

Climate Change Strategy & Action Plan



Angus Council 2012-2016



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Foreword

Angus Council is pleased to present its first Climate Change Strategy and Action Plan. This document sets out how we intend to progress the climate change agenda in Angus throughout the period 2012 to 2016.

The Climate Change Strategy builds upon the excellent work already being undertaken by the council in its efforts to reduce its emissions and lessen the effect on climate change, e.g. the Carbon Management Plan, the Carbon Trust Standard and the Climate Change Declaration.

The Strategy is very comprehensive covering ten main themes which includes a section looking at adapting to the inevitable effects of climate change which are already in train. Indeed, the effects of climate change are already being felt in Angus as the Local Climate Impacts Profile shows. Angus is experiencing increased incidence of heavy rainfall, flooding, high winds and heavy snow fall – all of which has an impact on our daily lives.

This strategy will help us to continue and improve on the work we have already done and will also contribute to national targets of reducing our greenhouse gas emissions by 80% by 2050. Although concentrating mainly on our own “in-house” emissions, it is hoped that this strategy will provide an inspiration to others to do their bit for the climate and help us all to reduce our carbon footprint thus protecting future generations from the hazards of climate change.



Richard Stiff
Chief Executive



Councillor Bob Myles
Leader of the Council

Executive Summary

This Strategy has been developed to take into account the public bodies' duties imposed under the Climate Change (Scotland) Act 2009. The aim of this plan is to build upon other systems already in place within the council that measure and report our emissions and reduction efforts such as the Carbon Management Plan and the Carbon Trust Standard.

The main objectives of the Strategy are outlined on the following page and include actions under ten main themes:

- Health and Wellbeing
- Education and Awareness
- Energy
- Resource Management
- Transport
- Sustainable Procurement
- Cultural and Natural Heritage
- Water
- Planning and Built Environment
- Adaptation

Some actions such as energy use are relatively easy to measure and have been reported for some time. However, other actions are not so clearly defined and are very difficult to measure accurately; for example, running an awareness raising campaign may prompt action by others but how can this be measured and reported? In these cases, estimations or a proxy methodology have been used in order show progress.

The Climate Change Strategy and Action Plan mainly concentrates on Angus Council's own "in-house" operational emissions as the council cannot be held responsible for the emissions from industry, agriculture and private

householders. We can only attempt to influence and encourage those sectors to take action to reduce their own emissions through a leadership role and by setting an example.

It is a requirement of the Act that "major players" such as local authorities should report their progress annually, therefore it is expected that the first Climate Change Strategy Progress Report will be produced by December 2012 and annually thereafter up to 2016 at which time a complete review of the Strategy will be carried out. It is expected that the Strategy will grow and evolve over time to reflect changes in the climate, technology, and available resources.

Not all actions in the plan are easily measured in emission reduction terms. However, this does not mean that those actions are not relevant and useful just because their effects cannot be measured. It is hoped that over time measuring methodologies will emerge and the effect of those actions can be reported more accurately in future annual reports.

Main Objectives

Health & Wellbeing

To improve the health and well-being of the population in Angus and planning for the impacts of climate change on human health.

Education and Awareness

To raise awareness of climate change issues in Angus so individuals can take local action to mitigate and adapt to the impacts of a changing climate.

Energy

To reduce the consumption of fossil fuel for energy use, promote energy efficiency and increase the use of renewable energy for the Council's own operations and throughout the county.

Resource Management

To reduce waste and the levels of waste going to landfill; increase recycling in line with targets and increase public awareness of the contribution that waste makes to climate change.

Transport

To develop "A transport system, shaped by engagement with its citizens, which helps deliver prosperity and connects communities across the region and beyond, which is socially inclusive and environmentally sustainable and which promotes the health and well-being of all."

Sustainable Procurement

To ensure that goods and services purchased by the council contribute to sustainable development whilst delivering value for money for the citizens of Angus.

Cultural & Natural Heritage

To raise awareness of climate change issues which will influence our stewardship of biodiversity natural resources and the promotion of the unique natural environment of Angus.

Water

To promote issues such as sustainable water use practices not only in Angus Council's premises but in the wider community, the importance of water quality improvement on ecosystem health and the awareness of fluvial and coastal flood risk prevention measures

Planning & Built Environment

To guide development and changes in land use, in a sustainable manner that can best serve the needs of communities throughout Angus.

Adaptation

To prepare, plan and adapt to the changing weather patterns in Angus in an effort to reduce and manage those impacts, especially on those most vulnerable in our community.

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Section 1 - Climate Change

& National Policy Drivers

Section 1

1. An Introduction to Climate Change

The climate on our planet is changing. The evidence has never been stronger and climate change poses significant threats to life on Earth. Science shows our climate has already changed as follows:

- **The year to September 2009 is the fifth warmest year in the 160 year global temperature record.**
- **The Earth's temperature has risen by 0.75 degrees centigrade over the last century and the period 2000-09 was warmer than the 1990s.**
- **Observations are consistent with ongoing warming of 0.15 degrees centigrade per decade since the mid-1970s.**
- **Man-made greenhouse gas emissions have been the main driver of climate change over the past 40 years. These emissions will continue to affect our climate for many decades to come. If emissions continue to rise, temperatures could rise by 4 degrees centigrade.**

1.2 Angus' Changing Climate

The most recent set of UK Climate Projections for the UK were released in 2009. Assuming a future with medium-high global emissions production, changes to Angus's climate are likely to include:

- **Temperature:** Annual temperature on Scotland's East coast may rise by up to 3.5°C in the summer and 2.5°C in the winter by the 2080s becoming drier and warmer in summer months and wetter and warmer in winter months.
- **Rainfall:** While winters may become wetter, summers will become generally drier across Scotland by the 2080s; the pattern of change may not be the same across Scotland. UKCIP09 estimate eastern Scotland may experience the most extreme percentage changes in precipitation, with an increase in winter and a reduction in summer by the 2080s.

- **Snow cover:** Average snowfall may decrease, perhaps by up to 90% less depending on the location, and snowless winters may become normal in some parts by the 2080s; Snowfall is likely to reduce by 50% or more across all of Scotland, particularly in eastern Scotland where it may reduce by up to 90% by the 2080s.
- **Growing season:** Scotland's growing season may become longer, by between 20 and 60 days by 2080.
- **Sea level:** Scotland's sea levels may rise relative to the land, in some areas. By 2080 the current estimates range between 0 and 600 mm sea level rise.



1.3 Why Does Climate Change Matter?

Climate change will affect all aspects of life increasing risks to food security, water availability, infrastructure and human health.

Crucially, if emissions are reduced early and rapidly, the extent of climate change will

be mitigated. On the other hand, if greenhouse gas emissions continue unabated, the implications of climate change grow more severe, posing even greater risk to life on Earth.

In view of the threat and risks of inaction, it is essential that public bodies put mitigation and adaptation strategies in place and act sustainably to address climate change in Scotland.

The Climate Change (Scotland) Act 2009 is the centrepiece of the climate change framework and supports the transition to a sustainable low carbon economy. It requires that actions are taken in relation to **both** climate change **mitigation** and **adaptation**, as well as the development of a public engagement strategy.

1.4 Climate Change Legislation



A key objective of the Climate Change (Scotland) Act 2009 is to reduce Scotland's greenhouse gas emissions by at least 80% by 2050, covering carbon dioxide and five other key greenhouse gases. These gases are: methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride. The baseline year is for carbon dioxide,

nitrous oxide and methane is 1990 and for the three fluorinated gases it is 1995. The Act also sets an important interim target to cut greenhouse gas emissions by at least 42% by 2020.

The duties on the face of the Act require that a public body must, in exercising its functions, act:

- (a) in the way best calculated to contribute to the delivery of the targets set in or under Part 1 of this Act;**
- (b) in the way best calculated to help deliver any programme laid before the Scottish Parliament under section 53;**
- (c) in a way that it considers is most sustainable.**

Under the terms of the Act local authorities are considered "major players" under the scope of the Act.

In September 2010 the Scottish Government issued a consultation document setting out draft guidance for public bodies on their climate change duties. The Scottish Government state that "The public sector has a crucial leadership role in the delivery of Scotland's climate change ambitions for both mitigation and adaptation, as set out in the Act, and in acting sustainably."

The Act also gives new powers to enable local authorities to give council tax and non-domestic rates rebates for energy efficiency and renewable energy improvements made to homes and other buildings.

The scope of the duties are summarised in the guidance as:

- **All public bodies within the definition in the Act are required to comply with the climate change duties.**
- Public bodies are encouraged to take a broad approach when complying with the duties and include all direct, indirect and influenced emissions.
- **Climate change action should address (the three aspects of the duty) mitigation, adaptation and acting sustainably and be embedded across all departments via corporate planning.**
- Understanding of how to most effectively address climate change is developing quickly. Public bodies should use evidence-based policy-making techniques and learn from the good practice of others. Public bodies should ensure they understand the principles of climate change action, keep up to date with emerging thinking, and seek to engage their staff at all levels in promoting cultural change.
- **Public bodies should know the national targets and trajectory and think about how they can assist in meeting these. They should also know whether they are within the Carbon Reduction Commitment (CRC) Energy Efficiency Scheme.**
- Major players should keep abreast of the high-level strategic framework and relevant policy documents.

1.5 How do we embed Climate Change Actions into our work?

The guidance recommends public bodies embed climate change action in all core corporate and business planning processes and report on their progress annually.

The suggested steps in the process to mainstream and embed climate change action in all aspects of public bodies' decision making and operations are:

Step 1 - Understanding the three parts of the duties – developing a thorough understanding of the three parts of the climate change duties and what they mean for the organisation.

Step 2 – Understanding the impact of climate change – assessing our impact on climate change how climate changes impact on us.

Step 3 – Taking Action – setting climate change outcomes, objectives, milestones and targets.

Step 4 – Using practical support and tools – making use of available practical support and tools.

Step 5 - Reporting – demonstrating compliance through reporting and evaluation.

It is emphasised that public bodies should use evidence-based policy and decision making to identify priorities and in due course demonstrate compliance with the duties. Both quantitative and qualitative reporting is considered important.

As a guide, major players' reports might summarise the various aspects of the relationship between public body corporate planning and climate change action, namely:

- Governance, leadership and management arrangements for climate change action and confirmation of the nominated senior management champion.
- Reductions in relation to public bodies' direct greenhouse gas emissions.
- Emissions arising from exercising public bodies' broader functions and the action being taken to address these.
- Action taken to assess risks of climate change impacts and work undertaken with others on adapting to the impacts of climate change.
- Examples of partnership working and climate change communications.
- Other activities and achievements: both highlights and areas for improvement.

1.6 Fulfilling Climate Change Actions

The council's response to the consultation guidance document outlined the actions which were required in order to fulfil the duties of the Climate Change Act. These were:

- Establish mechanisms to collect and monitor comprehensive emission data to provide the evidence base required.
- Bring forward a comprehensive climate change strategy.
- Assess the vulnerability of council services and estate to climate change and incorporate into the risk assessment process.
- Establish a short life working group to bring forward for approval a climate change strategy. This group to be led by the Head of Planning & Transport (as authorised under Standing Orders to manage the Council's response to the new climate change duties) in close co-operation with the Head of Property (who has the main responsibility under the Carbon Reduction Commitment Energy Efficiency Scheme (CRCEES) and with contributions from all departments.
- Ensure that sustainability is mainstreamed into policy development, service delivery and operations. As part of this process re-introduce a sustainability checklist.
- Set in train procedures to monitor and report to committee on emissions and actions undertaken to tackle climate change on an annual basis.

1.7 Previous Climate Change Work

Although Angus Council did not have a formal Climate Change Strategy, a considerable amount of work has been and is being undertaken in various departments and divisions to address climate change as illustrated in the Council's first annual report on implementation of Scotland's Climate Change Declaration to the Strategic Policy Committee 27 October 2009.

In 2001 Angus Council set greenhouse gas emissions reduction target of 12.5% by April 2010 based on 1990 emission levels. The Property Services Division's energy management team collects data on energy use in non-housing properties and is working on a variety of energy efficiency and emission reduction projects and arrangements to meet that target and the requirements of the Carbon Reduction Commitment Energy Efficiency Scheme (CRCEES).

Other areas of Council work (including work undertaken with partners) that contributes towards addressing Climate Change includes:

- the Carbon Management Programme which has recently been reviewed;
- the Staff & Visitors Travel Plan, including car-share, Green Fleet review;
- work to enhance biodiversity;
- River Basin Management Planning;
- Flood Management Planning and Flood alleviation / mitigation protection work;
- the Shoreline Management Plan and Coastal Erosion works;
- responsive street light levels and energy efficient replacement programme;
- sustainable urban drainage systems (SUDS) and the recycling of road materials;
- waste minimisation and waste management processes such as recycling;
- Property Division specify materials in accordance with Building Research Establishment Environmental Assessment Method (BREEAM) Green Procurement guidelines and has a sustainable design approach for new buildings. This resulted in Seaview PS receiving the 2010 Carbon Trust Low Carbon Building Award;
- the introduction of biomass boilers at six council buildings has made considerable efficiency savings;
- Housing Division is working towards a target of National Home Energy Rating (NHER 5) for all council houses by 2015;
- the council's new build housing is being constructed to comply with Level 4 of the Code for Sustainable Homes;
- corporate procurement is working towards incorporating climate change as part of the social responsibility approach to purchasing;
- IT has introduced measures at the majority of schools to automatically switch off computers when not in use. New computers must be energy star compliant and old computers are recycled;
- the majority of Angus schools are registered as Eco schools and seek to address climate change issues within the school estate and to change behaviours through awareness raising among the pupils, staff, parents and local communities.

Much of the work described above relates to mitigation or reduction of emissions. Not so much work has been done in terms of adaptation to a changing climate. The risk assessment process is one avenue through which vulnerability to climate change could be addressed, along with such mechanisms as flood risk management planning, shoreline management work, the local development plan process, Community Risk

Register 2008 -2011 and certain aspects of biodiversity work. The Property Division is in the early stages of assessing the capability of council buildings to withstand more extreme weather.

1.8 Local Climate Impact Profile

As a starting point for adaptation work the Local Climate Impacts Profile (LCLIP) project was undertaken and published in March 2010. The report highlights the Angus area's vulnerability to severe weather events and how these events affected local communities and the council's assets, infrastructure and capacity to deliver services. The project report can be found on the Council's website at: <http://www.angus.gov.uk/sustainability/pdfs/LCLIP.pdf>

The key findings for the study period of 2001-2009 were that:

Angus most frequently experiences high winds, heavy rain and heavy snow, all three weather types significantly affect infrastructure. High winds lead to damage to buildings, roads blocked by fallen trees, windblown forestry plantations and blown over gravestones. High seas have often led to the temporary closure of Montrose Port, resulting in no vessel movement, logistics, stevedoring or weighbridge. High seas have also led to boat strandings and in worst case scenarios deaths when swells along the coast are extremely large.

Heavy snow leads to blocked roads, increased snow ploughing, transportation problems, delays in services such as waste collection and periodic school closures throughout the area. School closures in particular lead to many other changes to daily life as many parents are forced to remain at home looking after children creating a knock on affect in the their own work places.

Heavy rain is perhaps the most destructive of all and in recent years fluvial and surface flooding has increased in frequency throughout the entire area. Two large rivers the North and South Esk, the River Isla and many tributaries flow through the countryside and catchment management and planning in the past now means that some areas are more at threat from flooding than others. Surface flooding is also a major cause of problems as more frequent heavy rain fall does not allow the ground

to dry out and many areas remain waterlogged, meaning that water is not absorbed into the water table as readily, causing flooding on roads, fields and residential areas.

It was also noted that most weather events, impacts and costs were not recorded in any consistent manner by any department or community planning partner.

1.9 Angus' Carbon Footprint

The latest emissions data from the Department of Energy and Climate Change (DECC) for Angus and Scotland are given in the table below. This shows that Angus' per capita CO2 emissions are slightly higher than the Scottish average. However, it does show a 9% decrease in emissions over the period 2005-2009.

Figure 1 Angus' Carbon Footprint

Year	Industry, Commerce & Agricultural Combustion (ktCO ₂)	Domestic Energy Use (ktCO ₂)	Road Transport (ktCO ₂)	Grand Total (ktCO ₂)	Population ('000s, mid year estimate)	Per Capita Emissions (ktCO ₂)	% Per Capita Reduction since 2005
Angus							
2005	309.4	332.9	254.2	896.5	108.8	8.2	9.0%
2006	306.0	334.9	266.5	907.4	109.3	8.3	
2007	308.3	328.7	267.0	904.0	109.9	8.2	
2008	307.5	328.1	261.3	896.9	110.3	8.1	
2009	276.0	296.3	252.5	824.8	110.3	7.5	
Scotland							
2005	16473.5	14443.4	9281.4	40198.3	5094.8	7.9	
2006	16644.7	14410.1	9274.9	40329.6	5117.1	7.9	
2007	16450.1	14123.7	9364.9	39938.6	5144.6	7.8	
2008	16286.3	14112.7	9031.9	39430.9	5168.7	7.6	
2009	13967.1	12764.7	8746.5	35478.3	5193.9	6.8	

1.10 Angus Council's Carbon Footprint

A review of the Carbon Management Programme in 2011 showed that emissions from across Council buildings and waste (landfilled) accounted for most of the council's carbon footprint (41% each), followed by transport (11%) and street lighting (8%).

The following table shows progress in emissions reduction since 2006/07 up to 2009/10 with projected emission savings targets up to 2015/16

Figure 2 Angus Council's Reported Carbon Emissions

Category	Financial Year									
	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16
Building Energy Consumption	21,251	21,727	20,526	19,990						
Waste (Landfill)	21,459	16,893	16,684	14,893						
Streetlighting	3,398	3,426	4,422	4,503						
Transport	5,728	5,728	5,728	5,728						
TOTAL	51,836	47,774	47,360	45,114						
Target Emissions	51,836	50,281	48,726	47,171	45,616	44,061	43,413	42,765	42,117	41,469
Variance	0	-2,507	-1,366	-2,057						
% Change from baseline	0	-7.8	-8.6	-13.0						
% Annual Change	0	-7.8	-0.9	-4.7						
% Annual Change (by category)										
Building Energy Consumption	0	2.2	-5.5	-2.6						
Waste (Landfill)	0	-21.3	-1.2	-10.7						
Street lighting	0	0.8	29.1	1.8						
Transport	0	0.0	0.0	0.0						

1.11 Carbon Management Plan Targets

- The long-term aim of the revised CMP is to make a significant contribution to the overall UK and Scottish Government target of at least an 80% reduction in carbon dioxide equivalent emissions by 2050 (against a 1990 baseline). In doing so the objective is to establish a Carbon Management programme within Angus Council that will:
- Reduce CO_{2e} emissions from buildings by 2.5% per annum (which will help the council to meet the emissions reduction target of 20% CO_{2e} by 2015/16 compared to 2006/07 levels);
- Achieve an overall reduction in CO_{2e} emissions from council activities of at least 20% by the end of the year 2015-16;
- Bring together existing and future Carbon Management projects into a consistently managed and coherent programme with management oversight from the Climate Change Strategy Working Group and the Energy Management Group;
- Encourage workforce involvement in the identification of opportunities and the implementation of actions;
- Lead by example and raise the environmental profile of the council locally to encourage our partners and the community to make changes to reduce carbon emissions.

1.12 Next Steps

The Scottish Government's guidance illustrates the complexities and comprehensive approach which is required to tackle the climate change duties imposed by the Climate Change (Scotland) Act 2009. It makes it very clear that public bodies such as local authorities are expected to prepare detailed climate change strategies and report on them annually.

Notwithstanding the above it should be emphasised that the measures previously being put in place to tackle climate change issues are in themselves subject to change as the government reviews its position. For example, one of the changes announced in the recent UK Government Comprehensive Spending Review has advised of the intention to radically change the CRCEES. Such changes will be kept under review by the Short Life Working Group and the Carbon Reduction Member / Officer steering

group addressing the CRCEES and where relevant future reports will be brought to Committee as appropriate.

Section Two:

Main Focus Areas & Mitigation

2.1 Health & Wellbeing

Main Objective:

To improve the health and well-being of the population in Angus and planning for the impacts of climate change on human health.

2.1.1 Background

The quality of human health and the state of the environment are inextricably linked. Poor environmental standards in air quality, water quality, waste and access to green spaces can all impact on the well being of the county's population. Our lifestyles, relationships, gender, ethnic group, education and work, and the conditions and communities in which we live and how we feel about ourselves all influence our health and impact on how long we live. Our health is dependent on physical, social, environmental, economic and cultural influences as well as individual behaviours like what we eat, and how much we drink, smoke or exercise.

Climate change is likely to have far-reaching physical, social and economic effects. However, direct impacts on health are likely to be among the earliest effects of climate change not only due to heat-waves or extreme heat events but also as a result of flooding, storms and periods of extreme cold as well – as the last three winters have shown.

Climate change is already having a negative effect on health worldwide. The World Health Organization (WHO) estimated that global warming between the 1970s and 2004 has caused over 140,000 additional deaths annually, and is making serious infectious diseases like malaria and diarrhoea more challenging to control. These trends are likely to worsen in the near future, regardless of current efforts to cut greenhouse gas (GHG) emissions and mitigate climate change.

The effects of climate change on health will be diverse and mediated by a range of different mechanisms, including the direct physiological effects of heat leading to heat related illnesses, new vector-borne disease (such as malaria), poorer air quality and increases in allergens (see Appendix .1 for extract from WHO's Climate & Health factsheet 2005).

Vulnerable populations such as the very young, the elderly and those living in poverty are likely to suffer disproportionately negative health impacts as a result of climate change in the same way as they already have less access to the resources that can improve health, such as well-paid, secure employment or safe and comfortable living environments.

A recent report by Friends of the Earth and the Marmot Review¹ found troubling evidence about the long term effect of cold homes and fuel poverty. What's most disturbing is how significant the impact is on children and their development. The report showed that fuel poverty had direct, negative effects on many aspects of health including, "infant weight gain, hospital admissions, developmental status and the severity and frequency of asthmatic symptoms". As children get older the impact becomes "extremely strong ... more than 1 in 4 of adolescents living in fuel poverty [are] at risk of multiple mental health problems". That's compared to 1 in 20 of those who have always lived in a warm home.

Single Outcome Agreement

The objectives outlined in Angus' Single Outcome Agreement relating to health are as follows:

National Outcome 6: *We live longer, healthier lives.*

Local Outcomes:

- The health of the Angus population is improved.
- Harm caused by the misuse of drugs and alcohol is reduced, resulting in improved quality of life in Angus.
- Children and young people in Angus will enjoy the highest attainable standards of physical and mental health, with access to suitable healthcare and support for safe and healthy lifestyle choices.

2.1.2 Health & Well-being in Angus

¹ Read full report at <http://www.marmotreview.org/media-events/news-coverage/the-health-impacts-of-cold-homes-and-fuel-poverty.aspx>

The Angus Community Health Partnership (CHP) area's "Health and Wellbeing Profile 2008" is the most up to date publication containing useful information about the health and wellbeing of the Angus population. The following information is a summary. To view the full report, please go to

http://www.scotpho.org.uk/web/files/profiles/chpreport_2008_Angus.pdf

As stated above changes in the climate will impact upon our health and well-being. However, there are also synergies between improving our health and well-being and reducing greenhouse gas emissions. Programmes such Healthy Working Lives and Active Nation can assist in identifying those areas of activity which would both help meet climate change duties and have positive effects on our everyday lives. For example, encouraging people to walk and cycle more instead of using their car will have positive effects on their health by making them fitter and will also have positive effects on the climate by reducing emissions.

The Scottish Government in its Guidance to Public Bodies on their climate change duties encourages us to:

- prepare for warmer temperatures;
- prepare for warmer temperatures in the workplace;
- encourage more outdoor recreation;
- prepare for impacts on air quality (e.g. increased likelihood of smog or increased algal or fungal growth in buildings) may affect respiratory conditions;
- prepare for new diseases.

The Angus Health Improvement Plan 2009-2012

The Angus Health Improvement Plan (AHIP) sets out the three-year strategic framework for health improvement in Angus. A key element of the AHIP is the Action Plan that details specific projects and initiatives and their expected outcomes.

NHS Tayside and Angus Council have a statutory responsibility to work together to agree and produce a HIP for the Angus Council area. This is a significant challenge for both organisations and their partners as Angus has a population of nearly 110,000 who live in a variety of communities with different needs.

The AHIP sets out the major priorities for the partners in Angus and highlights areas where significant change or improvement is required. It also details how we will involve and inform the public and key stakeholders in taking forward the health improvement agenda in Angus. The Plan sets out the key health and health improvement challenges facing Angus. It is recognised that all the partner agencies currently participate in a wide range of health improvement activities. The Plan is designed to recognise and provide a structure to these activities, and to help work towards measurable outcomes. It has taken a population approach that includes the general public and all the major care groups, including learning disabilities, older people, children and young people and mental health.

The health improvement priorities identified for Angus are:

1. Alcohol
2. Nutrition and Physical Activity
3. Mental Health and Wellbeing
4. Sexual Health
5. Smoking and Tobacco Control
6. Oral and Dental Health

The CHP does highlight some actions which have a bearing on climate change (some of which are already mentioned above, e.g. the provision of footpaths, cycleways etc.), however, other actions are unique to the CHP, e.g. *maintain and develop opportunities (for physical activity) for people living in rural areas* – thus requiring less travel. Relevant actions from the CHP are included in the action table below.

Measurable Actions

Table 1 Health & Wellbeing Action Plan

Main Objective: <i>To improve the health and well-being of the population in Angus and planning for the impacts of climate change on human health.</i>						
Ref No	Action	Lead Dept/Service	Timeline	Annual Emissions Reduction (tonnes CO2)	Total Emissions Reduction by 2016	Measuring Progress
H&W. 1	Angus Council will work closely with partner organisations to promote the use of paths to improve the health of communities.	Neighbourhood Services	Ongoing	Non Quantifiable.		
H&W. 2	Carry out an audit of existing access provision provided by Angus Council, and implement changes to ensure compliance with the Disability Discrimination Act 1995.	Neighbourhood Services	2012	Non Quantifiable.		
H&W.3	Angus Council will continue to promote the benefits of active and sustainable modes of travel.	Infrastructure Services	Ongoing			Traffic counts. Scottish statistics.
H&W.4	Angus Council will promote the benefits of locally sourced food thereby reducing impacts on Climate Change through reduced food miles, less packaging and less GHG emissions whilst providing health and wellbeing benefits in terms of jobs and the provision of better quality ingredients by sourcing fresher, seasonal and unprocessed produce.	Chief Executive's (Community Planning) Economic Development		Non quantifiable.		
H&W.5	Angus Council will continue to work towards reducing fuel poverty, promoting home insulation and fuel efficient heating systems.	Housing	Ongoing			Annual reports from Housing Division.
H&W.6	Angus Council will continue to provide access to good quality open space and natural environments to aid the well-being of its citizens and visitors to the area.	Neighbourhood Services Planning & Transport	Ongoing	Non Quantifiable.		
H&W.7	Angus Council will continue to adopt	Planning & Transport	Ongoing	Non Quantifiable.		

Main Objective:***To improve the health and well-being of the population in Angus and planning for the impacts of climate change on human health.***

Ref No	Action	Lead Dept/Service	Timeline	Annual Emissions Reduction (tonnes CO2)	Total Emissions Reduction by 2016	Measuring Progress
	policies to promote well-designed housing for the future which will take into account the effects of climate change and encourages active lifestyles.	Housing				
H&W.8	Angus Council will seek to secure the provision of affordable housing from housing developments on allocated sites, opportunity and windfall sites which will contribute towards meeting identified needs in each Housing Market Area.	Planning & Transport	Ongoing			Annual statistics.
H&W.9	Buildings and grounds associated with existing and proposed healthcare facilities throughout Angus will be reserved for healthcare use. Where sites become available for redevelopment, alternative uses, which are in line with the policies of the Local Plan, will be encouraged.	Planning & Transport	Ongoing	Non Quantifiable.		
H&W.10	The promotion and development of sports clubs and activity groups throughout Angus.	Neighbourhood Services (Leisure Services)/ Education	2012			Annual reports from Neighbourhood Services.
H&W.11	Actively promote physical opportunities and benefits in Angus.	Health Improvement Team	2012	Non quantifiable.		
H&W.12	Continue to expand the successful Angus Exercise Referral programme.	Health Improvement Team	2012	Non quantifiable.		
H&W.13	Continue to expand the successful Angus Walking Project with emphasis on more walks in more locations.	Health Improvement Team	2012			Number of participants.
H&W.14	Angus Walking Project will include people with mental health problems.	Health Improvement Team	2012			Number of participants.

2.2 Education and Awareness

Main Objective:

To raise awareness of climate change issues in Angus so individuals can take local action to mitigate and adapt to the impacts of a changing climate.

2.2.1 Background

Angus Council acknowledges that climate change is happening. The council recognises that it must take steps to adapt to likely changes and move to a low carbon future. However, the scale of the climate change challenge is such that it will only be overcome if individuals and communities have the necessary knowledge, awareness, understanding and the skills to address this.

Ensuring that people fully appreciate the impact they have on the environment in their day to day life whether in the home, at work or at leisure will be the key to a low carbon future. Often it is only a lack of understanding of environmental issues that perpetuates 'bad' habits. Once the consequences of actions are understood people generally change their behaviour to reduce their environmental impact. A better understanding of climate change issues is needed amongst all sectors of the local community. There is a need therefore, to raise awareness among the young and adult population, through school pupils, community groups and the working population.

Education can play an important role in facilitating adaptation to the challenges posed by climate change. It can help reduce the vulnerability of communities and improve their capacity to adapt to changes in their social, economic and ecological environment, and an uncertain future. Most importantly, it helps individuals to make informed decisions on how to adapt their lives and livelihoods to the effects of climate change and reduce risk and vulnerability.

UNESCO² states that in schools *“Education for mitigation must therefore not only teach the global problems linked to climate change, but also local solutions currently emerging everywhere. This calls for contextualized approaches to curriculum*

development and implementation with respect to climate change mitigation. Local solutions to reducing CO2 emissions such as public transportation or collaborative consumption examples such as community gardens are but two examples that can empower practitioners and educators and their audiences. Schools can lead by example by strengthening mitigation programmes (e.g. reuse, reduce, recycle) or by integrating new programmes (e.g. school gardens)”.

Young people and young adults entering life as citizens and professionals can be catalysts for social, cultural and technological innovation. They are also key actors in shaping lifestyles and consumption trends. In a globalised and virtually connected world, young people are often the drivers of innovation – actors of change essential to build a sustainable planet

The success of this action plan depends a great deal on the message of the dangers of climate change being spread as widely as possible. Raising awareness of the issues is fundamental to instigating actions on the ground.

² UNESCO et al *An Issues Guide for Education Planners and Practitioners*, 2011

Measurable Actions

Table 2 Education & Awareness Action Plan

Main Objective: <i>To raise awareness of climate change issues in Angus so individuals can take local action to mitigate and adapt to the impacts of a changing climate.</i>						
Ref No	Action	Lead Dept/Service	Timeline	Annual Emissions Reduction (tonnes CO2)	Total Emissions Reduction by 2016	Measuring Progress
E&A.1	Undertake a promotional campaign on waste minimisation and increased recycling by council staff.	Neighbourhood Services	Apr 2011			Start measuring amounts collected in 2012.
E&A.2	Encourage workforce involvement in the identification of opportunities and the implementation of actions.	Property	2011-16	Non Quantifiable		
E&A.3	Lead by example and raise the environmental profile of the Council locally to encourage our partners and the community to make changes to reduce carbon emissions.	Property	2011-16	Non Quantifiable		
E&A.4	Promote the 'Heatseekers' project which uses thermal imaging technology to identify homes that may benefit from improved insulation.	Housing	2012			Measured by take up of the scheme.
E&A.5	Continue to promote the Eco Schools programme in Angus Schools.	Education	Ongoing			No. of schools gaining awards.
E&A.6	A sub-group of the Rural and Environment Partnership has been established to promote and co-ordinate adaptation and mitigation measures in relation to climate change in Angus through partner agencies strategies and action plans in relation to Travel Plans; Estate Management; Alternative Energy Sources; Waste Reduction etc.	Chief Executive's/ Community Planning	Ongoing			Partner agencies' reports.
E&A.7	Support and encourage implementation of environmental projects.	Chief Executive's/ Community Planning	Ongoing			Community Planning Annual Reports.

Main Objective:
To raise awareness of climate change issues in Angus so individuals can take local action to mitigate and adapt to the impacts of a changing climate.

Ref No	Action	Lead Dept/Service	Timeline	Annual Emissions Reduction (tonnes CO2)	Total Emissions Reduction by 2016	Measuring Progress
E&A.8	Promote and support environmental volunteering.	Chief Executive's/ Community Planning	Ongoing			Community Planning Annual Reports.

2.3 Energy

Main Objective:

To reduce waste and the levels of waste going to landfill; increase recycling in line with targets and increase public awareness of the contribution that waste makes to climate change.

2.3.1 Background

Cutting carbon emissions as part of the fight against climate change should be a key priority for all public bodies - it's all about getting your own house in order and leading by example. The Scottish and UK governments have identified the public sector as key to delivering carbon reduction across Scotland and the UK, in line with Kyoto commitments and the world-leading Scottish and UK Climate Change legislation.

Many policies driving the sustainable development and climate change agendas comes from international agreements and national strategies, reflecting the cross-border and global nature of the issues. This section outlines the main directives and plans which drive climate change activity in the Council and will be key for implementing emissions reductions.

- **Climate Change (Scotland) Act (2009).**
- **Energy Performance of Buildings Directive (2002, revised 2009).**
- **Carbon Reduction Commitment Energy Efficiency Scheme (CRC EES) (2010).**
- **Single Outcome Agreement (2009-2012)** - Angus Council's Single Outcome Agreement includes a commitment to reduce its carbon footprint.
- **Scotland's Climate Change Declaration (2007).**

2.3.2 Energy Reduction Efforts in Angus

The Property Division's Energy Management Unit amongst its other duties has a responsibility for reducing energy use and carbon emissions from Council buildings. A

Corporate Energy Management Group drives forward the different aspects of energy efficiency in the Council's estate.

Across the Council there are initiatives and programmes which deal directly with reducing energy and carbon emissions or deal with a broader sustainability agenda. For example, (and the examples are not exhaustive) the Housing Division's 10 year Home Energy Conservation Act (HECA) Programme to reduce CO₂ emissions in the housing stock, the Roads Division's providing adaptable levels of illumination and introducing LED technology for street lighting, and the Education Department's Eco Schools Project.

The Property Division is working to reduce CO₂ emissions which will contribute to the challenging targets being set through the Climate Change (Scotland) Act 2009, the Carbon Reduction Commitment Energy Efficiency Scheme and the potential amendments to the EU Directive on the Energy Performance of Buildings. Property is now responsible for taking forward a strategy to reduce water and drainage services costs and consumptions and is investigating the implementation of the National Zero Waste Strategy by reducing waste to landfill.

Property services, monitors and reports annually on the CO₂ emissions reduction performance of the non-housing estate and individual departments/divisions performance. Monthly performance reporting to departments commenced in February 2011 and the 2011/12 FBV will detail energy consumption and carbon dioxide emissions budgets for the first time. Arrangements are in hand to provide departments with equivalent data for each of their buildings and detailed progress reports during 2011/12.

The Property Division, in accordance with legislation, published Energy Performance Certificates for buildings over 1,000 sqm and voluntarily also published complementary Display Energy Certificates. Performance of new buildings is closely monitored post occupation to ensure performance achieves design expectations. Property has contributed to the Local Authority Carbon Management Programme in response to Angus Council's signing up to Scotland's Declaration on Climate Change. With the assistance of the Carbon Trust in Scotland, the council has undertaken a review of progress to date against the targets set out in the original CMP of 2008. This has included analysis of ongoing efforts to reduce carbon emissions across Council activities and development of a revised target. In formulating the revised

target the council has looked ahead to 2020 and considered in what areas it can most effectively contribute to fulfilling its public duties as outlined in the Climate Change (Scotland) Act 2009.

The long-term aim of the revised CMP is to make a significant contribution to the overall UK and Scottish Government target of at least an 80% reduction in carbon dioxide equivalent emissions by 2050 (against a 1990 baseline). In doing so the objective is to establish a Carbon Management Programme within Angus Council that will achieve the estimated reductions in the table below.

Housing – Recent completion of the 10-year HECA programme to reduce CO₂. Current energy target is NHER 5 for all council houses through the Scottish Housing Quality Standard (SHQS) by 2015.

Householders in Brechin, Montrose and Arbroath are benefiting from lower energy bills as a result of the recent Home Insulation Scheme, a partnership project involving the Scottish Government, the Energy Saving Trust and Angus Council. Recent figures regarding the outcome of the Home Insulation Scheme in Angus which was carried out between 2009 and 2011, show that of the 24,000 homes visited

under the scheme, 8500 received energy efficiency checks and more than 2000 received extensive insulation measures.

These measures will cut average household energy bills by £51 a year and by around £2,000 over the 40 year lifetime of the insulation. Carbon emissions will also be reduced by an average of 11 tons over the lifetime of the measures. The Council will continue to identify all opportunities to help Angus households cut their fuel bills, e.g. promote the new Renewable Heat Premium Payment Scheme to householders in Angus.

Social Work & Health - The Kinloch Development, Carnoustie (Care Centre and Supported Housing) - As part of the design for the project a number of elements were considered to assist in the reduction of energy usage and CO₂ production, e.g. insulation above the requirements of Building Standards; low carbon heat sources including district heating with biomass boiler and solar water heating; photovoltaic panels; low energy lighting scheme with automatic controls; integrated building management system; care management system; heat recovery to ventilation systems; localised rainwater harvesting.

Measurable Actions

Table 3 Energy Action Plan

Main Objective: <i>To reduce the consumption of fossil fuel for energy use, promote energy efficiency and increase the use of renewable energy for the Council's own operations and throughout the county.</i>						
Ref No	Action	Lead Dept/Service	Timeline	Annual Emissions Reduction (tonnes CO₂)	Total Emissions Reduction by 2016	Measuring Progress
E.1.	Reduce CO ₂ e emissions from buildings by 2.5% per annum (which will help the Council to meet the emissions reduction target of	Property	2011-16		5120	Review of the Carbon Management Programme approved by Strategic Policy

Ref No	Action	Lead Dept/Service	Timeline	Annual Emissions Reduction (tonnes CO2)	Total Emissions Reduction by 2016	Measuring Progress
	20% CO2e by 2015/16 compared to 2006/07 levels).					Committee 6 September 2011.
E.2.	Achieve an overall reduction in CO2e emissions from Council activities of at least 20% by the end of the year 2015-2016.	Property	2011-16		Total of 12,489 (includes 5120t above)	As E.1 above.
E.3.	Bring together existing and future Carbon Management projects into a consistently managed and coherent programme with management oversight from the Climate Change Strategy Working Group and the Energy Management Group.	Property	2011-16		As E.2 above.	As E.1 above.
E.4	PC Monitors and workstations in schools and offices (Phase 1: 4,000 computers; Phase 2: 3,000 computers).	IT & Education	2011-16		190	As E.1 above.
E.5	7 day timers on printers, computer peripherals and other office equipment.	Property (EMU)	2011-16		69	As E.1 above.
E.6	Change from Quarterly meters to Half Hourly metering (Ph 1 and Ph 2) 350 units.	Property (EMU)	2011-16		529	As E.1 above.
E.7	Energy Saving Awareness programme (Bruce House).	Property (EMU)	2011-16		5	As E.1 above.
E.8	Installation of biomass boilers.	Property (EMU)	2011-16		407	As E.1 above.
E.9	Installation of powerperfector in 9 buildings.	Property (EMU)	2011-16		206	As E.1 above.
E.10	Draught proofing of buildings.	Property (EMU)	2011-16		43	As E.1 above.
E.11	New Montrose Swimming Pool – Biomass Boiler.	Corporate Services	2011-16		TBC	As E.1 above.
E.12	Installation of PowerPerfector voltage optimisation software at twenty individual sites	Property (EMU)	2011-16		197	As E.1 above.
E.13	Replacement of printers with MFDs.	HQ Support	2011-16		8	As E.1 above.
E.14	Heating System Improvements.	Property (EMU)	2011-16		361	As E.1 above.
E.15	Adaptive levels of Street lighting to reduce	Roads	2011-16			

Ref No	Action	Lead Dept/Service	Timeline	Annual Emissions Reduction (tonnes CO2)	Total Emissions Reduction by 2016	Measuring Progress
	<p>the energy use.</p> <ul style="list-style-type: none"> • Variable levels of Road Lighting throughout the hours of darkness. • Control Gear • White Light (residential areas) • LED for A92 and wider use 					There is an ongoing increase in the street lighting asset which negates the savings due to the growth of the roads infrastructure asset through development.
E.16	Continue to enforce legislation in relation to energy performance labelling of household electrical appliances in both domestic and commercial buildings. Environmental claims are regulated in respect of consumer products, including fuel standards, presence of toxic substances, control of propellants, etc.	Trading Standards	Ongoing	Non Quantifiable		
E.17	The Council will continue to endorse Heatseekers in their scheme to carry out heat seeking thermal imaging and free surveys and offer private residents either free or discounted insulation in the remaining Angus areas of Forfar, Letham, Kirriemuir, Carnoustie and Monifieth.	Housing	2012			Possibly obtain figures from Universal Home Insulation Scheme (UHIS).
E.18	Housing Division is working towards a target of National Home Energy Rating (NHER 5) for all council houses by 2015.	Housing	2015			Annual reports from Housing Division.
E.19	The council's new build housing is being constructed to comply with Level 4 of the Code for Sustainable Homes.	Housing	Ongoing			Annual reports from Housing Division.

2.4 Resource Management

Main Objective:

To reduce waste and the levels of waste going to landfill; increase recycling in line with targets and increase public awareness of the contribution that waste makes to climate change.

2.4.1 Background

Scotland's Zero Waste Plan sets out the Scottish Government's vision for a zero waste society, one where all types of waste are dealt with, regardless of where they came from. Everyone has their part to play in this vision and the plan outlines steps and policies which will be introduced to make sure Scotland benefits from the economic and environmental advantages to be gained from zero waste.

Adopting a zero waste approach means changing the way we look at waste so that we see it as a resource, not a problem. Waste prevention provides the greatest environmental and economic opportunities for Scotland.

The principle of the waste hierarchy is central to the zero waste vision. It ranks the different ways in which we can deal with our waste in terms of sustainability. The hierarchy identifies the prevention of waste as the highest priority, followed by reuse, recycling, recovery of other value (e.g. energy), with disposal as the least desirable option.

A zero waste society will be one where there are high levels of recycling and composting. The Scottish Government has set a target of 70% recycling and composting for all waste by 2025, whether it comes from a business or a household. This means action will be taken to increase the quantity, and quality, of resources which are recycled and composted.

The Roads division is progressing the use of recycling techniques for resurfacing roads and footways as well as using recycled products in road construction. Waste is reduced such as gully waste being processed through reed beds and excavated materials being recycled.

Achieving zero waste will make a positive contribution to Scotland's climate change and renewable energy targets as more waste is prevented, less waste is sent to landfill, and more resources are reused, recycled and recovered. Angus Councils progress can be seen in Fig. 3 below.

Figure 3 Municipal Waste 2005 - 2010 -Source: (The State of the Environment Report for Angus 2010)

Year		Total Municipal Waste Recycled / Reused (Tonnes)	Total Municipal Waste Composted (Tonnes)	Total Municipal Waste Landfilled (Tonnes)	Total Municipal Waste Incinerated and Other Recovery (Tonnes)	Total Municipal Waste Managed (Tonnes)
Apr-05	Mar-06	17992	6272	30242	17135	71641
		25.11%	8.75%	42.21%	23.92%	
Apr-06	Mar-07	13551	10190	48007	6777	78526
		17.26%	12.98%	61.14%	8.63%	
Apr-07	Mar-08	15623	11488	37792	13281	78185
		19.98%	14.69%	48.34%	16.99%	
Apr-08	Mar-09	15753	11947	37325	12344	77369
		20.36%	15.44%	48.24%	15.95%	
Apr-09	Mar-10	17468	12539	33317	13456	76780
		22.75%	16.33%	43.39%	17.53%	

Measurable Actions

Table 4 Resource Management Action Plan

<p>Main Objective: <i>To reduce waste and the levels of waste going to landfill; increase recycling in line with targets and increase public awareness of the contribution that waste makes to climate change.</i></p>						
Ref No	Action	Lead Dept/Service	Timeline	Annual Emissions Reduction (tonnes CO2)	Total Emissions Reduction by 2016	Measuring Progress
RM.1	Initiate discussions with neighbouring authorities with a view to exploring the potential for forming a joint waste disposal group having a remit to investigate longer term options for waste disposal aimed at securing sustainable disposal at the most economic cost for a period of not less than 20 years.	Neighbourhood Services	Aug 2011 (initiated)			Annual Recycling Reports from Neighbourhood Services.
RM.2	Introduce on a phased basis a revised recycle collection system to meet the proposed Zero Waste Plan for Scotland targets this to include consultation with householders.	Neighbourhood Services	Aug 2012			Annual Recycling Reports from Neighbourhood Services.
RM.3	Extend the AWC system in terms of grey bin, green bin, collection of recycle and food waste to all areas of Angus where implementation should be feasible, this to include consultation with householders.	Neighbourhood Services	Aug 2012 (initiated)			Annual Recycling Reports from Neighbourhood Services.
RM.4	Carry out ongoing development at Restenneth Landfill site.	Neighbourhood Services	Mar 2012			Annual Reports from Neighbourhood Services.
RM.5	Implement the recommended actions from the Waste Best Value Review.	Neighbourhood Services	Apr 2012			Annual Reports from Neighbourhood Services.

Main Objective:
To reduce waste and the levels of waste going to landfill; increase recycling in line with targets and increase public awareness of the contribution that waste makes to climate change.

Ref No	Action	Lead Dept/Service	Timeline	Annual Emissions Reduction (tonnes CO2)	Total Emissions Reduction by 2016	Measuring Progress
RM.6	Expand the range of materials which can be recycled at Recycling Centres in order to reduce the levels of general waste collected through a programme of investment (which may include the provision of additional staff on site to assist customers in recycling materials brought to the site).	Neighbourhood Services	Apr 2012			Annual Reports from Neighbourhood Services.
RM.7	Undertake a specific review across all council facilities to identify options for increasing the opportunities for recycling by staff and customers in terms of both the number of collection points and materials collected.	Neighbourhood Services	Apr 2012			Annual Reports from Neighbourhood Services.
RM.8	Develop a locally based education and promotion campaign to encourage waste minimisation and maximum recycling/composting among householders.	Neighbourhood Services	Apr 2012			Annual Reports from Neighbourhood Services.
RM.9	Develop an education and promotion campaign to that described above, aimed at council staff and customers calling at council facilities.	Neighbourhood Services	Apr 2012			Annual Reports from Neighbourhood Services.

2.5 Transport

Main Objective:

“A transport system, shaped by engagement with its citizens, which helps deliver prosperity and connects communities across the region and beyond, which is socially inclusive and environmentally sustainable and which promotes the health and well-being of all.”

(From TACTRAN’s Regional Transport Strategy)

2.5.1 Background



We can all see the effects of the way we travel on our environment, our health and our quality of life. Increases in road traffic have produced unsustainable levels of congestion and pollution. The effects can be felt at a local level through poor air quality, noise and busier roads and at a global level through climate change. Nationally,

journeys by road are becoming slower and more unreliable causing problems for business and stress to drivers. It is important that we all take responsibility for the way we travel and look for ways of reducing the impact of our journeys.

In December 2006 the Scottish Executive published Scotland’s National Transport Strategy (NTS). The NTS states that “it is for the public sector to demonstrate leadership in sustainable travel plans”. In March 2007 Tayside and Central Scotland Transport Partnership (TACTRAN) in partnership with its four constituent councils (Angus, Perth, Stirling and Dundee) prepared a Regional Transport Strategy (RTS), setting out a vision and programme for improving the Region’s transport infrastructure, services and other facilities, over the 15 years to 2021.

At a local level Angus Council developed its own Travel Plan (for staff and visitors to council offices) which was approved by Strategic Policy Committee in March 2008. Since then a number of initiatives within the plan have been implemented including:

- providing commuter cycle training for staff, providing a pool of bicycles at the three main offices for staff to use for short business journeys;
- providing facilities such as showers, clothes and cycle lockers;
- introducing a cycle loan salary sacrifice scheme;
- introduced a cycle mileage allowances (20p per mile) for staff using their own bike for business journeys;
- participating in national promotional events such as “Bike Week”;
- promoting car sharing through the employment of an internet car sharing scheme AngusLiftshare.com;
- providing preferential car sharing parking bays at the main offices.

In February 2010 the council received a “Cycle Friendly Employer” Award from Cycling Scotland in recognition of its efforts in promoting cycling to staff.

Although the car has brought many economic and social benefits, it has also brought problems. Nationally, the cost of congestion runs into billions of pounds each year. Road traffic is one of the fastest growing contributors to greenhouse gas emissions, which cause climate change, and add substantially to local air pollution and noise levels, damaging health and quality of life.

One of the Government’s key objectives in transport is to strike the right balance between transport’s role in helping the economy progress and allowing people to travel wherever they need to go, while at the same time protecting the environment and improving quality of life. Previously, traffic growth has been associated with economic growth, but the resulting volume of traffic leads to congestion, noise and air pollution and contributes to greenhouse gas emissions, which cause climate change.

A key objective in the Angus Local Transport Strategy is to maintain and improve accessibility to jobs, services and facilities for all members of the Angus Community in the most sustainable way and this involves encouraging an increase in the proportion of journeys to work, school, shops etc by foot, cycle and public transport.

In 2011 Angus Council purchased two electric cars for use in providing home care. This was possible due to a grant from the Scottish Government to support 'green fleet' initiatives.

2.5.2 Mode of Travel for school children

A switch of school journeys from the car to walking, cycling or bus would help to improve children's health and independence and reduce road traffic, congestion and air pollution. There is a need to encourage necessary access to facilities, services, goods and other people in ways, which make less use of the car and minimise impacts on the environment.

Local authorities are being asked to implement School Travel Strategies and plans that in many cases involve local schools carrying out surveys of their pupils, parents and staff. The advantage of this option is that it is also a way of engaging pupils, teachers and parents with sustainable development issues.

The following represents the current information regarding how children travel to school in Angus:

- 2558 pupils are entitled to free school transport,
- There are 61 schools in Angus and currently 42 schools have or are working on school travel planning activities as follows:

Stage 1	No travel plan and not working on any activity.	19 Schools
Stage 2	Working on travel planning activities but not written a plan.	4 Schools
Stage 3	Have at least a written plan but this could be more than one plan.	38 Schools

- One Walking Bus is currently in operation in Angus at Ladyloan PS. This has been running since August 2005.

The 2008 National Hands-Up Survey was the first national dataset designed to look at mode of travel to school across Scotland. In 2009 the survey was repeated using the same methodology. In both years the question 'How do you normally travel to school?' was asked over the same one week period in September. The survey is a joint project between School Travel Co-coordinators working in Scotland and Sustrans.

2.5.3 Encouraging Cycling and Walking

Funding for cycling, walking and safer streets (CWSS) projects includes provision of cycle storage facilities and purchasing of reflective jackets and trolleys for schools to use when setting up formal "Walking Buses" and also engineering and other works to promote "safe routes to school" has continued thus:

2008/09 - £191,000
 2009/10 - £191,000
 2010/11 - £191,000

2.5.4 Dedicated Cycle lanes

The Travel Plan recognises the steady rise in road traffic in recent years and highlights the need to change our travel habits in a way that would benefit the environment. A key objective within the Plan is to encourage people to cycle more and reduce their use of cars for both commuter and recreational journeys. Increasing cycling also has added health benefits for the individual by increasing fitness levels and helping to keep people's weight down. One way of encouraging more cycling is providing dedicated routes for cyclists or by marking out lanes on existing roads.

Other routes such as the Sustrans/North Sea Route promotes "green tourism" and encourages people to visit an area for cycling holidays. Sustrans stands for sustainable transport and is a charity that works on practical projects to encourage people to walk and cycle more through creating a National Cycle Network - 45,235 metres of the National Network and the North Sea Cycle route runs through Angus.

2.5.5 Path Structure in Angus

Paths are about more than just enjoying the outdoors. They can make a contribution to sustainable transport; there are health benefits for users and economic benefits for the local area. They can provide health benefits through encouraging the physical activities of walking, horse riding and cycling. Paths are a key element in environmental improvement schemes. They make the countryside accessible without the need for a car providing more recreational opportunities close to where people live and work. Their use helps raise environmental awareness and paths can help biodiversity and can provide 'wildlife corridors' enabling wildlife to move freely from area to area. In addition, paths are the cheapest form of recreation to create and maintain and the whole community regardless of income, age or ability can use them. Figures quoted in this section are for countryside paths that are managed and/or signposted for public use. They may include paths linking to the countryside through urban green spaces, but do not include other urban paths. Figures are approximate lengths as of July 2010.

The Angus Countryside Access Strategy 2007-2012 outlines priorities for developing countryside access in Angus. Key priorities for path development are Burgh Path

Measurable Actions

Table 5 Transport Action Plan

Main Objective: <i>"A transport system, shaped by engagement with its citizens, which helps deliver prosperity and connects communities across the region and beyond, which is socially inclusive and environmentally sustainable and which promotes the health and well-being of all."</i> (From TACTRAN's Regional Transport Strategy)						
Ref No	Action	Lead Dept/Service	Timeline	Annual Emissions Reduction (tonnes CO2)	Total Emissions Reduction by 2016	Measuring Progress
T.1	Continue to monitor Fleet vehicles on a monthly basis measure its CO ₂ and other greenhouse gas contribution from its operations.	Neighbourhood Services	Ongoing			Annual Reports from Neighbourhood Services.
T.2	Angus Council will review the Core Path Plan	Infrastructure	2012			Annual Reports from

Networks, Angus Coastal Path, Eastern Cairngorms Access Project, and Village Path Networks. Angus Council has a lead role in developing the first three, and will assist local communities with the latter.

Angus Council currently manages around 125km of off-road path networks and cycle routes and these include:

- Burgh 'Paths for All' Networks
- Angus Coastal Path
- Eastern Cairngorms Access Project
- Village Path Networks
- Core Paths Plan

The Core Paths Plan for Angus was adopted in 2010. This will give statutory designation to over 500km of off-road paths. A separate Core Paths Plan, covering the Cairngorms National Park, has already been adopted. The majority of the paths referred to above are included within these plans.

Main Objective:

“A transport system, shaped by engagement with its citizens, which helps deliver prosperity and connects communities across the region and beyond, which is socially inclusive and environmentally sustainable and which promotes the health and well-being of all.”

(From TACTRAN’s Regional Transport Strategy)

Ref No	Action	Lead Dept/Service	Timeline	Annual Emissions Reduction (tonnes CO2)	Total Emissions Reduction by 2016	Measuring Progress
	in consultation with landowners and local communities.	Services				Infrastructure Services.
T.3	Angus Council will work with Angus Environmental Trust to assist smaller communities to develop path networks.	Infrastructure Services	Ongoing			Annual Reports from Infrastructure Services.
T.4	Angus Council will explore options to further promote public transport as a means of enjoying countryside access.	Infrastructure Services	Ongoing			Annual Reports from Infrastructure Services.
T.5	Angus Council will work with Angus Environmental Trust to assist smaller communities to develop path networks.	Infrastructure Services	Ongoing			Annual Reports from Infrastructure Services.
T.6	Continue to implement the actions in the council’s Travel Plan.	Infrastructure Services	Ongoing	Projected annual savings from AngusLiftshare.com = CO _{2e} = 199.91t	Assuming 3% cumulative savings = CO _{2e} = 224.98t	Annual Reports from Infrastructure Services.
T.7	Review and update the council’s Travel Plan	Infrastructure Services	2013			Annual Reports from Infrastructure Services.
T.8	Gather data from staff/elected members business mileage of CO ₂ emissions (for Carbon Trust Standard Report)	Property/Neighbourhood Services	2012			Annual Reports from Property Services.
T.9	Investigate methods of gathering data on staff commuting mileage (for Climate Change Strategy Annual Reports).	Infrastructure Services	2012			Climate Change Strategy Annual Reports from Infrastructure Services.
T.10	In encouraging sustainable, integrated and inclusive transport, the Angus Local Plan aims to promote a pattern of development that supports a choice of travel throughout Angus and to other areas. Complementing the Angus Local Transport Strategy, this includes land use planning measures that facilitate travel by foot, cycle and public transport and, where	Planning & Transport		Non Quantifiable.		

Main Objective:

“A transport system, shaped by engagement with its citizens, which helps deliver prosperity and connects communities across the region and beyond, which is socially inclusive and environmentally sustainable and which promotes the health and well-being of all.”

(From TACTRAN’s Regional Transport Strategy)

Ref No	Action	Lead Dept/Service	Timeline	Annual Emissions Reduction (tonnes CO2)	Total Emissions Reduction by 2016	Measuring Progress
	possible, reduce the need to travel by car. Alongside this there is a need to secure a balance between the demands of the telecommunications industry and the protection and enhancement where possible of the local environment.					
T.11	Continue to develop School Travel Plans.	Education	Ongoing			Percentage of schools with TP in place.
T.12	A new care monitoring system is being implemented from April 2012 which will help with more efficient route planning for home care staff.	Social Work & Health	From April 2012			Annual reports from Social Work & Health.

2.6 Sustainable Procurement

Main Objective:

Ensure that goods and services purchased by the council contribute to sustainable development whilst delivering value for money for the citizens of Angus.

2.6.1 Background

The Scottish Government state that sustainable procurement can be defined as:

"A process whereby organisations meet their needs for goods, services, works and utilities in a way that achieves value for money on a whole life basis and generates benefits not only to the organisation, but also to society, the economy and the environment".

In his Review of Public Procurement in Scotland (2006), John F McClelland CBE identified Corporate Social Responsibility as important for the public sector and responding to this requires that sustainable procurement is placed at the heart of the reform agenda, hand in hand with the drive to raise standards and practices in public procurement.

One of the major challenges facing Scotland is how to incorporate sustainability into our every day activity to benefit society, the economy and the environment. Total spending in the public sector amounts to around £8bn a year in Scotland and this spending power gives us an opportunity to achieve sustainable growth objectives through making sustainable choices and encouraging sustainable products and services.

In this context, Scottish Government published its Scottish Sustainable Procurement Action Plan (SSPAP) in 2009. The SSPAP provides generic guidance about sustainable procurement. All public sector bodies in Scotland can use this to assess where they are at the moment, where they need to get to and how to go about that progression. It sets out 10 key steps and associated actions which will guide an organisation to effective sustainable procurement.

10 steps to Sustainable Procurement

The approach to sustainable procurement will vary according to the circumstances of each public sector organisation. There are, however, a number of steps which each organisation must go through to successfully deliver sustainable procurement.

The approach in the SSPAP outlines 10 steps with illustrative timescales. The Scottish Government has committed to meeting these timescales, although other public bodies may need to tailor them to their specific circumstances.

- Commitment Within The Organisation
- Making The Commitment Public
- Organisational Buy-In
- Benchmarking And Progression
- Prioritising
- Specifying Sustainably
- Sustainability In The Procurement Process
- Working With Suppliers
- Measuring Performance
- Publicising Your Successes

Angus Council's Procurement Plan

Angus Council's current corporate procurement strategy is set out within the Tayside Procurement Strategy (2011-2015), reflecting the Tayside Procurement Consortium (TPC) shared service approach which Angus Council has deployed to meet its strategic procurement objectives.

The Council's Procurement Strategy makes the following explicit commitment to incorporating sustainability (in its 3 strands – environmental, economic and social) into all of our procurement activity:

"Sustainable procurement can offer whole life cost efficiency, supports our commitment to our Corporate Social Responsibility, evidences that we are responsible public bodies and can promote health improvements amongst all our stakeholders

This particularly relates to the areas detailed below where we will consider for example:

- *Health, safety and welfare*
- *Environmental management*
- *Delivery of community benefits*
- *Equality*
- *Ethical procurement*
- *Development of local economy / engagement with the local business community*

Through consideration of these factors when determining the business requirement the Councils will be working to develop an improved approach to sustainable procurement.”

This commitment recognises that residents of Angus have a right to expect that their money is spent both wisely and fairly. It is, therefore, Angus Council’s policy that value for money through competition should be at the heart of public procurement. Angus Council is also committed to playing a full role in sustainable development and has implemented environmental policies in support of this goal. Focussing on the environmental strand of sustainable procurement, when we buy goods and services we aim to do so in a way which minimises impact on the environment. Our aspiration is that our suppliers share our commitment to continuous environmental improvement.

Measurable actions

An audit of departments to determine what action they take to reduce their impact on the environment was carried out in 2010. Responses to the question “*Does your service specify any green credentials when procuring goods and services, e.g. recycled content, energy efficiency, sustainably grown timber, etc?*” include:

Property – All projects specify the use of materials in accordance with the BREEAM Green Procurement Guide and in accordance with council policies, e.g. 10% recycled content; rainwater recycling; sustainable properties best practice; sustainable sourcing of timber and timber products, renewable generation etc. It is investigating the implementation of the National Zero Waste Strategy by reducing waste to landfill.

I.T. – Procure through Procurement Scotland who in turn specifies equipment meets energy star compliance and that all companies must recycle IT equipment.

Economic Development & Environment & Consumer Protection – Departmental leaflets purchased via Angus Council Print & Design Unit are 80% recycled paper with the remaining 20% sustainable produced.

Social Work take into account the sustainability and environmental management policy as set out in the Corporate Procurement Strategy. There are also reasonable adjustments made in major capital projects e.g. bio-fuel heating in a new development

Housing – Energy efficiency measures such as efficient A rated boiler installations, sustainable construction and use of FSC timber are part of our specification, also considering signing up for WWF’s Timber Pledge.

Direct Services – Yes looking at low emissions, etc.

Cultural Services – Occasionally with lighting and other equipment.

Fleet Services – Yes – vehicle engines to the highest specification current.

Support & Resources (Neighbourhood Services) – yes, with regards to emission levels when procuring leased vehicles.

Education - All purchasing undertaken within Angus Council procurement procedures.

Finance / Corporate – The Corporate Procurement Manager is leading on the implementation of the SSPAP in Angus and on incorporating sustainability into all our procurement. Some key current workstreams being delivered to that end are:

- Supporting awareness-raising events (e.g. a SSPAP Awareness event held in Dundee in February 2010).

- Assessing the Council’s overall sustainable procurement performance against the “Flexible Framework” tool (completed corporately October 2011).
- embedding sustainability testing in documentation supporting requirement / specification preparation, most notably by introduction of a “Specification Preparation Checklist” within the Corporate Procurement Manual (completed in 2010 with its increased and effective use is being assured through internal training). This seeks to incorporate and embed use the [Government Buying Standards](#) on sustainable procurement specification (formerly “Buy Sustainable – Quick Wins”).
- Developing a Sustainable Procurement Policy via TPC to mandate support improved sustainable procurement performance (approved by TPC Steering Group in August 2011 and being reported within the partner Councils for adoption).
- Supporting sustainability improvement initiatives (such as the “Timber Pledge” to use only sustainable sourced timber products (under consideration for adoption by the Council)).

Measurable Actions

Table 6 Sustainable Procurement Action Plan

Main Objective: <i>Ensure that goods and services purchased by the council contribute to sustainable development whilst delivering value for money for the citizens of Angus.</i>						
Ref No	Action	Lead Dept/Service	Timeline	Annual Emissions Reduction (tonnes CO2)	Total Emissions Reduction by 2016	Measuring Progress
P.1	Continue to specify the use of materials in accordance with the BREEAM ³ Green Procurement Guide and in accordance with council policies, e.g. 10% recycled content; rainwater recycling; sustainable properties best practice; sustainable sourcing of timber and timber products, renewable generation	Property	Ongoing			Annual Reports from Property Division.

³ Building Research Establishment Environmental Assessment Method

Main Objective:
Ensure that goods and services purchased by the council contribute to sustainable development whilst delivering value for money for the citizens of Angus.

Ref No	Action	Lead Dept/Service	Timeline	Annual Emissions Reduction (tonnes CO2)	Total Emissions Reduction by 2016	Measuring Progress
	etc. It is investigating the implementation of the National Zero Waste Strategy by reducing waste to landfill.					
P.2	Continue to procure through Procurement Scotland who in turn specifies equipment meets energy star compliance and that all companies must recycle IT equipment.	IT	Ongoing			Procurement Section Records.
P.3	Ensure all documents, leaflets, posters, etc produced by the council are on at least 80% recycled paper with the remaining 20% sustainably produced.	Corporate Services	Ongoing			Procurement Section Records.
P.4	Continue to use energy efficiency measures such as efficient A rated boiler installations, sustainable construction and use of FSC timber are part of our specification.	Neighbourhood Service/Housing	Ongoing			Difficult to quantify – depends on usage.
P.5	Sign up to WWF's Timber Pledge to purchase only sustainably produced timber and timber products.	All Depts.	2012			Report for committee currently being prepared.
P.6	Continue to purchase low energy lighting wherever possible.	All Depts.	Ongoing			Annual Energy reports from Property Services.
P.7	Purchase vehicle engines to the highest current specification with the lowest emissions.	Neighbourhood Services/Fleet Services	Ongoing			Fleet Services Records.
P.8	The Corporate Procurement Manager shall continue to engage with stakeholders with regard to corporate social responsibility in order to develop a procurement approach to climate change/environmental issues.	Corporate Services	Ongoing			Procurement Section Records.

2.7 Cultural & Natural Heritage

Objective:

Raise awareness of climate change issues which will influence our stewardship of biodiversity natural resources and the promotion of the unique natural environment of Angus.

2.7 Background

There is evidence that many of Scotland's native plants, animals and ecosystems will be unable to adapt to the unprecedented pace of Climate Change that we are experiencing. Many of our species will move pole wards and to higher elevations to counteract their exposure to increasing temperatures. In Angus changes in the distribution of butterfly species are already indicators of the affects of climate change. Our seas will also see a change in species distribution and rising water levels will change the current distribution of inter tidal habitats. As people depend on and are intrinsically linked to nature, Climate Change is a threat not only to individual species and landscapes, but also to people's lifestyles, the local economy and culture.

The majority of the scientific community is unanimous in that joined up action is needed now. This is a great challenge, but if we get it right, so are the opportunities and rewards. Urgent and synchronized action is required from all sectors of our society if we are to respond effectively to Climate Change. A large contributor to ecosystem health is N₂O which contributes to acid deposition, eutrophication and promoting the formation of ground level ozone. Air quality targets have not yet been fully met between 1990 and 2005, UK emissions of N₂O decreased by 45% due to the installation of catalytic converters in vehicles.

Scottish natural Heritage state that 'we have shaped Scotland's landscapes, flora and fauna, and they in turn have shaped, fed, and inspired us. We depend on these natural services to power, feed, fuel and build our economy and lifestyles. Conversely our nature and landscapes, as we know them, depend on the way we run our

economy and live our lives to maintain the spaces and climatic conditions that allow them to thrive.' The health of our natural environment is in our hands and we have the power and responsibility to protect and enhance it as best we can for future generations.

Currently, Single Outcome Agreement objectives are a focus for promoting social renewal by enriching the environment of the Angus, creating attractive living and working environments and improving the quality of life for its residents.

Local planning policy integrated with national strategy allows us to promote sustainability by protecting and enhancing the built and natural environment and ensuring that new development is sustainably designed and constructed. The contribution that maintaining & enhancing existing natural environments can make to the creation of sustainable communities, the enhancement of biodiversity and the creation of the promotion of healthier lifestyles, well as mitigation against the effects of Climate Change, are increasingly recognised and reflected in policy and guidance.

A number of actions undertaken by Angus Council and its partners to improve the cultural and natural heritage are intrinsically linked to the Climate Change agenda. These include:

- Angus Local Development Plan
- Tayplan
- Angus Woodland and Forestry Framework
- Angus Green Space Audit
- Local Biodiversity Action Plan
- Core Paths Plan and Outdoor Access Strategy

In meeting Angus' Cultural and Natural Heritage obligations, the Council will continue to review, amend, prioritise and implement its ongoing and future policies to ensure its objectives on Climate Change are adequately addressed.

Measurable Actions

Table 7 Cultural and Natural Heritage Action Plan

Main Objective: <i>Raise awareness of climate change issues which will influence our stewardship of biodiversity natural resources and the promotion of the unique natural environment of Angus.</i>						
Ref No	Action	Lead Dept/Service	Timeline	Annual Emissions Reduction (tonnes CO2)	Total Emissions Reduction by 2016	Measuring Progress
C&NH.1	Tayside Biodiversity Action Plan species and habitat action plans are implemented, to ensure objectives are met ensuring that future climate change is taken into account.	Planning & Transport	Ongoing	Non quantifiable.		Reported through Biodiversity Partnership.
C&NH.2	Establish the role of protected areas, as part of a wider ecological network, in relation to climate change mitigation and adaptation.	Planning & Transport		Non quantifiable.		Reported through Biodiversity Partnership.
C&NH.3	Effective landscape or catchment-scale land use planning used as appropriate.	Planning & Transport	Ongoing	Non quantifiable.		Reported through Biodiversity Partnership.
C&NH.4	Reduce woodland fragmentation as a result of new woodland planting and other land use change (with limited impact on other habitats).	Planning & Transport Neighbourhood Services				Reported through Biodiversity Partnership.
C&NH.5	Native woodlands are in favourable condition with improved resilience to potential climate change impacts.	Neighbourhood Services				Reported through Biodiversity Partnership.
C&NH.6	Ensure there is a better understanding of how our native woodland is affected by climate change, and how our woodlands and wider landscapes can be adapted to deal with the impacts of climate change.	Planning & Transport Neighbourhood Services				Reported through Biodiversity Partnership.
C&NH.7	Promote adaptation and mitigation measures that enhance the sustainability of the use of natural resources.	Planning & Transport Economic Development				Reported through Biodiversity Partnership.
C&NH.8	Promote action to enhance habitats and address climate change, e.g. from woodland expansion on archaeology or from coastal	Planning & Transport Neighbourhood				Reported through Biodiversity Partnership.

Main Objective: <i>Raise awareness of climate change issues which will influence our stewardship of biodiversity natural resources and the promotion of the unique natural environment of Angus.</i>						
Ref No	Action	Lead Dept/Service	Timeline	Annual Emissions Reduction (tonnes CO2)	Total Emissions Reduction by 2016	Measuring Progress
	realignment on coastal heritage.	Services				
C&NH.9	Establish a Strategic Greenspace Partnership to engage with external partner organisations on the implementation of the Open Space Strategy recommendations.	Planning & Transport Neighbourhood Services				To be developed.
C&NH.10	Encourage the creation and implementation of an Open Space Strategy and quality audit map to cover all open spaces within Angus, whether public or private, hard, soft or water landscapes.	Planning & Transport Neighbourhood Services				To be developed.

2.8 Water

Main Objective:

Promote issues such as sustainable water use practices not only in Angus Council's premises but in the wider community, the importance of water quality improvement on ecosystem health and the awareness of fluvial, pluvial and coastal flood risk prevention measures

2.8.1 Background

Water shortage is expected to become a growing problem in the future, for different reasons. First, the distribution of precipitation in space and time is very uneven, leading to temporal variability in water resources worldwide (Oki et al, 2006). Second, the rate of evaporation varies significantly, depending on temperature and relative humidity; this impacts the amount of water available to replenish groundwater supplies. Angus is expected to experience more rainfall in the winter months, less in summer and most importantly the intensity of rainfall will continue as it has over the last decade where we are experiencing intense rainfall events in very short periods of time. The coastline of Angus will also experience increases in sea level, storm surges and wave overtopping. This means that in the future Angus will experience issues relating to fluvial, pluvial and coastal flooding, variations in groundwater levels and water quality and possible drought problems effecting drinking water supply and also riverine water used for crop abstraction. Although no water shortages have yet been identified in Angus, at a global level water is becoming a scarce resource in certain places, making its preservation everywhere all the more critical. Reduction of Water consumption by Angus Council, businesses and the community will help reduce the county's energy consumption and therefore its carbon footprint.

Angus Council is currently involved in the following areas:

2.8.2 Flood Alleviation

Angus Council is working with key partners to reduce the impact of flooding. The responsibilities regarding flooding are varied, and at present a number of agencies have responsibility for dealing with certain aspects of flooding. Angus Council is

responsible for the drainage of public roads, reduction in overall flood risk, carrying out clearance and repair works of watercourses, maintenance of flood prevention schemes and dealing with flooding caused by extreme rainfall, tidal and river flooding.

At present, the River South Esk which flows through the town of Brechin poses enough of a flood Risk that Angus Council are currently promoting a formal flood prevention scheme. They have also in consultation with Scottish Water commissioned a major Brechin City drainage and river modelling study with consultants to develop cost effective solutions to prevent potential flooding of the drainage system behind the proposed fluvial flood defences and to confirm the height of the proposed flood barriers (walls and levees).

2.8.3 Sustainable Urban Drainage Systems

Drainage systems can be developed to contribute to sustainable development and improve urban design, by balancing the different issues that should be influencing the development of communities. Surface water drainage methods that take account of water quantity, water quality and amenity issues are collectively referred to as Sustainable Drainage Systems (SUDS). SUDS are a sequence of management practices, control structures and strategies designed to efficiently and sustainably drain surface water, while minimising pollution and managing the impact on water quality of local water bodies. These systems are more sustainable than conventional drainage methods because they manage runoff volumes and flow rates, reducing the impact on flooding. They also protect or enhance water quality and are sympathetic to the environmental setting and the needs of the local community. SUDS can provide a habitat for wildlife in watercourses bringing biodiversity into an area where it may have not previously flourished and lastly, they can encourage natural groundwater recharge (where appropriate).

2.8.4 Sustainable Catchment Management

Angus Council plays a key role in the implementation of the River South Esk Catchment Management Plan. A range of stakeholders have identified 65 core actions

which will ensure sustainable management of the catchment. These actions including biodiversity, flooding, water quality, economic issues and education. The River South Esk catchment is entirely within Angus and provides a vital source of groundwater for

drinking, river water for abstraction in Angus' agricultural heartland, and a home to internationally important species such as Atlantic salmon and freshwater pearl mussels which give the river its European Special Area of Conservation (SAC) status.

Measurable Actions

Table 8 Water Action Plan

Main Objective: <i>Promote issues such as sustainable water use practices not only in Angus Council's premises but in the wider community, the importance of water quality improvement on ecosystem health and the awareness of fluvial and coastal flood risk prevention measures.</i>						
Ref No	Action	Lead Dept/Service	Timeline	Annual Emissions Reduction (tonnes CO2)	Total Emissions Reduction by 2016	Measuring Progress
W.1	Raise awareness of the implications of the impacts of climate change on the water environment of Angus.	Planning & Transport Roads		Non quantifiable.		Annual audit of department/annual reports/Shoreline Management Plan.
W.2	Ensure that wetlands are seen as a key component in sustainable management for climate change mitigation and habitat restoration.	Planning & Transport Roads		Non quantifiable.		Annual audit of department/annual reports.
W.3	Manage flooding in freshwater and coastal environments which may have negative impacts on cultural heritage and landscape and local access provisions.	Planning & Transport Roads		Non quantifiable.		Annual audit of department/annual reports/Shoreline Management Plan/Brechin Flood Prevention Scheme.
W.4	Ensure improved resilience of river ecosystems, catchments and the lochs within those catchments.	Planning & Transport Roads		Non quantifiable.		Annual audit of department/annual reports.
W.5	Ensure that policy makers and decision takers are well informed of the implications of climate change in the marine environment.	Planning & Transport Roads		Non quantifiable.		Annual audit of department/annual reports.

2.9 Planning & Built Environment

Main Objective:

To guide development and changes in land use, in a sustainable manner that can best serve the needs of communities throughout Angus.

2.9.1 Background

The Angus Vision (from the Angus Community Plan) is:

Angus will be a place where a first class quality of life for all can be enjoyed in vibrant towns and pleasant villages set in attractive and productive countryside.

A key aim of development planning is to provide a vision for the future of the area and a land use framework within which investment and development can take place with confidence. The preparation of strategic and local development plans is a statutory function of planning authorities.

The development plan in Angus currently comprises the following:

- **Dundee and Angus Structure Plan** – approved by Scottish Ministers in October 2002;
- **Angus Local Plan Review** – adopted by Angus Council on 12 February 2009. This excludes the area of the Cairngorm National Park within the Angus Council administrative boundary.
- **Cairngorms National Park Local Plan** – adopted by Cairngorms National Park Authority in October 2010. For the area of the National Park within the Angus Council administrative boundary it now replaces the Angus Local Plan (adopted November 2000) and provides the planning policy context for development.

In addition Angus Council has produced a range of advice notes and other supplementary guidance which provides more detailed information on development management topics, site development briefs, affordable housing, etc.

As part of implementing the adopted Angus Local Plan Review, work will continue over the course of the next year to bring forward Renewable Energy Policy Implementation Guide; Open Space Audit and Strategy (in association with Neighbourhood Services) and development briefs for allocated sites in Letham (housing) and Montrose (employment).

2.9.2 Strategic Environmental Assessment (SEA)

The Environmental Assessment (Scotland) Act 2005 makes SEA a legal requirement on a wide range of public plans, programmes and strategies. This includes the new Local Development Plan for Angus. The purpose of SEA is to provide a high level of protection for the environment by ensuring that environmental issues are considered by decision makers alongside economic and social issues. This is achieved by systematically assessing the potential environmental effects of the Local Development Plan and recording the results in an Environmental Report. This process is intended to strengthen the quality of plan making and is an integral part of the Local Development Plan process. This will involve close liaison with key agencies particularly Scottish Natural Heritage, Scottish Environmental Protection Agency (SEPA) and Historic Scotland.

2.9.3 Building Sustainable Communities

Key elements of sustainable and vibrant places include a variety of quality, affordable homes in attractive locations, access to the right type of job, interesting and exciting leisure pursuits, and a wide range of shops and services. In such communities there is a careful balance between the need for new development and the protection of the local environment, development is energy efficient and does not generate unnecessary waste and pollution, people don't have to travel far between homes, work, shops and leisure and where they have to there are a variety of ways to get around.

In helping to build sustainable communities in Angus this Local Plan gives priority to:

- Guiding the majority of development such as housing, employment, retail and leisure to locations within the Angus towns and villages which can best accommodate development making use of existing and planned transport and other infrastructure;
- Locating residential, employment, leisure and shopping uses in proximity to one another in order to improve accessibility for all and minimise the need to travel, especially by car;
- Locating new developments, particularly those generating high levels of traffic, to sites where there is a choice of means of transport;
- Providing a mix and range of housing developments to meet the needs and aspirations of all sectors of the community;
- Providing a range of employment sites in key locations to meet demand and stimulate investment in Angus, and making provision for rural diversification projects;
- Supporting the maintenance and improvement of the transport network to provide safe and efficient ways to travel, including promoting alternatives to the use of the private car;
- Supporting the provision of a range of facilities such as shops, schools, hospitals and other public facilities to serve local areas;
- Ensuring development makes a contribution towards protection of the environment, resource management, reducing pollution, and developing energy efficiency.

Protecting and enhancing the environmental assets and built and historic heritage of Angus is central to the Council's approach to the sustainable development and the use of the areas finite and nonrenewable resources which can help to enhance the

health and quality of life for both present and future generations of people living and working in Angus.

The capacity of the natural and built environment of Angus to accept development and absorb change varies from area to area depending on local characteristics. The Local Plan complements the aims set out in the Dundee and Angus Structure Plan for the sustainable management of the areas environmental resources by giving priority to:

- protecting and enhancing wildlife habitats identified as being of international, national or local importance;
- protecting and enhancing the biodiversity of Angus;
- conserving and enhancing important landscapes and landscape features and ensuring that new development is sympathetic to landscape character;
- protecting and enhancing the quality of the built and historic environment and ensuring that development proposals respect local characteristics;
- promoting the sustainable use of water resources and ensuring that new development does not exacerbate any flood risk;
- promoting the integrated management of the coastal area and minimising unnecessary coastal development;
- guiding proposals for renewable energy;
- safeguarding good quality agricultural land from inappropriate and irreversible development;
- providing a framework for the selection of sites for mineral extraction, landfill and land raise developments to minimise environmental damage to landscape, heritage and environmental assets.

Measurable Actions

Table 9 Planning & Built Environment Action Plan

Main Objective: <i>To guide development and changes in land use, in a sustainable manner that can best serve the needs of communities throughout Angus.</i>						
Ref No	Action	Lead Dept/Service	Timeline	Annual Emissions Reduction (tonnes CO2)	Total Emissions Reduction by 2016	Measuring Progress
P&BE.1	Maintenance of a national overview of the effects of renewable energy developments on the natural heritage.	Planning & Transport	Ongoing			Scottish Government Reports.
P&BE.2	Maintenance of dialogue with the renewable energy industry, Scottish Government and wider stakeholders, ensuring that natural heritage interests are safeguarded.	Planning & Transport	Ongoing		Non quantifiable.	
P&BE.3	Planned, designed and managed new development which supports active travel and reduces Angus' overall carbon footprint.	Planning & Transport	Ongoing			Investigate the use of BREEAM assessment methods.
P&BE.4	The urban areas of Angus are planned to enhance opportunities to enjoy the outdoors and support environmental services and enhanced ecological connectivity.	Planning & Transport	Ongoing		Non quantifiable.	
P&BE.6	Maintenance of a watching brief on climate change scenarios and the consequent direct and indirect impacts on Angus' landscapes.	Planning & Transport	Ongoing		Non quantifiable.	

Section 3

3.1 Adaptation

Main Objective:

To prepare, plan and adapt to the changing weather patterns in Angus in an effort to reduce and manage those impacts, especially on those most vulnerable in our community

Adaptation in Practice: Key Stages in Adaptation Planning

A first step in adaptation planning is the identification of current and future vulnerabilities and assessment of climate risks. Vulnerability can be described as the degree to which a system is susceptible to, or unable to cope with, the adverse effects of climate change. The vulnerability of a system is related to its exposure, sensitivity, and adaptive capacity. Vulnerability assessments consider changes in socio-economic and environmental conditions, biophysical and socioeconomic impacts of climate stresses, and the adaptive capacity of the system.

In order to understand potential future vulnerability, the underlying drivers of vulnerability need to be identified. In terms of the assessment of future climate risks, it may sometimes be possible to use scenarios and models to develop projections of these. Having built an understanding of vulnerabilities and climate risks facing a community or an area, the next step is to identify possible adaptation options. Adaptation options can be designed to provide benefits under all plausible future scenarios, including the absence of climate change (these are known as ‘no regrets’ measures) or can consist of measures taken specifically to anticipate climate change (known as ‘climate justified’ measures).

Figure 4 below gives some examples of possible adaptation measures responding to different climate-related stresses.

Figure 4 Adaptation Options for Selected Climate Related Stresses (UNESCO et al 2011)

Climate-Related Stress	Examples of Adaptation Options
Drought	Rainwater harvesting; water conservation and loss reduction; ecosystem restoration; altered farming practices e.g. changes to drought-resistant crops and inter-cropping; grain storage; economic diversification.
Flood	Restoration of vegetation around river beds; raised houses and other buildings (schools, hospitals); flood-resistant roads; Changes in crops; land use planning; early-warning systems.
Sea Level Rise	Protection and restoration of coastal wetlands, marshes and mangroves; coastal defences and sea walls; consideration of climate change impacts in infrastructure planning.
Extreme Temperatures	Adjustment of grazing times and areas; planting of shade trees; changes to heat-resistant crops; Improvements in public health; disease control and eradication.
Strong Winds, Storms & Hurricanes	Wind-resistant housing and infrastructure; reforestation; planting of wind breaks; early-warning systems.

Planning and Flood Risk

Parts of Angus, principally around rivers and watercourses, are prone to localised flooding as a consequence of periods of heavy rainfall or rapid snow melt. In addition some low lying areas may be at risk from flooding due to tidal influence and wave action. Climate change is likely to have an increasing impact on both flooding and sea level rise over the life of this Plan. Recent trends show increasing levels of rainfall with storms likely to become more frequent and less predictable. While flood events are most likely to occur along the North Esk, South Esk, Brothock Water, parts of the Elliot Water, and catchment of the Dighty Water and its tributaries, low-lying areas

adjacent to other watercourses, such as the Barry Burn, can also be prone to localised flooding.

The effects of natural flood events can be compounded by surface water run-off from developed areas and the amount of existing development in low-lying areas at risk from flooding. It is therefore important when assessing development proposals or options for future development land that the potential for flooding should be minimised by taking full account of flood risk, both on site and elsewhere in the local catchment area.

The Angus Flood Liaison and Advice Group have considered the potential for flooding in Angus taking into account flood frequency information provided by SEPA which identified those areas most susceptible to flood risk. As a general principle there will be a presumption against locating 'built' development in areas of known significant flood risk. A precautionary principle will be adopted in considering development options or proposals in flood plains and low lying areas adjacent to watercourses.

Where development is proposed, an assessment of the potential for flooding will be required, taking account of the location of the site and the flow characteristics of the local watercourse. Where appropriate, developers will be required to provide a detailed flood risk assessment in support of a planning application. The subject policy 'Flooding and Drainage' in Scottish Planning Policy: A statement of the Scottish Government's policy on nationally important land use planning matters includes a Risk Framework based on flood return periods for coastal, tidal and watercourse flooding that provides a basis for assisting the assessment of development proposals in areas known or suspected to be at risk from flooding.

Angus Council will consult SEPA on all development proposals in areas known to be subject to flooding. To minimise the risk of localised flooding, surface water run-off from all new development will be managed using Sustainable Urban Drainage Systems (SUDS).

Flood Risk Management

The Flood Risk Management (Scotland) Act 2009 (FRMA 2009) places duties on SEPA and responsible authorities to manage flooding in a sustainable manner. The responsible authorities are local authorities and Scottish Water, and any other public

bodies and office-holders designated as such by Scottish Ministers. Angus Council, as a local authority, (a responsible authority) has functions under Part 3 (flood risk assessment, maps and plans) and Part 4 (flood risk management: local authority functions) of the FRMA 2009.

The Scottish Government has issued guidance on 'Delivering Sustainable Flood Risk Management' to SEPA and responsible authorities on fulfilling their duties under the FRMA 2009.

In promoting a more sustainable approach to flood risk management, the guidance establishes the five following overarching outcomes for Scotland:

- A reduction in the number of people, homes and property at risk of flooding as a result of public funds being invested in actions that protect the most vulnerable and those areas at greatest risk of flooding.
- Rural and urban landscapes with space to store water and slow down the progress of floods.
- Integrated drainage that decreases burdens on our sewer systems while also delivering reduced flood risk and an improved water environment.
- A well informed public who understand flood risk and take actions to protect themselves, their property or their businesses.
- Flood management actions being undertaken that will stand the test of time and be adaptable to future changes in the climate.

Guidance to support delivery of these outcomes is provided through seven themed sections within the proposed guidance:

- (i) Understanding flood risk;
- (ii) Understanding and working with Catchments;
- (iii) An Integrated approach to Flood Risk Management;
- (iv) Integrated urban drainage;
- (v) Selecting sustainable actions;
- (vi) Engaging with Stakeholders; and
- (vii) Delivering Responsibilities Collectively.

Measurable Actions

Table 10 Adaptation Action Plan

Ref No	Action	Lead Dept/Service	Timeline	Measuring Progress
A.1	To embed climate change into corporate plans, improvement plans, action plans, and service plans and to measure and record the outcome of these plans.	Chief Executive's	2012/13	Departmental Annual Reports.
A.2	To incorporate climate change impacts within Committee reports.	Chief Executive's	2012/13	Check that reports to Committee include climate change impacts.
A.3	To influence the culture of the organisation in relation to training and awareness raising of climate change issues and how all services can contribute to climate change adaptation.	Climate Change Strategy Working Group	Ongoing	Projects to be brought forward from the Climate Change Strategy Working Group.
A.4	To develop skills and capacity building across the Council, investment is required in skills, e.g. how do we measure greenhouse gas emissions? How do we reduce carbon? How do we monitor trends?	Climate Change Strategy Working Group	Ongoing	Methods of measuring climate change reduction efforts are still to be developed for some areas. Maintain a watching brief for emerging methodologies.
A.5	More effective community engagement in relation to climate change mitigation and adaptation in Angus.	Climate Change Strategy Working Group/Community Planning Partners	Ongoing	Projects
A.6	Increase the use of SUDS in new developments.	Infrastructure Services	Ongoing	Annual audit of department/annual reports.
A.7	Effective adaptation and mitigation measures which set integrated objectives to establish resilient ecosystems for people and wildlife.	Neighbourhood Services	Ongoing	Annual audit of department/annual reports.
A.8	Angus Council will fully engage with Scottish Environment Protection Agency (SEPA) in the setting of actions to be included within flood risk management plans.	Infrastructure Services	2012	Annual audit of department/annual reports.
A.9	Angus Council will participate fully in the establishment of advisory groups under the Flood Risk Management (Scotland) Act 2009 and subsequent decisions made	Infrastructure Services	2012 onwards.	Annual audit of department/annual reports.
A.10	Angus Council will prepare a schedule of clearance and repair works.	Infrastructure Services	2012 onwards.	Annual audit of department/annual reports.
A.11	Angus Council will prepare maps of water bodies and Sustainable Urban Drainage Systems (SUDS).	Infrastructure Services	2012	Annual audit of department/annual reports.

Ref No	Action	Lead Dept/Service	Timeline	Measuring Progress
A.12	Angus Council will work with the local advisory group to develop Flood Risk Management Plans.	Infrastructure Services	2012	Annual audit of department/annual reports.
A.13	Angus Council will work with the local advisory group to develop and publish Flood Risk Management Plans.	Infrastructure Services	December 2015 onwards	Annual audit of department/annual reports.
A.14	Angus Council will work with the local advisory group to develop and publish implementation parts of Flood Risk Management Plans.	Infrastructure Services	June 2016	Annual audit of department/annual reports.
A.15	Angus Council will begin implementing the measures in Local Flood Risk Management Plans.	Infrastructure Services	June 2016	Annual audit of department/annual reports.
A.16	Provide policy and technical advice on the provision and management of paths and infrastructure in response to climate change or changing patterns of recreation resulting from climate change.	Planning & Transport	Ongoing	Annual audit of department/annual reports.
A.17	Adaptation measures to ensure the movement of species through the Angus landscape and fresh waters in response to climate change is supported.	Planning & Transport	Ongoing	Annual audit of department/annual reports.
A.18	Promote action to support biodiversity adaptation such as habitat networks, and to promote adaptation measures that work with natural processes.	Planning & Transport Neighbourhood Services	Ongoing	Annual audit of department/annual reports.
A.19	Promote adaptation and mitigation measures that enhance the sustainability of the use of natural resources.	Planning & Transport Economic Development	Ongoing	Annual audit of department/annual reports.
A.20	Ensure those areas most vulnerable to rising sea level and/or storm surge and wave overtopping are identified to improve understanding, management and policy	Infrastructure Services	Ongoing	Annual audit of department/annual reports.

APPENDIX 1:

Figure 5 Embedding Climate Change

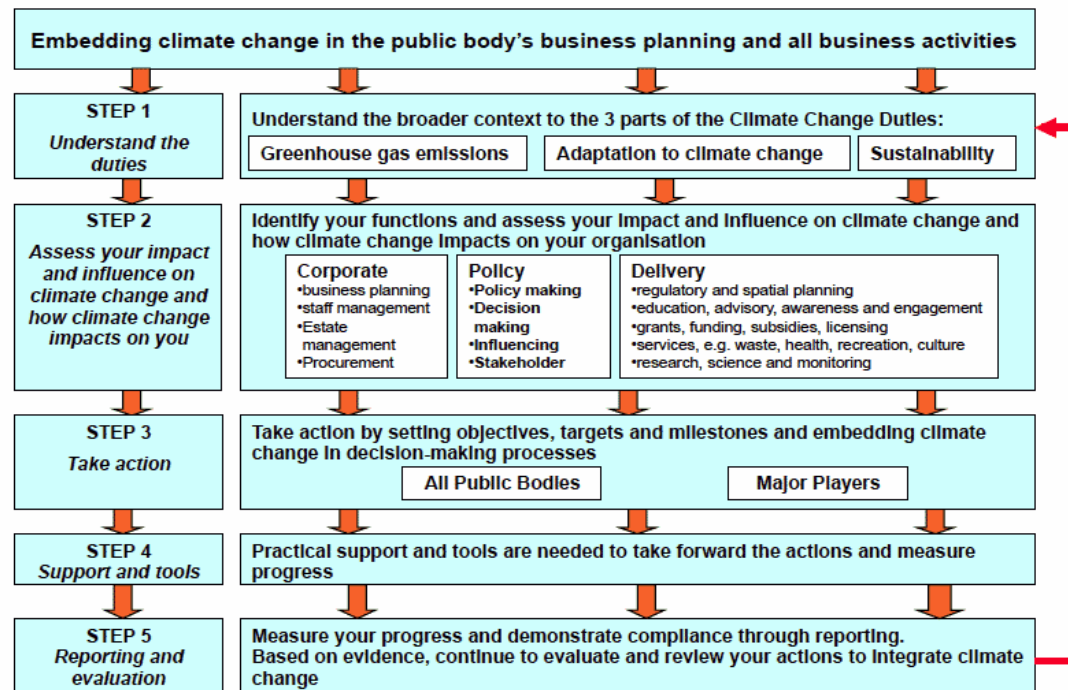


Figure 6 Potential Health Concerns caused by Climate Change (Climate & Health Factsheet, WHO 2005)

Weather Events	Impacts on Human Health
Warm spells, heat waves and stagnant air masses.	<ul style="list-style-type: none"> • Heat stroke, affecting mainly children and the elderly. • Increase in respiratory diseases. • Cardiovascular illnesses.
Warmer temperatures and disturbed rainfall patterns.	<ul style="list-style-type: none"> • More exposure to vector-borne diseases like malaria, Japanese encephalitis and other diseases carried by vectors such as mosquitoes, rodents and ticks.
Heavy precipitation events.	<ul style="list-style-type: none"> • Increased risk of diseases related to contaminated water (water-borne) and to unsafe food (food-borne). Depletion of safe water supplies and poor sanitation will increase the incidence of diarrhoeal diseases such as cholera.
Droughts	<ul style="list-style-type: none"> • Malnutrition and starvation particularly affecting children’s growth and development. • Reduced crop yields causing stress for farmers and their families (know as “psychosocial stress”, who may be unable to pay their debts during extended and repeated droughts.
Intense weather events (cyclones, storms).	<ul style="list-style-type: none"> • Loss of life, injuries, life-long handicaps. • Damaged public health infrastructure such as health centres, hospitals and clinics. • Loss of life, property and land, displacement and forced migration due to disasters will bring about psychosocial stress affecting mental health.
Sea level rise and coastal storms.	<ul style="list-style-type: none"> • Loss of livelihoods and disappearance of land will trigger massive migration and cause potential social conflicts, affecting mental health.

APPENDIX 2: GLOSSARY

TERM/ACRONYM	EXPLANATION
Adaptation	Adapting to the changes in the climate which are inevitable.
BREEAM	Building Research Establishment Environmental Assessment Method
Carbon Footprint	The amount of carbon produced by a person/process/building.
CMP	Carbon Management Programme
CRCEES	Carbon Reduction Commitment Energy Efficiency Scheme
Climate Change	The changes in the climate caused by greenhouse gases heating up the atmosphere.
Eco Schools	Award scheme whereby schools manage their environmental impacts to gain Bronze, Silver or Green Flag awards.
Eutrophication	A process where water bodies receive excess nutrients that stimulate excessive plant growth.
Flood alleviation	Measures put in place to reduce the occurrence and impacts of flooding in a particular locality.
Fluvial	Processes associated with rivers and streams and the deposits and landforms created by them.
Green Procurement	Take account of the environmental impacts of goods and services we buy.
GHG or Greenhouse Gasses	The main gases which contribute to global warming and climate change – carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulphur hexafluoride.
Healthy Working Lives	Initiative to encourage good health in the working environment.
HECA	Home Energy Conservation Act
LCIP	Local Climate Impacts Profile
Mitigation	Efforts to reduce the amount of greenhouse gases we produce.
NHER	National Home Energy Rating – method of rating a house's energy efficiency.
N ₂ O	Nitrous Oxide – a greenhouse gas.
Pluvial	Flooding that results from rainfall-generated overland flow, before the runoff enters any watercourse or sewer.
Renewable Energy	Energy produced from renewable sources like wind, solar, wave and air/ground sources rather than non-renewable sources such as coal, oil and gas.
Renewable Heat Premium Payment Scheme	A grant scheme set up by Government to provide the use of renewables in homes.
River Basin Management Planning	A management tool in Integrated Water Resources Management They generally contain descriptions of the water resources in a drainage basin and water allocation

TERM/ACRONYM	EXPLANATION
	plans.
SEPA	Scottish Environment Protection Agency
Single Outcome Agreement - SOA	An agreement between the Scottish Government and Community Planning Partnerships to achieve outcomes that reflect local circumstances and priorities but also support and contribute towards the Government's fifteen national outcomes.
SAC	Special Area of Conservation
Sustainable Development	Development that meets the needs of the present without compromising the ability of future generations to meet their own needs. (Brundtland Commission 1987)
SUDS	Sustainable Urban Drainage Systems
TACTRAN	Tayside and Central Transport Partnership
Tributaries	a stream or river that flows into a main stem or parent river or a lake
ZWP	Zero Waste Plan