the role of Sustainable Drainage Systems (SuDS) in the Cambridge Local Plan, due to be adopted in late 2017/2018
 - The Cambridgeshire Flood and Water Supplementary Planning Document (SPD), to provide guidance to developers, was approved as a material consideration in December 2016 and will be adopted as an SPD on adoption of the new Local Plan.

- Action 5.5: The Council has provided advice to residents in Cambridge Matters on how to cope in extreme weather events such as heat waves, with links to further advice on the NHS heatwave website.

- Action 5.6: In 2016/17 we planted 220 new trees on our land and our 'Free Trees for Babies' scheme provided 230 trees in the year to new parents. 211 trees were removed in 2016/17. A new tree strategy was produced in July 2016 which details how we will manage the 30,200 council-owned and managed trees and protect and enhance the rest of the urban forest. An action plan to implement the Strategy was completed in January 2017. 56 actions relate to protection, management and enhancement of the urban forest and are on-going. Funding was secured in 2017 to plant 250 trees on council-owned and managed land, making the tree population sustainable.

- Action 5.10: Using the recently published UK Climate Change Risk Assessment 2017, we are developing an evidence base to provide a better understanding of the main climate risks facing

the Council and the city and the adaptation actions that will have the greatest benefit.

8.2 The Council is also a member of the Local Adaptation Advisory Panel Steering Group, which works with Government departments to integrate climate change adaptation into national policy and the work of local authorities including informing the next National Adaptation Programme.

9. Sustainable City Fund

9.1 We have continued to work with local voluntary and community groups during 2016/17 and helped build their capacity to undertake activities to address climate change in Cambridge. The priorities for the Sustainable City Fund included:

1. Reducing energy consumption and emissions from homes and businesses in Cambridge
2. Reducing consumption of resources, increasing recycling and reducing waste
3. Supporting residents and businesses to adapt to the impacts of climate change

9.2 During 2016/17 the fund provided a total of £28,000 in grants to 4 local environmental groups, supporting 6 projects which have enabled local residents to:

- learn how to improve their home's energy efficiency
- become aware of emissions from food production, processing, packaging, transport and waste,
- reduce food waste-related greenhouse gas emissions
- develop skills and spaces for residents to grow their own food.
- grow fresh, healthy fruit and vegetables.
- reduce the waste of manufactured goods
- learn how to repair and reuse household items

SMEs were also helped to monitor their food waste and encouraged to reduce it through an award scheme.

10. City Leaders Climate Change Meeting

10.1 Following the amendment agreed at Strategy and Resources Committee: 'to consider convening and leading a City Leaders

Climate Change Group (comprising businesses, other major employers, voluntary and community sector) to establish a collective and mutually supportive approach to reduce the city's carbon footprint and agree an inspiring goal which the whole city can identify with and participate in' in July 2017 we convened an initial exploratory City Leaders Climate Change meeting.

10.2 Invitees included Members and senior officers of the local councils, the Universities, leaders of local businesses, and voluntary and community groups to share information on activity that is already taking place in the city and discuss additional activities that could be worked on in partnership. We are taking forward the suggested actions, including a number of themed follow up meetings and events in 2017/18 to be organised by partners including Anglia Ruskin University and Addenbrooke's in order to further develop collaborative activity between the various stakeholders in Cambridge.

11. Implications

(a) Financial Implications

Funding for projects included in the Carbon Management Plan (which is the primary vehicle for delivering Objective 1 of the Strategy) will come from a number of different funding sources, including the Climate Change Fund and existing General Fund or Housing Revenue Account (HRA) budgets for delivering services.

The actions contained in the Climate Change Strategy will be funded through:

- Existing budgets for delivering key services, particularly for projects or actions that will deliver climate change benefits as part of wider planned developments or improvements to key services. These fall within the General Fund or the HRA depending on the services involved.
- Government and other external funding sources for climate change initiatives.

(b) Staffing Implications (if not covered in Consultations Section)

Lead officers have been identified for projects in the Climate Change Strategy and Carbon Management Plan who have the capacity to deliver

the projects within the stated timescales. The Climate Change Officer will manage and co-ordinate the overall delivery of the Carbon Management Plan, with support from the Environment Policy Group, which is a corporate group that includes many of the lead officers.

(c) Equality and Poverty Implications

An Equalities Impact Assessment (EqIA) of the aims and objectives was carried out when the Climate Change Strategy and the Carbon Management Plan were developed. This did not identify any specific negative impacts, but further Equality Impact Assessments may be undertaken for individual projects. For example, an EQIA was carried out for the developing Local Plan.

(d) Environmental Implications

The Climate Change Strategy and the Carbon Management Plan will have a high positive impact on the environment by setting out a planned approach to: reducing the Council's carbon emissions; setting high standards for residents, businesses and organisations to reduce their carbon emissions and manage climate risks; and working in partnership with, influencing and learning from other organisations to address the causes and effects of climate change.

(e) Procurement

The Climate Change Strategy includes one action relating to procurement, which focuses on improving the Council's contract management processes to ensure that contractors deliver the sustainability requirements of contracts.

Projects identified in the Carbon Management Plan for the Council's office buildings and sheltered and temporary housing have been commissioned by the Estates and Facilities service and delivered by the Council's planned maintenance contractor, TSG or via new arrangements with Bouygues Group PLC.

In the latter case, the Council signed access agreements to allow it to make use of the Greater London Authority's (GLA) RE-FIT framework agreement specifically designed for energy performance contracting. This allowed us to access Bouygues Group PLC as a contractor to identify and deliver energy efficiency projects. The principle benefit of this arrangement is that Bouygues have guaranteed the energy savings

predicted for projects that they deliver for the Council (subject to the new equipment being managed within defined limits).

Bouygues have implemented two major projects included in the Carbon Management Plan (LED lighting installations at the Grand Arcade Car Park and Grafton East Car Park) under RE:FIT framework and are implementing a package of energy efficiency and renewable energy measures at the Guildhall during 2017/18.

(f) **Consultation and communication**

Public consultation was carried out on a draft version of the Climate Change Strategy for 13 weeks, starting on 14 October 2015 and finishing on 12 January 2016. The views expressed by respondents to the consultation were taken into consideration in developing the final strategy and were presented to the Executive Councillor and members of the Environment Scrutiny Committee before the Strategy was approved.

(g) **Community Safety**

The Climate Change Strategy and Carbon Management Plan have minimal impact on Community Safety.

12. Background papers

These background papers were used in the preparation of this report:

- Cambridge City Council Climate Change Strategy 2016-21
- Cambridge City Council Carbon Management Plan 2016-21

Both documents can be viewed on the Council's website at:

www.cambridge.gov.uk/our-work-towards-a-sustainable-cambridge

13. Inspection of papers

To inspect the background papers or if you have a query on the report please contact:

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14. Appendices

- Appendix A – Details of Carbon Management Plan projects implemented in 2016/17
- Appendix B - Details of Carbon Management Plan projects installed/ to be implemented in 2017/18
- Appendix C – Details of the Carbon Management Plan projects proposed for investigation and implementation during 2018/19
- Appendix D - Carbon Management Plan projects that have been removed
- Appendix E – Climate Change Fund expenditure up to August 2017

Appendix A: Details of Carbon Management Plan projects implemented in 2016/17											
No.	Service area	Building Type	Project	Installation/ completion date	Capital cost (£)	Climate Change Fund contribution (£)	Funding contribution from other sources (£)	Estimated annual energy savings (kWh)	Estimated annual carbon savings (tCO₂)	Estimated annual financial savings (£)	Payback
COMPLETED											
4	Car Parks	MSCP	Grand Arcade Main Car Park: Replace existing lighting with LED.	October 2016	£189,227	£189,227	-	304,937.00	165	£27,307	6.9
5	Car Parks	MSCP	Grafton East Car Park: Replace existing lighting with LED.	October 2016	£131,771	£131,771	-	212,125.00	116	£18,856	7.0
8	Estates & Facilities	Crematorium	Crematorium: Upgrade loft insulation.	March 2017	£1,478	£1,478	-	3,218.37	0.6	£100	14.8
3	Estates & Facilities	Office Building	North Area Housing Office: Improve boiler controls. Measures could include optimum start controls or heating sequencing	March 2017. Boilers were also replaced with energy efficient condensing boilers	£786	-	£786	6,436.73	1.2	£200	3.9
19	Fleet	Vehicles	Vehicle fleet: Replacement of fleet vehicles, including 7 electric vans and 6 fuel efficient vans and trucks	7 diesel vehicles replaced with electric vans procured and added to fleet (9 now on fleet in total). 2 more fuel efficient diesel vans added to fleet. Others not yet delivered due to type approval problems with Euro 6 compliant legislation	£420,000	-	£420,000	N/A	11.7	£4,332.16	96.9
TOTALS:					£743,262	£322,476	£420,786.02	526,717.10	295	£50,795	

Appendix B: Details of Carbon Management Plan projects installed/ to be implemented in 2017/18												
No	Service Area	Building Type	Project	Scheduled date/ expected month of delivery	Installation/ completion date	Estimated capital cost (£)	Climate Change Fund contribution (£)	Funding contribution from other sources (£)	Estimated annual energy savings (kWh)	Estimated annual carbon savings (tCO ₂)	Estimated annual financial savings (£)	Payback (years)
COMPLETED												
11	Sport & Leisure	Swimming Pools	Abbey Pools: Solar thermal upgrade and upgrade of the hot water calorifiers - to utilise more of the heat in the hot water system	N/A	July 2017	£48,700	£40,000	£8,700	114,938.00	21.2	£4,597.51	10.6
	Sport & Leisure	Swimming Pools	Abbey Pools: Upgrade and replacement of air handling unit with a new air plant circulation system and heat recovery technology.	N/A	July 2017	£78,377	-	£78,377	737,071.16	148.4	£25,208.00	3.1
IN PROGRESS												
	Fleet	Vehicles	Vehicle fleet: Replacement of further fleet vehicles with electric vans and fuel efficient vans and trucks	TBC	TBC	£2,436,000	-	£2,436,000	N/A	30.00	TBC	TBC
	Progress	Procurement exercise underway. 19 panel vans will be replaced in Estates & Facilities. 1 of these will be electric. Other 18 will be Euro 6 emissions compliant replacing Euro 4. 2 caged tippers will be replaced in Streets & Open Spaces, these will be diesel. 9 refuse trucks being replaced in Shared Waste Service - Euro 6.										
9	Estates & Facilities	Sheltered Housing	School Court: Replace existing heating systems with separate communal and flat heating systems.	Oct-17	TBC	£450,000	-	£450,000	25,000	4.6	£1,000	450
	Progress	Commenced. Due to be complete in September/ October 17.										
DUE TO COMMENCE												
16	Estates & Facilities	Office buildings	Mandela House: Replace existing lighting with LED and combined motion/light sensors.	Mar-18	TBC	£150,000	£50,000	100,000	52,359.42	24.2	£5,000	30.0
	Progress	Due to commence as part of refurbishment project - September 2017										

17	Estates & Facilities	Office buildings	Mandela House: Upgrade to condensing boiler and pipework and valve insulation	Mar-18	TBC	£60,000	£9,000	£51,000	82,604.73	15.4	£2,500	24.0
	Progress	Due to commence as part of refurbishment project - September 2017										
IN DEVELOPMENT												
	Estates & Facilities	Office buildings	Guildhall: Building automation. Implementation of a number of measures to increase the level of control over the heating systems, including installing a Building Energy Management System (BEMS).	Sep-17	TBC	£37,785	£37,785	-	174,497.45	32.5	£5,196	7.3
	Progress	Will be completed as part of single package of works at the Guildhall procured by the Council through the County-wide RE:FIT framework										
14	Estates & Facilities	Office buildings	Guildhall: Replace more than 670 existing light fittings with low energy LED light fittings and automation	Sep-17 onwards	TBC	£76,731	£76,731	-	76,528.00	29.4	£8,081	9.5
	Progress	Will be completed as part of single package of works at the Guildhall procured by the Council through the County-wide RE:FIT framework										
15	Estates & Facilities	Office buildings	Guildhall: Mechanical works improve the energy efficiency of the heating and hot water systems. Includes installing a plate heat exchanger to replace the existing large hot water tanks, and boiler head modifications to improve the efficiency of the heating boilers.	Sep-17 onwards	TBC	£46,945	£46,945	-	89,659.00	16.5	£2,496	18.8
	Progress	Will be completed as part of single package of works at the Guildhall procured by the Council through the County-wide RE:FIT framework										

	Estates & Facilities	Office buildings	Guildhall: Installation of a Combined Heat and Power (CHP) unit - uses gas to generate electricity which will be used on site and utilises heat generated through the electricity generation process.	Sep-17 onwards	TBC	£64,779	£64,779	-	-23,944.00	14.7	£6,631	9.8
	Progress:	Will be completed as part of single package of works at the Guildhall procured by the Council through the County-wide RE:FIT framework										
1	Estates & Facilities	Office buildings	Guildhall: Replacement of roofing and additional insulation	Sep-17 onwards	TBC	£100,502	-	£100,502	60,980.00	11.2	£1,765	50.0
	Progress:	Will be completed as part of single package of works at the Guildhall procured by the Council through the County-wide RE:FIT framework										
2	Estates & Facilities	Office buildings	Guildhall: Install 30kW solar photovoltaic system	Sep-17 onwards	TBC	£33,180	£33,180	-	24,450.00	9.4	£2,582	12.9
	Progress:	Will be completed as part of single package of works at the Guildhall procured by the Council through the County-wide RE:FIT framework										
	Estates & Facilities	Office buildings	Guildhall: Insulation of pipework and valves in plant rooms.	Sep-17 onwards	TBC	£7,778	£7,778	-	24,597.00	4.5	£712	10.9
	Progress:	Will be completed as part of single package of works at the Guildhall procured by the Council through the County-wide RE:FIT framework										
	Estates & Facilities	Office buildings	Guildhall: Secondary glazing installed	Sep-17 onwards	TBC	£29,337	-	£29,337	5,658.67	1.0	£170	172.8
	Progress:	Will be completed as part of single package of works at the Guildhall procured by the Council through the County-wide RE:FIT framework										
					TOTALS:	£3,620,114	£366,198	£3,253,916	1,444,399	363.1	£65,937	

Appendix C: Details of the Carbon Management Plan projects proposed for investigation and potential implementation during 2018/19												
No.	Service area	Building Type	Project	Scheduled date/ expected month of delivery	Installation/ completion date	Estimated capital cost (£)	Climate Change Fund contribution (£)	Funding contribution from other sources (£)	Estimated annual energy savings (kWh)	Estimated annual carbon savings (tCO ₂)	Estimated annual financial savings (£)	Payback (years)
	Sport & Leisure	Swimming Pools	Parkside Pool: Solar PV or Solar Thermal system	Feasibility Study outcomes - December 2017	TBC	TBC	TBC	-	TBC	TBC	TBC	TBC
	Progress:	Feasibility study to be undertaken as to the size and capacity of either Solar Thermal or Solar PV or combo of both which could be installed.										
	Sport & Leisure	Swimming Pools	Kings Hedges Pool: Biomass boiler	Feasibility Study outcomes - December 2017	TBC	TBC	TBC	-	TBC	TBC	TBC	TBC
	Progress:	Feasibility study to be undertaken if a Biomass boiler would be a suitable installation to provide heat to Kings Hedges Learner Pool and the industrial units within the Jedburgh Court complex - approximately 6 units										
	Sport & Leisure	Leisure Site	Corn Exchange: Heating and Lighting Improvements	Feasibility Study outcomes - March 2018	TBC	TBC	TBC	-	TBC	TBC	TBC	TBC
	Progress:	Feasibility study on what energy saving measures could be fitted into the Corn Exchange to include items such as a Solar PV installation on the roof, LED lighting through the facility and new boilers and a new heating and ventilation system for the main auditorium and back office spaces.										
			Vehicle fleet Replacement of further fleet vehicles	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC
10	Estates & Facilities	Sheltered Housing	Ditton Court & Rawlyn Court: Replace communal lighting with LED equivalent	TBC	TBC	£30,000	-	£30,000	31,372.38	14.5	£3,000	10.0
13	Estates & Facilities	Temporary Housing	Lighting improvements, including: a) replacing communal lighting with LED equivalent at New Street hostel, b) installing PIR motion sensor controls to hallway lighting at New Street hostel, c) replacing kitchen lighting with LED	TBC	TBC	£4,000	-	£4,000	1,730.89	0.8	£500	8.0

			equivalent at 116 Chesterton Road									
18	Estates & Facilities	Sheltered Housing	Stanton House: Replace existing heating systems with separate communal and flat heating systems.	TBC	TBC	£150,000	-	£150,000	25,000	4.6	£1,000	150
	Progress	Following completion of similar project at School Court in 2017/18 - potential project for 2018/19 subject to findings of a feasibility study.										
Details of the Carbon Management Plan project proposed for investigation and potential implementation during 2019/20												
	Car Parks	MSCP	Grand Arcade Main Car Park: Air Handling Unit Replacement	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC
					TOTALS:	£184,000	£0	£184,000	58,103	19.9	£4,500	

All Years Projects												
No.	Service area	Project	Scheduled date/ expected month of delivery	Installation/ completion date	Estimated capital cost (£)	Climate Change Fund contribution (£)	Funding contribution from other sources (£)	Estimated annual energy savings (kWh)	Estimated annual carbon savings (tCO ₂)	Estimated annual financial savings (£)	Payback (years)	
20	All sites	All sites - Ensure that programming of heating systems at all sites reflects current building usage patterns	To be carried out in 2017/18 following Office Accommodation Strategy moves.	TBC	Staff time	-	-	164,673.07	30.7	£5,000	1.0	
21	All sites	All sites - Energy efficiency awareness campaigns, e.g. switch off campaigns	Communication Strategy developed. Poster and stickers designed and will be rolled out across Council sites in 2017/18.	TBC	Staff time	-	-	?	24.2	£5,000	1.0	
22	All sites	All sites - Building manager energy efficiency training.	TBC	TBC	Staff time	-	-	?	27.5	£5,000	1.0	
				TOTALS:				164,673	82	£15,000		

Appendix D: Carbon Management Plan projects that have been removed

No.	Service Area	Building Type	Project	Scheduled date/ expected month of delivery	Estimated capital cost (£)	Climate Change Fund contribution (£)	Funding contribution from other sources (£)	Estimated annual energy savings (kWh)	Estimated annual carbon savings (tCO ₂)	Estimated annual financial savings (£)	Payback (years)
6	Sport & Leisure	Community Centres	Meadows Centre - Lighting improvements, including replacing hallway and other lighting with LED equivalent, and installing PIR motion sensor controls to lighting in hallways and meeting rooms.	N/A - REMOVED: following Community Centres Review.	£8,500	£8,500	-	15,794.37	7.3	£1,500	5.7
7	Sport & Leisure	Community centres	Buchan Street Neighbourhood Centre - Replace lighting with LED lighting	N/A - REMOVED: following Community Centres Review.	£4,000	£4,000	-	2,163.61	1	£200	20.0
12	Estates & Facilities	Temporary Housing	New Street hostel: Install external wall insulation.	N/A -All external wall insulation schemes are currently on hold following the Grenfell fire.	£80,000	-	£80,000	18,181.00	12.2	£2,000	40.0
TOTALS:					£12,500	£12,500	£0	17,958	8.3	£1,700	

Appendix E: Climate Change Fund expenditure up to August 2017

(All figures £s)	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Cumulative funding available at the beginning of the financial year	(250,000)	(243,900)	(207,465)	(383,145)	(396,269)	(409,749)	(347,100)	(347,100)	(347,100)	(144,624)	(78,426)
Additional contribution to Fund			(250,000)	(184,770)	(129,050)				(120,000)	(300,000)	
Total surplus available at the beginning of the financial year after additional contributions	(250,000)	(243,900)	(457,465)	(567,915)	(525,319)	(409,749)	(347,100)	(347,100)	(467,100)	(444,624)	(78,426)
Pilot of Electric Bin Lifts	2,100										
Chesterton Road Toilet Modernisation	900										
Corn Exchange Christmas Lighting Lamps	600										
Arbury Court WC Rainwater Harvesting	2,500										
Romsey Rec Rainwater Harvesting		2,500									
Energy Audit of Pools & Leisure Centres		3,750									
Grand Arcade Annex Car Park Fan system		21,700									
Public Conveniences & Park St Car Park Energy Survey		2,730									
Watercourses Flood Risk Survey			4,510								
Community Centres Energy Audits		2,995									
Corn Exchange LED lighting		2,760									
LED Lighting at the Grand Arcade Annex Car Park				100,000	(5,900)						
Mill Road water efficiency (1)			36,000								
Mill Road water efficiency (2)			11,700								
Replacement boiler - Barnwell House			3,150								
Guildhall Voltage optimisation			17,960								
Market Stall LED lighting			1,000	12,030							
Market Stall LED lighting -Balance Returned to Fund				(12,030)							
Tree Canopy Study				10,870	4,130						
Community Centres energy efficiency measures				9,800							
Heat recovery at the Crematorium				11,600							
Water and energy saving measures in changing rooms at Parkside Pool				35,000							
LED audit of multi-storey car park lighting				5,420	1,080						
Refund from Power Perfector for Voltage Optimisation at Guildhall				(1,044)							
CM Plan Ref 17: Voltage Optimisation at Mandela House (capital bid C2736 refers). Including £3,223 of additional IT costs.						21,960					
CM Plan Ref 11: Voltage Optimisation at Grafton East Car Park. Including additional £900 for Parkeon to be onsite.						13,921					
CM Plan Ref 22: Corn Exchange LED House Lights					25,700						

CM Plan Ref 12: Abbey VSD and BMS (38177)					24,650					
CM Plan Ref 16: Parkside VSD and BMS					42,640					
CM Plan Ref 15: Pool covers for Abbey and Parkside and consequent changes to heating system					23,270					
CM Plan Ref 30: Upgrade to LEDs & lighting controls in Grafton West Car Park						30,000				
Voltage Optimisation rebate for Mandela House and Grafton East Car Park						(3,232)				
Replacing the remaining boilers at the Meadows and Ross Street community centres with condensing boilers										
Grand Arcade Main Car Park - Replace existing lighting with LED.								189,227		
Grafton East Car Park - Replace existing lighting with LED.								131,771		
Crematorium - Upgrade loft insulation.								1,478		
Abbey Pools - Adjustments to hot water system to allow excess heat generated by the existing solar thermal system to be used to heat hot water for showers									40,000	
Mandela House - Replace existing lighting with LED and combined motion/light sensors.									50,000	
Mandela House - Upgrade to condensing boiler and pipework and valve insulation									9,000	
Guildhall - Building automation. Implementation of a number of measures to increase the level of control over the heating systems, including installing a Building Energy Management System (BEMS).									37,785	
Guildhall - Replace more than 670 existing light fittings with low energy LED light fittings and automation									76,731	
Guildhall - Mechanical works improve the energy efficiency of the heating and hot water systems. Includes installing a plate heat exchanger to replace the existing large hot water tanks, and boiler head modifications to improve the efficiency of the heating boilers.									46,945	
Guildhall - Installation of a Combined Heat and Power (CHP) unit - uses gas to generate electricity which will be used on site and utilises heat generated through the electricity generation process.									64,779	
Guildhall - Install 30kW solar photovoltaic system									33,180	

Guildhall - Insulation of pipework and valves in plant rooms.										7,778	
Spend by year	6,100	36,435	74,320	171,646	115,570	62,649	0	0	322,476	366,198	0
Balance remaining at the end of each year	(243,900)	(207,465)	(383,145)	(396,269)	(409,749)	(347,100)	(347,100)	(347,100)	(144,624)	(78,426)	(78,426)
Those projects shown in highlighted cells are projects that are included in the Council's Carbon Management Plan 2011-2016											
Those projects shown in highlighted cells are projects that are included in the Council's Carbon Management Plan 2016-2021											