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Northamptonshire
Climate Change
Strategy
2010 – 2014



Northamptonshire
Partnership



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EXECUTIVE SUMMARY

The Northamptonshire Climate Change Strategy 2010-2014 sets out a framework for action by members of the Northamptonshire Partnership to:

1. Raise awareness of the issue of Climate Change and its impact on Northamptonshire
2. Reduce greenhouse gas emissions across the county
3. Plan for and adapt to the predicted impacts of Climate Change

Northamptonshire's climate is changing. We now have shorter milder winters, but increasing incidence of extreme weather events. The increased levels of 'greenhouse' gases that are already in the atmosphere mean that whatever we do now we cannot escape some climate change, but the worst effects can be avoided if the greenhouse gases in the atmosphere are stabilised instead of being allowed to continue to increase. At the same time it will also be necessary to adapt to the changes to ensure that their impact is minimised.

Based on the NI 186 data that has been published for 2005, 2006 and 2007, per capita CO2 emissions are beginning to decrease and local targets have been set to achieve a reduction in total CO2 emissions by 2011 as follows:

- Housing - at least 16,000 tonnes per year reduction

- Transport - at least 18,000 tonnes per year reduction
- Business, public sector and voluntary organisations - at least 22,000 tonnes per year reduction

However, we must also plan for further reductions in the longer term. This strategy aims to start the long-term process of achieving at least a 34% cut in emissions by 2020 and at least 80% reduction in emissions by 2050 compared to a 1990 baseline, in line with national targets¹ and ultimately becoming a carbon neutral county.

There are already good practice examples of partnership working in Northamptonshire on this issue. Whilst the Strategy provides more detail, achievements include:

- Through collaborative working on the national exemplar 'Northamptonshire Home Energy and Efficiency Partnership' district and boroughs saved over 7,000 tonnes of CO2 between 2005-2009 ;
- ALL local authorities in Northamptonshire signed the Nottingham Declaration in October 2006- part of the first region to get 100% sign-up;
- All local authorities in Northamptonshire (along with the Police and University) completed a Local Climate Change Impacts Profile in 2008-09,

¹ http://www.decc.gov.uk/en/content/cms/what_we_do/lc_uk/carbon_budgets/carbon_budgets.aspx

which enabled all to achieve LAA Target of Level One for NI 188 – Planning to Adapt to Climate Change; and

- All local authorities participated in a national Energy Saving Trust national 'Gateway' pilot in 2009 – focusing on Domestic emissions.

In order to support action to adapt to climate change the strategy sets out to ensure that:

- A watching brief is kept on emerging research on climate change impact and adaptation
- Organisations have access to the information on the impacts of climate change
- Key policies, strategies and plans, particularly for Northamptonshire's growth agenda, take account of the impact of climate change (are made "climate resilient")
- Skills are developed in areas such as climate risk assessment. Action needs to be taken within organisations now and it is only by developing the skills of the workforce that real progress can be made

The strategy breaks down an analysis of the current situation and what needs to be done into three main sections: raising awareness of climate change, reducing emissions of greenhouse gases and planning and adapting to climate change. Within each of these sections the analysis is further broken down into key sectors and summarised under four sub-headings: 'Why is this important?', 'Where are we now?', 'What are we aiming to achieve?' and 'What do we need to do?'

The strategy will be implemented by the Northamptonshire Climate Change Officers Group in association with a range of partners as relevant for each activity. An action plan, initially for 2010/11 will be developed to support the implementation of the strategy and progress will be reported annually to the Public Service Board.

1.0 INTRODUCTION

1.1 The Northamptonshire Climate Change Strategy

The Strategy has been produced to support organisations and individuals in Northamptonshire to take action in response to Climate Change. It provides a strategic overview, consolidating actions and feeds back ideas to regional and national organisations. It also responds to the Government's call for organisations and authorities across the country, to take action to ensure that we are able to deal with the unavoidable impacts of climate change and to urgently take action to slow its progress. It builds on the commitment to tackle the challenge of climate change which is outlined in the Northamptonshire Sustainable Community Strategy (SCS)². Local Strategic Partnerships for Northamptonshire Districts have also highlighted climate change as a key issue for them.

The Strategy sets out a framework for action by members of the Northamptonshire Partnership to:

1. Raise awareness of the issue of Climate Change and its impact on Northamptonshire
2. Reduce greenhouse gas emissions across the county
3. Plan for and adapt to the predicted impacts of Climate Change

The Northamptonshire Partnership is made up of agencies across the public sector all working together to deliver better outcomes for residents using their services in Northamptonshire³.

The Strategy covers the period 2010-2014. In drafting it, we have invited a wide range of partners to contribute to this document through the Northamptonshire Climate Change Officers Group (and other groups with a particular interest in aspects of the Strategy, e.g. the Northamptonshire Home Energy Efficiency Partnership). Following the consultation period on this Draft, the Northamptonshire Partnership will be asked to adopt this Climate Change Strategy. The responsibility for delivery will then be shared across the many agencies involved in the Partnership and identified in this Strategy.

Although the Strategy is described in terms of the three central pillars set out above, the reality is that there are strong relationships between many of the issues addressed in the Strategy. For example:

- The need to raise awareness about climate change cuts across every area of the Strategy
- Reducing carbon emissions from homes requires awareness raising and practical action on existing homes but will also inevitably be affected by proposals for new homes and other developments in the county proposed through the Regional Spatial Strategy

1.2 Climate Change: The Need for Action

“Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice and rising global sea level”. Intergovernmental Panel on Climate Change (IPCC) 2007.

² “Northamptonshire: The best place in England to grow”; Sustainable Communities Strategy for Northamptonshire, www.northamptonshireobservatory.org.uk/docs/docSCS_brochure_19jan09090121093550.pdf

³ See www.northamptonshireobservatory.org.uk/aboutus/default.asp for details

Climate Change: What is Causing It?

The burning of fossil fuels, certain agricultural and industrial activities and the decomposition of waste release greenhouse gases into the atmosphere. The most significant of these is carbon dioxide (CO₂), but methane (CH₄), nitrous oxide (N₂O) and hydrofluorocarbons (HFCs) also have an effect. To a certain extent many of these gases are present naturally and work like a “greenhouse” trapping heat in the atmosphere and keeping the earth at a liveable temperature. The problem is that since the industrial revolution increasing amounts of fossil fuels have been burnt releasing more of these gases than would occur naturally. When fossil fuels are burnt they release the carbon dioxide that has been stored in them for thousands of years. Increasing industrialisation and population growth has seen emissions increase at an even faster rate in recent decades. As a result the ‘greenhouse effect’ has accelerated and comparatively rapid warming of the earth is occurring.

Climate Change: What Will It Mean For The World?

We can already see evidence of the impact of climate change - glaciers are retreating, sea levels are rising and severe weather events such as storms, flooding, gales, heat waves and droughts are becoming increasingly common. Almost all climate scientists agree that the climate is changing and that this is mainly caused by increasing emissions of man-made greenhouse gases. Global average temperatures have risen by around 0.8°C since the late 19th century and international discussions are now focusing on attempting to avoid the most dangerous effects by stabilising global temperatures below a 2°C increase above pre-industrial levels⁴. It is predicted that if no action is taken to limit greenhouse gas emissions, the worldwide consequences are likely to be very serious,

especially in developing countries where millions more people are likely to be exposed to the risk of extreme drought, disease, hunger and flooding. In Europe it is predicted that there will be an increased risk of flooding in relation to more frequent storms and other extreme weather events such as the 2003 heat wave. Consequences include major health and fire risks, food and water shortages, soil subsidence and economic damage. The Stern Review⁵ concluded that the overall costs of climate change will be at least 5% of global GDP every year (and could be as high as 20%) and that the costs of action to reduce greenhouse gas emissions, to avoid the worst impacts of climate change, can be limited to around 1% of global GDP per year if early action is taken.

Climate Change – What Will It Mean For Northamptonshire?

Northamptonshire’s climate is changing. We now have shorter milder winters, but increasing incidence of extreme weather events. The latest UK Climate Projections (UKCP09)³ for the East Midlands in 2080 based on a ‘medium emissions’ scenario predict increased mean winter temperature of 3°C, increased mean summer temperature of 3.5°C, increased mean winter precipitation of 18% and decreased mean summer precipitation of 19%.

In the case of Northamptonshire, the most noticeable impact to date is the increased frequency of severe weather events such as the floods at Easter 1998 and in July 2007, the exceptionally warm summer of 2003 and the snowfall of February 2009. The Nene valley in the south of the county is especially vulnerable to flooding. Biodiversity in Northamptonshire is already under severe pressure from development and much of the surrounding countryside consists of intensively-farmed fields of little biodiversity value. Species will need to move in order to follow their “climate space” which will alter

⁴ UK Climate Projections (UKCP09) <http://ukcp09.defra.gov.uk/>

⁵ The Stern Review: The economics of climate change http://www.hm-treasury.gov.uk/stern_review_report.htm

due to climate change. However, because wildlife habitats are fragmented species are inhibited in their ability to move between them. Climate impacts are likely to further diminish the quality of the environment unless the county's biodiversity can be helped to adapt.

Climate Change: What Can Be Done About It?

The increased levels of greenhouse gases that are already in the atmosphere mean that whatever we do now we cannot escape some climate change, but the worst effects can be avoided if the greenhouse gases in the atmosphere are stabilised instead of being allowed to continue to increase. In order to avoid the worst impacts of climate change, many scientists agree that we must reduce our greenhouse gas emissions by at least 80% before 2050. The UK Government has now adopted this as the national target⁶.

At the same time it will also be necessary to adapt to the changes to ensure that their impact is minimised. It is therefore essential to assess what climate change is inevitable, what the impacts will be and to plan action to minimise any risks. Although most attention is given to the negative impacts of climate change there may also be some perceived benefits, for example increased tourism as a result of warmer weather, fewer cold related deaths in winter and some opportunities for businesses to develop products and services that support the transition to a low carbon economy. The Stern Review examined the evidence of the economic effects of climate change and concluded that the benefits of strong, early action considerably outweigh the costs and that measures to help people adapt to it are essential.

The Northamptonshire Partnership wants to lead by example and strongly believes that everyone can

make a difference and that we can all do more – both as individuals and as organisations. This Strategy demonstrates our commitment to translate that belief into action.

1.3 Responses to Climate Change

The International Response to Climate Change

As part of the Kyoto protocol, the UK has agreed to ensure annual greenhouse gas emissions are at least 12.5% below 1990 levels in the period 2008-2012. European Union heads of state have agreed that greenhouse gases must be reduced by 20% by 2020 from 1990 levels. The European Climate Change Programme includes measures such as carbon capture and the EU Emissions trading scheme. The United Nations Climate Change Conference in December 2009 in Copenhagen has focused international efforts to obtain a global agreement to replace the existing Kyoto Protocol in 2012. The resultant 'Copenhagen Accord'⁷ includes an agreement that deep cuts in global emissions are required according to science and to take action to hold the increase in global temperature below 2 degrees Celsius.

The National Response to Climate Change

The UK Government response to climate change has been expressed through a number of vehicles: national planning policy, the Energy White Paper and the UK Sustainable Development Strategy ('Securing the Future'), as well as through business taxation policies e.g. the climate change levy.

The Climate Change Act 2008 set a legally binding target for reducing UK carbon dioxide emissions by at least 80% by 2050, compared to 1990 levels. The Act:

⁶The UK Low Carbon Transition Plan http://www.decc.gov.uk/en/content/cms/publications/lc_trans_plan/lc_trans_plan.aspx

⁷<http://unfccc.int/resource/docs/2009/cop15/eng/l07.pdf>

- Requires the Government to publish five yearly carbon budgets as from 2008-2012
- Places a duty on the Government to assess the risk to the UK from the impacts of climate change
- Provides powers to establish trading schemes for the purpose of limiting greenhouse gas emissions, which have resulted in the introduction of the Carbon Reduction Commitment

The UK Government has recently published a White Paper entitled 'The UK Low Carbon Transition Plan', which sets out a national strategy for climate and energy⁸. This includes a plan to deliver emissions cuts of 18% on 2008 levels as the first stage towards achieving the 80% reduction by 2050 that had already been announced.

The Regional Response to Climate Change

The East Midlands Regional Climate Change Partnership has developed a Regional Programme of Action for 2009-2011: 'Tackling Climate Change in the East Midlands'⁹ (with input from members of the Northamptonshire Partnership). This focuses in particular on reducing greenhouse gas emissions (with a target of a 10% reduction in the average of 11.6 tonnes of CO₂e per capita) and adapting to daily average temperatures of up to 5°C higher and decreases in summer rainfall of up to 60% by the 2080s. It defines a set of eight priority action areas as follows:

1. People and communities – engaging, informing and supporting people and communities to tackle climate change
2. Public sector – developing, supporting and gearing up the role of the public sector
3. Buildings – low carbon and climate resilient

buildings (new build and retrofit)

4. Environment – protecting and enhancing the capacity of the natural and historic environment (biodiversity, agriculture, landscape, flood risk)
5. Economic resilience – achieving a low carbon, resilient economy
6. Infrastructure and services – reducing the carbon impacts of energy, transport, water and waste services and improving the resilience of its associated infrastructure
7. Inter-regional and international links – facilitating partnerships beyond the county, especially within the East Midlands region
8. Leadership – driving action to tackle climate change

The development of a Climate Change strategy for Northamptonshire aims to support this regional response.

Northamptonshire's Response to Climate Change

The Northamptonshire Local Area Agreement (LAA) is an agreement between the Northamptonshire Partnership and the Government, which is the main delivery mechanism for the Northamptonshire Sustainable Community Strategy. It acts as a "contract" between central government, local government and its partners. Once partners have agreed to a target in the LAA they are individually and jointly responsible for making sure it is delivered.

The Northamptonshire Partnership has agreed a number of targets that contribute to tackling the challenges of climate change as part of its Local Area Agreement¹⁰. This Climate Change Strategy will drive our commitment to meet LAA targets, in particular NI 186 (per capita CO₂ emissions in the

⁸ The UK Low Carbon Transition Plan http://www.decc.gov.uk/en/content/cms/publications/lc_trans_plan/lc_trans_plan.aspx

⁹ Tackling Climate Change in the East Midlands" - East Midlands Regional Programme of Action 2009-2011

¹⁰ For more information about the LAA see www.Northamptonshireobservatory.org.uk

local authority area) and NI 188 (adapting to climate change), and sets out a framework for the actions that we will take to make this happen.

Addressing the implications of climate change is a key challenge for spatial planning and for the investment plans of partners across Northamptonshire. The Joint Planning Units prepare the Core Strategies that set the overall pattern of where activities and development will take place and the quality standards that should be achieved. The adopted North Northamptonshire Core Strategy focuses most new development on the main settlements where access to facilities and public transport is best and sets out a clear strategy for enhancing green infrastructure and managing water resources. The policies of the adopted strategy are amplified by a Supplementary Planning Document on Sustainable Design issues. Details of the West Northamptonshire Core Strategy can be found at www.westnorthamptonshirejpu.org. Current work on the Core Strategies will address the Northamptonshire Arc concept and will seek to take forward the issues identified in this Climate Change Strategy.

The County Council has been working in conjunction with partners across the county, to develop the

concept of the 'Northamptonshire Arc'¹¹ to help shape, frame and respond to the challenges of being the fastest growing sub-region in England, in terms of both population and traffic growth and to address other external agendas and initiatives such as climate change and the need to shift to a low carbon economy.

The Arc represents a broad corridor, running approximately south-west (from Daventry and Towcester) to north-east (Corby and Wellingborough/Rushden) with Northampton as the commercial focus at the centre. It comprises the largest urban areas and the focus of existing population. It is at the heart of economic activity and patterns of movement. The Arc also encapsulates the bulk of new growth and other development, as well as the principal public and other services including healthcare, education and learning.

The subsidiary themes to the Northamptonshire Arc are: connectivity, climate change, biodiversity and the economy. This Climate Change Strategy will enable these themes to be developed further and inform what strategic and iconic proposals we should be focusing on in the future.

¹¹ For more details see the Northamptonshire Sub-Regional Investment Plan 2010-2013 at <http://cmis.northamptonshire.gov.uk/CmisWebPublic/Binary.ashx?Document=6042>

2.0 REDUCING NORTHAMPTONSHIRE'S EMISSIONS

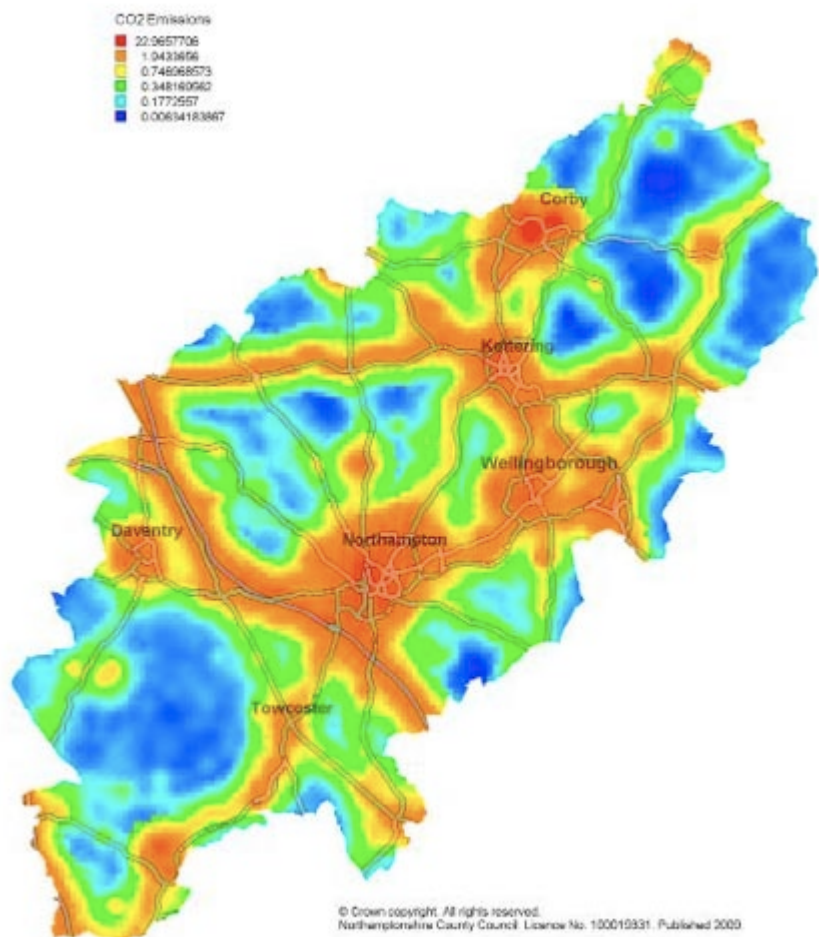
2.1 Northamptonshire's Current Greenhouse Gas Emissions

This strategy concentrates predominantly on the reduction of CO₂ emissions, since this is the most significant greenhouse gas. Actions needed to reduce other greenhouse gas emissions, such as methane from waste disposal, (which is a 23 times more potent greenhouse gas than CO₂), are also addressed.

Emissions Data

The UK has a slightly higher per capita emissions rate than the average for Europe, but the emissions rate is far higher in the USA. The global average, however, is significantly lower. Reducing CO₂ emissions is an issue that needs to be tackled “globally” as well as “locally”.

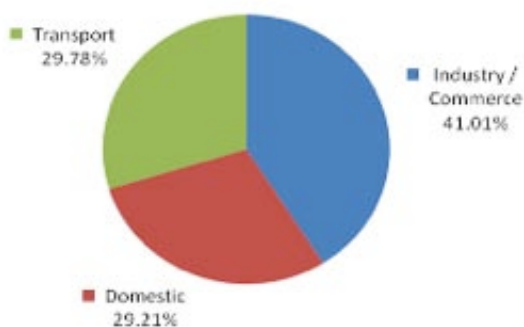
The map below illustrates the location of the main sources of CO₂ in the county. Emission sources are mainly concentrated around towns and transport routes and remote concentrations of emissions are also located at industrial estates and electricity sub stations.



Emissions of CO₂ in Northamptonshire 2005 map (source: NAEI*)

Local Authority area CO2 emission by sector data is now published annually by DEFRA to support the monitoring of progress against NI 186; 'total CO2 emissions per head of population'. The first year for which this data is available is 2005 and this year provides the "baseline" for Northamptonshire's CO2 reduction targets. The total emissions for Northamptonshire in 2005 were 5.6 million tonnes, or about 8.5 tonnes per person, which is slightly higher than the average of 7.75 tonnes per person for the East Midlands region. This includes emissions over which there is local control, i.e. from energy use in homes and businesses and from road transport (excluding motorways). It is the emissions reported via NI186 that will be the focus for Northamptonshire Partnership organisations and this Strategy, since it is these over which the Partnership can have some impact.

The diagram below shows NI 186 CO2 Emissions by Sector in Northamptonshire in 2005. This shows that Northamptonshire's industry and commerce sector (which includes the public sector) produces the greatest proportion of the county's CO2 emissions (41%), with the remainder approximately evenly split between the domestic and transport sectors.



CO2 emissions by Sector (Northamptonshire) 2005 (Source DEFRA)

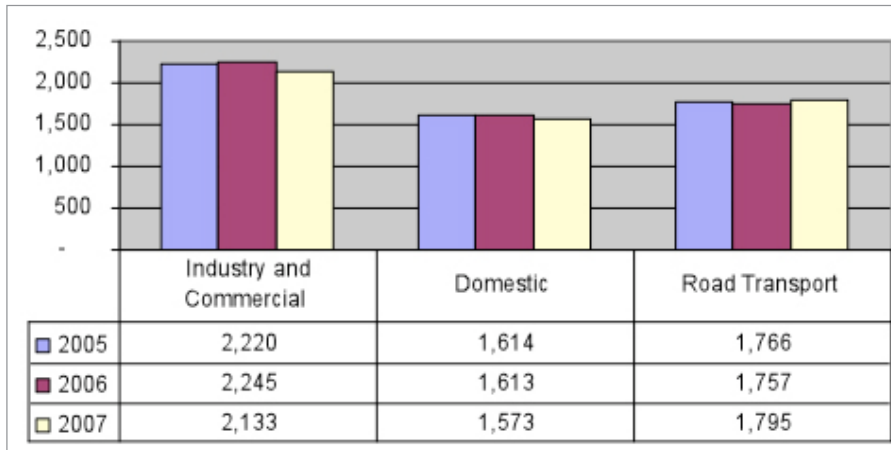
It should be noted however, that there are significant differences in the breakdown of emissions by sector in the different districts, for example in Corby about two-thirds (67.5%) of emissions are from industry and commerce and in both Daventry and south Northamptonshire, road transport accounts for over 40% of emissions.

Trends in emissions data

From many indicators Northamptonshire can be seen to be typical of much of the UK. In 2007 total UK CO2 emissions were approximately 8% below 1990 levels. This is mainly due to a switch to the use of gas in generating electricity rather than coal and oil. Since the start of this century CO2 emissions have stabilised. In the years from 2002 – 2006 emissions have been rising gradually in the business and transport sectors, with little change in the domestic sector.

Based on the NI 186 data that has been published for 2005, 2006 and 2007 there was a slight increase in overall Northamptonshire emissions from 2005 to 2006, mainly due to an increase in the business sector (likely to be partly due to an increased use of coal for generating electricity in the UK in 2006). However, there was a decrease in total emissions between 2006 and 2007 and together with an increase in the population, this has resulted in a decrease in the per capita emissions to 8.1 tonnes per year (compared to 8.4 in 2006 and 8.5 in 2005).

The following chart shows the trends in the three sectors between 2005 and 2007 (units: kilotonnes of CO₂ p.a.):



This shows decreases in emissions of 3.9% in the industry and commerce sector and of 2.5% in the domestic sector. Emissions from road transport rose by 1.6%. The overall reduction equates to 1.7% over the two years.

2.2 Emissions Reduction Targets

Through the Local Area Agreement¹² the Northamptonshire Partnership has agreed a reduction target for NI 186 'total CO₂ emissions per head of population' for Northamptonshire. The target is an 8.9% reduction in CO₂ emissions per capita from 2005 levels by 2011.

The Government has agreed to play its part in this reduction contributing 7.9% from national measures (such as legislation, carbon trading, strengthening building regulations, national energy and planning policy etc.). This means the Northamptonshire Partnership is responsible to the UK government for achieving at the very least a 1.0% reduction in CO₂ locally from 2005 levels by 2011 (approx. 56,000 tonnes per year reduction).

Distributed to the different sectors this local target means a reduction in total CO₂ emissions by 2011 as follows:

- Housing - at least 16,000 tonnes per year reduction
- Transport - at least 18,000 tonnes per year reduction
- Business, public sector and voluntary organisations - at least 22,000 tonnes per year reduction

We must also plan for further reductions in the longer term. This strategy aims to start the long-term process of achieving at least a 34% cut in emissions by 2020 and at least 80% reduction in emissions by 2050 compared to a 1990 baseline in line with national targets¹³ and ultimately becoming a carbon neutral county.

Because it is extremely difficult to show whether a change in the DEFRA figures for NI186 is due to local or national measures, the Partnership will need to develop a robust way of estimating the CO₂ reductions that can be attributed to local activities to enable more accurate reporting and monitoring against the indicator.

¹² Northamptonshire Local Area Agreement 2008-2011

¹³ http://www.decc.gov.uk/en/content/cms/what_we_do/lc_uk/carbon_budgets/carbon_budgets.aspx

2.3 Achieving Emissions Reduction Targets

Achieving these targets will be challenging and will require a wide range of activity at every level in order to achieve significant CO₂ reduction. The greatest reductions will be achieved by reducing energy use and improving energy efficiency but increasing the proportion of energy from renewable energy and low carbon technologies will also be important. The domestic sector offers good potential for CO₂ reduction, but action is also needed to reduce energy use across the public, voluntary and the commercial and industrial sectors and to support the development of low or zero carbon technologies and the use of renewable energy sources where possible throughout the county.

Case Study – Upton Development, Northampton

The Upton development on the outskirts of Northampton has been designed to create an urban extension that would promote best practice in sustainable urban growth. When it is complete the development will comprise about 1,380 homes, together with a mix of uses which includes a primary school, local shops and live-work units. A case study on this development has been published by the Energy Saving Trust:

http://www.housebuildersupdate.co.uk/doc_Uptoncasestudy.pdf_113342150306.pdf

Six new homes on this development built by Metropolitan Housing Partnership are the UK's first certified, open-market, Code Level 6 homes – see: <http://www.uptonsquare.co.uk/oneearth/index.php>.

3.0 ADAPTATION TO CLIMATE CHANGE

Carbon dioxide, methane and other greenhouse gases stay in the atmosphere for a long time, (CO₂ can stay for up to 200 years). This means that whatever we do to reduce emissions, we cannot escape some change in the climate. We can only hope to reduce the severity of the change.

While climate change has had some benefits and is presenting some opportunities, for example an increase in the growing season (one month over the last century) and warmer winters (reducing the need to heat homes), it is the negative impacts of climate change that will have a much greater effect if nothing is done about them. The impact of climate change therefore needs to be built in alongside other issues in many aspects of decision-making by public organisations and by many businesses.

Whilst no one incidence of extreme weather can be directly attributed to climate change, an increasing incidence and severity of extreme weather is consistent with scientists' predictions of climate change.

As a consequence, across the county, public authorities, businesses and householders have already had to take adaptive action, for example:

- Work to improve the drainage capacity on Northamptonshire's roads
- Putting in place emergency procedures for more extreme storm and floods
- Balancing the books for increases in building insurance premiums
- Planning to optimise water resources

3.1 The Impact of Climate Change on Northamptonshire

Research into the impacts of climate change on the UK is being undertaken by many agencies. The UK Climate Impact Programme, (UKCIP) works to disseminate this information and, with the Environment Agency, helps to advise organisations on how to ensure assets and services are resilient to the impacts of climate change.

The updated information on the predicted changes in the climatic system (UKCP 09) shows that due to climate change, it is highly likely Northamptonshire will see further:

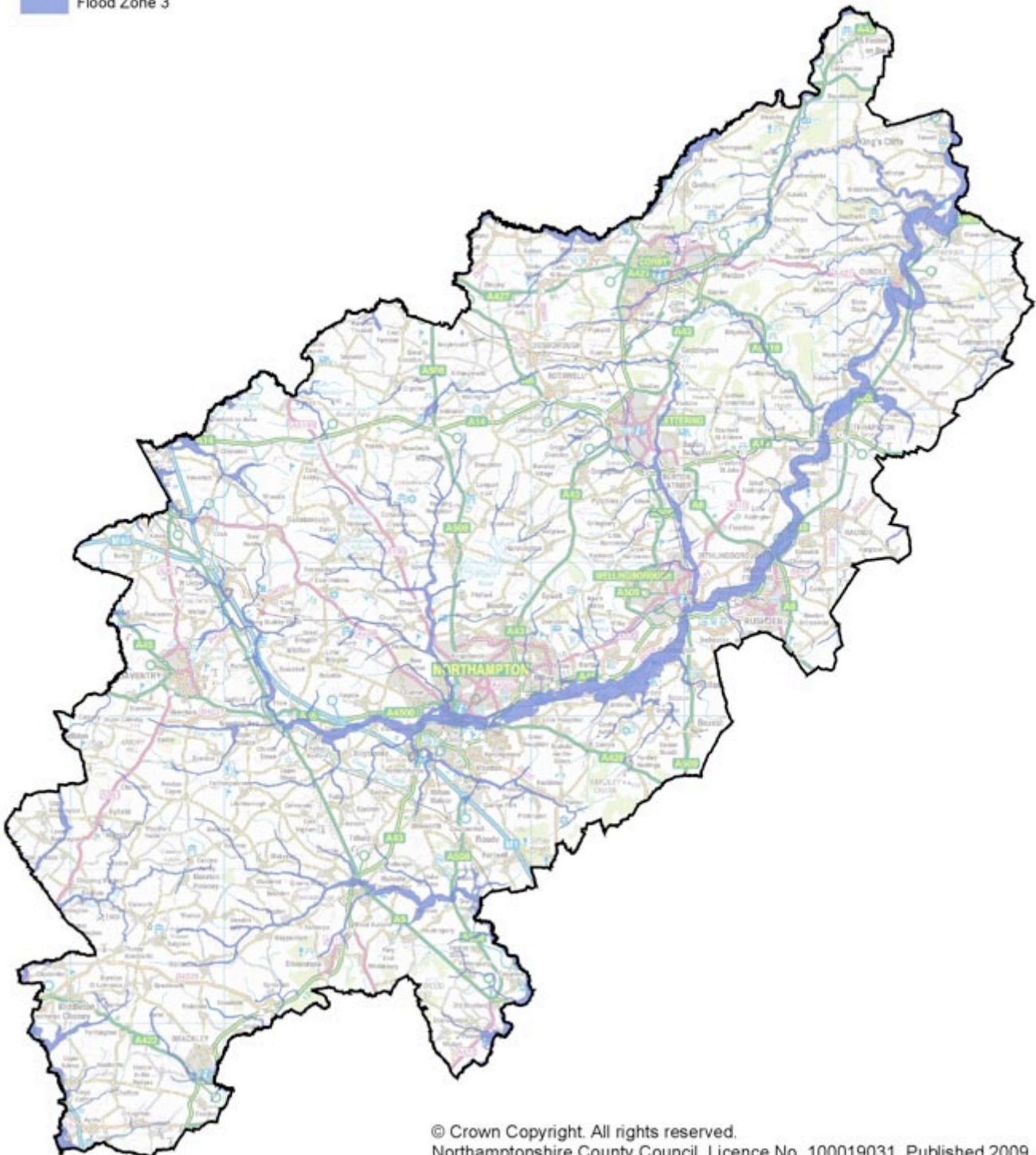
- Increases in average temperatures
- Increased rainfall intensity and greater flooding
- More frequent and severe gales
- More summer drought
- Increasing threats to property, habitats and species and air quality

The most immediate impact of climate change is likely to be the increased risk of flooding and the consequent damage to properties and infrastructure. The following map shows the areas of the county that have been identified by the Environment Agency as having the highest probability of flooding from rivers (Zone 3 – annual probability over 1%):

Map showing areas of Northamptonshire with highest probability of flooding

Dark blue shows the area that could be affected by flooding, either from rivers or the sea, if there were no flood defences. This area could be flooded from a river by a flood that has a 1% (1 in 100) or greater chance of happening each year.

 Flood Zone 3



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Map showing areas of Northamptonshire with highest probability of flooding (Source: Environment Agency, September 2008)

The Department Of Health¹⁴ has indicated that significant risks to human health in the UK from unmitigated climate change are clear:

- heatwaves will result in an increase in heat-related deaths (over 35,000 excess deaths were reported from 12 European countries in the 2003 heatwave);
- increased coastal and river flooding will have major impacts on health - as well as threats to physical health, flood victims can also experience significant mental health problems as a result of personal and economic loss and stress; and
- episodic higher concentrations of ground-level ozone, caused by air pollution and often associated with heatwaves, could lead to an increase in respiratory problems and incidence of allergies.

3.2 Adapting to Climate Change in Northamptonshire

The Northamptonshire Partnership wants to encourage all organisations identified as vulnerable to climate change to assess the risk and have adaptation measures in place.

The task is to ensure that:

- A watching brief is kept on emerging research on climate change impact and adaptation
- Organisations have access to the information on the impacts of climate change
- Key policies, strategies and plans, particularly

for Northamptonshire's growth agenda, take account of the impact of climate change (are made "climate resilient")

- Skills are developed in areas such as climate risk assessment. Action needs to be taken within organisations now and it is only by developing the skills of the workforce that real progress can be made.

Research has been carried out within the following sectors identifying areas most likely to be profoundly affected by climate change and where partners have the power to take adaptive action:

- Public Services
- Industry and Commerce
- The Built Environment
- Biodiversity, Agriculture and the Natural Environment
- Flood Management

Section 6 deals with each of these areas in more detail.

There are also positive benefits that will arise from actions to adapt to climate change e.g. improved health and wellbeing from increased cycling and walking and a more healthy diet (also linked to reduced food miles, growing your own food, etc.). A Northants Health and Wellbeing Declaration has been drafted to highlight the interdependence between improved health and a broad range of strategic goals such as economic prosperity and sustainable growth and this makes specific reference to carbon reduction.

¹⁴ <http://nds.coi.gov.uk/Content/detail.aspx?NewsAreaId=2&ReleaseID=412021>

4.0 RAISING AWARENESS OF THE ISSUE OF CLIMATE CHANGE

4.1 The Public, Community organisations and Businesses

Why is this important?

“Climate change will not be effectively managed until individuals and communities recognise that their behaviour can make a difference” – The Royal Society, Climate Change: what we know and what we need to know (2002)

The positive changes that are taking place need to be more widely publicised. The benefits to individuals (e.g. improved health through walking and cycling, savings from reducing expenditure on energy, etc.) and to businesses (e.g. savings from reducing expenditure on energy, opportunities to develop new services and products that are low energy or develop technologies that enable adaptation to climate change, etc.) need to be further promoted and highlighted in order to translate the growing awareness of climate change into significant action in homes, businesses and organisations across the county.

Where are we now?

Many people are informed about the seriousness of climate change and are taking some action in their own lives and within businesses and other organisations. It needs to be acknowledged however, that a significant decrease in CO₂ emissions in the county has yet to occur and many organisations have still to consider the impact that climate change will have on their operations. We know that sometimes people do not take effective action for a number of reasons; they may feel overwhelmed by the enormity of the issue, or are confused about which actions will

be most effective or they may make contradictory choices – for example improving energy efficiency of a building, but then spending the savings on fuel hungry ICT equipment.

Specific actions implemented to date include:

- Included “sustainable growth and regeneration” as a theme within the Northamptonshire Sustainable Community Strategy¹⁵ and therefore the work of the Northamptonshire Partnership and its strategies and plans
- The County Council and all of the local authorities have signed the Nottingham Declaration (October 2006)
- Climate Change Strategies have been adopted by some of the Districts, e.g. Wellingborough BC and Corby BC
- The Local Area Agreement (LAA) includes targets based on the National Indicators for all local authorities in Northamptonshire
- Through the Northamptonshire Home Energy Efficiency Partnership the local authorities have established a series of successful projects that have led to a significant uptake of energy efficiency improvement measures in the domestic sector, including ‘ChillOut’ and the ‘Climate Friendly Communities’ scheme
- The County Council, all of the local authorities, the Northamptonshire Police Authority and University of Northampton have undertaken LCLIP (Local Climate Impact Profile) assessments

¹⁵ “Northamptonshire: The best place in England to grow”; Sustainable Communities Strategy for Northamptonshire; www.northamptonshireobservatory.org.uk/docs/docSCS_brochure_19jan09090121093550.pdf

Case Study - Wellingborough Climate Change Toolkit

In 2006 the Wellingborough Partnership produced (on their behalf by Borough Council of Wellingborough) a "Toolkit" to allow local people to explore the potential impacts of a changing climate in the borough. This was awarded a Bronze national Green Apple Environment Award and was shortlisted for the National Energy Efficiency Awards 2008. The Toolkit enables interested parties to hold an hour-long event looking at the potential effects of climate change in the Borough of Wellingborough. It is available both as hard copy and on a CD-ROM and comprises a range of presentations on aspects of climate change plus written materials such as topic guides and leaflets. For further details see: http://www.wellingborough.gov.uk/site/scripts/documents_info.php?documentID=485&pageNumber=2.

What are we aiming to achieve?

In view of the seriousness of the situation, far more needs to be done at every level and significant change is required. Increased awareness of the urgent need to take action, what to do and what others are doing is needed. Therefore we plan to develop a range of new climate change awareness programmes including climate change adaptation initiatives. Messages need to be simple, clear and consistent, adopting a positive 'we can do it' approach. Raising awareness of climate change is a theme that runs across every area of this Strategy – and you will find actions addressing this throughout.

What do we need to do?

- Develop and promote a 'Northamptonshire Climate Change Pledge' or link into national campaigns¹⁶ and encourage organisations and individuals to sign up as a way of demonstrating their commitment to taking and publicising action to reduce their own CO2 emissions and working to make their own activities climate resilient. This could include a partnership 'Switch -it Off/Turn it Down 1 degree/Drive 5 miles less a week' campaign across Northamptonshire and/or an annual 'Environment Week' featuring a wide range of events promoting awareness of all aspects of the environment (especially climate change) and the need to take action
- Stress how the actions of individuals can make a difference and that individuals/families can gain other tangible benefits from adopting these actions e.g. improved health and fitness
- Support partnership organisations to encourage their staff and members to tackle climate change at work, school and at home, e.g. by sharing good practice
- Develop a co-ordinated approach (possibly through a Climate Change Forum) to Northamptonshire's approach to sustainability and climate change that links together existing awareness programmes (e.g. the NCC waste and transport campaigns, schools programmes, 'Climate Friendly Communities', etc.) to maximise efficiency
- Work with the voluntary and community sector infrastructure organisations to run climate change focused workshops and events for their registered organisations, volunteers and service users

¹⁶ E.g. Act on CO2 or 10:10 - for details see www.1010uk.org

- Provide to members of the public and other organisations working on climate change details of what each local authority can offer to support them, including a clear indication of how to contact each local authority Climate Change Officer (or equivalent post). This could be part of a dedicated website for climate change information hosted by the County Council or the Northamptonshire Observatory that could also include resources for practical actions that people can take, tailoring and up to date information on climate change impacts and signposting to other sources of information and advice, financial support, grants, etc.
- Increase education of people about why a functioning natural environment is an important component in the fight against climate change in terms of its ability to alleviate some of the impacts. This education needs to extend to decision makers as well as the public.
- Undertake a thermal imaging survey of the entire county to produce a heat loss map, promotion of the results and work to target energy efficiency improvement measures, such as cavity wall and loft insulation, particularly at vulnerable households and industrial estates.

4.2 Raising Awareness through Education Settings

Why is this important?

“Educating people from an early age about how our actions influence the environment is a vital element in promoting responsible behaviour. Creative and practical ways can be found to help pupils translate the study of climate change into actions in their everyday lives.” Nicholas Stern, October 2006

Formal education has an important role to play in raising awareness of the issue of climate

change. Developing the knowledge, understanding, values, attitudes and skills of both formal and informal education settings and present and future generations, will be vital as we prepare to meet the challenges facing us both in mitigating and adapting to climate change. Focusing on climate change in education lays the groundwork for further action at the level of family, school, community, further and higher education and business / organisation.

Where are we now?

- A Schools Waste Education Team was established in 2003 on behalf of the Northamptonshire Waste Partnership and has implemented recycling systems into approximately 95% of the schools and visited approximately 175 schools, interacting with 25,000 children annually. The team won Team of the Year in 2004 at the Northamptonshire Business Excellence Awards
- KBC, working in partnership with Groundwork North Northamptonshire, has established a Greener Borough Service that aims to help residents, schools, businesses and community groups to reduce their carbon footprint through awareness and delivery of small scale projects
- 118 schools have registered with the Eco-schools programme, of which 53 have won the silver award, 19 have green flag awards and one (Geddington C of E Primary school) has all four flags

Case Study - University of Northampton

The University of Northampton's 'Green Matters' awareness programme has been set up to inform staff, students and visitors about sustainability initiatives, supported by a website at www.northampton.ac.uk/green.

What are we aiming to achieve?

Everyone involved in education, formal and informal, at all levels, will play a key role in creating a more sustainable future, locally and globally.

What do we need to do?

- Carry out scoping work to collate what is already happening, the resources available and identify barriers (at all of the different levels of education, including further and higher education) - then promote the availability of resources.
- Develop a more co-ordinated approach by establishing a Learning for Sustainability Forum with representation from the County and District Councils and local voluntary with organisations and businesses working schools around this theme. Produce through this Forum a Learning for Sustainability Strategy (LfSS) focusing on work with schools, pre-schools/nurseries and young people of school leaving age, within both formal and informal educational settings. Set specific targets in the LfSS on pupils leading audits on energy, transport, water use and waste in school through working with schools on action planning, monitoring and evaluation to help schools track changes and progress.
- Increase the numbers of schools engaged around the theme of climate change through work on becoming Sustainable Schools (DCSF) and co-ordinate schools (and the organisations that support them) to help them to become 100% compliant with the Sustainable Schools framework
- Increase the number of Green Flag Eco-schools, build on Eco-schools to develop further actions and establish a rolling programme of improvements to educational and other public buildings.
- Support joined-up curriculum development, making links with the Education Business Partnership and supporting work with colleges of further and higher education and the University of Northampton
- Share the work that goes on in school with a wider community - focusing on encouraging schools to raise awareness and carry out auditing and action planning with local groups within the community
- Introduce climate change related activities within environmental education programmes at Country Parks in association with partners (RCEEM, higher education providers, Groundwork)
- Use Display Energy Certificates as a lever to promote further action to reduce emissions

5.0 REDUCING EMISSIONS OF GREENHOUSE GASES

5.1 Improving Home Energy Efficiency

Why is this important?

In 2005 the energy use in Northamptonshire's homes accounted for 1,614,000 tonnes of CO₂, which is 29% of total CO₂ emissions for that year. It is also a sector that has a big potential for reduction of CO₂ emissions through increased energy efficiency, for example loft and cavity wall insulation, high efficiency (A rated) boilers and use of low energy appliances, such as low energy light bulbs and fridges.

Improving energy efficiency has other benefits. Fuel poverty results from a combination of high energy costs, inadequate insulation, uneconomical heating systems and low incomes. In 2008 in the UK the number of households in fuel poverty is approximately 3.6 million and this figure is estimated to reach 5.9 million by the end of 2009. This is why it is essential to ensure we maximise the potential savings that can be made through energy efficiency.

Where are we now?

- Northamptonshire has been working to deliver its obligations under the Home Energy Conservation Act, which requires all district councils to improve the energy efficiency of their homes. The target was to achieve a 30% improvement by 2011. Northamptonshire is on target to achieve this and up to and including 2006/2007, the average improvement reported by the seven Northamptonshire local authorities was 23.3% against the 1996 baseline measure.
- A large number of homes in the county were constructed pre 1930's. In terms of improving energy efficiency this can make them "hard to treat". For example they often do not have cavity walls that can be insulated or they may be in a conservation area or listed, which can restrict the energy efficiency improvements that can be made.
- Through the Northamptonshire Home Energy Efficiency Partnership (NHEEP) the local authorities have established a series of successful projects that have led to a significant uptake of energy efficiency improvement measures in the domestic sector:
 - Free insulation schemes for vulnerable households
 - Schemes offering significant discounts on energy efficiency measures to all households (including Chill-Out, Boiler Magic, Solar Plan, Climate Friendly Communities). These schemes achieved savings of over 7,000 tonnes of CO₂ in the four years from 2005/06 to 2008/09
 - District/Borough led affordable warmth strategies and action plans
 - Free home energy advice available to all residents in Northamptonshire
- All local authorities in Northamptonshire are participating in an Energy Savings Trust national pilot regarding a tailored 1-2-1 Gateway Programme focusing on housing energy efficiency

- Kettering Borough Council has introduced a smart meter scheme for 500 homes resulting in a reduction in energy use
- Groundwork North Northamptonshire is piloting and developing a 'Green Doctor' project that involves home visits by trained energy efficiency professionals and, where needed, the installation of low cost measures (lamps, draught proofing, water savers) as well as information on other measures and general environmental tips

Case Study - New homes at Peaslands

18 eco-friendly, affordable homes have recently been built by Orbit Housing Association at Peaslands in Desborough, near Kettering. These achieve Level 3 of the Code for Sustainable Homes and incorporate a range of renewable energy technologies, including a communal system for a group of 3 flats served by a single Dimplex 11kW ground source heat pump with a vertical ground energy collector consisting of three 100m deep boreholes. Further details can be found at: <http://www.econicres.com/casestudies3.php?id=9>.

What are we aiming to achieve?

- Contribute to the local delivery of National Indicator 186 – 1.0% local reduction in CO₂ emissions from 2005 levels - this requires a reduction of at least 16,000 tonnes of CO₂ from the housing sector by 2011.
- Ensure that residents of Northamptonshire have access to affordable and warm homes through the implementation of local delivery plans for affordable warmth and the inclusion of NI187 (fuel poverty) in that indicator.

What do we need to do?

- Continue the delivery of home energy advice and discounted energy efficiency measures through the various schemes operated by the NHEEP and seek funding support to increase the number of energy efficiency measures undertaken through these schemes
- Encourage all Northamptonshire Partnership members to lead by example and insulate their homes where possible, use low energy light bulbs and promote a 'Switch it off/Turn-it-down 1°' campaign
- Work with those involved in building conservation in order to improve understanding of how energy efficiency can be improved for listed buildings or homes in conservation areas and promote the guidance produced by English Heritage¹⁷ on climate change and related matters.
- Provide information to householders in older properties to inform them of the steps that they can take to improve energy efficiency (and typical costs and benefits)
- Promote the installation of renewable energy technology to generate income for community groups to invest in local projects or reduce fuel poverty
- Extend the 'smart meter' scheme piloted in Kettering and provide smart meters on loan via public libraries
- Work more closely with the EST to provide people with information on energy efficiency (e.g. by providing free access to the EST website at libraries and local authority customer service centres)

¹⁷ English Heritage has developed a website providing advice to householders (www.helm.org.uk/climatechange). It has also commissioned research on comparing the relative efficiency of measures to reduce heat loss with regard to sash windows compared with the more damaging option of window replacement (<http://www.climatechangeandyourhome.org.uk>).

5.2 Improving Energy Efficiency in the Business, Commercial and Voluntary Sectors

Why is this important?

The business sector, which includes public sector organisations, produces 41% of Northamptonshire's carbon emissions from energy use in offices and in industrial processes. (This sector is also responsible for a large proportion of emissions from transport.) In the UK it is estimated that business activities account for about half of all greenhouse gas emissions.

Reducing CO₂ emissions in the business sector is a challenging task but can be done in a variety of ways, the most important being the efficient use of energy and fuel, which may involve changing some processes and systems. It may also mean utilising renewable energy. Often, working on these new methods and approaches can lead organisations to identify other efficiency improvements and innovations that will also bring benefits, increasing resilience and financial savings in a time of volatile fuel costs and difficult financial conditions and maximising business opportunities i.e. developing new 'environmental' products/technologies. This sector is also subject to increasing regulation, such as the Climate Change Levy and Carbon Reduction Commitment, which serve to increase the need to improve energy efficiency even further.

For the voluntary sector taking action to improve energy efficiency should mean more money to spend on their core activities.

Skills need to be developed in many areas such as energy efficiency, renewable energy, carbon accounting and sustainable procurement. Whilst the education of those still at school and in college

is important, action needs to be taken within organisations now and it is only by developing the skills of the workforce that real progress can be made.

Where are we now?

- The introduction of the requirement for Energy Performance Certificates when properties are sold or rented out and of Display Energy Certificates in public buildings over 1,000m² floor area has raised the profile of energy efficiency in this sector but it is too soon to tell whether this has led to a significant improvement in energy efficiency.
- No local surveys of opportunities to improve energy efficiency in this sector have been carried out but a recent (2009) survey of 7,000 SMEs across the country conducted by NetRegs (www.netregs.gov.uk) reported that:
 - 49% of respondent businesses have contacted a local authority to obtain environmental information, in contrast with 5% who contacted a business support organisation and 9% who contacted a consultant or adviser (although this probably includes legislative queries that will be addressed to local authorities exclusively and are likely to have been bundled under 'obtain environmental information')
 - Overall, there remains a low level of environmental awareness with only 10% of businesses believing, before prompting, that they undertake any activities that could harm the environment. Once prompted however, 46% of the businesses surveyed stated that they carried out one or more activities that could harm the environment

- A project has been set up by the local authorities in partnership with Northamptonshire Enterprise Limited and the University of Northampton to contact businesses with advice on reducing their emissions
- Environmental Business Networks have been established in Daventry and Wellingborough and there is a Corby Business Group that runs seminars and outreach work. There are also a number of organisations that offer support to businesses including Business Link, IYRE (Improving Your Resource Efficiency - EMDA funded), Groundwork and a County wide business network run by Anna Zaka
- Loans to cover the capital cost of energy efficiency improvements are available from the Carbon Trust

Case Study – Green Business Network

The Green Business Network (GBN) is an independent, business-led, membership-based local environmental charity working with businesses, and related organisations in Bedfordshire, Luton, Milton Keynes and neighbouring areas including Northampton. It provides a range of services to help members improve their environmental performance. The GBN website includes a number of case studies: <http://www.gbn-bedfordshire.org.uk/>

What are we aiming to achieve?

- Contribute to the local delivery of National Indicator 186 – 1.0% local reduction in CO₂ emissions from 2005 levels - this requires a reduction of at least 22,000 tonnes of CO₂

from businesses, the public sector and voluntary organisations by 2011

- In the longer term to achieve the transition to a low carbon economy

What do we need to do?

- Improve understanding of the breakdown of emissions within this sector, e.g. how many companies will be affected by the Carbon Reduction Commitment and what proportion of emissions they represent? Also, how many companies are ISO14001 certified or have achieved the Carbon Trust Standard?
- Develop a programme to promote the importance of reducing waste and improving energy efficiency to SMEs, presenting information on climate change in a way that is attractive to businesses and will encourage change. This includes securing funding to continue and further develop the CWIC (Cut Waste – Improve Competitiveness)¹⁸ scheme operated by the University of Northampton for the Northamptonshire Waste Network, which offered a free waste minimisation service for businesses in Northamptonshire
- Continue to raise awareness of the need to reduce energy use amongst businesses, particularly in the light of rising fuel prices and difficult financial conditions. Work with the Carbon Trust to show some of the typical savings that can be made in order to encourage more reductions and with the Energy Saving Trust on employee engagement/‘Green Days’. Also work with Business Link and Chambers of Commerce to increase the provision of energy efficiency advice to businesses, especially small and medium enterprises

¹⁸ Northamptonshire Waste Network <http://www.northamptonshirewastenetwork.org/cwic/default.asp>

- Ensure actions to promote and improve energy and waste management are included within the Northamptonshire Economic Strategy along with priorities outlined in the government's Low Carbon Economy strategy
- Explore with regulatory agencies (e.g. Trading Standards and Environmental Health, Environment Agency) the potential to raise with businesses the issues of reduction and adaptation to climate change and signpost help and information as part of their regulatory activity
- Identify any significant sources of greenhouse gases other than CO₂ from industrial activities in the county
- Explore ways of working with the Groundwork Trust to offer training and support to voluntary organisations to help them reduce their emissions

5.3 Improving Energy Efficiency in the Public Sector

Why is this important?

Although public sector organisations only directly contribute about 5% of the total national CO₂ emissions they have significant influence over the activities of others. It is likely that even relatively minor examples of bad practice exhibited by public sector organisations may significantly de-motivate the general public.

As well as serving an important community leadership role, taking action to improve energy efficiency should mean more money to spend on service provision. All local authorities now have to report on their CO₂ emissions through NI185. For large energy users e.g. hospitals, University of Northampton, the County Council, the carbon reduction commitment (carbon trading) is due to

be introduced in the next few years and will mean a significant cost to those organisations that fail to reduce their emissions.

Where are we now?

- All authorities provided details of their respective CO₂ emission from their operations for NI 185 (Northants local authority operations account for 1% of total Northamptonshire emissions)
- NCC was one of the first authorities in the country to produce a Carbon Management Plan in 2005 and this is currently being updated. NCC was also one of the first authorities to use the Salix¹⁹ spend to save scheme – making capital investments to reduce carbon emissions. NCC has set an in-house target to reduce its CO₂ emissions by 2% per annum from the 2008-9 baseline
- Examples of actions completed by individual Districts include:
 - Completion of a Carbon Trust Audit by DDC
 - Reduced electricity consumption by KBC in their building
 - WBC has purchased electricity from renewable sources since 2001 and adopted an Environmental Policy in 2005 covering energy sourcing and use, travel and transport, waste minimisation and recycling and the purchasing of goods and services.
- Following their participation in the local authority Carbon Management Programme run by the Carbon Trust, CBC, NBC and WBC have set carbon reduction targets and have adopted Carbon Management Plans. NBC has set a 35% reduction target by 2012 (from a 2005/06 baseline) and a Salix match-funded ring-fenced fund was set up and energy efficiency equipment is being installed.

¹⁹ Salix delivers interest free funding for investment in energy efficiency in the public sector – see www.salixfinance.co.uk

- The University of Northampton participated in the Carbon Trust's Higher Education Carbon Management Programme in 2008 and subsequently has had its first Carbon Management Plan approved in 2009. The University's in-house target is to reduce its CO2 emissions by 15% by the end of 2010/11 academic year compared to its 2005/6 emissions baseline. The University has set up a Salix-funded spend to save scheme to invest in energy-saving technology to help reduce carbon emissions.
- The Northamptonshire Police Authority has set a target of reducing the consumption of gas and electricity by 5% year on year.
- NHS Northamptonshire has a Board approved Sustainable Development Management Plan which provides a five year framework for action. A yearly action plan will capture those actions to be completed within that year.

Case Study - Carbon Management Plan for Wellingborough BC

Since May 2008, following acceptance onto Round 6 of the Local Authority Carbon Management Programme Wellingborough BC have focussed more strategically on their own carbon emissions. An initial Carbon Reduction Target of 30% by 2012 compared to the baseline year of 2006 was set and a project register was compiled of existing, planned and possible projects that would contribute towards reducing their carbon footprint. A Carbon Management Capital Fund of £100,000 over the next four years was put in place and so far a reduction in emissions of 9% has been achieved. For more information contact Paul Gosling (PGosling@wellingborough.gov.uk).

What are we trying to achieve?

- To significantly reduce the CO2 emissions associated with direct activities of local authorities (NI185)
- To publish details of the actions taken and progress achieved regarding the direct impact of the activities of public sector organisations
- To establish procedures for Sustainable Procurement (possibly based on the government's Flexible Framework for Sustainable Procurement as adopted by the EA).

What do we need to do?

- Prepare an analysis of the NI 185 data to determine priorities and immediate actions that will make a significant difference.
- Lead by example – partners to take action in their own organisations to improve energy efficiency and reduce carbon emissions
- Identify actions over a range of categories, including energy efficiency, building stock, micro-renewables, large scale renewables, business travel, fleet – also procurement and waste although these are not covered by NI185.
- Develop a substantial action matrix (possibly based on recurring themes from individual Council's matrices)

5.4 Reducing Energy Use and Emissions from Transport

Why is this important?

This percentage of total emissions from transport is likely to continue to increase as long as the private car remains the dominant mode of travel choice, even for short journeys. Pollution from road transport is also a major factor in the incidence of poor air quality. Eleven Air Quality Management Areas have been declared in the county, which have

¹⁹ Salix delivers interest free funding for investment in energy efficiency in the public sector – see www.salixfinance.co.uk

recorded traffic induced nitrogen dioxide levels above acceptable levels set by the EC. National projections of traffic growth, indicate that an increase of 38-53 per cent on levels in 2000 is likely by 2025²⁰ therefore it will be necessary to significantly reduce the proportion of fossil fuels used for transport as well as increasing the proportion of journeys by public transport, cycling and walking.

Freight logistics is a key employment sector in the county. Levels of car use may be further affected by the proposals for growth, which, if not carefully planned, are likely to cause growing car use, increasing congestion, CO₂ emissions and local air pollution. It will be important to ensure that planning policies are in place to mitigate against this and encourage sustainable transport rather than unrestrained growth.

21% of CO₂ emissions from the UK transport sector are due to air travel (including international travel)²¹. There is potential to increase education about environmental damage due to air travel and to encourage businesses to avoid air travel. There are no major airports in Northamptonshire and any proposals to develop one should be opposed.

Where are we now?

- Road transport is the only sector where CO₂ emissions increased between 2005 and 2007 with a total of 1.795 million tonnes of CO₂ in 2007 (excluding motorways) which is approximately 30% of the total emissions for the county. There is significant variation between districts (Corby is low due to low car ownership and Daventry is high due to the rural nature of the district)

- The development of school and employer Travel Plans has been encouraged by a 'Travel Choices' team. There are 120 employer travel plans and 285 school travel plans as of April 2009
- The Northamptonshire County Council Group has been promoted on the Car Share database, www.liftshare.com. Currently 36 employers are registered on the database
- Northamptonshire County Council Driver Training Team has developed an Eco-Driving Course which demonstrates simple principles designed to reduce fuel consumption
- The Northamptonshire 'Transport Strategy for Growth (TSfG)' has been developed which sets out the integrated transport framework to support housing growth and the associated economic growth and regeneration in the county
- The availability of passenger transport information has been improved so that it is more accessible through libraries, a new integrated passenger transport website and the Northamptonshire Hub.
- The 'Take a Stand' scheme provides match funding from NCC for businesses and independent schools to provide cycle storage to encourage cycling to work/school.
- Examples of action taken by Districts include: adoption of staff travel plans by DDC and NCC, SNC and KBC are developing Green Travel Plans and NCC and DDC have both carried out a Green Fleet review in 2008
- The University developed a revised Green Travel Plan in 2008 which includes planned measures for staff and student travel improvements. A step change in public transport provision to the University's campuses has been implemented since 2005. The University has an

²⁰ A Climate Of Change, Final Report of the LGA Climate Change Commission, page 37

²¹ ACT ON CO₂ | Compare the CO₂ emissions of cars, trains, coaches and planes

internet car-sharing scheme based on the www.liftshare.com website

- The Police Authority has a large operational fleet of 414 vehicles. A policy of increasing dieselisation year on year (now c.80% of fleet is diesel) has resulted in a 2.5% reduction in CO₂ emissions in 2009/2010

Case Study - Wellingborough's Cycleway Network

In 1998, Wellingborough BC adopted a Cycling Strategy which included a "Master Plan" that was jointly prepared by the Borough Council and Northamptonshire CC. This sought to link housing areas, employment areas, shops, schools, open space, public transport interchanges and the town centre, and was included within the Borough of Wellingborough Local Plan adopted in 1999. To date 22.6 km of the cycleway network has been built. Of these 18 km are segregated (shared cycle/pedestrian routes away from motor traffic) and 4.5 km marked on existing roads. More recently the Sustrans Connect2 project aims to install cycle routes to link up Wellingborough, Rushden, Higham Ferrers, Irthlingborough and Raunds. More information can be obtained from Paul Thompson: PThompson@wellingborough.gov.uk.

What are we aiming to achieve?

- Contribute to the local delivery of National Indicator 186 – Reduction of CO₂. This equates to a reduction of at least 18,000 tonnes of CO₂ from transport by 2011
- Reduce the reliance on private car travel and offering a genuine choice of transport options

through improvements to walking, cycling and passenger transport infrastructure and services. The Local Area Agreement proposes a target for NI 175 (Access to services and facilities by public transport, walking and cycling) of LTP-1b 80% for rural areas by 2010/11 and a target of 21m for NI 177 (Local bus passenger services originating in the local authority area) by 2010/11

- Reduce the need for transport by encouraging locally produced goods and services and planning policies that reduce the need for travel
- Reduce fuel consumption in vehicles by encouraging the use of fuel-efficient driving techniques and the purchase of energy efficient vehicles
- Encourage the development of a local infrastructure to support an increasing use of low emission and renewable fuels

What do we need to do?

- Review the action plans set out in existing local transport policies, strategies and plans, including the Highways Department's transport action plan
- Northamptonshire Partnership organisations to lead by example by developing green travel plans, procuring energy efficient vehicles, promoting 'eco-driving' techniques for their staff and becoming 'cycle friendly employers'
- Continue to encourage schools and employers to develop and implement travel plans (the aim is for all schools to develop a travel plan by 2010).
- Develop proposals for a high quality and accessible bus network (in line with the Northamptonshire Integrated Passenger Transport Strategy), which will protect buses from the effects of traffic congestion, deliver higher quality buses, bus stops, passenger

information and provide a higher quality service. Also use Council influence to encourage bus operators to 'green' their fleets

- Work with national and regional partners to implement wide ranging improvements to the local rail network, both facilities and services
- Improve the walking and cycling infrastructure in order to maximise its use, including the provision of secure and weatherproof cycle storage facilities in town centres
- Promote the purchase of locally produced goods and accessible local services
- Improve highway infrastructure and information provision to enable more efficient operation and reduce congestion
- Explore ways of getting freight off the roads and on to railways and inland waterways
- Introduce tools to optimise NCC in-house fleet optimisation and reduce vehicle mileage and hence Co2.
- Join up county and district travel planning to ensure a coordinated approach
- Update our Local Transport Plan (LTP3) giving more focus to carbon reduction
- Investigate the potential for greater use of biofuels for transport and options for the funding of the installation of charging points for electric vehicles in key locations

5.5 Sustainable New Development and Land Use

Why is this important?

The government expects that over 125,000 new homes will be built in Northamptonshire between 2008 and 2023²², together with significant numbers

of new commercial and industrial buildings. This will inevitably lead to additional emissions but by looking at where and how developments are built, it is possible to minimise these additional emissions. Nationally, the Government has set a target for all new build homes to be zero-carbon by 2016 and all new build non-domestic buildings to be zero-carbon by 2019, with stepped progression to these levels. This proposed level of development also provides an opportunity to significantly increase the sustainability standards in construction.

The way that land is used and managed can have an impact on the level of carbon emitted into the environment, or alternatively "captured" by the soil or vegetation, thereby reducing emissions. Different agricultural crops and different types of semi-natural habitats (e.g. woodland and semi-natural grassland) have differing levels of carbon emissions or carbon retention. Different land-management practices such as cutting or burning of vegetation, or the extent and frequency of flooding will all affect carbon emissions from plants, soils and micro-organisms.

Where are we now?

There are requirements for increased housing and associated economic development across the county that could lead to an increase in CO2 emissions. It will be critical to ensure that new development is undertaken in a sustainable way if reduction targets are to be met and this will require planning authorities to be receptive to new technologies and to encourage developers to include them.

- Sustainable construction techniques have already been employed in some exemplar developments across the county, such as the major new buildings that are part of the regeneration in Corby which are achieving at least 'Very Good' BREEAM ratings.

²² Sustainable Communities Strategy for Northamptonshire, page 8

- Planning requirements include standards based on the Code for Sustainable Homes and BREEAM which go beyond the energy efficiency standards required by the UK Building Regulations.
- Housing associations are also seeking to ensure that sustainability is a key factor determining their designs. For example, six houses developed by Metropolitan Housing Partnership at Upton in Northampton have achieved Level 6 of the Code for Sustainable Homes (i.e. they will have zero net annual CO2 emissions) and other properties on this development are piloting a range of low and zero carbon technologies.
- The North Northamptonshire Core Spatial Strategy²³ includes a comprehensive policy (Policy 14) on energy efficiency and sustainable construction. This policy has guided the production of a Sustainable Design Supplementary Planning Document for North Northamptonshire that also includes waste and materials planning issues (Design and Implementation Principles Supplementary Planning Document, adopted March 2007).
- The iCon centre for sustainable construction, developed by a consortium led by The University of Northampton, is currently being built in Daventry and is expected to be a national centre of excellence for green technologies containing 60 business units and creating up to 175 jobs. The regional iNet (innovation network) for Sustainable Construction, operated by the University, already has a successful track record of helping new products and services in the field of sustainability and will be based in the iCon centre when completed.
- The University's Division of Environmental Science has been in the forefront of research and implementation of Sustainable Urban Drainage Systems, particularly within Northampton's Upton development.
- A West Northamptonshire Design Code Manual has been produced by the West Northamptonshire Development Corporation (based on a review of the issues with different types of technology and the potential for securing them).

Case Study – Corby Cube

The Corby Cube is a new civic centre building that will include a 445-seat theatre, additional arts and studio space, library, bistro, council one-stop-shop and offices, council chamber and marriage room and a terraced roof garden. It is the first theatre in the UK to achieve a BREEAM rating of 'Excellent'. Some of the features that enable it to achieve this rating are the re-use of a redundant brown field town centre site, a predominantly passive natural ventilation strategy, maximum natural day lighting, rainwater recycling, enhanced site ecology through imaginative planting schemes and 'green roofs'. For more information see: www.corby.gov.uk/CouncilAndDemocracy/CouncilNews/Pages/CorbyCubeReceivesExcellence.aspx

Northamptonshire is a predominantly agricultural landscape, with sparse and small pockets of semi-natural habitat. We know however that the way that land is used in Northamptonshire will change in the future, so taking account of the way that using and managing land affects carbon emissions will be important and these changes could make a real difference to emission levels. Land will also need to be managed to better enable all species to adapt to and buffer the effects of climate change. This is

²³ Sustainable Communities Strategy for Northamptonshire, page 8

a new area of work for us. We are becoming more aware of how land use can either contribute to or mitigate against CO2 emissions but we recognise that there is much to do to raise awareness around how land use and land management practices contribute to carbon emissions.

- There is a Local Biodiversity Action Plan for Northamptonshire which has identified 800 local wildlife sites that need to be monitored along with a number of targets for habitat and species increases. It was updated in 2007/08 with targets for 2015.
- A position statement on 'Green Infrastructure' has been produced by River Nene Regional Park, Natural England, the Wildlife Trust, the Environment Agency, English Heritage and Groundwork North Northamptonshire as part of the evidence base for the North Northamptonshire Core Spatial Strategy (see Green Infrastructure position statement .doc provided by GNN and www.rnrp.org). Also the East Midlands Green Infrastructure Network provides support to ensure the coordinated delivery of Green Infrastructure throughout the East Midlands region (see www.emgin.org).
- Monitor the ongoing research on the benefits of extensive grazing for conservation management and the impact of diet on greenhouse gas (methane) emissions from grass fed animals.
- The potential impacts of Climate Change and need to reduce emissions is an issue that is already being considered in future land use planning.

What are we aiming to achieve?

We want to see construction that reduces environmental impacts and promote developments which do not further reduce Northamptonshire's

already depleted environment. We will encourage local authorities to seek to advance beyond the Government's timetable for reducing CO2 emissions from new buildings for specific justified areas. (Any proposals to do so would have to be tested through the process of preparing District Local Development Frameworks).

We want to promote land uses that capture greenhouse gases, rather than release carbon into the atmosphere. We recognise that urban "green infrastructure" (using trees and green spaces in urban settings) can play a role in both climate change mitigation and adaptation. For example trees can increase the floodwater storage capacity of the land and prevent damaging flooding downstream and affect the availability of water resources and the condition of wetlands that can act as carbon sinks. Therefore we will seek to influence decisions about land use and land use change across the county in a way that helps reduce emissions or locks up carbon. There are also opportunities to establish new wetlands at a number of minerals and waste sites in the Nene valley.

What do we need to do?

- Utilise the planning system to encourage more sustainable and energy efficient construction and support local authorities in developing planning documents. New developments represent an opportunity to ensure sustainability is integrated from the beginning through design, materials and building methods. Policies will need to be revised in 2010 to take account of the changes to Part L of the Building Regulations
- Work with the County's construction sector, through training and education, to promote sustainable development and disseminate best practice and raise awareness of the

exemplar projects which exist in Northamptonshire to encourage them to go beyond the minimum requirements

- Lead by example – ensure sustainable construction techniques are used in Partners' newbuild and refurbishment projects
- Raise the profile of the role of land use in managing carbon, in particular where this can contribute to a reduction in carbon emissions (e.g. through habitat restoration, or through farm efficiency measures) and gain a fuller understanding of how land use currently contributes to the total emissions of Northamptonshire in liaison with relevant partners
- Foster awareness raising among the general public, building users and building specifiers, to empower them to become more demanding in the levels of sustainability they expect in new buildings. Also ensure that communities are listened to and engaged with to find solutions when there are areas of heritage or wildlife value that they wish to see saved from development
- Produce a Sustainable Design SPD for West Northamptonshire
- Promote environmental enhancements and restoration alongside existing and new developments as well as the protection of existing natural spaces from new development
- Encourage green roofs, sustainable urban drainage (SUDs) and other innovative technologies as part of new developments to help alleviate climatic effects such as warming and flooding
- Work with the construction industry to design developments that suit community needs, helping to build resilient sustainable communities as a whole (i.e. encouraging sustainable transport, using local shops and providing community facilities such as allotments and green spaces)
- Promote 'green living' as a reason for living or investing in Northamptonshire including using sustainable urban extensions as showpieces to encourage people to buy into the sustainability principles. Also raise awareness among the general public/building users to empower them to become more demanding in the levels of sustainability they expect in new buildings
- Give further consideration to the targets that are applicable to land use planning establish links with the LDF process to ensure that targets are robustly based and/or independently reviewed
- Invest a proportion of Section 106 funds in Climate Change projects
- Publish a 'Planning for Soils' research paper to provide guidance on protecting and conserving soils
- Encourage sustainable planning policies that reduce the need to travel by ensuring employment, retail, schooling, leisure opportunities and open spaces are located close to the new housing and discourage the use of private cars, particularly for short journeys by providing public transport, safe walking and cycling routes.

5.6 Minimising Waste

Why is this important?

Waste adds to the emission of greenhouse gases in three ways:

- When waste breaks down in landfill sites it gives off a mixture of methane (65%) and carbon dioxide (35%), both of which are greenhouse gases

- Energy is needed to transport, manage and dispose of waste
- Disposal, rather than reuse, repair or recycling, leads to a need for more raw materials. Generally less energy is needed to make items from recycled materials than from raw materials, (providing the waste collection and treatment processes are not too energy intensive). Waste can be considered as a useful resource

The national Waste Strategy 2007 set a target of reducing the amount of industrial and commercial waste going to landfill to 80% of the 2004 level by 2015.

Where are we now?

- There has been a great deal of activity to reduce the volumes of waste produced and the percentage of waste sent to landfill in the county through the adoption of the Waste Local Plan²⁴ in 2006. The importance of waste minimisation, composting and recycling has achieved much greater awareness in the public mind. Total levels of household waste produced in Northamptonshire have declined and the percentage going to landfill has fallen for household waste from 72% in 2004 to 55% in 2007/8
- The Northamptonshire Joint Municipal Waste Strategy²⁵, developed by the Northamptonshire Waste Partnership (NWP), contains a detailed plan of action and set a target of 48% recycling and composting for 2012/13. Some of the local authorities have already achieved this, e.g. DDC achieved 48% recycled/composted in 07/08 and SNC achieved 52.96% in Nov 08
- A target has also been set for the reduction in household waste not reused, recycled or composted (NI193 - Municipal Waste Landfilled) from 64% in 2006/07 to 55% by 2010/11. The figure achieved for NI193 in 2008/09 was 53%.
- A number of permissions have been granted for in-vessel composting and anaerobic digestion in the county
- Campaigns such as 'Love Food, Hate Waste' and 'Real Nappy Cashback' have promoted waste reduction and reuse to households
- Kerbside recycling schemes have been introduced to households across Northamptonshire collecting items such as paper, plastic, cans, cardboard and green waste
- Composting has been encouraged through sale of low cost composting bins, through the WRAP Home Composting Scheme
- Social enterprises such as Furniture Reuse Charities have been supported to promote and encourage reuse of resources such as furniture and IT equipment target . Provision of recycled goods is targeted to those in need and some volunteers are assisted in their return to employment
- The University of Northampton's Centre for Sustainable Wastes Management is widely recognised as the UK's centre of excellence and international leader for wastes management education and research, offering the most comprehensive portfolio of wastes management courses in the world. The Centre for Sustainable Wastes Management has an excellent track record of working with businesses to improve resource and cost efficiency, whilst at the same time reducing their environmental footprint

²⁴http://www.northamptonshire.gov.uk/en/councilservices/Environ/planning/policy/minerals/Documents/PDF%20Documents/WLP_Main_Text.pdf

²⁵<http://www.northamptonshire.gov.uk/en/councilservices/Environ/waste/Documents/PDF%20Documents/NJMWMSSstrategyFINAL%201.pdf>

Case Study - Cut Waste Improve Competitiveness (CWIC)

Since 2002, the University of Northampton has run **Cut Waste Improve Competitiveness (CWIC)**, a county-wide, award winning resource efficiency club. Waste minimisation clubs have been proven to assist companies in reducing costs associated with waste production - the production and disposal of waste can cost businesses 1-2% of their turnover, a cost that can be reduced through waste minimisation initiatives. CW-IC has saved Northamptonshire businesses in excess of £1.3 million since 2001. A full report on the project can be found at: http://www.northamptonshirewastenet.org/dbdocs/doc_095733251104.pdf.

What are we aiming to achieve?

The Minerals and Waste Development Framework Core Strategy (submitted for examination – December 2008) sets targets for the volumes of waste that need to be diverted from landfill to achieve national and other targets. These targets will be achieved by:

- Minimising household waste and that produced by the industrial and commercial sectors.
- Reducing the amount of all wastes that are sent to landfill sites.
- Exploring the potential for using waste products as a useful resource.

What do we need to do?

- Encourage partners to continue to reduce their own waste by reducing, reusing and recycling
- Ensure that the element of the Minerals and Waste Development Framework on the Control

and Management of Development gives greater guidance on addressing climate change issues in new development.

- Continue to raise awareness of the links between climate change and waste through the promotion of the waste minimisation campaigns and the Schools Waste Education Team.
- Continue to ensure that there are sufficient waste recycling facilities within the county (to avoid the need to transport waste outside the county).
- Convince businesses that recyclable waste is actually recycled. That is, that the waste segregated out and sent to recycling plants ends up in recycled product/is reused. A certain proportion of it may be sent to landfill due to contamination of the load.
- Focus more re-use through charities and promote recycling schemes e.g. cycles
- Explore the potential of tapping methane as fuel at landfill sites in the county
- Develop the potential of utilising waste products to create a localised energy supply e.g. wood waste, anaerobic digestion/biogas

5.7 Increasing Low and Zero Carbon Energy Use

Why is this important?

“The problem of climate change means we must look to carbon-free technologies to meet our energy needs” - Sir David King, UK Government’s Chief Scientist, writing in the New Scientist (April 2004)

Promoting energy efficiency will be the key action that will reduce Northamptonshire’s CO2 emissions. However electricity and heat can be generated from renewable energy sources, (such as wind,

water, solar and biomass), which can also achieve reductions in the amount of carbon dioxide produced in the county.

The potential energy resource from renewable technologies in Northamptonshire could make a contribution to reducing carbon emissions from fossil fuels. In reality the development of this resource will be limited to projects that are economically viable, environmentally acceptable and which gain the necessary development consents.

With increasing fossil fuel costs there is evidence that a number of Northamptonshire residents are already looking to alternative sources of energy. The pressure for development in Northamptonshire of new homes and businesses will increase demands for renewable energy sources and from 2016 all new homes will have to be carbon neutral and therefore use renewable energy. The appropriate infrastructure is required to enable renewable energy sources to make a contribution to this.

Where are we now?

- The Strategic Investment Plan for Northants has identified a number of priorities to help meet the 'low carbon economy' agenda, including the production of energy using low carbon energy sources and methods
- An independent study is to be commissioned to provide an objective assessment of the realistic capacity of the county to generate renewable energy at the larger scale
- The Solar Plan scheme run by the Northamptonshire Home Energy Efficiency Partnership provides top up grants to householders wishing to install solar energy systems. (These are intended to complement the national Low Carbon Building Programme)

- Examples of renewable energy installations include a wood fuelled boiler at the school at Oakley Vale, Corby and a ground source heat pump at Weston Favel Primary School
- Development of a high profile 'renewables demonstration park' as part of an environmental technologies cluster - ref. Upton
- A sustainable energy strategy for North Northamptonshire is being produced by the North Northamptonshire Joint Planning Unit

Case Study – Kettering Wind Farm

Burton Wold Wind Farm at Burton Latimer is Northamptonshire's first Wind Farm, consisting of 10 turbines with a total installed capacity of 20 Megawatts. The ten turbines will produce around 40 million kWh of renewable electricity annually, equivalent to the needs of around 8,500 homes, reducing CO2 emissions by 40,000 tonnes each year. The turbines are 64 metres to the hub with 71 metre diameter rotor blades, giving a 99.5 metre tip height. The wind farm will contribute £290,000 to the local community over the life of the project, for the implementation of energy efficiency and education projects in Burton Latimer. Further information can be obtained from: <http://www.burtonwoldwindfarm.com>.

What are we aiming to achieve?

The physical nature of the county dictates which renewable energy technologies are suitable for energy generation. As a land bound, generally low lying county, the potential for development is limited to those technologies that use biomass, solar energy, running water, wind and ground source heat. We recognise that the greatest carbon

savings will be achieved through a mix of appropriate technologies, at a mix of scales. Relying on one particular type of facility will not be enough.

What do we need to do?

- Produce an 'Energy Strategy' that draws together key information needed to understand the planning, transport and local issues surrounding the development of small and large-scale renewables throughout Northamptonshire
- Consider producing an environmental constraints map to show the locations in the county that are most feasible to accommodate renewable energy technologies, especially wind farms
- Lead by example – Northamptonshire Partnership organisations to consider utilising renewable energy sources and consider the ways in which they can support the development of renewable energy (e.g. by identifying sites they own suitable for renewable energy developments)
- Raise awareness of the grants that are currently available to help towards the cost of renewable energy systems, e.g. the Government's national "Low Carbon Buildings Programme" grant scheme and the grants available from DEFRA to farmers wishing to grow bio fuel crops
- Continue promoting the use of renewable energy to the county's home owners (particularly those off the gas network)
- Promote business opportunities of low carbon technologies and encourage collaboration and innovation in environmental technologies in Northamptonshire
- Ensure specific policies and guidance on the exploitation of renewable energy resources are included in all strategic and local development plans.
- Identify opportunities to develop large scale renewable energy generation and community heating schemes with combined heat and power in association with new developments, including the potential of organic waste to generate renewable energy.
- Support small scale projects, which help develop the local economy and which are valuable in raising awareness at a local scale
- Identify opportunities to produce biomass fuel from council-managed woodland (where consistent with protection of biodiversity and recreational value).

6.0 PLAN AND ADAPT TO THE IMPACTS OF CLIMATE CHANGE

6.1 Public Services

Why is this important?

Public services are those that the public looks to for help and leadership in extreme weather. It is crucial that public services adapt appropriately to enable continued functioning of the county as the climate changes and in extreme weather conditions. The national floods of 2007 in particular have raised awareness of the need for more effective planning to minimise the impact of such severe weather events and the Pitt Review²⁶ on the lessons learned from these floods identified an extensive set of recommendations, many of which relate to the responsibilities of local authorities. Higher temperatures are likely to affect the transport infrastructure and although roads may be less affected by frost and freeze/thaw, they may be closed and damaged more often due to flooding. Health Services are likely to have to deal with more heat related summer deaths and cases of food poisoning, although there may be fewer cold related winter deaths.

Where are we now?

- The action taken in Northamptonshire is recognised as best practice nationally and all local authorities in Northamptonshire have achieved Level One of NI 188
- Local Climate Impacts Profiles (LCLIP) reports have been undertaken on all local authorities, the Police and the University. These outline the impact that recent severe weather events have had on the different organisations and help inform adaptation planning

- Northamptonshire County Council Transport and Highways Department working with partners MGWSP have adapted their drain management regime to take account of those areas most prone to flood events
- The Environment Agency and the Meteorological Office have collaborated effectively to provide timely information on how severe rainfall events will impact on local areas

Case Study – East Midlands regional action on adaptation

Northamptonshire local authorities have been working with East Midlands partners on a regional project to address national indicator NI 188 – planning to adapt to climate change, which has enabled councils to develop a common approach and to share good practice. This collaborative approach towards Adaptation has been highlighted as a national exemplar. See:

<http://www.climate-em.org.uk/projects/ni188-adapting-to-climate-change/>.

What are we aiming to achieve?

- As part of the Local Area Agreement the Northamptonshire Partnership has agreed the inclusion of National Indicator 188, which requires local authorities to report on the action they are taking to adapt to climate change. In Northamptonshire all local authorities have committed to achieving Level Two in

²⁶The Pitt Review: Lessons learned from the 2007 Floods (<http://archive.cabinetoffice.gov.uk/pittreview/thepittreview.html>)

2009/10 and Level Three by 2011

- Promotion of the positive aspects of adaptation, e.g. the health benefits of lifestyle changes such as reducing car use and walking or cycling
- Ensure emergency services are adequately prepared to deal with the impacts of extreme weather

What do we need to do?

- Ensure all public services in Northamptonshire identify and assess the risk from climate change to their local area and services and encourage them to factor in climate change when undertaking risk assessments and developing business continuity plans.
- Raise awareness within all public services of:
 - The impacts of climate change on local area and public services
 - The work of the UK Climate Impacts Programme and Environment Agency and how they can help public services plan for changes in climate
- Ensure current policies, strategies and plans include provision for the impacts of climate change
- Implement the findings of the Pitt Review 2008 on lessons learned from the 2007 floods
- Research a Planning for Climate Change in Northamptonshire Research Paper to inform new development in the county, in particular through local development frameworks, to include information on climate change impact and adaptation
- Produce an action plan for dealing with health problems that may result from extreme heat

6.2 Industry and Commerce

Why is this important?

Climate change will affect all businesses in all sectors. The impact will vary depending on the nature of the business and the relationships they have with their customers and supply chain. While changes in the climate will cause some significant problems for some businesses, there are opportunities that may be good for many businesses as well. Businesses of all types need to understand how the changes in the climate will affect their business and then adapt what they do to meet the new situation. Planned and coordinated action by businesses working with their partners in both the public and private sectors, will help to minimise the negative impact of the changes and maximise the opportunities that are presented.

Where are we now?

- The UKCIP 09 regional event held in Northamptonshire in November 2009 had a business focus – raising awareness of the issues facing local industry and commerce.

What are we aiming to achieve?

There are opportunities for businesses to develop new products and services that respond to the need to reduce emissions and adapt to the changing climate, for example services to help individuals to reduce energy consumption in their homes and save money on fuel bills. Leisure and tourism are important industries for the county. People may take more day trips and holidays in the UK due to the warmer weather. This could mean more spending at local businesses. Northamptonshire could attract more tourism to the county by reversing the loss of our natural environment, so creating an attractive and locally-distinctive place to visit.

What do we need to do?

- Change business attitudes to recognise and understand the threats and opportunities presented by climate change and the need to adapt to climate change for the future.
- Encourage Northamptonshire businesses to assess their sensitivity to climate change and to factor climate change into their plans, including business continuity arrangements. Also identify businesses in Northamptonshire most sensitive to the impacts of climate change and work with them to help them take adaptive action.
- Raise awareness within the business community of:
 - the impacts of climate change on business
 - the work of the UK Climate Impacts Programme, and how they can help businesses to plan for changes in climate
- Encourage businesses to adopt the principles of risk management when considering the best way to take adaptive action to find where possible, “no regret” options i.e. flexible options which have multiple benefits
- Organise events to raise awareness of climate change issues among businesses of all sizes in the county and encourage them to use UKCIP tools to identify risk and adaptive measures and to exploit the opportunities in new markets or products.

6.3 The Built Environment

Why is this important?

Climate change is already influencing the way our new buildings are designed and constructed. New ways of building are being developed to cope with the increased heat and rainfall to which our buildings are being exposed. In seeking to adapt

existing properties to the impacts of climate change, care needs to be taken to avoid an unintended consequence of increasing emission levels. For example, as temperatures rise a potential response could be to install an air conditioning system, thus increasing the amount of energy consumed and CO₂ released. Therefore adaption measures need to be considered in terms of their wider mitigation impacts as well.

Where are we now?

Whilst a number of initiatives have been introduced through the planning system and building control to influence the ways in which new buildings are constructed, much less attention has been given to making our existing buildings ‘climate resilient’. At least 80% of the current housing stock will still be standing in 2050 and perhaps the greatest challenge lies in tackling these.

Case Study - Climate Friendly Communities

This project aims to encourage and support local communities to reduce their environmental impact. The two objectives for this project are to raise community awareness of climate change and encourage community action to reduce their greenhouse gas emissions. Communities joining the Climate Friendly Communities programme are encouraged to set a baseline by calculating their carbon footprint and then to implement action plans to reduce this. Several of the groups already established are also looking at reducing waste and improving recycling, biodiversity issues, transport issues and reducing food miles. Communities participating include Falconers Hill Infant School, Brixworth and Walgrave in Daventry District. Further details can be obtained from the Community Team at Daventry DC (01329 320329).

What are we aiming to achieve?

We want to see new development designed and built to cope with the current and predicted effects of climate change. We want to maximise the opportunities presented by refurbishment and alteration to enable existing buildings to take account of the impacts of climate change. There are limited statutory powers to influence the retrofitting of buildings, but providing homes and businesses with advice and providing information on grant schemes could be valuable in ensuring the existing built stock adapts to future conditions. Historic buildings can be especially vulnerable to the effects of climate change and liaison with conservation officers and reference to the guidance produced by English Heritage²⁷ is encouraged to ensure workable solutions can be found.

What do we need to do?

- Encourage sustainable construction through the District Councils' Local Development Frameworks
- Raise awareness of the need for climate resilient construction and promote the exemplars of best practice that exist in Northamptonshire to demonstrate how climate resilience can be achieved
- Promote the inclusion of the issue of climate change in training for built environment professionals e.g. architects
- Investigate the opportunities for incorporating mandatory climate change impact assessment for new developments in the county at the design stage
- Increase the use of urban green spaces and green roofs as elements of the urban environment that can contribute to alleviating some of the

worst effects of climate change (e.g. increasing temperatures and rainfall)

6.4 Biodiversity, Agriculture and the Natural Environment

Why is this important?

Northamptonshire's natural environment is important to our residents, in that it provides local spaces to relax, unwind, exercise and discover, as well as a locally-distinctive and attractive place to live. It is also vital for everyone because it provides us with essential 'Ecosystem Services', such as clean air and water, crop pollination, nutrient cycling and carbon sequestration. It is simply our life-support system. However, its quality and the quality of the services it provides, is vulnerable to the impacts of climate change. We have already seen significant changes in the timing of plants and trees flowering, insects emerging and migrant birds arriving (www.phenology.org.uk). We have also seen the arrival of mobile new species to the county, previously restricted to the south coast. Whilst very mobile species are able to move in response to climate change, the majority of species are not because their habitats are too small and isolated from each other. If action is not taken in time, many of Northamptonshire's important habitats and species may disappear as they become unable to adapt to climate and habitat changes.

Allowing our wildlife to adapt to climate change is essential if we are to adapt to climate change ourselves. We need to protect and link up the natural environment, improve biodiversity and ensure that these issues are given proper profile and consideration in future planning, policies and place-making. Biodiversity: - changing conditions may be beneficial to some species but harmful to others. For example, some species may be lost due to

²⁷ English Heritage has developed a website providing advice to householders (www.helm.org.uk/climatechange). It has also commissioned research on comparing the relative efficiency of measures to reduce heat loss with regard to sash windows compared with the more damaging option of window replacement (<http://www.climatechangeandyourhome.org.uk>).

wetland habitats drying up. Because natural habitats have been overly fragmented, many species will not be able to move far enough to follow their 'climate space', causing the number of local extinctions to increase.

Agriculture is likely to be affected by problems caused by drought, floods and new crop pests.

Where are we now?

Northamptonshire also has a severely depleted natural environment. It has no Areas of Outstanding Natural Beauty (AONB) and one of the lowest proportional areas of nationally designated sites in the country. The emphasis now is reversing this through linking up existing and restoring natural habitats to create larger, linked and more robust areas that allow species to move as well as providing a great tourism asset, creating a win-win situation. A Local Biodiversity Action Plan (LBAP) for Northamptonshire²⁸ has been produced by the Northamptonshire Biodiversity Partnership to indicate where and how habitats can be created to start this off. Other initiatives in this area include habitat linkage opportunity mapping and 'Living Landscape' projects such as the Wildlife Trust's Nene Valley Vision.

Case Study - Daventry in 2080

'Daventry in 2080' is a thought-provoking display into how Daventry district might look as a result of future climate changes. The Wellingborough Toolkit was used to develop this and it has been displayed in the reception area of the Council offices and can be downloaded from the Daventry DC website. See: www.daventrydc.gov.uk/environment-and-planning/sustainability/environment-climate-change.

What are we aiming to achieve?

- Encourage and empower those involved in policy, decision making and management for the natural environment to take the impact of climate change into account
- Gain a better understanding of how current strategies will need to be changed, or modified in light of probable impacts of climate change on the natural environment and look at realistic measures that can be taken to assist adaptation, particularly in the following areas:
 - Agriculture
 - Open Space Management
 - Water Management
 - Delivering high quality landscapes rich in natural assets

What do we need to do?

- Maintain and protect natural habitats within the county
- Raise awareness of the impact of climate change and possible adaptation responses by:
 - Developing and promoting best practice demonstration projects
 - Providing advice on climate change impact and adaptation responses
- Ensure current policies, strategies and plans include provision for the impacts of climate change.
- Work with the Wildlife Trust to support the continuation of current biodiversity action plans to ensure continuing progress on conservation and the restoration of habitats and species in Northamptonshire and promote the importance of Local Wildlife Sites as havens and stepping-stones for wildlife in the countryside, often key starting points for expansion and linkage of natural habitats

²⁸ <http://www.northamptonshirebiodiversity.org/>

- Encourage the importance of green infrastructure linkages which will enable species to move between protected areas and habitat niches by supporting the development of strategic wildlife opportunity maps that further define areas where species and habitats can flourish and expand in range under climate change.
- Target environmental land management schemes in places that contribute to climate change adaptation
- Raise issues that relate to the natural environment (e.g. land for energy crops and local reservoirs) and climate change so they can be integrated into local and regional plans e.g. Regional Planning Guidance
- Educate people on the benefits of a well functioning environment and how this can contribute to the alleviation of some of the inevitable effects of climate change
- Develop county landscape assessment maps and/or a land-use inventory to enable the impacts of climate change to be monitored over time and inform strategic responses to allow people and wildlife to adapt
- Work with utility companies and regulators to promote water efficiency awareness and implement measures with existing businesses and communities.
- Ensure that plans and strategies for new developments require as a minimum Code for Sustainable Homes level 4 and BREEAM very good standards for Water Efficiency.

6.5 Flood Risk Management

Why is this important?

Climate change is predicted to increase flood and coastal erosion risks through rising sea levels, changing patterns of rainfall and flood flows in rivers and increased risks from surface run-off. Recent flooding events have raised awareness that the potential increases in rainfall volume, intensity and river flows due to climate change may be more significant than had previously been estimated. Sir Michael Pitt's report that was published following the 2007 floods²⁹ called for a better spread of information in the event of flooding and clearer guidelines on which local and government agencies would take responsibility. It highlighted a serious gap in legislation and organisational arrangements for managing flood risk from sources other than rivers and the sea.

Where are we now?

- The flood and water management Act 2010³⁰ is designed to improve the UK's resilience to future flooding threats that are likely to be intensified by climate change. Local councils will be given responsibility for surface water flooding for the first time, but the Act gives overall responsibility for flooding to the Environment Agency. It will also require housebuilders and developers to incorporate drainage that minimises flood damage and improves water quality at new building developments using sustainable drainage systems (SUDS).
- A national indicator (NI 189) relating to flood and coastal erosion risk management has been introduced to record the progress of local authorities in delivering agreed actions to implement long term flood risk management through Catchment Flood Management Plans

²⁹ The Pitt Review: Lessons learned from the 2007 Floods (<http://archive.cabinetoffice.gov.uk/pittreview/thepittreview.html>)

³⁰ <http://www.official-documents.gov.uk/document/cm75/7582/7582.pdf>

(CFMPs) and Shoreline Management Plans (SMPs), which should inform Regional Spatial Strategies and other plans. (There are six CFMPs covering Northamptonshire).

- The Northamptonshire Integrated Emergency Management Structure³¹, co-ordinated by the Northamptonshire Resilience Forum, includes a 'Flooding Group' chaired by the Environment Agency's Emergency Planning Officer.
- The Environment Agency has carried out flood risk management schemes in urban areas to reduce flood risk.
- The condition of river channels, defences and structures are assessed by the Environment Agency to ensure continued appropriate protection from flooding
- De-siltation operations are sometimes carried out to reduce flood risks and maintain navigation.
- The Environment Agency draws up maintenance plans annually to manage flood risk and maintain navigation.

What are we aiming to achieve?

To help people and their communities adapt to the increasing likelihood of flooding during and after severe weather events due to climate change, by implementing the recommendations of the Pitt Review and engaging with NI189.

What do we need to do?

- Prepare Multi Agency Flood Plans for each District in the county. These will define the more locally based actions and activities to be undertaken by each partner agency
- Encourage sustainable drainage systems in new developments
- Raise awareness of the steps that householders can take to protect their property from the impacts of flooding and of the technical advice available from English Heritage on flooding and historic buildings³². For further information on preparing for floods see: <http://www.environment-agency.gov.uk/homeandleisure/floods/31644.aspx>
- Develop an NCC surface water management plan to take the lead in managing surface water and groundwater flood risk. (Funding has been received for this).
- Work with strategic planners to ensure that where all vulnerable development land is located away from floodplains and ensure that there is no inappropriate development on flood plains
- Promote more green space in towns and villages to capture rainwater and make long-term, sustainable use of land at risk of flooding.
- The Environment Agency will apply its supervisory role to manage various forms of flooding around the county and implement the River Nene Catchment Flood Management Plan

Case Study – Strategic Flood Risk Assessment for Northampton

In March 2009 Northampton Borough Council commissioned a Strategic Flood Risk Assessment (SFRA) of the Borough of Northampton with the purpose of identifying and mapping the areas of flood risk, assessing the effect on flood risk in Northampton of large scale urban development in the Upper Nene catchment and providing guidance notes for developers. Full details of this can be found at: <http://www.westnorthamptonshirejpu.org/Documents/EvidenceBase/StrategicFloodRiskAssessment/SFRALevel2Northampton/tabid/132/Default.aspx>

³¹ <http://www.northamptonshire.gov.uk/en/councilservices/fire/eplan/pages/iems.aspx>

³² <http://www.climatechangeandyourhome.org.uk>

7.0 PLAN AND ADAPT TO THE IMPACTS OF CLIMATE CHANGE

7.1 Implementation of the Strategy

The Strategy will be implemented by the Northamptonshire Climate Change Officers Group in association with a range of partners as relevant for each activity. In the first year (2010/11) much of the action will be further work on data and the analysis of priorities for action and the identification of gaps. The Strategy is intended to provide a flexible framework that will be further developed and enhanced as it is implemented.

7.2 The Northamptonshire Climate Change Action Plan

This Strategy sets out how we intend to tackle the challenges of Climate Change in Northamptonshire. It will be supported by an Action Plan for 2010/11 that covers each area of the Strategy and provides additional information about what we will do and the measures we will use to track our progress and the targets that we have set ourselves. This will be used to inform progress in meeting the LAA targets.

7.3 Monitoring Progress and Review

Progress against the Strategy will be reported annually to the Public Service Board. In addition there are a number of groups that focus on specific areas of the Strategy (e.g. Northamptonshire Climate Change Officer Group, Northamptonshire Home Energy Efficiency Partnership, Northamptonshire Biodiversity Partnership and many others) who will work on a specific aspect of the Strategy to ensure that the actions are taken forward and that objectives and targets are met. The Action Plan will be reviewed at the end of each financial year and a further Action Plan will be developed for the following year.

Targets will also be reviewed regularly to ensure that they are consistent with the evolving science and any changes to related national or regional strategies.

APPENDIX ONE

Members of the Northamptonshire Climate Change Officer Group

Northamptonshire County Council

Corby Borough Council

Daventry District Council

East Northamptonshire Council

Kettering Borough Council

Northampton Borough Council

South Northamptonshire Council

Borough of Wellingborough Council

Northamptonshire Police Authority

Environment Agency

GOEM

University of Northampton

NHS Northamptonshire

East Midlands Regional Improvement and Efficiency Partnership

East Midlands Councils (formerly East Midlands Regional Assembly)

Northamptonshire Enterprise

Groundwork North Northamptonshire

Northamptonshire ACRE

May Gurney WSP (NCC Highway Partners)

APPENDIX TWO

Carbon dioxide emissions data relating to NI186

2007 CO₂ emissions data for Northamptonshire (Source DEFRA)

Local authority	Industry/ Commerce	Domestic	Transport	Total	Population	Per capita
Corby	471	131	92	694	55.2	12.6
Daventry	277	185	332	794	79.1	10.0
East Northamptonshire	164	200	262	626	85.4	7.3
Kettering	232	212	326	770	89.5	8.6
Northampton	543	456	305	1,304	202.8	6.4
South Northamptonshire	200	214	293	707	90.3	7.8
Wellingborough	248	174	185	606	75.9	8.0
Northamptonshire	2,133	1,573	1,795	5,501	678.2	8.1
East Midlands	—	—	—	—	—	7.4

Units are in kt CO₂

2006 CO₂ emissions data for Northamptonshire (Source DEFRA)

Local authority	Industry/ Commerce	Domestic	Transport	Total	Population	Per capita
Corby	488	135	91	714	54.8	13.0
Daventry	294	190	322	806	78.2	10.3
East Northamptonshire	172	204	258	635	84.0	7.6
Kettering	248	218	316	783	87.9	8.9
Northampton	574	469	303	1,347	200.1	6.7
South Northamptonshire	214	217	286	716	88.8	8.1
Wellingborough	254	179	182	615	75.5	8.2
Northamptonshire	2,245	1,613	1,757	5,616	669.3	8.4
East Midlands	—	—	—	—	—	7.6

Units are in kt CO₂

2005 CO₂ emissions data for Northamptonshire (Source DEFRA)

Local authority	Industry/ Commerce	Domestic	Transport	Total	Population	Per capita
Corby	474	135	93	702	54.5	12.9
Daventry	289	190	319	797	76.9	10.4
East Northamptonshire	173	203	262	638	82.3	7.8
Kettering	233	217	309	759	86.6	8.8
Northampton	584	473	307	1,364	197.3	6.9
South Northamptonshire	209	215	290	714	87.0	8.2
Wellingborough	258	180	186	625	74.9	8.3
Northamptonshire	2,220	1,614	1,766	5,600	659.5	8.5
East Midlands	—	—	—	—	—	7.7

Units are in kt CO₂

APPENDIX THREE

References

In addition to the references included as footnotes in the main document, the following documents have been drawn on in the development of this strategy:

- A Climate of Change – Local Government Association Climate Change Commission (November 2007)
- Worcestershire Climate Change Strategy 2005-2011 (and the 2008 Review)
- CLASP (North West Climate Change Local Area Support Programme) – A guide to the greatest hits for carbon savings in your LSP
- The Stern Review: The economics of climate change http://www.hm-treasury.gov.uk/stern_review_report.htm
- UK Climate Projections (UKCP09) <http://ukcp09.defra.gov.uk/>
- The UK Low Carbon Transition Plan http://www.decc.gov.uk/en/content/cms/publications/lc_trans_plan/lc_trans_plan.aspx
- “Tackling Climate Change in the East Midlands” - East Midlands Regional Programme of Action 2009-2011
- LCLIP East Midlands Summary Report (Ecofys – January 2009)
- Details of regional actions underway (Master Plan.xls attached to e-mail from Alison Parry dated 29 July 2009)
- Northamptonshire Priority Action Plan (5) – EnvironMEANT Steering group
- Northamptonshire Local Area Agreement 2008-2011
- Northamptonshire County Council Summary LCLIP Report (September 2008)
- Climate Change Activities in Northamptonshire – Stock-take of key projects and activities (March 2009)
- Corby BC Climate Change Strategy (14-02-08)
- Wellingborough BC Climate Change Strategy and Action Plan 2009-2012