

# A strategy for Cheltenham

May 2005

# Contents

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	Page no
<b>Foreword</b>	<b>2</b>
<b>Consultation and monitoring</b>	<b>3</b>
<b>Chapter 1. Climate Change – the context</b>	<b>4</b>
A. Introduction and aims of the strategy	4
B. How is the climate predicted to change?	4
C. Global, national and local responses to climate change	5
<b>Chapter 2. How do activities in Cheltenham contribute to greenhouse gas emissions?</b>	<b>7</b>
<b>Chapter 3. Reducing emissions from energy use in buildings</b>	<b>9</b>
A. Home energy conservation	9
B. Energy use in the business and community sectors	9
C. Energy from renewable sources	10
<b>Chapter 4. Reducing emissions from other activities in Cheltenham (transport, waste and purchasing)</b>	<b>12</b>
A. Reducing emissions from transport	12
B. Reducing emissions from domestic and commercial purchasing	13
C. Reducing emissions from waste	15
<b>Chapter 5. Sustainable construction</b>	<b>16</b>
A. Reducing energy use in building projects	16
B. Adapting to climate change	16
<b>Chapter 6. Greenhouse gas emissions from Cheltenham Borough Council activities</b>	<b>18</b>
A. Reducing emissions from the council's use of energy	18
B. Reducing council transport-related emissions	19
C. Reducing other council emissions	20
<b>Chapter 7. Effects of climate change on local wellbeing and how to adapt</b>	<b>21</b>
A. Air quality impacts	21
B. Flooding and water shortage impacts	21
C. Natural environment impacts	22
D. Health and social impacts	24
E. Economic development and tourism impacts	25
<b>Chapter 8. Raising awareness and understanding of climate change</b>	<b>27</b>
<b>References</b>	<b>28</b>
<b>Appendix 1 : Action Plan</b>	<b>29</b>
<b>Appendix 2 : Case studies</b>	<b>42</b>

## Foreword

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Climate change represents a fundamental threat to our quality of life. Whilst our planet's climate has been constantly changing since its beginning, human activity now threatens to change the climate faster than the environment's ability to act. Although the 1°C increase in Cheltenham's average temperature over the last sixty years is not that discernible now, the impact of climate change will be highly evident in the medium to long term. We consider it essential to act now to start addressing this global issue at a local level.

We recognise the importance of tackling climate change on two fronts; reducing greenhouse gas emissions to minimise future climate change and planning for the unavoidable impacts of climate change.

We have prepared this strategy to ensure that in Cheltenham we have a clear framework for addressing

both these issues. We will endeavour to implement the measures contained in the strategy through activities within our own organisations, and through working with our public sector, community and business partners on the Cheltenham Climate Change Board and with the wider community of Cheltenham.



Signed by Councillor Andrew McKinlay, Leader of Cheltenham Borough Council, and endorsed by Cheltenham Climate Change Board.

### **Cheltenham Climate Change Board membership**

- Severn Wye Energy Agency Ltd
- Carillion Building
- Moss Construction
- Gloucestershire County Council
- Environment Agency
- Forum for the Future
- Vision 21
- University of Gloucestershire
- Cheltenham Centre For Change
- Gloucestershire Health Protection Agency
- Cheltenham Business Partnership
- Cheltenham Social Justice Partnership
- Business Link Gloucestershire
- Cheltenham Friends of the Earth
- GASTEC at CRE Ltd
- Severn Trent Water
- GCHQ
- Cheltenham Borough Council

*"What is now plain is that the emission of greenhouse gases...is causing global warming at a rate that began as significant, has become alarming and is simply unsustainable in the long-term...It is now that timely action can avert disaster. It is now that with foresight and will such action can be taken without disturbing the essence of our way of life, by adjusting behaviour not altering it entirely."*

(The Prime Minister, Rt Hon Tony Blair MP, September 2004)

*"Climate change is one of mankind's greatest challenges. In the last thirty years, world temperature has increased by almost half a degree centigrade. We cannot predict with certainty what will happen now. But the risk of abrupt climate change certainly exists...The urgency of global warming means that find words are no longer enough. We need action."*

(Rt Hon Michael Howard MP, September 2004)

*"Climate change is the most severe threat that we face today...and let us be under no illusion about the damage from climate change here in the United Kingdom... only action now will give us some hope of mitigating the effects of climate change that are already showing themselves."*

(Rt Hon Charles Kennedy MP, November 2004)

# Consultation and monitoring

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## Background

'Climate change: a strategy for Cheltenham' is the result of three years' work by Cheltenham Climate Change Board. In May 2002, Cheltenham Borough Council's cabinet approved the principle of preparing a climate change strategy for Cheltenham and shortly afterwards Cheltenham Climate Change Board was established to develop the project. The board comprises external organisations with an interest in climate change issues, including representatives from the further education, business, environmental and community fields, council members and officers from across the council.

## Consultation

In June 2004 the strategy was launched for public consultation at Cheltenham's Festival of Science. The consultation continued until the end of August and involved circulating the strategy to a wide range of local groups and organisations, publication of the strategy on the council's website and a manned stand at the Festival of Science to raise awareness of both the issue and the consultation process. A leaflet was also produced which explained the main climate change issues and included tips for individuals, businesses, schools and community groups on reducing their impact on climate change.

The results of the consultation were considered by Cheltenham Climate Change Board in October 2004 and incorporated into the strategy as appropriate.

## Monitoring

Progress towards the targets established in the strategy will be reported to Cheltenham Climate Change Board on an annual basis. The action plan will also be reviewed and updated in the light of progress made and any new developments. The first monitoring report will be compiled in early 2006.

## Further information

For copies of the document and leaflet or for further information about Cheltenham Borough Council's climate change activities please contact:

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Website: [www.cheltenham.gov.uk/climatechange](http://www.cheltenham.gov.uk/climatechange)

Six background papers produced at an earlier stage in the development of the strategy are also available from the sources above.

**(Translation panel needed here – new one being commissioned)**

# Chapter 1. Climate change – the context

## A. Introduction and aims of the strategy

Climate change is now widely regarded as the most pressing environmental problem confronting mankind at the outset of the 21<sup>st</sup> century. Although the earth is naturally warmed by a combination of gases that trap the sun's heat to create the 'greenhouse effect', man-made emissions of these gases are now building up in the atmosphere and starting to change our climate.

### Fact box

*In 2001 experts concluded that global temperatures have climbed more than 0.6°C over the last century. This is having a dramatic effect on the planet - glaciers are melting, coral reefs are disappearing, and drought is the norm in parts of Asia and Africa. (Source: Intergovernmental Panel on Climate Change (IPCC) 2001)*

Most of the climate change over the last 200 years is due to human activities increasing greenhouse gas concentrations in the atmosphere. The most important of these gases is carbon dioxide (CO<sub>2</sub>), with 80% of the increased carbon in the atmosphere due to burning fossil fuels.

Given that CO<sub>2</sub> can last for up to 100 years once released into the atmosphere, some of the climate changes we are likely to face over the next century are unavoidable. The UK Government is urging local authorities to cut greenhouse gas emissions, particularly CO<sub>2</sub>, and to adapt to the effects of the changing climate to protect our communities<sup>1</sup>.

**The OVERARCHING AIM of this strategy is to make Cheltenham a carbon neutral borough.**

**The MAIN OBJECTIVES of this strategy are to:**

- **raise awareness of the potential impact of climate change;**
- **establish accurate data of greenhouse gas emissions from activities in Cheltenham;**
- **propose measures to help prevent the causes of climate change, by aiming to reduce CO<sub>2</sub> emissions from activities in Cheltenham by 20% from 1990 levels by 2010 and by 60% by 2050;**
- **propose measures to help us adapt to the inevitable consequences of climate change;**
- **and engage with external agencies and other stakeholders to gain commitment to addressing climate change issues and delivering the climate change action plan.**

This strategy sets out Cheltenham's response to the threat of climate change. It has been developed by Cheltenham Climate Change Board.

## B. How is the climate predicted to change?

By 2100, experts predict that average global temperatures will increase by between 1.4° and 5.8°C. This is likely to bring sea level rises, more frequent and intense storms, pronounced droughts, coastal erosion,

less snow cover and ecosystems out of balance. Entire climate zones could shift, agriculture could be thrown into turmoil and millions of people might have to migrate from unliveable areas. Some animal and plant species

could become extinct and tropical diseases and insect pests could spread. Even when emissions have been stabilised, warming will continue, and sea levels will carry on rising.

### What does this mean for the UK?

Experts predict that the UK will become warmer, rising by

2° to 3.5°C by the 2080's<sup>2</sup>. Under all scenarios we will have milder, wetter winters (with up to 15% more rain in the south west); hotter, drier summers (up by 1-2.5°C by 2050 in the south west, with 15 to 30% less rain) and sea level rises of up to 23 cms. Extreme conditions such as heat waves or stormy and rainy days will become

more common. It has been argued that the Gulf Stream may weaken but the Intergovernmental Panel on Climate Change considers this to be a surprise event and it is therefore unlikely to cool the UK climate over the next century.

### What does this mean for Cheltenham?

Figure 1 on the following page illustrates the possible impacts of climate change on Cheltenham.

### Fact box

*If the sea level rises by 1m, densely populated areas in Bangladesh, the Nile delta and Louisiana could be uninhabitable, affecting 80 million people. (Source: IPCC 2001)*

### Fact box

*1998 and 2002 were the two warmest years ever in the UK (Met Office)*

*Temperatures in Cheltenham have risen by 1° C over the last 60 years (South West Climate Change Impacts Partnership (SWCCIP))*

*Until 2003, Cheltenham held the record for the UK's maximum temperature (SWCCIP)*

**Figure 1 – Possible impacts of climate change on Cheltenham**

Higher temperatures	<ul style="list-style-type: none"> <li>• More deaths from higher temperatures, higher risk of food poisoning and tropical diseases</li> <li>• Working conditions could be uncomfortable in summer increasing demand for electricity to cool buildings</li> <li>• Less demand for winter heating, which may reduce fuel bills and fuel poverty</li> <li>• Longer growing season for crops, lawns and flowers, less hardy species will survive better, but so will weeds, pests and diseases. Plants needing cold winters may fail</li> <li>• Increased potential for outdoor activities, encouraging the 'café culture', but could lead to more intensive use of parks and green spaces</li> <li>• Could attract more visitors to Cheltenham, benefiting tourism sector, but increasing pressure on infrastructure</li> </ul>
Wetter winters	<ul style="list-style-type: none"> <li>• Increased flooding risk, especially in floodplain areas, and difficulties in getting insurance cover</li> <li>• Increased risk of damp in older buildings and associated higher maintenance costs</li> </ul>
More storms and weather extremes	<ul style="list-style-type: none"> <li>• More building damage from storms and subsidence, increasing insurance premiums</li> <li>• Disruption to telecommunications and transport from weather extremes</li> <li>• Road surfaces requiring more frequent repairs</li> </ul>
Drier summers	<ul style="list-style-type: none"> <li>• Water shortages in summer, which will impact on vegetation and wildlife and gardens</li> <li>• Traditional species of trees could suffer from drought, which could threaten existing habitats</li> <li>• More building subsidence and associated insurance claims</li> </ul>
	<p style="text-align: center;"><b>Fact box</b></p> <p style="text-align: center;"><i>Of the 154 million tonnes of CO<sub>2</sub> produced in the UK, 28% is produced by industry (especially agriculture, coal and gas power and aviation), 28% in people's homes, 26% on transport and the remainder on services.</i></p>
General impact	<ul style="list-style-type: none"> <li>• New business opportunities likely in renewable energy, new building and environmental technology</li> <li>• Greater uncertainty in the global economy</li> <li>• Stability of financial services industry threatened by higher insurance costs</li> </ul>

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**C. Global, national and local responses to climate change**

Action to combat climate change has been happening at an international level for a number of years, culminating in the 1997 Kyoto Protocol. The Protocol became legally binding in February 2005 following ratification of the treaty by Russia. Over 140 countries have now ratified the treaty, accounting for over 55% of worldwide greenhouse gases, but the USA, as the world's largest emitter of CO<sub>2</sub>, has not yet done so. The UK's Kyoto target is to reduce greenhouse gas emissions to 12.5% below 1990 levels over the period 2008-12. The UK government has set its own goal of a 20% reduction in CO<sub>2</sub> levels by 2010 and is keen to pursue a reduction of 60% by 2050, with real progress by 2020<sup>3</sup>.

UK greenhouse gas emissions fell by 12.5% between 1990 and 2004. Greenhouse gases are however expected to rise after 2005, mainly due to the projected growth in transport activities<sup>4</sup>. CO<sub>2</sub> emissions fell 8% during the 1990s, reflecting the switch from coal to gas and nuclear power for electricity generation. Emissions

have risen since 2000 and now average 5.6% due to increased use of coal in power stations as gas prices have increased. The UK government considers that we are on course to meet our Kyoto target but are well below its own CO<sub>2</sub> target of a 20% reduction 1990-2010.

The UK Climate Change Programme 2000 sets out measures designed to bring about greenhouse gas reductions of up to 23% below 1990 levels by 2010, including a number of measures that local authorities can undertake.

The Regional Planning Guidance for the South West commits local authorities, energy suppliers and other agencies to supporting a 20% reduction in CO<sub>2</sub> emissions by 2010, and a minimum of 11-15% of electricity production from renewable energy sources by 2010.

**Cheltenham Borough Council's response to climate change**

In May 2002 the Leader of Cheltenham Borough Council confirmed our commitment to tackling climate change by signing the Nottingham Declaration<sup>5</sup>. This committed the

council to producing a climate change strategy and to reducing greenhouse gas emissions from council activities.

*Cheltenham's Community Plan*<sup>6</sup> identifies climate change as a key issue and commits Cheltenham Climate Change Board to delivering this strategy over the next 5 years. This commitment was confirmed in *Cheltenham Borough Council Business Plan*, approved November 2003. *Cheltenham Borough Local Plan*<sup>7</sup> has been reviewed to reflect the government's emphasis on sustainable development and contains a number of policies to help address climate change. A key theme of the council's *Environmental Management Strategy*<sup>8</sup> is the need to cut greenhouse gases.

## Chapter 2. How do activities in Cheltenham contribute to greenhouse gas emissions?

Most activities in Cheltenham generate greenhouse gas emissions. Fossil fuels such as coal, gas and oil are used to generate electricity for homes and businesses; they also fuel the transport system that supports our economy and gives us mobility. Combustion of these fuels, however, produces carbon dioxide, the most significant greenhouse gas. We consume vast quantities of goods, some essential, but many luxury items, all requiring energy in production and transport. We also throw away huge volumes of waste, which generates both CO<sub>2</sub> and methane, another greenhouse gas.

### Gas and electricity consumption

Statistics for gas consumption collected by the DTI for 2003 indicate that:

- Domestic gas consumption in Cheltenham is nearly 4.5% below the average for Gloucestershire but is about average for the south west
- Industrial and commercial gas consumption in Cheltenham is about 30% below average for both Gloucestershire and the south west

Gas consumption in Cheltenham has increased since 2001. All the increase has been in the industrial and commercial sector, whilst consumption in the domestic sector has decreased by about 4%.

The DTI has also, for the first time, collected and published *experimental* regional and local electricity consumption figures. The methodology used to collect these figures is still subject to considerable refinement, however the figures indicate that:

- Domestic electricity consumption in Cheltenham is 12.5% below average for Gloucestershire and 10% below average for the south west
- Industrial and commercial consumption in Cheltenham is 5.2% above average for Gloucestershire and 13.4% above average for the south west.

Overall energy consumption in Cheltenham in 2003 was 1,675 GWh, which equates to 436,090 tonnes of CO<sub>2</sub> (no distinction is made in this figure between fossil fuel electricity and electricity from renewable sources). These figures will be used for comparison in future years. This data does not include emissions from transport and waste.

### Calculating emissions

Rough estimates of total CO<sub>2</sub> emission levels from activities in Cheltenham have been calculated by scaling

down DEFRA data on UK emissions and Office of National Statistics data on the population of the UK to the Borough area population over a series of years.

Emissions from council activities are set out on page 18.

### Total estimated carbon dioxide emissions from activities in Cheltenham:

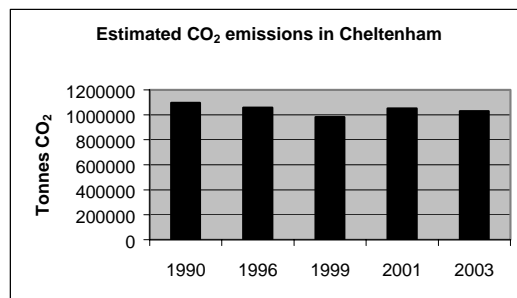
1990 CO<sub>2</sub> emissions – 1,095,420 tonnes

1996 CO<sub>2</sub> emissions – 1,056,131 tonnes

1999 CO<sub>2</sub> emissions – 982,142 tonnes

2001 CO<sub>2</sub> emissions – 1,050,843 tonnes

2003 CO<sub>2</sub> emissions – 1,029,527 tonnes



Cheltenham's estimated CO<sub>2</sub> emissions fell by just over 10% between 1990 and 1999, whilst the population remained fairly static. (This differs from the national figure quoted on page 5 because of the methodology

#### Fact box

On average each resident of Cheltenham produced about 9.4 tonnes of CO<sub>2</sub> in 2003

used to calculate Cheltenham's CO<sub>2</sub> emissions.) Most of the reduction can be attributed to increasing use of gas in generating electricity and the corresponding fall in the use of high carbon fuels such as coal and oil. Such savings are unlikely to be repeated in the future and this is borne out by the figures which show that from 1999 to 2003 CO<sub>2</sub> emissions in Cheltenham increased by 4.8%, whilst the population increased by only 3.6%, resulting in an overall reduction in emissions from 1990 to 2003 of 6%. Cheltenham is therefore unlikely to see a significant reduction in carbon dioxide emissions without the introduction of a carbon management framework which maximises energy efficiency and significantly widens renewable energy use.

### Reductions targets for CO<sub>2</sub> emissions

Taking action to cut CO<sub>2</sub> levels will be the most important strand of reducing greenhouse gas emissions although



reducing other emissions such as methane and hydrofluorocarbons should also be addressed.

In line with Cheltenham Community Plan, this strategy seeks to reduce carbon dioxide emissions in Cheltenham and **identifies a number of improvement measures designed to move us firmly towards the government's CO<sub>2</sub> target of a 20% reduction in 1990 levels by 2010 and the aspiration of a 60% reduction by 2050.**

As CO<sub>2</sub> levels reduced by around 6% between 1990 and 2003, this leaves a medium-term goal for Cheltenham of a 54% reduction from 2000 to 2050, which is roughly a 12% reduction per decade. The strategy will also work towards achieving the overarching aim of making Cheltenham a carbon neutral borough.

**These strategic objectives will be delivered through a combination of:**

- **improving the energy efficiency of activities in Cheltenham and reducing wastage;**
- **increasing the share of renewably sourced energy and other low carbon fuels;**
- **reducing emissions from activities such as transport, purchasing and construction;**
- **and exploring the scope to offset unavoidable emissions through sustainable new planting to help absorb the carbon produced (carbon sequestration).**

Improvement measures designed to help meet Cheltenham's CO<sub>2</sub> emissions reduction target are set out in the following sections with a more detailed action plan in Appendix 1. The action plan will be used for monitoring purposes and will be reviewed and updated annually.

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## **Key improvement measures**

*(see action plan for more details)*

**In order to monitor progress towards the CO<sub>2</sub> emissions reduction target of 20% from 1990 levels by 2010 from activities in Cheltenham, members of Cheltenham Climate Change Board will:**

- **refine baseline data on CO<sub>2</sub> and other greenhouse gases as more information becomes available, and revise targets accordingly**
  - **lobby the government for local energy consumption data from utilities companies**
  - **report progress towards targets annually to the Climate Change Board and review and update action plan**
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## Chapter 3. Reducing emissions from energy use in buildings

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The next two chapters propose a number of measures designed to reduce CO<sub>2</sub> emissions from activities undertaken by everyone living and working in Cheltenham. Chapter 3 covers emissions from energy use in buildings. Chapter 4 covers emissions from other activities – transport, purchasing and waste. Council emissions are covered in Chapter 6.

### A. Home energy conservation

Improving the energy efficiency of residential accommodation is important because it is responsible for about 25% of CO<sub>2</sub> emissions. It also contributes to the alleviation of fuel poverty in low-income households and the associated problems of damp housing, fuel debt and ill-health. The *Home Energy Conservation Act, 1996* (HECA) requires councils to identify measures to significantly improve the energy efficiency of homes in their areas, in order to reduce energy consumption by 30% over a 10 to 15 year period.

Significant progress towards this target has already been made in Cheltenham. From 2004-2010 energy efficiency needs to improve by a further 13.4%. **To meet the government's 20% CO<sub>2</sub> reduction target by 2010, we will need to reduce domestic CO<sub>2</sub> emissions across all residential property by 4% between 2005 and 2010, roughly 1% per annum. We will aim to achieve this through a combination of domestic energy efficiency measures and promoting the use of electricity from renewable sources.**

#### Actions to improve home energy efficiency

Since 1996 this council has worked with other Gloucestershire local authorities to improve the energy efficiency of their housing stock. Some key achievements to date include:

- establishing the *Gloucestershire Energy Efficiency Advice Centre* to promote domestic energy efficiency and provide free home energy advice to householders;
- adopting an affordable warmth strategy<sup>9</sup> by the six Gloucestershire local authorities and South Gloucestershire unitary authority to tackle fuel poverty;
- establishing the 'Warm and Well' scheme in 2001, which improved the energy efficiency of 1,121 private dwellings in Cheltenham from October 2001 to March 2004.

*Cheltenham Borough Homes* is a not-for-profit arms length management company that manages and maintains the council's 5,000 homes. It aims to invest £70

million in council homes over the next seven years and improve the energy efficiency of its dwelling stock from an average SAP<sup>10</sup> rating of 63% in 2002/3 (compared with a national average of 54%) to 68% by 2007/8.

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### Key improvement measures

(see action plan for more details)

**The council will continue to work with the Severn Wye Energy Agency, the Energy Efficiency Advice Centre, Gloucestershire local authorities and other partners to improve the energy efficiency of all housing stock in Cheltenham by 13.4% from 2004 to 2010. Specific measures include:**

- continuing to implement a programme of private sector housing improvements
- continuing to improve the energy efficiency of public sector stock
- continuing to promote changes in behaviour and investment to encourage the efficient use of energy by householders
- continuing to encourage local electrical appliance retailers to increase awareness of energy issues and labelling systems and promote sales of more efficient appliances
- exploring opportunities to reduce CO<sub>2</sub> emissions from dwellings by encouraging the use of energy from renewable sources (see page 9 for more information)
- continuing to educate the public to encourage sustainable home energy use

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### B. Energy use in the business and community sectors

Industrial and commercial activities account for about 48% of Cheltenham's CO<sub>2</sub> emissions (not including associated road transport) and so improving energy efficiency in these sectors is an important objective.

#### Fact box

*Glos Econet is a website set up for businesses in Gloucestershire. It aims to save businesses money by providing information on a range of environmental management issues and further sources of advice. (See case study 14 for more information)*

Energy use in the community sector is less easy to quantify, although there are over 400 voluntary sector organisations located in Cheltenham.

The introduction of the climate change levy has increased business costs and in the medium term

the cost of carbon will become an increasingly important issue, particularly after 2005 when the UK will need to start importing energy as oil, gas and coal production reduces. All these factors may affect business profits and image and so the importance of good energy management will grow.

The community sector is obviously mainly concerned with keeping running costs down, and energy efficiency will play an important role in reducing the utilities bills for premises. Some organisations are keen to move beyond this to demonstrate their commitment to sustainable energy management, including the use of renewable electricity.

The council has produced a leaflet on climate change which outlines some simple measures that can be taken by businesses, community groups and individuals, such as turning computer equipment and lights off overnight, to help them reduce their impact on climate change. (For examples of how some local businesses have begun to tackle their impact on climate change see case studies 1 and 2 in appendix 2, and case study 15 for information on Gastec, an independent Carbon Emissions Verifier).

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## Key improvement measures

(see action plan for more details)

**Members of Cheltenham Climate Change Board will work with local agencies to encourage businesses and community organisations to adopt more sustainable energy management practices and to reduce the environmental impact of their operations by:**

- **emphasising the benefits, improving signposting to support organisations and making better use of existing networks and newsletters to promote the energy message**
- **encouraging appropriate agencies to initiate free energy checks for business and community groups**
- **encouraging businesses and community groups to adopt EMAS/ISO14001/BS 8555 or work towards energy efficiency accreditation**
- **supporting the preparation of an updated green guide for businesses**

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## C. Energy from renewable sources

Renewable energy, such as wind or hydropower, reduces emissions of carbon dioxide as fossil fuels do not need to be burned to produce the energy.

The *Regional Planning Guidance for the South West*<sup>11</sup> suggests that a minimum of 11-15% of electricity production should be from renewable energy sources by

**Fact box**  
*Renewables provided 2.8% of electricity generated in the UK in 2000. The 2003 Energy White Paper aims to double the renewables share of electricity generation to 20% by 2020.*

2010. Regen SW, the regional office for renewable energy, has developed renewable electricity targets for the seven counties in the region with key stakeholders. Gloucestershire's target is 40-50MW of renewable electricity generating plant by 2010. Although the

potential for wind, hydro, tidal and wave power throughout the South West is considerable, within Gloucestershire options are more limited. The Severn Wye Energy Agency helps facilitate the development of small-scale renewable energy projects under the *Community Renewables Initiative*<sup>12</sup>, and has also established *Gloucestershire Sustainable Energy Forum* to develop an action plan for renewable energy in Gloucestershire to help deliver the renewable energy target.

The promotion of renewable energy is an important objective in Cheltenham's community plan and is a key element of this strategy. As an urban area, with the Cotswolds escarpment abutting the town on two sides, and few large watercourses, the scope for renewable energy generation in Cheltenham Borough is likely to be focused on solar energy. Given the number of historic buildings in the town it will be important to explore ways of installing solar panels in a sensitive way to minimise their visual impact. Severn Wye Energy Agency offers grants under its 'Solar Warm & Well' scheme as part of the Action for Affordable Warmth Strategy. Opportunities for energy from biomass, ground source heat pumps, wind power and other technologies should also be explored, taking account of the whole life cycle of any proposed projects.

Proposals for renewable energy in Cheltenham should be considered within the context of *Gloucestershire Structure Plan Second Review (1999)* and *Cheltenham Borough Local Plan Second Review (draft 2002)*. Further guidance on the principles of incorporating renewable energy in new developments is set out in Supplementary Planning Guidance<sup>13</sup>.

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## **Key improvement measures**

*(see action plan for more details)*

**Members of Cheltenham Climate Change Board will encourage and promote the generation of energy from renewable sources both locally and further afield to help meet Cheltenham's energy requirements, endeavouring to ensure that Cheltenham meets, and where practicable, exceeds national targets. To achieve this the council will:**

- **support the development of a Gloucestershire renewable energy target and action plan**
- **continue to use electricity from renewable sources (avoiding energy from incinerated waste) when electricity contracts are renewed**
- **support the development of small-scale renewable energy projects that meet local plan criteria**
- **promote the use of renewable energy in new developments, seeking to implement showcase projects to demonstrate what can be achieved.**

**All Climate Change Board members will:**

- **consider changing to renewable energy sources**
  - **work with community organisations and local businesses to encourage them to use renewable energy, starting with members of the Cheltenham Strategic Partnership**
  - **promote the use of renewable electricity to local householders and Cheltenham Borough Homes**
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## Chapter 4. Reducing emissions from other activities in Cheltenham (transport, waste and purchasing)

### A. Reducing emissions from transport

With road transport accounting for about 25% of the UK's total CO<sub>2</sub> emissions, the way we travel has the potential to support or undermine efforts to limit emissions.

#### (i) Reducing CO<sub>2</sub> emissions from car use in Cheltenham

**Fact box**

*A medium size petrol car produces roughly its own weight in CO<sub>2</sub> every 6000 miles.*

The most effective tools to reduce CO<sub>2</sub> emissions from vehicles are likely to be EU and national legislation and taxes. Car manufacturers are reducing average CO<sub>2</sub>

emissions from new cars by 25% from 1995 to 2008, and changes to vehicle tax bands and company car taxation are designed to encourage cleaner vehicles.

Given that almost two thirds of our car journeys are less than five miles, local authorities have a major role in helping to reduce CO<sub>2</sub> emissions from transport at a local level by encouraging more walking, cycling and use of public transport. Encouraging other forms of transport, and in particular public transport, also provide positive benefits for the more vulnerable groups in the town, such as low-income families and the elderly.

**Fact Box**

*If you walked or cycled 3 miles instead of taking the car you would save 1kg of CO<sub>2</sub>.*

*If you travelled from Cheltenham to Edinburgh you would generate:*

*34 kg of CO<sub>2</sub> using a train or bus*

*123 kg of CO<sub>2</sub> by using a petrol car (single occupancy)*

*(Source: National Energy Foundation using DEFRA reporting guidelines)*

*A return flight for two people from London to New York produces about as much CO<sub>2</sub> as an average passenger car in the EU does in a whole year*

*(Source: The Environment Post)*

**Members of Cheltenham Climate Change Board will support measures to reduce CO<sub>2</sub> emissions from transport in Cheltenham, by reducing the need to travel and encouraging the use of more sustainable alternatives, including greener fuels and technologies.**

#### (ii) Transport and land use planning issues

Cheltenham Borough Council is able to help reduce local CO<sub>2</sub> emissions from transport as a planning authority, as agent to the highway authority, Gloucestershire County Council, and as a major local employer.

Cheltenham's transport strategy derives from the *Local Transport Plan (LTP)*<sup>14</sup>. This sets out how the county council, working with its agents in Cheltenham and Gloucester, proposes to achieve a key objective of controlling the growth in traffic on county roads below national forecasts. Each year Cheltenham Borough Council delivers approximately £1.3m of LTP funded transport schemes to support LTP objectives and targets.

The council also responds to planning applications in the Tewkesbury Borough area where development is proposed on Cheltenham's boundaries to ensure consideration of traffic and transport impact.

### Key improvement measures

*(see action plan for more details)*

**The council and its partners will continue implementing Local Transport Plan schemes to deliver the integrated transport strategy and reduce CO<sub>2</sub> emissions from transport. These include:**

- **improvements to bus services delivered through a Bus Quality Partnership with Stagecoach**
- **improvements to the pedestrian environment including good walking routes and areas free from motor traffic**
- **cycle network improvements designed to give cyclists advantage**
- **road safety measures such as improved lighting, signing and traffic calming**
- **reviewing the current LTP and preparing a second LTP to cover 2006-2011**

It is also recognised that, as part of a package of transport measures, expanding Park and Ride Services on radial routes in Cheltenham may make a useful contribution towards reducing CO<sub>2</sub> emissions.

#### (iii) Effects of climate change on travel patterns

Warmer, drier summers may lead to increased cycling and walking. However wetter winters could cancel this out, bringing more weather-related variations in traffic

levels, and more winter congestion, although fewer frosts will reduce the need for gritting.

#### **(iv) Employee travel**

Congestion costs UK industry over £20bn a year. 'Travel Plans' can be drawn up by organisations to help reduce staff commuting and may also include business travel, fleet management and freight issues. Measures covered by a travel plan can help make alternatives to the car more attractive, encourage more sustainable vehicles and reduce the need to travel, for example through encouraging teleworking. (For examples see case

##### **Fact Box**

*On an average weekday 180,000 vehicles use main roads in Cheltenham.*

*Average car occupancy on these roads was 1.28 per car*

*Journey to work data from the 2001 census showed that 6% of journeys are by public transport, 7% by bicycle and 17% on foot.*

studies 3 and 4 in appendix 2). The Cheltenham Travel Plan Group was set up by the borough council in 1999 to share best practice and involve transport users in planning and implementing schemes.

### **Key improvement measures**

*(see action plan for more details)*

**Members of Cheltenham Climate Change Board will support the development of travel plans to reduce work-related car use and CO<sub>2</sub> emissions. To facilitate this, Cheltenham Borough Council will continue to:**

- **maintain the profile of travel plans through Cheltenham Travel Plan Group**
- **work with the county council and partners to promote travel plans in the area**

#### **(v) Fleet travel**

While most company vehicles are essential business tools, they also contribute to CO<sub>2</sub> emissions. There is an overwhelming case for organisations to adopt effective fleet management measures, to cut costs and improve environmental performance.

### **Key improvement measure**

*(see action plan for more details)*

**Members of Cheltenham Climate Change Board will continue signposting organisations operating vehicle fleets to sources of information and advice on running fleets more efficiently.**

#### **(vi) Encouraging alternatively fuelled vehicles**

The Energy Saving Trust's PowerShift programme, launched in 1996, has helped to kick start the market for alternative, cleaner fuel vehicles in the UK. The programme, through government grants and assistance, aims to encourage cleaner fuel vehicles (Liquefied Petroleum Gas, Compressed Natural Gas, electric and hybrid-powered) to be practically and economically viable.

### **Key improvement measure**

*(see action plan for more details)*

**Members of Cheltenham Climate Change Board will continue to encourage other organisations to actively explore the use of alternative fuels in their operations and also encourage individuals to consider these options.**

#### **(vii) Gloucestershire Airport**

Cheltenham Borough Council is part owner of the airport. Whilst outside the borough, the airport is nevertheless a source of CO<sub>2</sub> emissions. Although emissions from the airport are minimal compared with local road transport, nationally the aviation industry is one of the fastest growing sources of CO<sub>2</sub> emissions and there are growing concerns about the environmental impacts of pollutants from aircraft engines. A study published in May 2004 on the long-term role of the airport includes an environmental assessment of development options and the impact on CO<sub>2</sub> emissions.

##### **Fact Box**

*Aviation currently contributes about 3.5% of greenhouse gases. This could rise to 15% within 50 years.  
(Source – Airport Watch).*

### **Key improvement measure**

*(see action plan for more details)*

**Cheltenham Borough Council, through its representation on Gloucestershire Airport Board and Working Group will ensure that climate change issues are recognised and monitored in future plans for Gloucestershire Airport.**

## **B. Reducing emissions from domestic and commercial purchasing**

The purchase of goods and services contributes to greenhouse gas emissions in several ways, from transportation through to packaging, the energy efficiency of products themselves and our own shopping habits. By

**Fact box**

*In 2002 the average person in the UK consumed 18 tonnes of materials (Green Futures magazine)*

tackling these issues there is significant potential to reduce the emissions created through this process.

**(i) Buying locally produced goods and services**

Road transport in Cheltenham accounts for just under a quarter of CO<sub>2</sub> emissions and a significant proportion of this is due to the movement of goods and services. When buying food, purchasing local produce reduces the 'food miles' (the distance food travels from where it is grown to where it is consumed) and hence also emissions.

A number of farmers' markets have already been established within Gloucestershire to promote local produce (see case study 5 in appendix 2) and the council is a member of *Gloucestershire Food Links*<sup>15</sup>.

The concept of 'food miles' can also be applied to other goods and services, for example buying timber from a local wood or employing a local building firm will reduce transport emissions. Gloucestershire Local Materials Directory (see appendix 2 case study 6) encourages the use of local building materials and products.

**(ii) Factors to consider in purchasing decisions**

- **Purchasing 'green' energy** – switching to renewable energy is now easy and prices are comparable. Friends of the Earth have a league table of suppliers available from [www.foe.co.uk](http://www.foe.co.uk). The website [www.greenprices.co.uk](http://www.greenprices.co.uk) has a calculator to compare suppliers.

**Fact box**

*Typically a tumble dryer produces 1kg of CO<sub>2</sub> in 60 minutes, a dishwasher produces 1kg in 90 minutes and a fridge produces 1kg in 25 hours.*

- **Energy efficient products** – buying appliances "A" rated for energy efficiency reduces emissions and encourages the market for more efficient appliances. Many goods using alternative sources of energy are also now available.
- **Packaging and disposable goods** – buying products with less packaging and a longer life reduces waste. Buying products made from reused or recycled materials also reduces waste and energy consumption during manufacture, and will encourage the manufacture of more of these goods.

**Fact box**

*It takes 350 times more energy to make cans from raw materials than to make them from recycled material. (Green Futures magazine)*

- **Shopping habits and product choices** – sharing a car to the supermarket, buying in larger quantities to reduce the number of trips that need to be made, or using local outlets can all reduce emissions. Encouraging consumers to consider product choices is also important, for example patio heaters.

**Fact box**

*Good sources of information about sustainable products are the Ethical Consumer website ([www.ethicalconsumer.org](http://www.ethicalconsumer.org)), the Green Consumer Guide website ([www.greenconsumerguide.com](http://www.greenconsumerguide.com)) or the Green Directory ([www.greendirectory.net](http://www.greendirectory.net)).*

**(iii) Commercial purchasing**

Commercial purchasers can also encourage their suppliers to consider their environmental performance and the scope to reduce greenhouse gases. Cheltenham's community plan encourages all organisations on the local strategic partnership to develop strategies to reduce the use of unsustainable materials and encourage local products and services (see case study 1 for an example).

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**Key improvement measures**

*(see action plan for more details)*

**Members of Cheltenham Climate Change Board will work with their partners to reduce the use of materials, goods and services that contribute to climate change and encourage local products and services. They will:**

- **continue to promote local produce, support other opportunities to promote local services and goods and support Gloucestershire Food Links initiatives**
  - **encourage local hotels and catering businesses to source food locally, investigate buying local food for in-house events and promote use of allotments**
  - **promote energy efficient appliances and products**
  - **develop their own policies for commercial purchasing encompassing suppliers' environmental performance**
  - **promote green energy suppliers and sources of information**
  - **raise awareness of the impact of shopping habits and product choices**
  - **raise awareness of the benefits of e-retailing to businesses and consumers**
-

## C. Reducing emissions from waste

When biodegradable waste breaks down in landfill sites it gives off a gas which consists of up to 65% methane and 35% carbon dioxide. As both are potent greenhouse gases it is important to examine the impact of waste

### **Fact box**

3% of UK greenhouse gas emissions come from methane from landfill sites

Methane is 21 times more potent as a greenhouse gas than CO<sub>2</sub> over a 100-year period.

disposal when considering climate change.

### **(i) Municipal waste**

43,482 tonnes of municipal waste (household and garden refuse, street

sweepings and litter) were collected in Cheltenham in 2003/4 and landfilled, producing 13 tonnes of CO<sub>2</sub> and 0.91 tonnes of methane. 7,222 tonnes or 14.3% were recycled or composted.

The Government has ambitious targets for reducing the amount of waste landfilled. The *Gloucestershire Waste Management Strategy*<sup>16</sup> sets a recycling and composting target for Cheltenham of 24% by 2005/6. To help meet this target, Cheltenham Borough Council introduced a kerbside-recycling scheme to 39,000 households in 2003, collecting glass, paper and tins. This scheme was extended to most households and plastic recycling banks were introduced to bring sites in March 2005. The range of materials will be reviewed in future years. This scheme should decrease CO<sub>2</sub> emissions by 3.9 tonnes and methane emissions by 0.3 tonnes by 2005/6. A new garden waste collection scheme for 24,000 households will be introduced in April 2005.

All waste management policies will be reviewed to ensure they provide the best practicable environmental option. The council works with community groups and other agencies, especially the *Gloucestershire 'Get It Sorted' Waste Campaign*<sup>17</sup>, to promote waste reduction and re-use to households, businesses and community groups. An example of where reuse is being encouraged is the *'RECLAIM – reusing resources for Cheltenham'*<sup>18</sup> project, which collects unwanted furniture and redistributes it within the community.

### **(ii) Industrial and commercial waste**

The total volume of industrial and commercial waste landfilled is difficult to gauge as this waste stream is handled by many different agents.

The national *Waste Strategy 2000* sets a target of reducing the amount of industrial and commercial waste going to landfill to 85% of the 1998 level by 2005.

### **Fact box**

About 400 million tonnes of waste is produced in the UK each year, ranging from industrial, commercial and domestic waste to construction, mining, sewage and agricultural waste. Around 83% of municipal waste is landfilled, 8% recycled and 1% composted

(Source: Grantfinder)

In Gloucestershire this could mean diverting about 60,000 tonnes of waste from landfill. Cheltenham will need to contribute a significant amount to this tonnage. Businesses and other organisations can help meet this target by tackling waste and improving resource efficiency (see case study 7 in appendix 2 for an example).

## **Key improvement measures**

(see action plan for more details)

**Members of Cheltenham Climate Change Board will support initiatives to reduce, reuse and recycle the amount of waste generated in Cheltenham.**

**Cheltenham Borough Council will:**

- **review waste management policies and evaluate further options for waste minimisation and recycling to support recycling and composting targets**
- **expand range of materials collected through the kerbside recycling scheme**
- **retain existing bring site, closely monitor performance and increase recycling at Civic Amenity Site**
- **as part of the green guide for businesses promote waste minimisation for construction, catering and other businesses**

**All members of the Climate Change Board will continue working with their partners to promote waste reduction and re-use with schools, businesses, community groups and individuals.**



## Chapter 5. Sustainable construction

### A. Reducing energy use in building projects

The process of constructing new buildings, redeveloping existing buildings and maintaining and heating completed structures accounts for 69% of CO<sub>2</sub> produced in the UK.

#### (i) Raising energy efficiency standards above the Building Regulations

Parts L1 and L2 of the Building Regulations set standards to ensure high levels of insulation and efficient heating systems in developments. The government is committed to raising energy efficiency standards and is reviewing insulation values in the current Buildings Regulations.

In designing development schemes the construction industry generally regards the regulations as a maximum, rather than minimum, standard. Most buildings are designed to meet the regulations, but go no further to address climate change issues.

#### **Fact box**

*By making existing and new structures more thermally efficient and airtight, EuroACE estimate that European CO<sub>2</sub> emissions could be reduced by 430 to 452 million tonnes per year by the end of 2010. This is around one-eighth of current emissions. Implementation would create over 3 million job/years of employment.*

Building control services, whether public or private sector, are provided to ensure that construction projects meet the regulations, but they do not have the legal backing to request higher standards. Market forces cannot be relied on to drive a change in the construction industry in Cheltenham. Change will need to be led by the council, with training and education the key mechanism to changing the industry's culture.

#### (ii) Encouraging more sustainable construction techniques

Council services can encourage more sustainable building designs through the provision of sound and practical information and advice. Council officers have limited knowledge of sustainable construction techniques, however, and will require training to raise the awareness and knowledge of these issues if they are to offer useful guidance.

The planning process can set the context for encouraging more sustainable construction techniques. The council's supplementary planning guidance (SPG) documents 'Sustainable Developments' and 'Sustainable Buildings'<sup>19</sup>

suggest how construction projects can become more sustainable.

To assist with raising the profile of sustainable building practices a checklist for planning applications could be developed, which council staff and designers could use. Such a checklist should enable sustainability issues to be addressed early in the design process, whether at a Planning or Building Control stage.

Independent environmental appraisal and rating systems such as the BRE's BREEAM scheme and EcoHomes assess development schemes and enable projects to be compared. All new housing development receiving Housing Corporation funding now has to be built to at least a 'good' EcoHomes standard, aiming for a 'very good'. Phase 4 of the regeneration work in Hesters Way achieved the 'good' EcoHomes rating (see case study 12 in appendix 2).

The UK government is currently developing a sustainable buildings code, due to be implemented in 2006, which should raise the sustainability of construction methods.

#### (iii) Sustainable refurbishment projects

In a historic town such as Cheltenham much of the development undertaken is refurbishment or conversion. This offers opportunities to extend the life of existing buildings and reduce the materials used in construction. The basic design of the buildings usually makes them thermally less efficient than a new structure, however, and also less able to deal with a more severe climate. There is an urgent need to identify solutions that satisfy the combined needs of conserving natural resources and protecting the historic and aesthetic character of buildings in line with planning and Listed Building legislation.

Refurbishment projects also offer the potential to use recycled materials, removing surplus materials from the waste stream and reducing the demand for new products. Case study 6 in appendix 2 gives an example of a resource that could, when available, provide invaluable information on local and sustainable materials.

### B. Adapting to climate change

#### (i) Existing buildings

Cheltenham is an old town with many buildings dating back to the Regency period. These buildings were designed and constructed when technology, materials and climate were substantially different to today's environment.

As the climate changes existing buildings will need to be able to maintain an acceptable internal environment when the external conditions become hotter, wetter and more violent than now. Points of particular concern with older buildings will be:

- More extreme soaking and drying of soil, which may cause subsidence and heave.
- Warmer temperatures, which may mean existing buildings are no longer comfortable to live in without artificial cooling, but the need for double-glazing may reduce.
- Wetter winters, which may increase problems of damp in older properties.
- More extreme weather, which will cause greater storm damage.

Existing buildings will need to be modified to deal with more extreme weather and to make them more comfortable without the need to resort to mechanical cooling systems (fans) and air conditioning, which will increase energy use and CO<sub>2</sub> emissions and can also contribute to noise pollution.

### **(ii) New building projects**

New projects offer an opportunity to introduce design measures that will vastly improve the thermal efficiency and sustainability of the building at reasonable cost and ease. It will always be easier to design for sustainability in a new build structure than to up-grade an existing building. Building designers and constructors can take advantage of the design technology and knowledge currently available.

Designers of new buildings will need to address issues of maximising solar heat gain, providing adequate and efficient natural ventilation, managing higher volumes of rainwater, recycling water to overcome water shortages, using materials which minimise damage to the environment throughout their whole lifecycle and considering the scope to use and generate renewable energy. A good initial source of information is the Association of Environment Conscious Building [www.aecb.net](http://www.aecb.net). See case studies 8 and 13 in Appendix 2 for examples.

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## **Key improvement measures**

*(see action plan for more details)*

***This climate change strategy aims to promote high standards of sustainability in new buildings and refurbishment projects, through a combination of planning policy and building control advice and information. In particular it will encourage sustainable energy management in development***

***schemes incorporating energy efficiency and renewables.***

***To support this objective Cheltenham Borough Council will:***

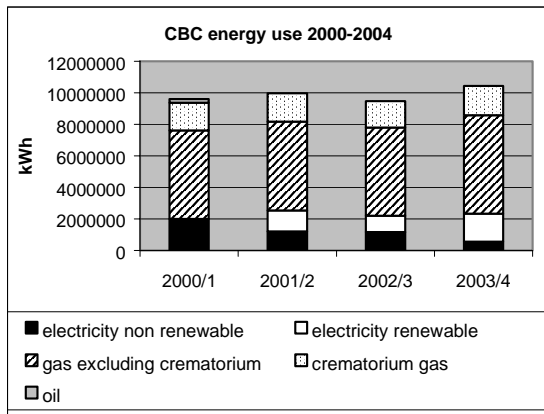
- ***lobby the Government to increase Building Regulations standards and support the implementation of the UK sustainable buildings code when published***
  - ***continue to ensure development plan and associated guidance fully reflect sustainable development objectives***
  - ***distribute Sustainable Buildings and Sustainable Developments leaflets with all planning and building regulation application forms***
  - ***support the development of the Gloucestershire Local Materials Directory and other initiatives promoting materials with a low environmental impact***
  - ***provide training for local authority staff and members to raise awareness of more sustainable building techniques***
  - ***provide training on opportunities to produce efficient and sustainable buildings to construction professionals and the public***
  - ***continue providing accurate and practical information on new technology***
  - ***explore the development of a sustainability checklist for planning applications***
  - ***ensure that sustainable construction objectives are incorporated as the norm into development schemes involving council land or funding***
-

## Chapter 6. Greenhouse gas emissions from Cheltenham Borough Council's activities

This chapter looks at how much carbon dioxide the council produces from its own operations and what steps it is undertaking, or will introduce, to reduce emissions.

### A. Reducing emissions from the council's use of energy

2000/1 is the first year with reasonably accurate energy consumption data and has been used as a base year from which to work. The council has three large sites – the Municipal Offices, Town Hall and Depot – plus a number of smaller sites. (Figures for the recreation centre, a high-energy user, are not included, as management of the centre was contracted out until April 2003 and figures for 2003/4 are still incomplete.)



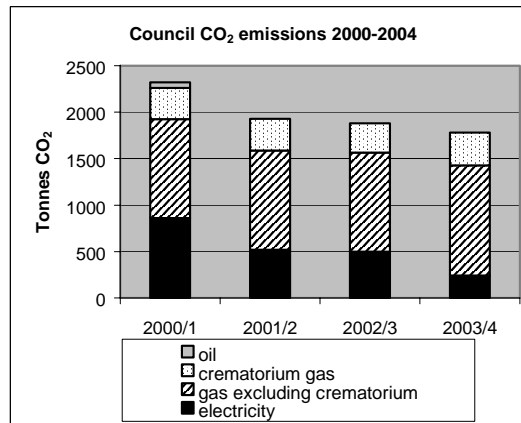
After an overall increase in 2001/2 energy use in council buildings dropped in 2002/3 to about 9.5 million kilowatt-hours (kWh) of energy, but increased again in 2003/4 to about 10.4 million kWh. The council uses about 3.5 times more gas than electricity and approximately 86% of this increase is due to higher gas usage, particularly at the depot and crematorium, which is by far the biggest user of gas, accounting for just under a quarter of gas used. Five council sites, including the Municipal Offices, saw a decrease in gas usage during 2003/4.

The council began a process of switching to renewable electricity in April 2001, which was completed in October 2003. It has also been implementing energy efficiency improvements to council buildings for a number of years. In future, the council's energy will be bought through the Gloucestershire Procurement Partnership, with the requirement for 100% renewable energy.

#### (i) CO<sub>2</sub> emissions

CO<sub>2</sub> emissions from energy use in 2003/4 totalled just over 1,780 tonnes, a reduction of over 23% from the

estimated 2,342 tonnes in 2000. Emissions from electricity usage dropped by 72%, largely due to the switch to renewable energy supplies, but also reflecting the slightly higher ratio of gas to electricity usage. (Gas produces less CO<sub>2</sub> per kWh than electricity.)



The council has set a target to reduce energy consumption in its buildings by 5% per annum over the next two years. **It will endeavour to reduce its carbon dioxide emissions from energy use by 50% from 2000 to 2005; 37% by switching to green tariff electricity supplies, and the remainder through energy conservation measures and exploring the scope to generate renewable energy on-site.**

Since 1997 a number of measures to reduce CO<sub>2</sub> emissions have been introduced to the council's operational buildings. These include:

- **Energy and water efficiency measures**, including fitting new 95% efficient gas condensing boilers and a new CHP unit at the recreation centre (see case study 9 in appendix 2). Under the Action Energy programme the Carbon Trust will be undertaking energy surveys at the Recreation Centre, Town Hall and Depot in April 2005 and will provide recommendations for improvements
- **Monitoring** – centralised monitoring arrangements are being developed for energy bills. More detailed analysis of energy and water data is planned.
- **Use of renewably sourced electricity** – 100% of the council's electricity now comes from a mix of wind, hydro and landfill gas, all of which are considered to be carbon neutral. The council will however continue to investigate sourcing all of its electricity from renewable sources that avoid energy from incinerated waste.

The potential for council properties to generate their own electricity from renewable sources will also be explored in partnership with Severn Wye Energy Agency.

## Key improvement measures

(see action plan for more details)

**In order to meet its own CO<sub>2</sub> emissions reduction target of 50% from 2000 to 2005 Cheltenham Borough Council will:**

- **continue introducing energy saving measures to CBC operational buildings as resources permit to meet the 5% per annum energy consumption reduction target**
- **develop energy and water monitoring arrangements for all CBC buildings, set reduction targets for each building and identify further scope for improvement**
- **continue to ensure that 100% electricity used by CBC is purchased from renewable sources (avoiding energy from incinerated waste)**
- **investigate the scope to generate renewable energy at CBC premises**
- **explore opportunities for reducing energy use on computer equipment**

### (ii) Street lighting

The county council has an agency agreement with the borough council to cover street lighting. The county council retains control over the energy contract and the specification of new equipment.

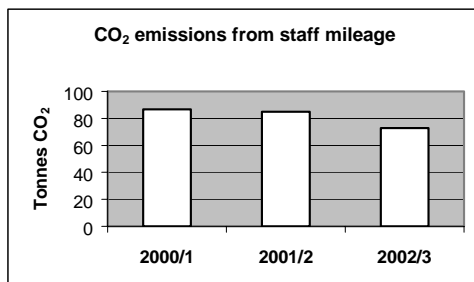
### (iii) Water use

Over the past twelve months the council has completed its move away from water bills based on rateable value and all water is now metered. Centralised billing will be introduced shortly, which will improve data collection.

## B. Reducing council transport-related emissions

### (i) Staff commuting and work travel

The mileage claimed for work travel by staff dropped by 16% between 2000/1 and 2002/3, although the number of employees has stayed fairly static. Some of the decrease



may be explained by the increased use of email and changes in job descriptions reducing the need to travel.

The council approved a corporate travel plan in May 2004. Key measures include:

- The purchase of a number of pool bikes
- Promoting of alternative forms of transport and the associated health benefits
- Promoting the CarShare Gloucestershire scheme

A further 'Travel to Work' survey was undertaken in late 2004, the results of which will inform future work.

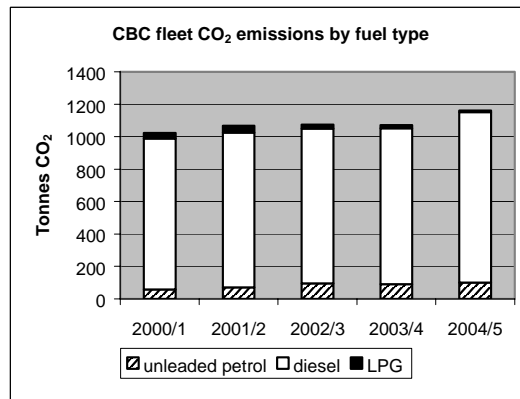
## Key improvement measure

(see action plan for more details)

**Cheltenham Borough Council will implement its Corporate Travel Plan to encourage more employees to use alternatives to single occupancy car use for travelling to work, reduce work-related car use and encourage the use of low emission vehicles.**

### (ii) Fleet vehicle use

The council owns a fleet of about 100 vehicles, ranging from refuse lorries to ride-on lawnmowers, which cover about 600,000 miles per annum. Cheltenham Borough Homes have 34 vehicles and the council hires a further 20-25 vehicles.



(Note: this does not include gas oil which represents less than 1% of fuel used)

As a whole, 446,565 litres of fuel were used during 2004/5, 88% of which was diesel. This represents a 7% increase on the previous year, but four large goods vehicles were added to the fleet during 2004/5. Fuel use is increasing, reflecting the need to do more operational trips to provide improved council services. As a result, it is difficult to set any reductions targets for the fleet

although it is possible to set targets to improve fuel efficiency and reduce CO<sub>2</sub> emissions. **The council will aim to improve the gross miles per litre of the fleet by 1% per annum and to reduce CO<sub>2</sub> emissions per litre of fuel consumed by 1% per annum.**

In line with the council's Environmental Management Strategy steps were taken in 1999 to reduce the fleet's impacts on the environment and in 2002/3 the fleet included 18 LPG vehicles. However consistent problems with reliability and maintenance have greatly reduced the use of LPG since that time (less than 2% of fuel used in 04/05 compared with nearly 7% in 01/02), which will have had some effect on the CO<sub>2</sub> emissions figures. The key criteria for purchasing new vehicles are now fuel efficiency and CO<sub>2</sub> emissions.

All council diesel vehicles use ultra low sulphur fuel, which helps to reduce local pollutants but not CO<sub>2</sub> emissions. The use of biodiesel is being explored but local supplies are currently poor. The use of Compressed or Liquefied Natural Gas (CNG/ LNG) has also been explored, but the cost of storage facilities is too expensive. The council is keeping abreast of developments in the electric and electric-hybrid field, aware of the potential to use renewable energy, and will also explore the potential of the Green Fleet Advisory Service and Motorvate to help meet the CO<sub>2</sub> reduction target.

Fleet vehicles are maintained to high standards to ensure optimum fuel efficiency, although more specialist equipment is needed. Driver training on reducing fuel consumption could be introduced.

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### **Key improvement measures**

*(see action plan for more details)*

**Cheltenham Borough Council will continue to implement measures to improve the gross miles per litre of the fleet by 1% per annum and to reduce CO<sub>2</sub> emissions per litre of fuel consumed by 1% per annum by:**

- ***basing vehicle purchasing decisions on fuel efficiency and CO<sub>2</sub> emissions***
  - ***continuing to investigate the suitability of greener fuels for fleet vehicles***
  - ***maintaining vehicles to manufacturers and MOT standards, and investing in equipment to monitor emissions to higher standards***
  - ***exploring opportunities to introduce driver training on fuel-efficient driving***
- 

## **C. Reducing other council emissions**

### **(i) Emissions from waste**

The Gloucestershire Waste Management Strategy stresses the importance of councils demonstrating commitment to sustainable waste management. All authorities are committed to reviewing policies impacting on waste over the next three years.

Data on the volumes of waste collected from council operational buildings is not available. Although this issue has been identified as a priority in the council's emerging corporate plan, action in this area is limited due to staff resourcing.

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### **Key improvement measure**

*(see action plan for more details)*

**Cheltenham Borough Council will review recycling in the Municipal Offices and identify improvement measures.**

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### **(ii) Emissions from council purchasing and use of materials**

The council spends over £30 million a year on purchasing, much of which is likely to have an impact on the environment and climate change. It recognises that it has to adopt policies to deliver more sustainable purchasing and play a lead in setting a good example to the community, in line with Cheltenham's community plan.

A Corporate Procurement Strategy is currently being developed, which will take account of sustainability and climate change considerations. Guidelines for all types of products and for managing contractors and suppliers will also be produced. Implementation of the strategy will begin during 2005 and will be progressed through a dedicated procurement post.

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### **Key improvement measure**

*(see action plan for more details)*

**Cheltenham Borough Council will develop and implement a council procurement strategy and guidelines incorporating sustainability objectives**

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**Chapter 7. Effects of climate change on local wellbeing and how to adapt**

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This chapter looks in more detail at some of the impacts of climate change on Cheltenham and proposes a number of measures to help us adapt. It covers impacts on air quality, flooding and water supplies, the natural environment, human health and tourism and the economy.

## A. Air quality impacts

Global climate change will affect air quality in Cheltenham. Temperature changes, amounts of sunshine and increasing global pollution will affect ozone levels in the lower atmosphere. The annual mean background concentration of ozone in Cheltenham could rise by 40% by 2080. This higher background level may affect Cheltenham's trees and other vegetation. It is also important because it is a higher baseline from which peak levels would rise on hot summer days, exacerbating respiratory problems.

It is predicted that other pollutants could reduce, as changes in wind and weather patterns help disperse pollutants such as nitrogen dioxide and particulate matter

### **Fact Box**

*High ozone levels can be found in the UK during fine weather in summer, often associated with polluted air drifting from the continent.*

*Monitoring at remote sites across the UK has shown a rise in background ozone levels. Emissions of the gases responsible for ozone production are likely to grow in the future.*

(PM10). Overall emissions of pollutants will also be lower due to emission controls.

### **Action to limit air pollution**

There are currently a range of UK pollution controls to limit ozone-producing emissions. Central to these are emissions controls over volatile organic compounds (VOC's) from industrial processes and motor vehicles exhausts. These have achieved widespread reductions in ozone levels and are being strengthened by the implementation of the EC solvent emissions directive.

Ensuring that activities in Cheltenham comply with these regulations helps reduce ozone levels, however its ability to travel large distances means that background ozone levels are likely to increase in spite of local action.

## **Key improvement measures**

*(see action plan for more details)*

**The council will continue to review and assess local air quality<sup>20</sup> and publish information about local air quality on its website. It will also:**

- **continue to provide a link to the BBC air quality forecast on the website**
- **develop an ozone episode warning system**
- **enforce pollution prevention and control legislation to minimise evaporation of solvents, petrol and other volatile organic compounds**

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## **B. Flooding and water shortage impacts**

### **(i) Flooding**

Cheltenham has a number of watercourses crossing the town. Flooding on watercourses is already a problem and can pose a risk to life and damage properties, leading to difficulties in obtaining insurance. More frequent winter rainfall and 'extreme events' could impact on floodplain areas adjacent to watercourses in the town and in particular areas around Sandford Park, Cox's Meadow and Wymans Brook, which are already prone to flooding. If nothing is done to help accommodate flooding now, climate change could mean more frequent flooding and more areas at risk. Clean water supplies could also become contaminated.

### **What are we doing now to limit the risk of flooding?**

New development can significantly increase the risk of flooding by increasing the amount of hard standing or removing flood capacity when building occurs within the floodplain. The local plan review contains guidance on flood risk assessment and development in flood risk areas. The council implements this policy (Policy UI118 Development in Flood Zones) as part of development control and also responds to planning applications received by Tewkesbury Borough Council for development on Cheltenham's boundaries.

### **Sustainable urban drainage systems (SUDS)**

*SUDS are designed to manage surface water runoff in a more sustainable way than traditional drainage systems by using natural approaches to runoff management.*

Where major schemes are proposed, developers can be required to construct flood alleviation works. Developers are also required to limit runoff through implementing sustainable drainage systems as part of new development. The council has adopted supplementary planning guidance on sustainable drainage systems<sup>21</sup>.

## Flood alleviation works

The Environment Agency is responsible for main rivers and is implementing a flood alleviation scheme to upgrade the flood capacity of the River Chelt corridor. The council is working closely with the Environment Agency to progress the final part of the scheme, which received planning permission in January 2004.

Works to alleviate flooding in parts of Prestbury have been carried out in the past. Further works are needed to reduce flood risk and a flood risk assessment of other non-main river watercourses is also needed. Both of these are subject to resources. In addition, ways to limit surface water runoff from existing development, for example by using water butts, could be encouraged.

### (ii) Adaptation

There are a number of measures that can help us adapt to the increased risk of flooding associated with climate change. Measures already being implemented include:

- identifying areas which can flood without high risk of damage to properties or injury, and using these areas for storage of storm water or to carry flood flows
- designing development within the flood plain to ensure that it does not reduce flood storage and that in the event of flooding it does not cause injury to people or damage to property

Other measures that may need to be considered in the longer term include:

- locating emergency services and hospitals in areas which are at very low risk of flooding
- identifying measures to protect individual properties and advising householders

### (iii) Water shortages

Current analysis suggests that summers could become drier and winters wetter, with more rain in total. However the demand for water is difficult to predict as it depends on personal choice. Smaller household sizes could lead to higher demands, with peak demand in the summer months when there is less rainfall.

#### **Fact box**

*Households use about 150 litres of water a day – enough to fill 15 buckets.*

*Severn Trent Water estimates that only around 1% of tap water is actually drunk. 33% is flushed down the toilet. A further 29% is used for bathing, washing machines and dishwashers.*

The Environment Agency has identified a number of measures to protect future water supplies<sup>22</sup>, including enhancing supplies by about 5%, promoting household

and business water efficiency and metering, and controlling leaks.

Educating the community about water conservation will become increasingly important. The Environment Agency publishes tips on its website ([www.environment-agency.gov.uk](http://www.environment-agency.gov.uk)). Severn Trent Water works with a number of organisations to encourage domestic and business water conservation. Education programmes could also include encouraging soakaways, grey water recycling and rainwater harvesting.

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## Key improvement measures

*(see action plan for more details)*

**To reduce the risk of flooding Cheltenham Borough Council will continue to :**

- **implement the local plan policy on flood risk as part of development control policy**
- **require sustainable drainage systems to be implemented as part of new development where possible**
- **work with the Environment Agency to upgrade flood capacity of River Chelt corridor**
- **explore the need for flood alleviation work in Prestbury, and funding opportunities, and consider the need for flood risk assessment on other non-main river watercourses**
- **work with the Environment Agency and other relevant local authorities to strengthen flood defences, improve flood warning systems and develop river management strategies**

**Members of Cheltenham Climate Change Board will encourage water conservation by:**

- **exploring opportunities to encourage grey water recycling and the use of water butts**
- **continuing to actively educate the community about the need for water conservation**

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## C. Natural environment impacts

### (i) Natural environment and biodiversity

Climate change is likely to have a considerable impact upon ecosystems both locally and globally. Plants and animals are essential to our lives, not only in terms of providing food, medicines and clothing but also in improving our own quality of life. It is vital to conserve a wide range of species, habitats and ecosystems for the future.

Earlier springs, longer frost-free seasons and reduced snowfall could affect wildlife breeding times and lengthen the growing season. Species will have to deal with new



predators and diseases. Summer water supplies will become critical. Some existing drought-sensitive natives may be lost, including species like beech or oak, while weeds and pests may be more prolific, requiring more control. Cheltenham's landscape setting will change, although it is not yet possible to say how.

*Gloucestershire Biodiversity Action Plan (BAP)* has been prepared to enhance wildlife in the county and Gloucestershire Biodiversity Partnership coordinates its delivery. To support the BAP, the council has designated a number of Local Nature Reserves within Cheltenham and is undertaking conservation work at Leckhampton Hill. It will also carry out a biodiversity audit of the borough and produce a nature conservation strategy, which will include climate change impacts.

### **(ii) Management of public open spaces**

Cheltenham has many parks and gardens and public open spaces. As the climate changes greater use is likely to be made of these areas. The council's emerging green space strategy will consider new approaches to managing these areas within the changing climate. As many of these practices may also apply to private gardens the council will also have an educational role to play.

Display planting may need to move towards more low-maintenance, drought tolerant species and there may also be opportunities to include more tender plants. Shading of public spaces will become increasingly important. New or improved water features will help cool open spaces; playing fields and areas of sports turf may have to move away from natural grass surfaces, although any such move should be subject to an environmental assessment. Sustainable urban drainage systems (SUDS), green roofs and rooftop gardens could be incorporated into the design of spaces and surrounding buildings. Cheltenham with its outstanding reputation as a garden town could lead nationally on open space management in this respect.

### **(iii) The tree stock**

Trees absorb CO<sub>2</sub> and pollutants, and filter solar radiation. The town needs a varied tree stock to ensure that significant numbers thrive in future climates. Trees will need to be carefully monitored during drought years to ensure that they are not weakened so much that they could blow over.

The council's emerging urban trees strategy will consider the impacts of climate change on trees and the scope for new planting to aid carbon sequestration (planting trees to

absorb carbon dioxide from the atmosphere and help offset CO<sub>2</sub> emissions) and also to provide shade for buildings.

### **(iv) Cotswolds Area of Outstanding Natural Beauty (AONB)**

22% of Cheltenham Borough lies within the Cotswolds AONB and the council is one of 34 organisations making up the Cotswolds AONB Partnership. The partnership's *management plan*<sup>23</sup> recognises that climate change could radically alter the AONB and a project brief to monitor and research the potential impact of climate change is being developed. The council will continue to work with the partnership to ensure that climate change does not harm the special character of the Cotswolds.

### **(v) Allotments and community gardening**

Growing fruit and vegetables helps to reduce food miles and waste from packaging, reducing transportation of food stuffs and also encouraging waste minimisation and recycling. The council is keen to raise the profile of allotments and community gardens to encourage gardening skills and raise awareness of climate change and sustainable gardening issues, and is developing a project specifically to achieve this. (See case study 10 in appendix 2.)

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## **Key improvement measures**

*(see action plan for more details)*

**The council will:**

- **continue implementing the Gloucestershire Biodiversity Action Plan by undertaking a biodiversity audit and producing a nature conservation strategy for Cheltenham**
  - **complete its Green Space Strategy and develop an action plan**
  - **continue exploring opportunities to incorporate drought tolerant plants in display planting**
  - **produce an urban trees strategy and develop an action plan which will address climate change issues and explore opportunities to offset carbon emissions through sustainable new planting**
  - **continue working with AONB partners on climate change issues**
  - **continue developing an allotments and community gardening project in the town**
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#### **Fact box**

*The Royal Commission for Integrated Pollution says that to offset CO<sub>2</sub> emissions over the next 50 years, a forest the size of Europe will need to be planted.  
(Source: Green Futures Magazine)*

## D. Health and social impacts

Evidence suggests that climate change will have significant effects on health in the UK<sup>24</sup>. These range from more deaths from heat waves, food poisoning or poorer air quality to more indirect impacts, such as increased mental health problems from stress from property damage caused by storms and flooding.

### (i) Direct health effects of climate change

**Temperature related rates of illness and death** – in the UK, death rates are significantly higher in winter. As the climate changes there could be fewer cold related deaths

(60,000 per annum compared to 80,000 under current climate). However an increase in summer related deaths, especially among the elderly, is also predicted, caused by higher temperatures and air pollution associated with warm weather.

#### **Fact box**

*An estimated 800 heat related deaths currently occur in the UK per year. By 2050 this is predicted to increase to about 2800 per year, with more cases likely in urban zones because of the "heat island" effect of built-up areas.*

**Effects of Ultra Violet (UV) radiation** – exposure to UV radiation in direct sunlight can cause a number of illnesses, particularly sunburn, skin cancer and cataracts. A likely increase in outdoor leisure pursuits, combined with the increase in harmful UV rays reaching the Earth's surface because of ozone layer depletion, is likely to increase the risks of sun-related health problems.

**Incidences of food poisoning** – food poisoning is associated with warm weather and can lead to death in the elderly or sick. Climate change is likely to lead to more cases of food poisoning as high temperatures favour the growth of harmful microorganisms in food and will encourage more outdoor eating, especially barbecues.

**Refrigeration of perishable foods and temperature-sensitive medicines** – as average temperatures rise, refrigeration equipment will need to work harder to maintain lower temperatures and old appliances may be unable to improve performance. While legislation already exists to regulate temperatures in food businesses there is little guidance for householders.

**Effects of extreme weather events** – the predicted increase in gales and flooding may cause more injuries through people being blown over in high winds, hit by flying debris, swept away in water flows or involved in traffic accidents.

### (ii) Indirect health effects of climate change

**Disturbances to ecological systems** – warmer

temperatures will encourage the survival of microorganisms and pests, including those harmful to human health. This will increase the likelihood of diseases such as malaria spreading, although it is unlikely to pose a major problem in the UK. Other diseases and irritations caused by ticks, flies and fleas may also increase.

**Effects on water-borne diseases** – water supplies may be affected in terms of quality, quantity and availability. Outbreaks of Legionnaires' disease are more likely due to increased use of air conditioners/humidifiers. Water-borne infections may increase as people travel abroad more.

**Impact of air pollution** – air pollution is a potential danger to health, causing deaths and hospital admissions from allergies, asthma and breathing disorders.

### (iii) Measures to address the impact of climate change

Many of the health impacts covered above can be most effectively tackled through educating the public and industry. The Department of Health's *Infectious Disease Strategy*<sup>25</sup> proposes more cooperation with local authorities on health education and promotion to control diseases. The council already works closely with the Health Protection Agency and other Gloucestershire authorities on health promotion and will ensure this includes climate change impacts.

Resources have limited the council's ability to pursue promotional or educational activities on food hygiene or infectious disease control. With additional resources talks in schools or other events could be provided, with printed material for distribution or display in public buildings, GP's surgeries, on the council website etc.

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## Key improvement measures

*(see action plan for more details)*

**Members of the Climate Change Board will continue to work with the Health Protection Agency and other partners to raise awareness of the increased risk to health from climate change. In particular, they will:**

- **continue providing advice on staying cool in hot weather, protection against sun exposure and safeguarding health when visiting areas where malaria and other diseases are endemic**
- **encourage improved indoor ventilation of homes, public buildings, hospitals, other institutions and workplaces to avoid the need to change working hours to cool times of the day**
- **raise awareness of health and safety laws regarding health risks for outdoor workers and undertake risk assessments for council employees working outdoors**

- *support Food Standards Agency initiative to reduce food poisoning by 20% by 2006*
- *lobby for improvements to the food production chain especially for meat products*
- *provide publicity on refrigeration issues*
- *encourage the provision of extreme weather warnings to civil defence bodies*

## E. Economic development and tourism impacts

Cheltenham is fortunate to have a thriving local economy. It is recognised, however, that the impact of climate change on the local economy will be significant.

### (i) Impact on businesses

The potential impact of climate change on business is huge; there will be more disruption from flooding and storms affecting telecommunications, transport and insurance, the working environment will be hotter in summer, but there will also be benefits for businesses able to adapt to new opportunities.

#### **Fact box**

*In 2000 Cheltenham had a gross domestic product (GDP) of 126% of the national average*

*Its key sectors are financial and business services (28% of GDP); manufacturing (18% of GDP); and distribution, hotels and catering (18% of GDP). (This sector includes retailing and tourism.)*

*Cheltenham is a key sub-regional retail centre with just under 8,000 people employed in this sector and an output of £190m*

*Tourism also employs about 8,000 people in the town, bringing in some £235m to the local economy*

Financial and business services are key sectors in Cheltenham's economy. The impact on these businesses could be significant. Insurance companies are vulnerable to storm and flood losses and there may be more health insurance scheme claims. Lending institutions may be vulnerable to losses from property in flood risk areas. The likely increased cost of air travel may have a detrimental effect on local engineering industries, but there may also be opportunities to develop innovative solutions to climate change impacts, especially in the fields of renewable energy and other environmental technologies.

## Key improvement measures

(see action plan for more details)

To reduce the impact of climate change on businesses in Cheltenham, members of the Climate Change Board will:

- *increase awareness of climate change and its likely impacts with the business community*
- *encourage businesses to exploit new opportunities presented in adapting to or mitigating against climate change, eg the renewables sector*
- *encourage companies to undertake their own audits and risk assessments*
- *continue working with strategic planners through the planning process to ensure that where possible employment land is located away from floodplains*

### (ii) Impact on residents

The economic impact on residents will be significant. Potential impacts will come from increased insurance costs, or problems with getting insurance cover, and property depreciation. These factors will need to be addressed in strategies to support vulnerable groups.

### (iii) Impact on tourism

Hotter, drier summer weather could have a major impact on tourism in Cheltenham, especially if destinations abroad become less popular as a result of climate change. A longer and warmer summer may increase visitors in rural locations, especially the Cotswolds. Although this will benefit the local economy, increasing pressures on local infrastructure and environmental systems may arise. Any growth in tourism will need to be carefully managed to minimise environmental impacts. Increased visitor numbers are likely to put considerable pressure on the local road networks. How tourists travel to and around the town will become increasingly important.

Rather than having a single major tourist attraction, the council has helped develop a range of events and festivals to attract visitors to the town and has promoted the 'café culture'. Although most festivals are reasonably weatherproof, town centre improvements being delivered as part of the Civic Pride scheme will need to be resistant to weather.

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## **Key improvement measures**

*(see action plan for more details)*

*To reduce the impact of climate change on tourism, Cheltenham Borough Council will:*

- *continue raising awareness of climate change with tourism partners and promote sustainable tourism*
  - *continue encouraging the café culture*
  - *plan for more weather-proof tourist attractions, ensuring that open spaces are not lost, and ensure town centre improvements delivered as part of the Civic Pride scheme are resistant to extreme weather*
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## Chapter 8. Raising awareness and understanding of climate change

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Evidence supports the idea that climate change is, and will continue to happen. There are many measures that can be taken both to mitigate against increasing climate change and also adapt to it. The challenge is firstly to engage with the community to raise awareness of the issue and secondly to encourage action to address it. In some cases this will require a real culture change to achieve.

**Quote**

*"If you think you are too small to have an impact, try going to bed with a mosquito." Philip Elmer, DeWitt writer on technology and change*

Global issues such as climate change can be seen as being too large to tackle and communities and individuals may feel powerless to act.

However these issues impact on local communities and there are many simple measures that could be taken which, collectively, would make a difference to local quality of life. Individuals need to be encouraged to feel that they have a role to play and how they may benefit from taking simple steps. There is also a need to educate people to equate their own behaviour with being part of the problem.

Although climate change is likely to have some positive effects on Cheltenham, there is a need to recognise the negative effects, which are likely to have a much greater impact if nothing is done to tackle them. By tackling these negative effects, the quality of life in Cheltenham in a changing climate is likely to be at least maintained.

### (i) Community awareness of climate change in Cheltenham

In late 2001 the council asked its citizens' panel, Cheltenham Viewpoint, what they knew about climate change and were encouraged by the results, which demonstrated a level of knowledge within the community already and a commitment to more sustainable lifestyles.

There are a number of vehicles that can be used to raise awareness of the issue and encourage people to make changes. These could include articles in in-house or community publications, training sessions, leaflets and web material demonstrating the benefits of measures and with a clear signposting service for all sectors.

A number of organisations are already working on raising awareness within the community. Vision 21 works with community organisations and schools, Cheltenham Centre for Change runs short courses on sustainable

living and the Gloucestershire Environmental Business Forum provides specialist training for small businesses. (See case study 11 in appendix 2 for initiatives being undertaken by a local school.)

The University of Gloucestershire is the leading educational establishment in the region working on climate change and has significant expertise. It organised Cheltenham Climate Change Forum in 2001 and has strong links with the UK Climate Impacts Partnership and C-CLIF (Centre for Climate Change Impacts Forecasting). The university also offers a postgraduate certificate in climate change management.

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### Key improvement measures

*(see action plan for more details)*

**All members of the Climate Change Board will need to act as champions in their field to encourage others to take up the challenge of climate change. In particular, they will work together to:**

- **continue raising awareness of climate change within the community**
- **continue to ensure that the most up to date information about the potential impact on Cheltenham is made available**
- **continue raising awareness of practical measures that can be taken, tailored to specific business sectors, households & individuals, schools, the young and community groups**
- **provide a signposting service for sources of information and advice**
- **play a leadership role in demonstrating what can be achieved and the benefits**

**Cheltenham Borough Council will raise awareness of climate change issues amongst its members and officers**

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- <sup>15</sup> A Gloucestershire not-for-profit company set up to promote local food and products ([www.foodlinks.info](http://www.foodlinks.info))
- <sup>16</sup> Gloucestershire Municipal Waste Management Strategy – 2002 ([www.gloucestershire.gov.uk](http://www.gloucestershire.gov.uk))
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- <sup>18</sup> For more information on Cheltenham Furniture Recycling Scheme contact 01242 228823
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