Oxfordshire's Sustainable Community Strategy -
A long term vision for the county

Briefing paper 6: Environment

FINAL DRAFT

This paper is number 6 in a series of 12 briefing papers prepared to inform the development of the Oxfordshire Sustainable Community Strategy by the Oxfordshire Partnership.

The briefing papers are designed for any individual or organisation interested in finding out more about Oxfordshire. Specifically they have been developed for representatives of organisations in the Oxfordshire Partnership who will be attending workshops and discussions on the priorities for the strategy during 2007.

FINAL DRAFT: 3 August 2007

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1 Summary

This paper focuses on selected environmental areas which the Sustainable Community Strategy project team considered to be of particular importance for the Sustainable Community Strategy: climate change, resources and heritage.

Key issues that emerge from the evidence provided in this paper are:

Climate change: Take action to mitigate and adapt to climate change.

The impact of hotter, drier summers and warmer wetter winters, together with an increasing frequency of extreme weather events will extend far beyond the environment with impacts on many aspects of community life.

Energy: Reduce energy demand and encourage improved energy efficiency of businesses, existing housing stock and new builds.

All districts in Oxfordshire rate in the top quartile for energy use and carbon dioxide emissions.

Water: Reduce per capita consumption of water through demand management and water use efficiency measures.

Many of the water catchment areas in Oxfordshire are already classed as 'over-licensed', 'overabstracted' or 'no water available'. Resource availability is likely to be further stretched in a changing climate. Demand for water is projected to increase as a result of population growth and proposed housing development in the county.

Waste: Reduce waste production and promote more sustainable waste management through supporting the aims of the Oxfordshire Waste Partnership.

Recycling rates in Oxfordshire have increased rapidly in recent years, with 33% of household waste being recycled or composted in 2005/06. The Oxfordshire Waste Partnership has set targets to increase recycling to 55% by 2020 and a target to reduce waste growth to 0% per household by 2012.

Biodiversity: Encourage farmers to deliver effective environmental management through uptake of agri-environment schemes and to support projects to rebuild biodiversity.

Poor or inappropriate agricultural management and climate change are the key pressures on the county's biodiversity.

Heritage: Encourage sympathetic development to maintain and enhance area character and avoid loss of important historic and archaeological resources.

The projected increase in housing will have a major influence on the county's environment and resources. Sympathetic development in keeping with the locality will be vital to maintain area character and to protect the county's heritage and sense of place.

2 Introduction

The quality of Oxfordshire's built and natural environment is a key factor in Oxfordshire's success, helping to deliver a buoyant local economy and providing a sense of place and enhancing the quality of life in the county.

- Oxfordshire has a rich nature conservation resource, with four National Nature Reserves, more than one hundred Sites of Special Scientific Interest, seven Special Areas or Conservation, and many local nature reserves.
- There are three Areas of Outstanding Natural Beauty: the Chiltern Hills, the Cotswolds and the North Wessex Downs.
- Oxford city provides an important historic environment at the heart of the county, Blenheim Palace & Parks is a world heritage site, and there are over 200 conservation areas and thousands of listed buildings across Oxfordshire.

This paper focuses on selected environmental areas which the Sustainable Community Strategy project team considered to be of particular importance for the Sustainable Community Strategy: climate change, resources and heritage.

Sections 3 to 5 summarise evidence for each of these areas. Section 6 summarises local environmental priorities from community and area plans and summarises the impacts of environmental issues on vulnerable people. Section 7 summarises threats and opportunities related to climate change, resources and heritage and Section 8 draws out the key issues for the Sustainable Communities Strategy to focus on based on the evidence.

The Appendices provide further information.[1]

[1] Further information on Oxfordshire's environment, including data and links to organisations, can be accessed through the Oxfordshire Data Observatory.

3 Climate change

Warming of the global climate is now 'unequivocal' according to the *Fourth Assessment Report of the Intergovernmental Panel on Climate Change* (IPCC), published in February 2007. The Panel's report predicts that world temperatures are likely to rise by between 1.1 to 6.4^{0}C during the 21st century, leading to rising sea levels and increasing frequency and intensity of droughts, cyclones and extreme high tides.

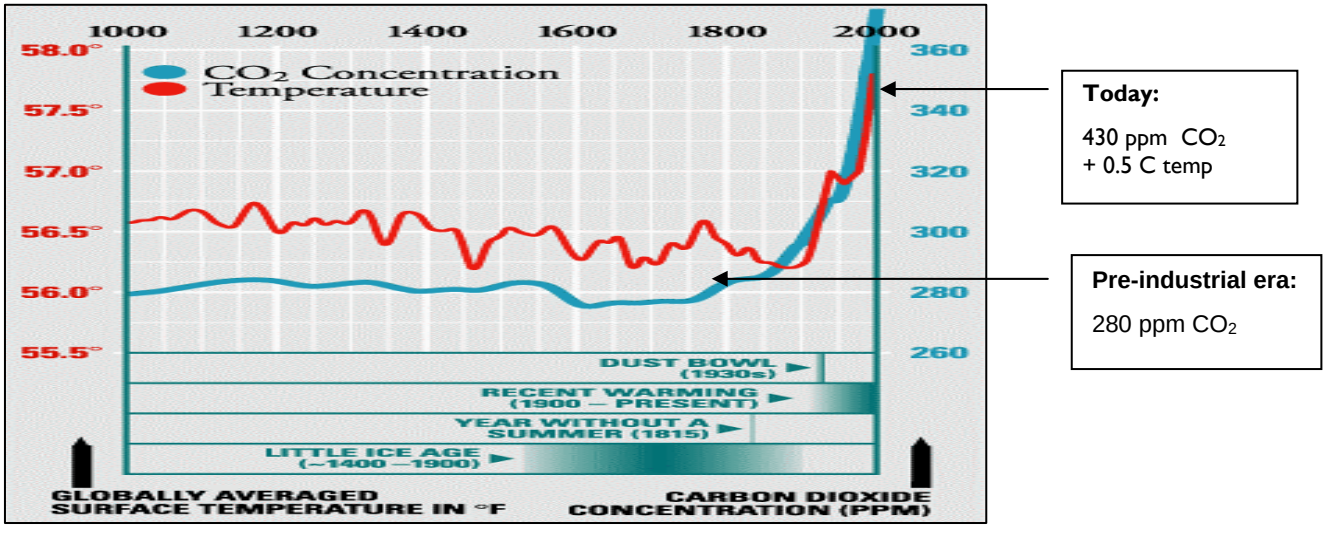
Sir Nicholas Stern's *Review on the Economics of Climate Change,* released at the end of 2006, stated that these changes represent the possibility of 'the greatest and widest ranging market failure ever seen', with overall costs and risks of climate change equivalent to losing at least 5% of global GDP each year.

Climate change cuts across the themes covered by the Sustainable Community Strategy, and will have significant impacts on Oxfordshire's environment, economy, transport, housing and health.

3.1 Trends in global carbon dioxide and temperatures

- Levels of carbon dioxide in the global atmosphere have increased from pre-industrial levels of 280 parts per million (ppm) to 430 ppm today.
- Global temperature has increased by 0.74 ^{0}C over the past hundred years.
- Figure 1 shows a clear correlation between atmospheric carbon dioxide levels and global temperatures.

Figure 1 Global carbon dioxide concentrations and temperature

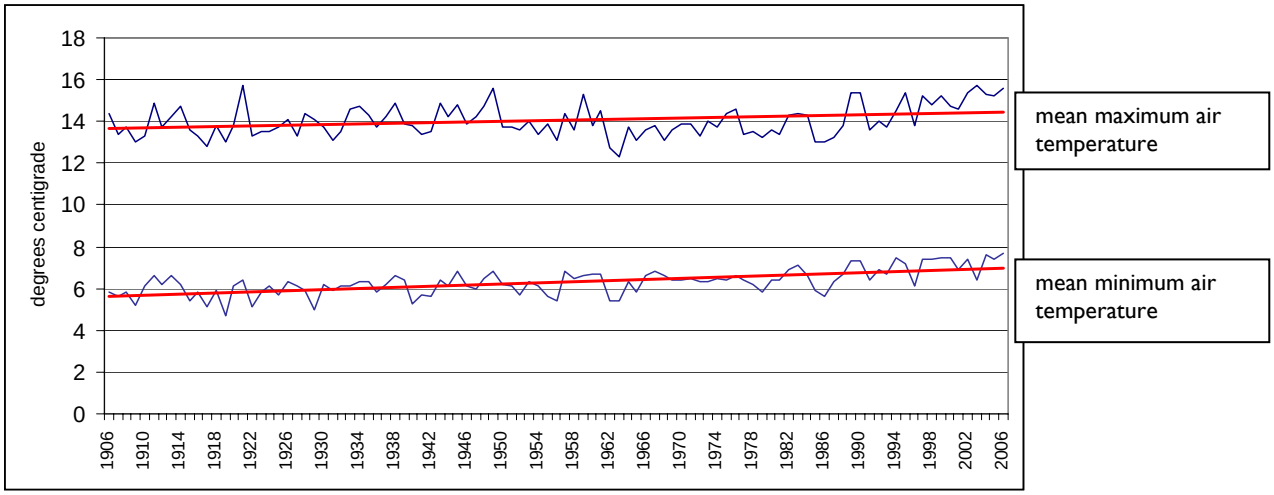


Source: IPCC, Fourth Assessment Report, 2007

3.2 Climate Change in Oxfordshire

Records from the Radcliffe Observatory show that temperatures in Oxford in the post-1986 decade are the warmest on record by a considerable margin (see following chart). This may be indicative of climate change.

Figure 2 Average monthly temperatures in Oxford, 1906 to 2006



Source: UK Meteorological Office

Climate change in Oxfordshire is likely to result in:

- warmer, drier summers
  - temperatures predicted to increase by 1.0 °C to 1.5 °C by 2020
  - rainfall predicted to decrease between 10 and 20% by 2020

- milder, wetter winters with an increased risk of flooding
  - temperatures predicted to increase by 0.5 °C to 1.0 °C by 2020
  - rainfall predicted to increase by 0 to 10% by 2020.

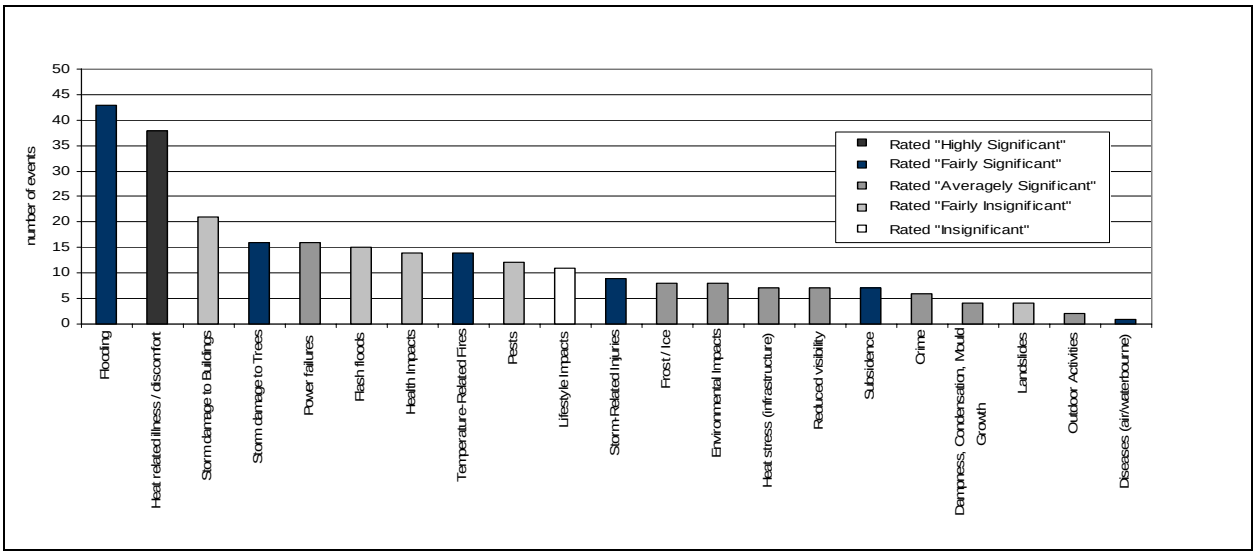
- more frequent extremes of temperature, rainfall and wind.

Indicators of change

The main indicator of a changing climate is a change in the type and frequency of weather events, such as heavy downpours and heatwaves. Figure 3 shows the type and frequency of a wide range of weather related impacts such as flooding, heat related illnesses and storm damage observed in Oxfordshire between 1995-96 and 2005-06.

Whether or not events in the past are a result of climate change, it is clear that if the climate changes as predicted, Oxfordshire will see many more incidents like these.

Figure 3 Type and frequency of weather-related impacts in Oxfordshire, 1996-2006



Source: Oxfordshire County Council, Local climate impacts profile

Impacts of weather events in Oxfordshire

Oxfordshire's main areas of climate-related vulnerability are increasing intense downpours and higher temperatures. The impact of events of this type is highlighted by the extensive flooding which affected Oxfordshire in July 2007 and is further illustrated by past examples.

- In July 2006, temperatures soared to 34.8 ^{0}C. The extreme temperatures resulted in school closures affecting almost 1,000 pupils. Roads buckled and shrank affecting motorists, emergency services and businesses. The estimated cost of heat damage to the road networks was £3.6 million, whilst an additional £15,000 was spent sending out gritting lorries to roads where tar melt had made the roads slippery.
- Heavy downpours in summer 2006 saw the Eastern Bypass flooded twice within 24 hours, flooding at St Giles in Oxford and at Nuneham Courtney.
- Floods in 1998 caused an estimated £12 m worth of damage to homes, businesses and essential services.

On the plus side, a local vineyard enjoyed good fruit growth early in the season (2003). The amount of waste collected fell by 2% from 2002 to 2003, partly due to dry weather with less green waste being disposed of.

3.3 How will climate change affect Oxfordshire's environment?

Climate change and biodiversity

Climate change is likely to affect biodiversity directly through changes in species distribution, community composition and ecosystem function. Changing weather patterns may affect timing of critical events such as flowering, bud burst and hibernation (phenology), leading to a loss of synchronicity (eg insects emerging from hibernation when food source not available). Changes in agricultural practices resulting from the changing climate may have indirect effects on biodiversity.[2]

Evidence for the impact of climate change on biodiversity in Oxfordshire

A recent project carried out by Oxfordshire County Council in partnership with the UK Climate Impacts Programme collated examples of environmental events that **may** have been triggered by changes in the climate or by weather events which are likely to become more frequent in a changing climate. These included:

- the four earliest recorded breeding seasons have occurred in the last 5 years, with some birds breeding up to 3 weeks earlier than average
- good fruit growth recorded early in the season at vineyards
- shortages of vegetables due to high temperatures and lack of rain
- fish deaths as a result of low oxygen levels in July 2006 (heatwave)
- breeding patterns of frogs and newts affected by low flows.

Changing species distribution as a result of climate change may have implications for boundaries of existing conservation sites in Oxfordshire. For example, the silver spot skipper has been observed moving from its preferred south facing chalk grassland slopes to the cooler north facing slopes.[3]

Climate change and water resources

Increasing summer temperatures and decreasing summer rainfall will have a direct impact on the county's water resources, already at or near to capacity. (see section 4.2). Droughts are likely to be more frequent, and at the same time, demand for water is likely to be greater (the UK Climate Impacts Programme estimates that climate change may lead to a 1.5% increase in per capita consumption of water over the next 25 years).

The resulting low summer flows could result in:

- reduced resources for water supply,
- poor water quality leading to reduced capacity of water courses to tolerate effluent discharges (note also increasing pressure due to greater numbers of households). Data presented in Appendix 9.2.2 show that a high percentage of the length of the county's rivers is already graded 'poor' for phosphate and nitrates.[4] This is likely to be a result of diffuse

[2] England Biodiversity Strategy: towards adaptation to climate change. May 2007

[3] County Ecologist and UKCIP, 2006

[4] General Water Quality Assessment. Environment Agency 2006

water pollution from agriculture and from licensed discharge of treated effluents from sewage treatment works.

Climate change and air quality

- The frequency of weather conditions leading to poor air quality during the winter in Oxfordshire is likely to decrease.
- Weather conditions associated with episodes of poor air quality in summer are likely to become more frequent (see also section 4.7).

3.4 How will climate change affect quality of life in Oxfordshire?

Climate change and health

Climate change in the UK may lead to:

- Increased heat related deaths. It is predicted that there is a 1 in 40 chance that by 2012 South Eastern England will have experienced a severe heat wave that will cause perhaps 3,000 immediate heat-related deaths and 6,350 heat-related deaths.
- Decreased cold-related deaths during the winter months.
- Increased deaths and hospital emissions due to air pollution.

Other impacts:

- Increased skin cancers (due to increased exposure to ultra violet light)
- Increased food-borne diseases (the incidence of food-borne diseases has been shown to increase with increasing temperatures)
- Possible impact on drinking water quality due to algal blooms in reservoirs, increased numbers of bacteria in surface water, and decreased efficiency of chemical coagulation, a major method for removing microbes from drinking water (and knock-on effect of increasing cost of disinfecting).
- There may be health impacts of flooding, particularly in relation to contaminated flood water. [5]

Climate change and economy

Climate change WILL have economic implications. The extent of the costs will depend on measures taken now to mitigate and adapt to climate change. According to the Stern review, the cost of doing nothing now (equivalent to losing at least 5% of global GDP each year) will be far greater than the cost of taking action (can be limited to around 1% of global GDP each year)[6].

In the past, weather-related events of the type likely to increase with climate change have incurred substantial costs. For example, repairing the road network in the county after the

[5] Source: Department of Health and the Health Protection Agency. 'Health effects of climate change in the UK', first published in 2001/02 and with an updated draft for consultation produced May 2007.

[6] Stern Review on the Economics of Climate Change. November 2006.

heat wave in 2006 is likely to have cost around £4 m. Flooding in 1998 is estimated to have caused £12 m of damage to homes, businesses and services in the county. [7]

Measures imposed to mitigate climate change are likely to have financial implications, eg, rising cost of fuel. Indirect costs may be incurred, eg cost in staff time through travel delays, health problems.

Climate change may also bring positive economic impacts to Oxfordshire. For example, warmer summers may boost tourism to the county, bringing with it business opportunities.

For further discussion on the impact of climate change on the economy, see theme paper 3 on the Economy.

Living with climate change

There are two key aspects to dealing with future climate change: mitigation (doing something about the causes of climate change) and adaptation (learning to live in a changing climate).

Mitigating climate change

There are a number of existing and emerging international and national targets to reduce emissions of greenhouse gases, including the Kyoto Protocol and domestic targets set in the Climate Change Bill. Targets for reducing carbon emissions are also included in the Draft South East Plan (for details see following table).

Whilst it is possible to set local targets for greenhouse gas reduction, the Sustainable Community Strategy may be better placed to inform and engage local communities, businesses and individuals. For example, targets could be set for businesses to work with the Carbon Trust or the Oxfordshire Sustainable Business Partnership (OxSBP) to reduce their carbon footprints. This approach has had considerable success: in 2006, 10 energy audits carried out on behalf of the OxSBP showed that there was potential for 134 tonnes of carbon dioxide (and £26,000 of expenditure) to be saved each year if the recommendations from the audits were implemented. This represented a 20% saving of energy consumption.[8]

Advice for communities and individuals is provided through the energy saving trust, eg, Thames Valley Energy Advice Centre.

[7] Oxfordshire County Council, Local Climate Impacts Programme, 2006

[8] Source: OxSBP Resource efficiency programme. Final report, March 2007

Table 1 Targets for reducing greenhouse gases

	Target	by when?	
Kyoto Protocol	• 12.5% reduction in UK greenhouse gas emissions from 1990 baseline	2008-2012	The UK has already met this target, with emissions of the 6 greenhouse gases reduced by more than 14% in 2006.
UK domestic targets Draft Climate Change Bill	• 20% reduction in CO_2 emissions from 1990 baseline • 26-32% reduction from 1990 baseline • 60% reduction	• 2010 • 2020 • 2050	Target unlikely to be met in 2010
Targets in South East Plan	• 20% reduction in region's CO_2 emissions below 1990 levels • 25% below 1990 levels	• 2010 • 2015	Targets to be set for 2026 by 2011

Adapting to climate change

Emissions of greenhouse gases in the latter part of the 20th Century will continue to influence climatic conditions for several decades to come. As a result, some degree of climate change is inevitable. Learning how to deal these consequences is an essential element of sustainable development. Successful adaptation will minimise the adverse affects of climate change and will enable communities to take advantage of opportunities offered.

Key issue for SCS: mitigating and adapting to climate change.

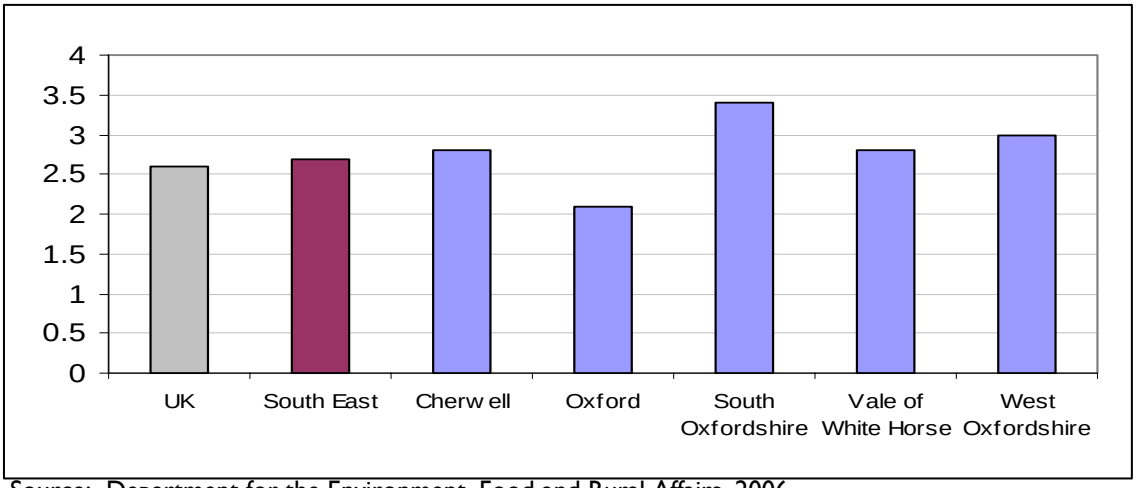
"There is still time to avoid the worst impacts of climate change if we take strong action NOW"

Stern Review, December 2006

3.5 Greenhouse gas emissions in Oxfordshire

Households in Oxfordshire emitted between 2.1 and 3.4 tonnes of carbon dioxide (CO_2) per person during 2004. Emissions were above the UK and SE averages for all districts except Oxford City. [9]

Figure 4 Domestic CO_2 emissions per capita (2004)



Source: Department for the Environment, Food and Rural Affairs, 2006

Total per capita emissions (from all sources) also varied with district, from 17.3 tonnes CO_2 per person in Cherwell to 7.3 tonnes per person in Oxford City.

- Domestic sources accounted for 25% of the county's total CO_2 emissions in 2004.
- A further 33% of CO_2 was emitted from road transport. Road traffic is forecast to increase in the coming years, and will have implications for county emissions of CO_2. (See Access and travel theme paper for further details on forecast traffic growth).

Key issue: reducing greenhouse gas emissions to reduce extent of future climate change.

[9] These figures are classed by Defra as experimental and are indicative only.

4 Resources

4.1 Energy

More than two thirds of the world's carbon dioxide emissions come from the way energy is produced and used.[10]

Energy use in Oxfordshire

- Total final energy demand per capita in Oxfordshire (2004) varied from 25,700 kWh in Oxford to 42,400 kWh in Cherwell. Total final energy demand across the South East was 30,500 kWh per capita.
- Energy demand was shared almost equally by the industrial & commercial, domestic and transport sectors.
- Domestic energy consumption per capita (for all sources) varied from 8,650 kWh in Oxford to 11,410 kWh in South Oxfordshire. The median local authority figure for this indicator was 10,040 kWh.

Table 2 summarises the key energy indicators for Oxfordshire for 2004. In all categories, Oxfordshire and its districts rate in the top quartile of all local authorities for energy use and CO_2 emissions.

Table 2 Energy consumption and CO_2 emissions by district, 2004

	Total final energy consumption/ Capita (kWh)	Total domestic energy consumption/ capita (kWh)	Total industrial and commercial energy consumption/ employee (kWh)	Total vehicle consumption/ capita (tonnes of fuel)	CO2 emissions/ Capita (tCO2)
Cherwell	42,400	9,640	25,300	1.5	17.1
Oxford	25,700	8,650	17,100	0.4	6.8
South Oxfordshire	34,300	11,410	16,900	1.1	11.0
Vale Of White Horse	34,900	10,590	19,800	1.1	10.2
West Oxfordshire	28,400	10,780	19,300	0.8	8.8
South East	**30,500**	**9,990**	**23,100**	**0.8**	**8.6**

Source: DTI, Sub-regional high level energy indicators, March 2007.

National projections indicate that electricity demand by the residential sector could increase by 24.1% from 2005 to 2020.[11]

[10] 'Meeting the energy challenge. Defra, 2007.

[11] UK Energy and CO_2 emissions projections. DTI, February & July 2006.

Reducing energy use and improving energy efficiency

If there is to be any chance of meeting national and international targets to reduce carbon dioxide emissions and avoid dramatic climate change, demand for energy must be reduced, energy efficiency improved and increasing emphasis placed on energy supply from renewable sources.

What's being done in Oxfordshire?

Existing stock. Under the Home Energy Conservation Act, 1995 (HECA), local authorities with housing responsibilities are required to promote and report on energy conservation in their area (eg, through the Warm Front scheme). Table 7 shows the percentage improvement in energy efficiency (from a 1996 baseline) of **all** housing stock in Oxfordshire districts from 2000 to 2005.

A target of around 30% improvement in energy efficiency was set for 10-12 years from the baseline (1996) – only Oxford City is approaching this target.

Table 3 Improvements in energy efficiency by district

	Overall percentage improvement in domestic energy efficiency (from 1996 baseline)				
	2000/01	2001/02	2002/03	2003/04	2004/05
Cherwell	3.72	8.3	9.5	11.1	12.7
Oxford	7.7	13.0	19.2	20.2	22.7
South Oxfordshire	8.25	8.7	9.9	11.2	13.0
Vale of White Horse	5.54	6.6	7.9	9.2	10.1
West Oxfordshire	3.22	4.0	5.3	7.4	8.4

Source: Home Energy Conservation Act progress reports

New buildings. Policies to encourage energy efficiency in new builds are included in all the local plans. The Energy Paper (Meeting the Energy Challenge) published in May 2007 states that all new homes should be zero carbon 'as soon as practically possible', and will consult on this being mandatory from 2016.

A development of 'ecohomes' has recently been proposed for Oxford, whilst an inspirational example of Zero Carbon development is provided by the Beddington Zero Carbon Development ('BedZed') in Surrey. On site monitoring suggests that residents use an average of 3 kWh per person per day, a 25% reduction compared to the UK average of 4 kWh per person per day. Further details of this project are given in the Housing theme paper.

Case Study 1: Blewbury village energy project

This is a community project aimed at reducing the energy use of householders in Blewbury in South Oxfordshire. A thermal imaging company took images across a range of different property types in the village – these were then displayed at the Village Open Day. Householders were surveyed about their energy use and were given free energy saving light bulbs and personal home energy reports with advice on ways to save energy and information on grants available.

The project is now engaging with local tradespeople to help improve the energy efficiency of people's homes based on the results of the thermal images and hosuehold surveys.

Case Study 2: The 40% house (Environmental Change Institute)

Aim: to demonstrate that existing housing stock can achieve a 60% reduction in carbon emissions (in line with national targets for 2050). Seven homes have already been refurbished to demonstrate how the reductions can be achieved, including a mid-Victorian end-terrace cottage in Osney Mead and a 1980's developer home in Oxpens, Oxford. See http://www.40percent.org.uk/2006/01/03/welcome/

Renewable Energy

The allocation of renewables targets set in the Draft South East Plan to Oxfordshire local authority area is shown in Table 8 along with the expected levels of achievement by 2010. The targets take account of potential sources of renewables in the area.

Table 4 Renewable energy targets for Oxfordshire and districts

	Target for all renewables (MW)	% target met by May 2007	% of target likely to be met by 2010
Oxfordshire	46.6	78%	92%
Cherwell	10.5	20%	20.5%
Oxford City	1.4	1.8%	1.8%
South Oxfordshire	11.8	7%	7%
Vale of White Horse	10.3	304%	368%
West Oxfordshire	12.4	17.4%	17.4%

Source: TV Energy, 2007

Most of the renewables target will be met in Oxfordshire by the use of biomass and wind energy (see Appendix 9.2.1for details of biofuel crops in Oxfordshire).

Key issue: reducing energy demand and improving energy efficiency. Encouraging use of appropriate renewables.

4.2 Water

Resource availability

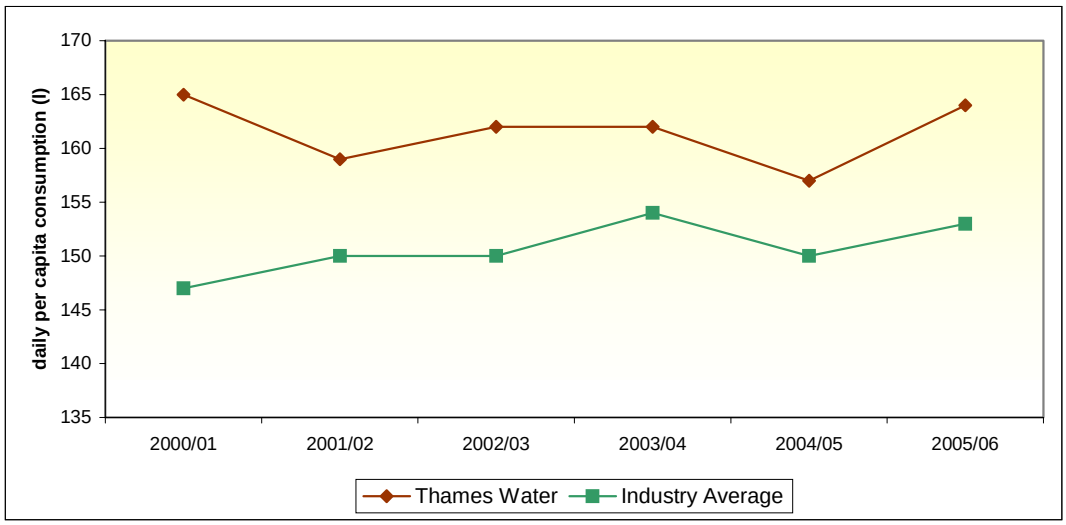
According to the Catchment Abstraction Management Strategies (CAMS)[12] prepared by the Environment Agency, the majority of the water catchment areas within Oxfordshire have been classed as 'no water available', 'over-licensed' or 'over-abstracted' (see Appendix 9.2.2).

Household water consumption

The majority of water abstracted in the CAMS areas within Oxfordshire is used for public water supply.

- Households in Oxfordshire (supplied by Thames Water) consumed an average of 164 litres of water per person per day in 2005/06, above the England and Wales water industry average of 152 litres per person per day.
- Thames Water has forecast that per capita consumption will increase by up to 5% by 2029-30 (driven partly by increasing demand and partly by the forecast increase in households over this time[13]). The figure is compounded by the predicted decrease in household size, as well as increasing water demand due to climate change (see section 3.3).

Figure 5 Average daily household water consumption



Source: OfWat, November 2006

[12] CAMS are six-year plans detailing management of water resources at a local level. The Environment Agency is required to produce these plans under the EU Water Directive, and they need to be taken into account by local authorities when considering planning applications, housing development etc.

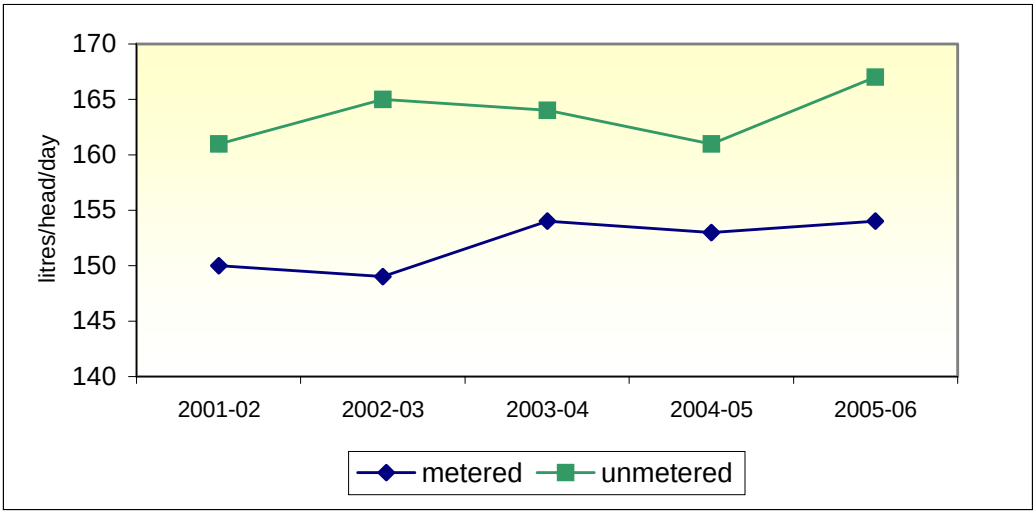
[13] Thames Water, 2006. Upper Thames Major Resource Development. Stage 1. Needs and Alternatives Report.

Reducing water use and increasing water use efficiency

- Metering plays a key role in reducing water consumption, and recent figures indicate that metered households used 12 litres/person/day LESS than unmetered households.[14]

- implementation of metering (in up to 75% of all households) and additional water use efficiency measures (low-flush toilets, improved shower heads and taps) could reduce domestic water use in new homes by over 20% by 2029-30.[15]

Figure 6 Water use in metered and unmetered households (Thames Water area)



Source: OfWat, 2006

In the BedZed development (described in the previous section), installation of systems to reduce water demand and increase water efficiency have reduced water consumption by residents to 91 litres per person per day, a 39% reduction compared to the UK average of 150 litres, and a 46% reduction compared to the London average of 170 litres.[16]

Key issue: reducing per capita consumption and encouraging water use efficiency. Managing increasing demand due to increasing numbers of households and in response to climate change.

[14] OfWat, 2006. Security of supply, leakage and water efficiency 2005-06 report

[15] Environment Agency

[16] BedZed monitoring data, http://www.bioregional.com/programme_projects/ecohous_prog/bedzed/bz_monitoring.htm

4.3 Land

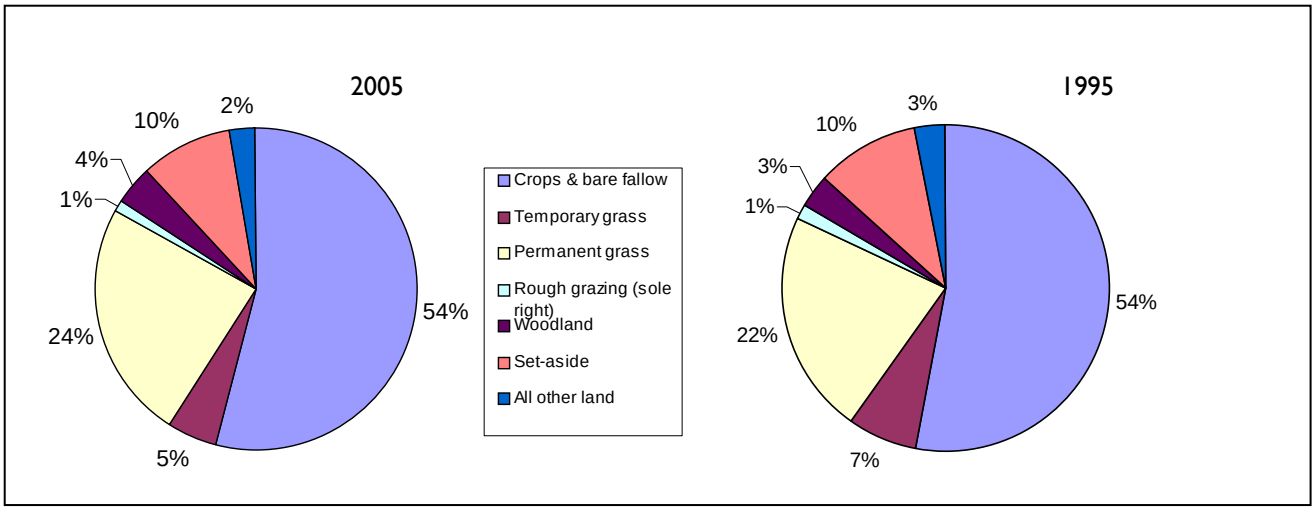
Oxfordshire is the most rural county in south east England with over half the population living in settlements of less than 10,000 people. Land uses in the county include housing, industrial and business premises, roads, agriculture, leisure, areas to conserve biodiversity, areas for mineral extraction and waste disposal.

Agricultural land use

With over three quarters of the county's area under agricultural management, how that land is used will determine many aspects of the local area, including its character and biodiversity.

Figure 11 shows that the overall pattern of agricultural land use changed little in the ten year period from 1995 to 2005. However, predicted climatic changes in Oxfordshire in the coming years may affect which crops are grown and where. An increasing area is likely to be used for the growth of biofuel crops.

Figure 7 Agricultural land use in Oxfordshire, 1995 and 2005



Source: Defra, Agricultural Census Data

Poor or inappropriate agricultural management has been identified as a key pressure on the county's biodiversity. Encouraging farmers to manage their land in an environmentallly responsible way, eg through take up of agri-environment schemes such as Environmental Stewardship will provide opportunities to improve habitats and rebuild biodiversity (see section 4.5 Biodiversity).

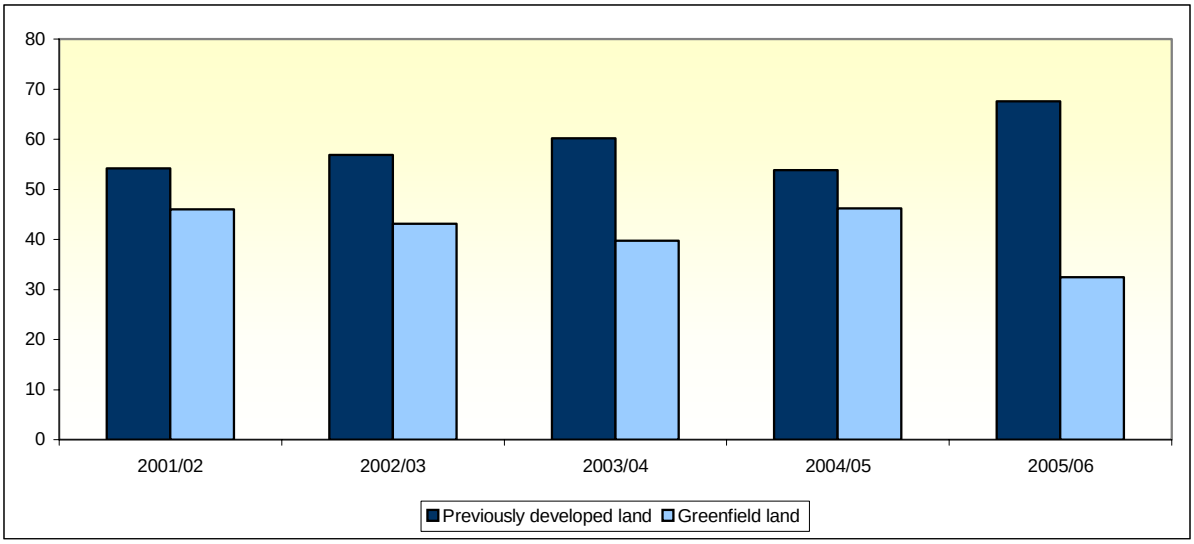
Land use for housing: use of previously developed land

A key pressure on the county's environment in the coming years will be the predicted increase in housing at locations across Oxfordshire. Sympathetic development in keeping with the locality and inclusion of sustainable building practices will be vital to maintain area character and to avoid undue impact on the local environment and resources. (See also theme papers 8, Housing, and 12, Spatial Oxfordshire.)

The UK government has set a target for 60 per cent of additional housing to be provided on previously developed land and through the conversion of existing buildings by 2008.[17] Meeting this target will be much harder in some areas of Oxfordshire than others.

Figure 12 shows the percentage of new housing built on greenfield or previously developed land in Oxfordshire from 2001/02 to 2005/06. (See appendix 9.2.3 for data by district and key growth areas).

Figure 8 New buildings on previously developed land in Oxfordshire



Source: Oxfordshire County Council, Land Development Planning System

Key issues:

- changing agricultural land use – impact on biodiversity and landscape
- projected housing growth

[17] Planning Policy Guidance Note 3, March 2000.

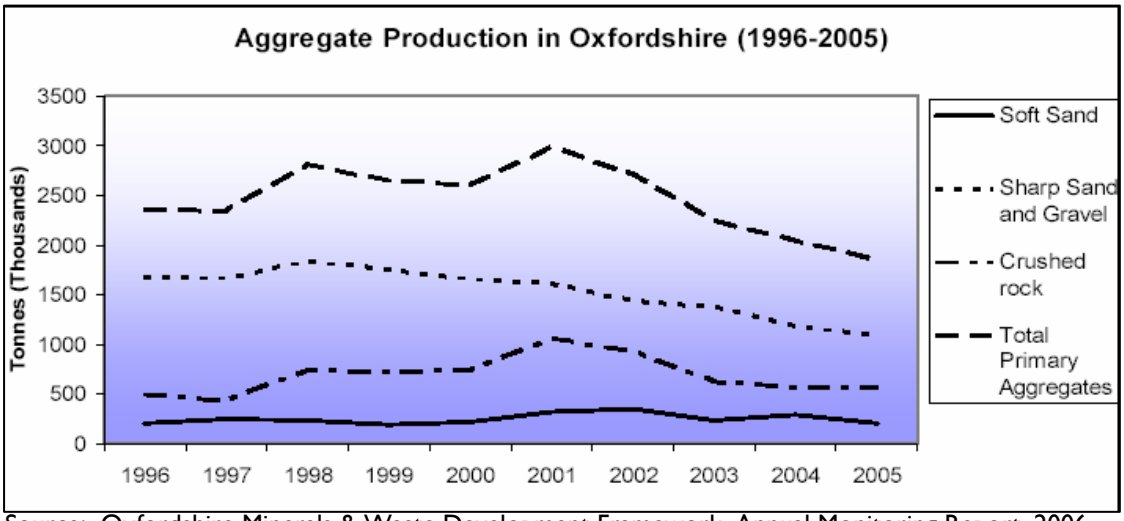
4.4 Minerals

Minerals extracted in Oxfordshire are sharp sand & gravel, soft sand, limestone and ironstone (all mainly for aggregate use) and clay. Chalk and Fullers earth have also been extracted in the past. Apart from the nationally scarce Fullers earth, the minerals are worked predominantly to supply local markets.

Over the 3 year period from 2003 to 2005, average annual production of aggregate minerals in Oxfordshire was 1.46 million tonnes of sand and gravel and 0.58 million tonnes of crushed rock (limestone and ironstone).

Following guidelines published by the Government in 2003, RPG9[18] states that Oxfordshire should make provision for the supply of 1.82 million tonnes a year of sand and gravel and 1.0 million tonnes a year of crushed rock from local land-won sources. This policy is repeated in the draft South East Plan which covers the period to 2026. This would mean making provision for an additional 29.3 million tonnes of sand and gravel and 6.8 million tonnes of crushed rock for the period up to 2026.

Figure 9 Aggregate production in Oxfordshire, 1996 to 2005



Source: Oxfordshire Minerals & Waste Development Framework, Annual Monitoring Report, 2006

The potential environmental impacts of extraction of these types of minerals are dust, noise and traffic movements to and from the site. Visual impact on the surrounding area is often a factor during the extraction process.

The impact of mineral workings on the environment is minimised by agreeing mitigation measures to be carried out during site operation as well as agreements on appropriate restoration and after uses. Minerals workings can be restored to new, beneficial land uses, including nature conservation, recreation and public access, as promoted in the Oxfordshire Structure Plan 2016.

[18] Regional Planning Guidance 9.

Minerals recycling

Whilst mineral extraction for aggregates will continue, the use of recycled construction and demolition waste and of aggregates from secondary materials (including power station ash) is becoming increasingly important in line with national policy.

The draft South East Plan seeks to increase the use of recycled and secondary aggregates in the South East from 6.6 to at least 7.7 million tonnes by 2016. The proportion of this proposed for Oxfordshire is 0.9 million tonnes a year.

The main source of secondary aggregates in Oxfordshire is ash from Didcot A. No reliable and comprehensive data is available on the production of recycled and secondary aggregates for Oxfordshire.[19]

Key issue: meeting need for construction minerals without damaging the environment.

4.5 Biodiversity

> "Biodiversity is a core component of sustainable development, underpinning economic development and prosperity, and has an important role to play in developing locally distinctive and sustainable communities".
>
> *England Biodiversity Strategy, 2006*

Oxfordshire has a rich nature conservation resource, including four National Nature Reserves, 7 Special Areas of Conservation and more than 100 Sites of Special Scientific Interest.

The UK's commitment to the conservation of biodiversity is delivered through the UK Biodiversity Action Plan (UK BAP), made up of a series of plans to target action for particular vulnerable habitats and species.

- 67 of the UK BAP priority species and examples of 16 of the priority habitats identified in the UK BAP as being of national or international importance for biodiversity can be found in Oxfordshire. These habitats cover 6,974 ha in the county and the majority are associated with designated sites.
- The Biodiversity Action Plan for Oxfordshire[20] currently contains Action Plans for 18 habitats and 21 species.

[19] Source: Minerals and Waste Development Framework Core Strategy consultation paper 2007. Oxfordshire County Council

[20] Further details are available on the ONCF website (http://www.oncf.org.uk/biodiversity/biod_oxonbap.htm

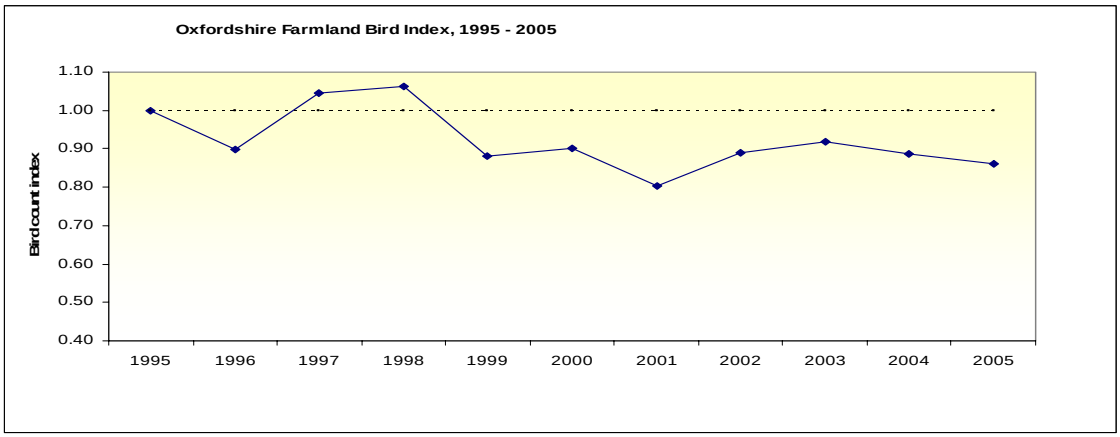
Indicators of biodiversity

Figure 15 shows the farmland bird index for Oxfordshire. The data, based on records for 19 farmland bird species shows:

- a reduction in the overall index from 2004 to 2005
- the index remains below the 1995 baseline for the seventh consecutive year
- all 19 farmland species were recorded in Oxfordshire in 2005 (unchanged since 2001).

Similar trends are observed across the south east region.

Figure 10 Oxfordshire's Farmland Bird Index, 1995 to 2005



Source: Thames Valley Environmental Records Centre, 2006

The Government's Public Service Agreement (PSA) target is to reverse the long-term decline in the number of farmland birds in England by 2020, as measured annually against underlying trends.

Condition of Sites of Special Scientific Interest (SSSIs)

The Government has set a target for 95% of SSSIs to be in favourable or recovering favourable condition by 2010. In 2006, 84.2% of SSSIs in Oxfordshire met this criterion.

Pressures on biodiversity

- Lack of appropriate land management (in particular poor agricultural or woodland management) has been identified as the key pressure on county's biodiversity.
- More support is needed for local projects that protect and enhance biodiversity and raise awareness of these issues.
- Climate change will have direct and indirect impacts on biodiversity and will be a key influence on Oxfordshire's biodiversity resource in the years to come (see section 3.3).

Rebuilding biodiversity

The Oxfordshire Wildlife and Landscapes Study (OWLS) has identified 36 target areas where it would be possible to work with landowners to **rebuild** biodiversity and to expand existing Biodiversity Action Plan habitats. Currently focussing on 10 of these areas, the project is actively promoting sympathetic land management, and encouraging landowners to join agri-environment schemes such as the entry-level stewardship or higher level stewardship.

Area of land under agri-environment scheme agreement in Oxfordshire

Environmental Stewardship is a new agri-environment scheme which provides funding to farmers and other land managers who deliver effective environmental management on their land. It builds on the recognised success of the Environmental Sensitive Areas scheme and the Countryside Stewardship Scheme. Encouraging farmers to sign up to the schemes will help ensure that land is managed in an environmentally sensitive way.

At the end of May 2007, just over half of the agricultural land in the county is being managed under agri-environment schemes (99,988 hectares). Of this, 87% is managed under entry level stewardship (encourages farmers to deliver simple yet effective environmental management), with only a small percentage covered by the higher level scheme (encourages delivery of significant environmental benefits in high priority situations and areas).[21]

Key issue: to encourage measures to prevent further loss of biodiversity and to support projects to rebuild biodiversity.

[21] Source: Natural England, May 2007

4.6 Waste

Approximately 2 million tonnes of waste are generated in Oxfordshire each year. Of this, 42% is construction and demolition waste, 43% is commercial and industrial waste, whilst 15% is municipal waste (includes household waste).

Table 5 Annual Waste arisings and waste management in Oxfordshire (tonnes)

Waste type	Total waste arising/managed	Landfilled	Recycled or composted	recovered	Other treatment
Construction & demolition	874,640	275,940	317,520	281,700	
Commercial & industrial	901,000	422,000	287,000	5,000	192,000
Municipal	311,152	211,727	99,414	-	-
All Waste	2,086,792	909,667	703,934	281,700	192,000

Source: Oxfordshire MWDF Core Strategy Preferred Options paper, 2007. Data for construction & demolition waste for 2003, DCLG; data for commercial and industrial waste for 2002/03, Environment Agency; data for municipal waste for 2005/06, OCC Waste Management Group).

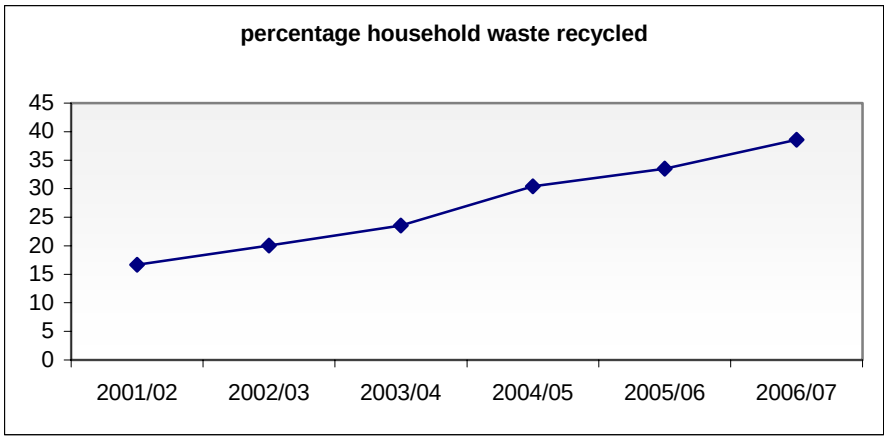
- 312,000 tonnes of municipal waste were generated in 2005/06, of which approximately 298,000 tonnes was household waste, equivalent to 480.8 kg waste per person.
- Oxfordshire produced the least amount of waste per person of any county council in 2005/06.
- In the same year, 33% of household waste was recycled, putting Oxfordshire in the top quartile for recycling performance, and above average for composting performance.
- The latest data for 2006/07 indicates this has increased to 38.6% with an increase in recycling rates in every district.

Table 6 Percentage of household waste recycled

	2003/04	2004/05	2005/06	2006/07
Oxfordshire	**17.46**	**30.15**	**33.4**	**38.58**
Cherwell	14.44	43.35	43.66	45.06
Oxford	14.72	13.68	18.92	24.14
South Oxfordshire	22.7	24.20	27.96	34.04
Vale of White Horse	19.4	21.26	23.84	29.08
West Oxfordshire	13.69	19.49	23.05	27.25

Source: OCC, Waste Management Group

Figure 11 Percentage household waste recycled in Oxfordshire



Source: OCC, Waste Management Group

Although disposal of waste through landfill is well regulated and causes less pollution than in the past, it is not a sustainable solution. The process of organic materials breaking down gives off methane, a greenhouse gas 21 times more potent than carbon dioxide.

The need to reduce the amount of waste sent to landfill is driven by a number of national and European Union regulations, including the Landfill Directive. Failure to meet targets will have financial implications.

- The Oxfordshire Waste Partnership has set a target to reduce waste growth to 0% per household per year by 2012 through a comprehensive waste reduction and re-use programme.
- Recent projections on the increase in number of households in the county, together with social trends such as decreasing household size in the coming years may, however result in an overall increase in the amount of waste produced.
- The new national Waste Strategy[22] has set higher national targets for recycling and composting household waste than in the previous (year 2000) Waste Strategy. The new national targets are at least 40% by 2020, 45% by 2015 and 50% by 2020.
- The Oxfordshire Joint Municipal Waste Strategy includes targets for recycling household waste of: 40% by 2010, 45% by 2015 and 55% by 2020. These are above the national targets. It also aims to recover value from residual waste.

Key issue: Increasing recycling and composting can lead to an overall increase in the amount of waste arising. This will need to be guarded against.

[22] Waste strategy for England, DEFRA May 2007

4.7 Air quality

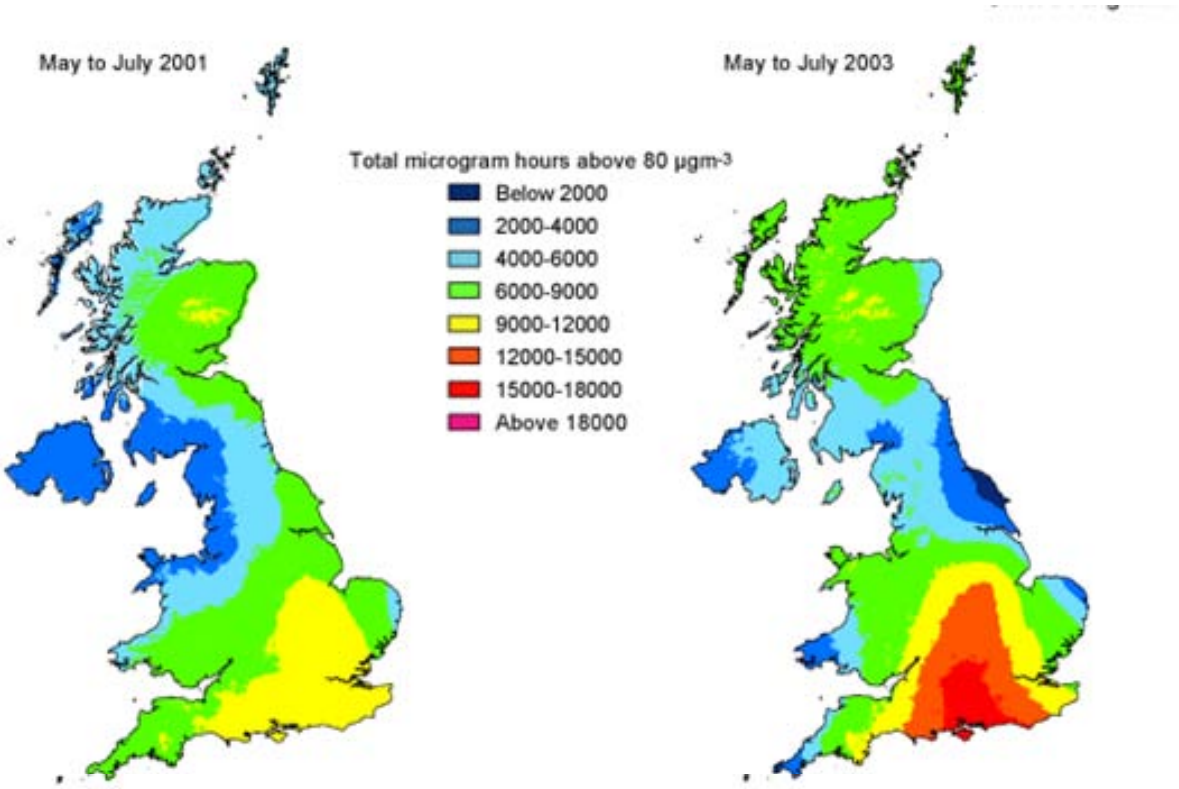
Air quality in Oxfordshire is generally good, but there are two areas of concern: rural ozone and urban nitrogen oxides.

Ozone

Formation of ground-level ozone (a respiratory irritant formed from nitrogen oxides and volatile organic carbons) is greatest in still, hot, sunny weather. The highest summer ozone concentrations in the UK are often recorded at rural sites in South and South East England. This is clearly illustrated in Figure 18, which compares ozone levels in a cooler summer of 2001 with those in the hot, dry summer of 2003. Data recorded at Harwell, part of the national air quality monitoring network, are shown in Appendix 9.2.7.

- The weather conditions likely to lead to high ozone episodes are predicted to increase with a changing climate (see sections 3.3 and 3.4).

Figure 12 Ozone levels during May to July 2001 to 2003 (UK)



Source: Centre for Ecology and Hydrology (CEH), Edinburgh

Nitrogen oxides

There are currently seven locations in Oxfordshire where the district and city councils have found levels of nitrogen oxides (a respiratory irritant) likely to breach the UK air quality strategy objectives.

These areas (in Oxford, Abingdon, Wallingford, Henley, Chipping Norton and Witney) have been declared as local air quality management areas (AQMAs).

All seven are located in built up areas where emissions from traffic lead to elevated concentrations of nitrogen oxides.

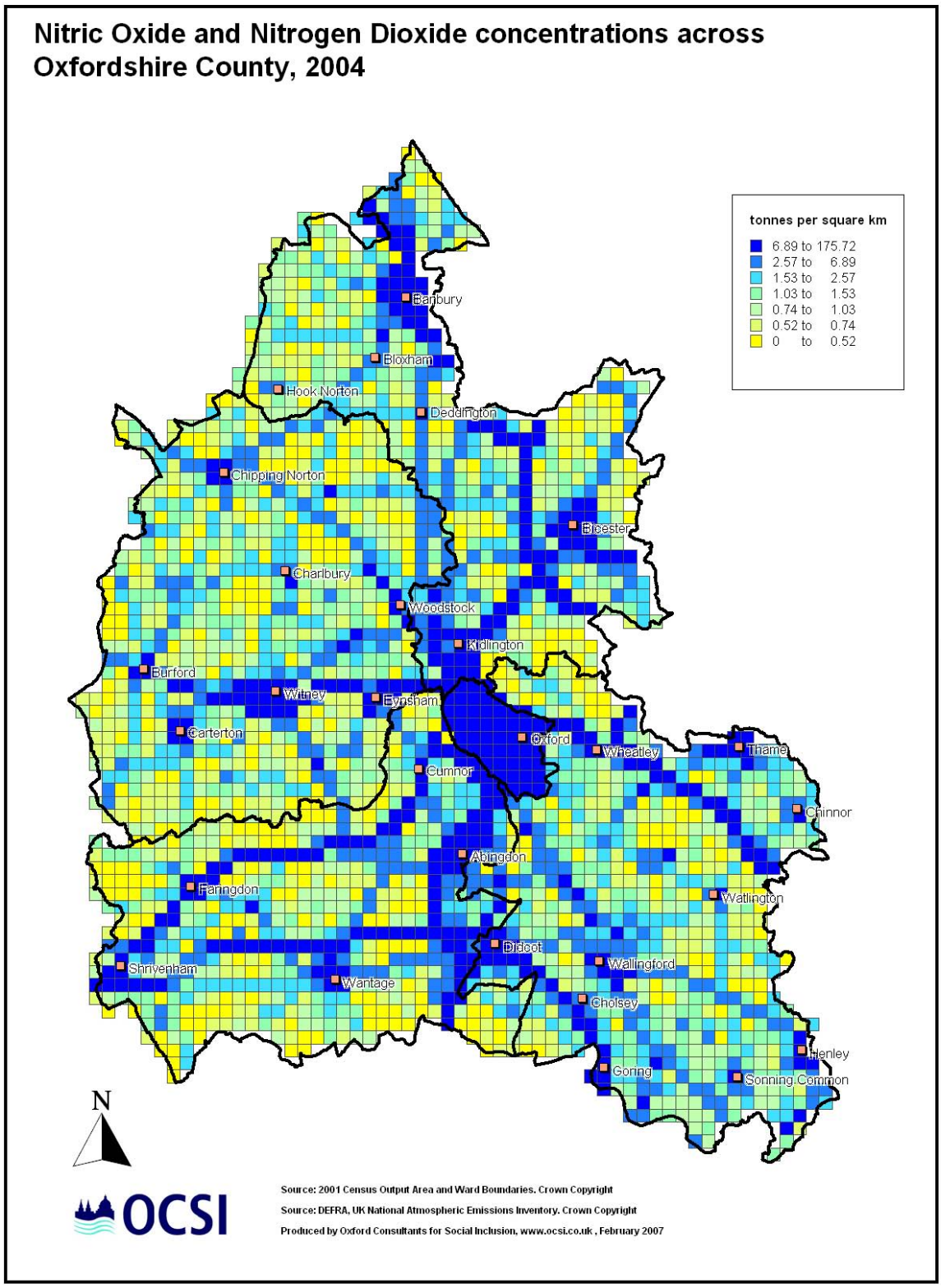
Transport and air quality

The impact of transport on air quality is well-documented, and a series of emissions maps compiled from the National Air Quality Archive clearly show the road network (see following map).

Despite technological improvements and the resulting reduction in exhaust emissions, transport is still a key contributor to poor air quality. Traffic levels in the county are forecast to continue growing: the first Local Transport Plan included a target to halve the projected increase in traffic levels (2% from 2000 to 2015). Whilst traffic growth in the first Plan period was in line with the target, continuing this in the future is likely to become more difficult as planned development in the county is now likely to be considerably greater than envisaged when the prediction was made. (see Theme Paper 10, Access and Travel).

Key issue: air quality issues in Oxfordshire are directly linked to transport and domestic emissions. Poor air quality has health implications and may also impact the economy (making area less appealing, discouraging investment in area & tourism).

Figure 13 Nitric Oxide and Nitrogen Dioxide concentrations (2004)



4.8 Local environmental quality (litter & street cleanliness)

"There is a direct link between the quality of life in communities, and Cleaner, Safer, Greener public spaces. There is a clear continuum from litter to more serious environmental crime. Left unchecked, dirty streets and neighbourhoods affect the perception of the local community, which can lead to anti-social behaviour and eventually serious crime". [23]

Cleaner Safer Greener Communities is about creating quality spaces in which people want to live and can be proud - and which others will respect.

Since 2005, Local Authorities are required to report on the local street and environmental cleanliness (Best Value indicator 199). To complete the indicator, the authorities carry out surveys across their area, grading each sample according to how much litter, detritus, graffiti and flyposting is present (the indicator has sub-sections for each of these). The results for Oxfordshire for 2005-06 are shown in Table 18.

Table 7 Local Street and Environmental Cleanliness, 2005/06

	% samples falling below grade B		
	199(a) (litter and detritus)	199(b) (graffiti)	199(c) (flyposting)
Cherwell	20.7	1	0
Oxford	29	10	9
South Oxfordshire	9	1	0
Vale of White Horse	12	1	0
West Oxfordshire	10	0	2

Grade A = no litter; B= predominantly litter free; C = widespread problem; D= heavy

Source: Audit Commission, 2006

Comparison with the average across the English district councils shows that Cherwell and Oxford both fall in the bottom quartile for 199(a), whilst Oxford is amongst the worst 10 authorities for BVPI 199(c).

Although confirmed figures for 2006/07 were not available at the time of writing, substantial improvements have been made with all BVPI 199 indicators for Oxford City. Its unique environment, demographics and sheer number of visitors give rise to the use of 'family comparators' for the auditing process, where the City is average in its achievement of cleanliness targets and customer satisfaction under BVPI 89.

[23] http://www.defra.gov.uk/environment/localenv/index.htm

5 Heritage

Oxfordshire is internationally renowned as a place of architectural and natural beauty. The importance of the county's heritage and it's role in defining the character of the county is clearly recognised, and policies to preserve and enhance the historic environment are an important component of the Oxfordshire Structure Plan 2016, district local plans and emerging Local Development Frameworks.

Built environment

At the heart of the county is Oxford City. With more than twice the national average of Grade I and Grade II* listed buildings, Oxford includes buildings spanning every major period of British architectural history dating back to the 11th Century. [24]

Across the districts, historic market towns and villages contribute significantly to the special character and identity of the county. Numerous areas of special architectural or historical interest are designated as Conservation Areas, within which tight development control is exerted to maintain and enhance the character of the area. Thousands of buildings in each district are included on the English Heritage Register of Listed Buildings.

Table 8 Designated historic sites in Oxfordshire

	World Heritage Sites	Conservation Areas	Listed Buildings
Cherwell		54	>3000
Oxford		16	1551
South Oxfordshire		71	>3500
Vale of White Horse		52	>2000
West Oxfordshire	1	49	3200

In July 2007 there were 3 listed buildings in Oxfordshire on the English Heritage Buildings at Risk Register.

Archaeology

All known archaeological and historical sites in the county, including data on Oxford City are entered in the Sites and Monuments Record (SMR). The database contains more than 12,300 monuments, more than 1400 events (such as excavations or geophysical survey work) and more than 5800 'finds' or archaeological objects. The SMR contains information from Palaeolithic findspots to Roman Villas, from historic parks and gardens to World War II defensive sites.

[24] Oxford City Council http://www.oxford.gov.uk/planning/enforcement.cfm

Economic success and expanding development puts intense pressure on the fragile historic environment. Over the last decade, the archaeology team at the county council has seen a 36% increase in the number of planning applications and an increase of 156% in archaeological interventions recommended.[25]

Landscape

It is the overall mix of communities, natural environment and land use that come together to make up the character of Oxfordshire's landscape, a 'sense of place'. Three Areas of Outstanding Natural Beauty (AONB) occur in Oxfordshire: the Chilterns; North Wessex Downs; the Cotswolds.

Development, recreation and changing land put pressure on the landscape and the 'sense of place'. Policies within the local plans address this issue and management plans have been produced by each of the AONB authorities, as required under the Countryside and Rights of Way Act, 2000.

A number of issues are common to all three AONB plans:

- maintaining the character of the area, a 'sense of place'
- climate change
- sustainable resource management
- managing water resources (particularly in relation to low flows)
- managing visitor pressure.

Key issues:

- to encourage sympathetic development to maintain and enhance area character and avoid loss of important historic and archaeological resource.
- to maintain the character of the AONBs and the sense of place in the wider countryside.

[25] Oxfordshire County Council

6 Local environmental priorities and the needs of vulnerable people

6.1 Analysis of parish and market town plans

Community-led plans for parishes and towns rely on local volunteers identifying and agreeing shared needs and priorities as a basis for local action. Action points and concerns of direct relevance to the *Environment* theme from 30 completed plans across Oxfordshire are shown below.[26]

***Environment* actions from parish and market town plans**

All but one of the thirty plans made reference to an issue concerning the environment. A large number of issues were raised and they will be considered in five sections:

– the appearance of the settlement and conservation of the built environment,
– wildlife and environmental conservation,
– environmental sustainability (including resource use),
– pollution (including noise and light pollution) ,
– other environmental issues.

Issues concerning building development (unless they specifically mention the 'natural' environment) are dealt with under the Spatial Oxfordshire theme.

Appearance

Thirteen settlements had problems with litter and flyposting and/or aimed to promote general cleanliness and tidiness, and four specifically brought up the problem of dog mess. Seven mentioned the need to preserve or enhance the general appearance of the settlement or protect historic buildings and another eight pinpointed particular areas or buildings that need to be protected. Four actions concerned entering or continuing to enter a competition such as 'Britain in Bloom' or 'Best Kept Village', two involved producing a village or parish design statement and one a building design guide. Three mentioned a conservation area or conservation plan. In addition, three plans were concerned with the possible environmental impact of development and another with maintaining the 'rural character'. Another plan pointed out the detrimental appearance of overhead telephone and electricity wires.

Wildlife

Five plans aimed to involve local people in nature conservation and environmental issues, one of these aiming to set up an environment group. Four plans proposed to protect a particular area such as a local nature reserve and one to maintain a 'rich natural environment'. More specifically, five plans specified actions to plant trees or look after existing trees, two to look after wildlife and biodiversity and one to protect water courses. One settlement aimed to produce a conservation strategy and another to produce an environmental action plan.

Sustainability

The actions proposed under this heading mostly showed concern with the long-term sustainability of the environment. Twelve plans are concerned with waste and recycling. Although a few points related to the convenience of the council's waste collection, there were many actions aimed at encouraging recycling and

[26] This section is an extract from an analysis of 30 community-led plans of parishes and market towns in Oxfordshire prepared by the Countryside & Community Research Unit, University of Gloucestershire (see appendix section 6.1).

reducing waste, additionally two settlements aimed to introduce community composting schemes, and another wanted a separate collection for compostables.

One plan proposed action concerning reducing energy use and two aimed to produce energy sustainably. Additional actions, mentioned once each, were:

– producing a sustainability strategy,
– using environmentally friendly products on parks and gardens,
– buying local to reduce transport,
– water saving.

Pollution

Air pollution and noise pollution were quite frequent concerns, although often specifically associated with traffic. Consequently, these issues will be dealt with below under the 'Access to Services and Travel' theme. Four plans proposed actions concerning the reduction of light pollution; three of these also involved resisting the introduction of street lighting. However, two rural settlements wanted improved street lighting, although one of these also wanted to reduce light pollution. Additionally, there was one complaint about smells.

Other environmental issues

The need to reduce incidences of flooding was mentioned three times. In one case the drains had been unblocked as a result of the plan and this appeared to have helped the flooding problem. Allotments were mentioned twice two plans proposed actions where it was unclear whether they were referring to the built or natural environment, one of these being to establish an environment trust.

Concern for the environment occurred in both market towns and rural settlements, and there were no obvious differences in the issues raised. With regard to the four districts, there appeared to be rather more environmental concerns in South Oxfordshire and the Vale of White Horse, but the numbers are not large enough to make this significant.

Where actions were assigned to a particular actor, this was usually the parish or town council or, less frequently, the district council. The county council and others were mentioned in association with particular issues.

Examples of action proposed in a local plan

Make sure that all villagers are aware of the recycling possibilities in the village. Led by: Launton Lines Committee (The Launton Village Plan, 2005)

The parish will set up a scheme in which people are asked to look after the tidiness of specific areas of the village. Led by: Blewbury Village Society (Blewbury Parish Plan, 2004)

Community-led plans in Oxfordshire: their potential contribution to strategic planning, May 2007 by Gloucestershire University

6.2 Summary of priorities of Oxford Area Action plans

Each of the six Area Committeees in Oxford has developed an Action Plan which sets out the key improvements needed in the area that local people, local groups, the Area Committee and other organisations through working together can bring about. The plans seek to embody local issues and activities and be a catalyst for greater local partnership working. [27]

The following box shows the priorities from the Area Committee Action plans relating to the *Environment* theme.

***Environment* priorities from Oxford Area Action plans (by area)**

Central, South & West

- Tackling city centre air quality
- Promoting sustainable life styles e.g. low carbon buildings
- Flooding – preventative measures and the emergency response
- More effective enforcement/prevention of environmental nuisances e.g. litter, fly posting, dog mess
- Improve the public realm – public spaces, the welcome to the city, pedestrian Improvements etc

Cowley

- Maintaining and improving our built and natural environment especially related to parks, cleanliness of streets and gardens
- Prevention of Flooding in Florence Park area and other parts of Cowley area
- More effective enforcement on environmental issues: litter, dog mess and fly tipping

East

- More effective enforcement action to prevent litter, dog mess and fly tipping and abandoned shopping trolleys
- Promoting sustainable life styles e.g. low carbon buildings
- Seek to develop "homezones" in the area
- Support the improved management of parks, allotments and green spaces in the area
- Maintain a programme of walkabouts to identify environmental problems in the area

North

- Promoting sustainable lifestyles
- Too much dog mess and littering
- General concern about littering but not necessarily convinced that more bins are the answer

North East

- Maintaining and improving our built and natural environment especially related to parks, and streetscene issues

[27] This section is a summary of priorities from Oxford Area Action plans provided by Oxford City Council.

- Effective environmental enforcement on issues e.g. dog mess, litter

South East

- More enforcement to tackle fly tipping, graffiti street cleaning and litter
- Seek to increase investment in parks, play areas, allotments, sports pavilions and green space in the area
- Maintain a programme of "walkabouts" to identify problem areas for action

Priorities from Oxford Area Action plans, Oxford City Council July 2007

6.3 Addressing the needs of vulnerable groups

Vulnerable groups impacted by the environment include:

- elderly (climate change, in particular heat waves, flooding, poor air quality)
- people with respiratory illnesses (air quality)
- children
- people living in fuel poverty (impact of climate change on fuel prices – possible reduced costs in winter, but cooling systems may be needed by elderly in hot summers). The government has set a target of eradicating fuel poverty in vulnerable households by 2010 and by 2018 *'no person in England should have to live in fuel poverty'*[28].

[28] UK Fuel Poverty Strategy, and Energy White Paper, 2007

7 Threats and opportunities for the future

Climate change emerges as a clear and overarching issue, not only from the environment paper, but from most of the other themes covered by the SCS. The following table presents the key threats and opportunities of climate change identified by the SCS theme papers, and in addition, by the UK Climate Impacts Programme for the SCS.

Table 9 Climate change: threats and opportunities

SCS Theme	Implication of climate change	
	Threats	**Opportunities**
Community Life	▪ risk of persistent flooding could lead to changes in the nature of the community eg increase in empty properties, areas acquiring poor reputation or negative equity	▪ raising awareness of community impact on the environment and engaging community interest. Recognising long-term outcomes of climatic changes may help to maintain and support communities. ▪ greater sense of community, eg through community response plans to extreme events, looking after neighbours ▪ improved quality of community life in Oxford and other market towns through increased use of green infrastructure (parks, gardens, greens) to help with summer cooling and sustainable urban drainage
Community Safety	▪ increase in crime associated with hot weather: possible increasing domestic burglary with windows left open for ventilation; more people outside resulting in possible increase in noise and anti-social behaviour problems.	
Children and Young People	▪ school closures due to extreme temperatures ▪ working in hot conditions may have impact on education attainment targets	
Economy	▪ impacts of extreme weather events on businesses ▪ uninsured and under-insured losses and impact on local economy ▪ changes in agriculture	▪ new/changing business opportunities eg through increased tourism ▪ changes in agriculture, eg new crops
Environment	▪ increased pressure on water resources due to hotter, drier summers ▪ loss of biodiversity and changes to habitats ▪ movement of species outwith boundaries of conservation areas ▪ falling yields for some crops ▪ increased frequency of episodes of poor air quality in summer	▪ species migration into county ▪ decreased frequency of episodes of poor air quality in winter ▪ increasing environmental awareness and opportunity for community involvement in environmental projects ▪ reduced emissions from energy use through awareness and demand management

Contd..

SCS Theme	Implication of climate change	
	Threats	**Opportunities**
Health, care and well-being	▪ increased risk to vulnerable groups during hot weather ▪ physical and psychological impact of flooding (trauma/depression) ▪ high temperatures in work place and public buildings	
Housing	▪ affordability of insurance in flood risk areas ▪ effect of flood risk on the supply of housing.	▪ improved quality of life through implementation of sustainable design in new housing
Access to services and travel	▪ impact of extreme weather events on travel patterns and infrastructure	▪ raising awareness and increased chance of behaviour shift leading to more sustainable modes of transport
Recreation		▪ access to high quality outdoor leisure facilities and green spaces
Spatial Oxfordshire	▪ Impact of changing climate on land-use and places, landscape character and biodiversity: impacts on building stock of increased flood-risk, more frequent severe storms, higher temperatures; impact of worse and more frequent droughts on landscape, agriculture and wildlife. ▪ Failure to decouple growth from increasing carbon footprint.	▪ social opportunities in communities as they organise to address climate change and environmental concerns.

Source: SCS briefing papers; UK Climate Impacts Programme

Threats and opportunities associated with resource use and heritage are shown below.

Table 10 Resources and heritage: threats and opportunities

Issue	Threats	Opportunities
Biodiversity	▪ inappropriate or poor agricultural and woodland management ▪ climate change	▪ increasing uptake of agri-environment schemes leading to rebuilding local biodiversity and expansion of BAP habitats ▪ increasing community awareness and involvement with conservation programmes
Use of resources	▪ increasing demand for water ▪ increasing energy demand ▪ increased recycling may lead to an overall increase in the amount of waste arising ▪ increasing demand for building materials	▪ improving water efficiency standards in homes ▪ new building standards and zero carbon homes ▪ community engagement in local energy and waste schemes ▪ improved recycling and composting rates ▪ implementation of the waste strategy leading to a reduction in the amount of waste sent to landfill ▪ increasing use of recycled and secondary materials for construction
Air quality	▪ more frequent summer episodes of poor air quality due to climate change ▪ continuing traffic growth ▪ forecast rise in electricity demand	▪ fewer episodes of poor air quality with warmer winters
Maintaining a sense of place	▪ pressure for development on historic and built environment ▪ loss of archaeological sites	

8 Issues and options for the strategy

Climate Change

The extent of the threats and opportunities highlighted in the previous section show climate change as a central issue for the Sustainable Community Strategy. There are two aspects of dealing with climate change that can be addressed by the SCS: mitigation and adaptation.

1. **Mitigating climate change** (reducing emissions of greenhouse gases) by:
    - Encouraging energy efficiency in existing housing stock
    - Encouraging zero carbon new builds
    - Encouraging community energy schemes and appropriate use of renewable energy sources
    - Encouraging businesses to reduce their carbon footprint, eg with support from the Carbon Trust and Oxfordshire Sustainable Business Partnership.
    - Encouraging the general public to reduce pollution through effective advice and support
    - Reducing the need to travel
    - Encouraging use of local produce and reducing food miles
    - Supporting local projects that protect and enhance biodiversity
    - Encouraging comprehensive, sustainable policies to be incorporated into the Local Development Framework.

2. **Adapting to climate change**:

Work carried out by the UK Climate Impacts Programme and Oxfordshire County Council has shown that the impacts of climate change and the consequent adaptation issues are highly significant for all the themes covered in the SCS briefing papers. Adapting to climate change will also be vital for the sustained effectiveness of high quality and resilient service delivery across the County and partner organisations.

The SCS should consider policies that enable adaptation, for example:

- more efficient use of water resources
- efficient flood defence measures;
- changes in housing stock to cope with changing weather patterns (building programmes to include passive cooling in their design; adequate guttering to cope with heavy downpours);
- promoting the use of community response plans to extreme weather events;
- support for businesses to adapt to threats and benefit from opportunities provided by a changing climate;
- care of vulnerable groups by the community, particularly in extreme weather events;
- provision of accessible good quality cool, shady outdoor spaces in urban areas;
- conserving biodiversity.

The SCS could play a key role in increasing environmental awareness and promoting local community action. Partnership working is identified by UKCIP as a key element in adapting to climate change.[29]

Use of resources

Issues for the Sustainable Community Strategy:

- to reduce waste,
- to reduce energy demand,
- promote energy efficiency and
- encourage more sustainable means of energy production.

Options for the SCS:

- Reduce energy demand by encouraging increasing energy efficiency in homes and businesses as well as supporting more sustainable means of energy production.
- Reduce demand for water and encouraging water use efficiency
- Reduce waste production and promoting more sustainable waste management through:
    - supporting the Oxfordshire Waste Partnership aims of reducing total waste production and increasing recycling. Encouraging community involvement in waste reduction schemes (eg, Community Action Groups)
    - Need for SCS to promote Waste Management Strategy and further encourage development of community and individual action to reduce waste. The Oxfordshire Joint Waste Management Strategy is an excellent example of partnership working and engaging communities – there are currently 19 community action groups in Oxfordshire, involving about 60 core volunteers and many other participants.
- Meet the need for construction minerals without damaging the environment, including increasing the use of recycled and secondary aggregates in place of land-won minerals.
- Improve air quality by reducing need to travel.

Heritage

- Encourage sympathetic development to maintain and enhance area character and avoid loss of important historic and archaeological resource.
- Maintain character of AONBs.

Theme Paper 12, Spatial Oxfordshire, recognises three types of community in the county: Oxford City; other towns; and rural areas. This differentiation applies equally to climate change and other environmental issues which can be addressed by the SCS. The nature of the threat or opportunity will vary with locality and this will need to be reflected in the strategy, for example recognition that in rural areas travel and in particular mode of travel will be a much greater issue than it is in Oxford.

[29] UKCIP, 2007. Identifying adaptation options

9 DATA ANNEX: Oxfordshire's environment

9.1 Evidence for climate change

Figure 14 Global temperature change, 1900 to 2100

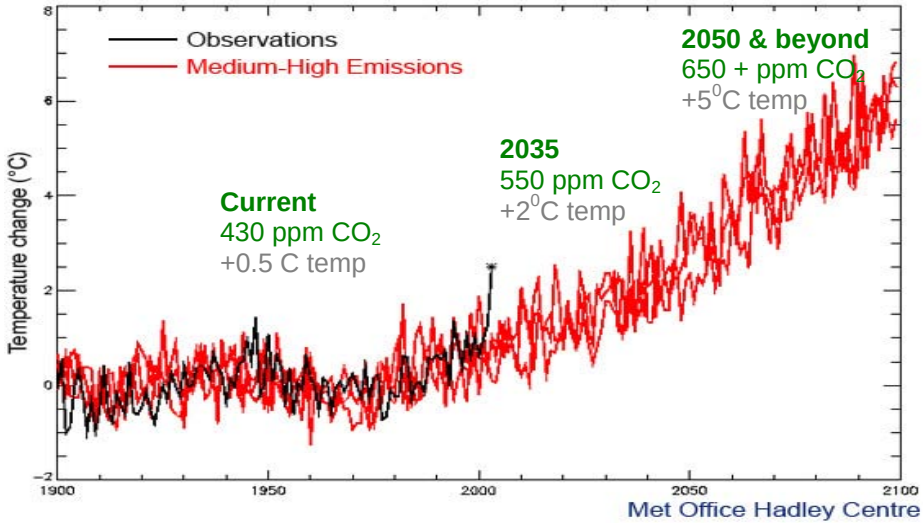


Table 11 Predicted changes in Oxfordshire by 2020 and 2050

Climate Variable	Forecast Change by 2020*	Forecast change by 2050*
Summer Temperature	An increase of between 1.0 °C and 1.5 °C	An increase of between 2.0 °C and 3.5 °C
Winter Temperature	An increase of between 0.5 °C and 1.0 °C	An increase of between 1.0 °C and 2.0 °C
Annual Temperature	An increase of between 0.5 °C and 1.5 °C	An increase of between 1.5 °C and 2.5 °C
Summer Rainfall	A decrease of between 10 % and 20 %	A decrease of between 20 % and 40 %
Winter Rainfall	An increase of between 0 % and 10 %	An increase of between 10 % and 20 %
Annual Rainfall	A decrease of between 0 % and 10 %	A decrease of between 0 % and 10 %

Source: *UKCIP02 "Low" and "High" Emissions Scenarios, from Measuring Progress: Preparing for Climate Change Figures 1.1 and 1.2, using the baseline of 1961-1990.

Table 12 Impact of weather-related events in Oxfordshire

Event	Weather	Business Area	Consequence
Summer 2005	Increased rainfall, increased temperature	Premises	Eastern Bypass flooded twice in 24 hours. Traders complained of huge puddles forming in city centre, flooding St Giles and damaging the cellar of a newsagents.
Summer & Autumn '03/'04 Drought	Decreased rainfall	Logistics	At least 50 roads were "significantly hit" by two extremely dry summers and autumns
Summer 2003 Heatwave	Increased temperature, less wind	People	High levels of ozone in South-East lead to an increased risk of asthma attacks or respiratory problems, particularly in the elderly and people with a history of breathing problems.
Easter 1998 Flood	Increased rainfall	Finance	Environment Agency officials estimate floods caused £12m worth of damage to homes businesses and essential services in Oxfordshire.

Source: OCC, UKCIP local climate impacts programme

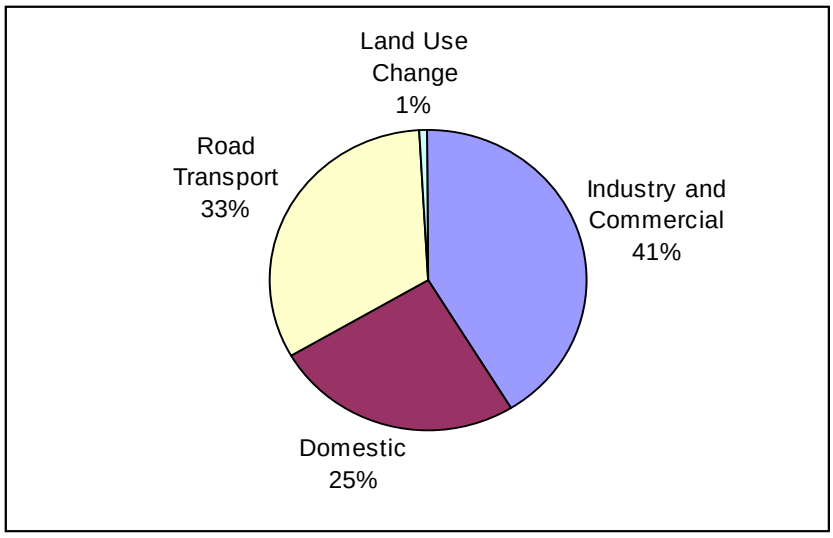
Table 13 Carbon dioxide emissions in Oxfordshire, 2004

	per capita CO_2 emissions, 2004 (tonnes)		CO_2 emissions (kt CO_2) 2004				
	total emissions	domestic emissions	Industry and Commercial	Domestic	Road Transport	Land Use Change	Total
UK Total	9.3	2.6	245107	155140	150471	-1942	**548777**
South East	8.7	2.7	25149	21459	22952	-171	**69389**
Cherwell	17.3	2.8	1,173	372	713	20	**2279**
Oxford	7.3	2.1	479	286	216	1	**982**
South Oxfordshire	11.0	3.4	448	431	537	-5	**1410**
Vale of White Horse	10.3	2.8	391	329	453	18	**1191**
West Oxfordshire	8.9	3.0	259	287	282	22	**850**

Source: Defra, 2006

NB. These figures are classed by Defra as experimental and are indicative only. Emissions can also be assessed using a tool developed by the South East Climate Change Partnership in association with the DTI. Using the tool, domestic emissions in South Oxfordshire were estimated to be between 1.25 and 1.38 million tonnes in 2003. The Defra figures were selected for use in this paper as data is available for all counties, districts, regions and countries for comparative purposes.

Figure 15 Carbon dioxide emissions from key sectors in Oxfordshire, 2004



Source: Defra, 2006

9.2 Evidence for resource use

9.2.1 Energy use

Table 14 Domestic electricity consumption, 2003 to 2005

	Average annual domestic consumption* (kWh)		
	2003	***2004***	**2005**
Great Britain	*4,600*	*4,628*	4,606
South East	*4,953*	*4,930*	4,891
Cherwell	*5,287*	*5,248*	5,396
Oxford	*4,554*	*4,516*	4,489
South Oxfordshire	*5,791*	*5,780*	5,759
Vale of White Horse	*5,301*	*5,280*	5,240
West Oxfordshire	*5,555*	*5,467*	5,377

Source: DTI regional consumption statistics, 2006

NB The electricity statistics are classed as experimental. Due to changes and improvements to methodology, the figures for 2005 are not directly comparable with previous years.

Table 15 Gas consumption statistics

	Average annual gas sales per domestic consumer (kWh)		
	2004	**2005**	**% change 2004-2005**
Great Britain	**19,325**	**19,020**	-1.58
South East	**19,320**	**18,994**	-1.69
Cherwell	18,027	17,806	-1.23
Oxford	18,662	18,314	-1.86
South Oxfordshire	20,397	20,130	-1.31
Vale of White Horse	19,833	19,525	-1.55
West Oxfordshire	20,250	19,837	-2.04

Source: DTI regional consumption statistics, 2006

The revised 2004 data and the new data for 2005 (both released in March 2007) form a new series of gas consumption estimates.

9.2.2 Water resources

Oxfordshire includes five areas for which Catchment Abstraction Management Strategies (CAMS) have been produced by the Environment Agency: Cherwell; Cotswolds; Vale of White Horse; Thame & South Chilterns; and Thames Corridor. Resource availability within each area is assessed from current flows and licensed abstractions.

Figure 16 Water Resource availability in the Cotswolds Catchment Area

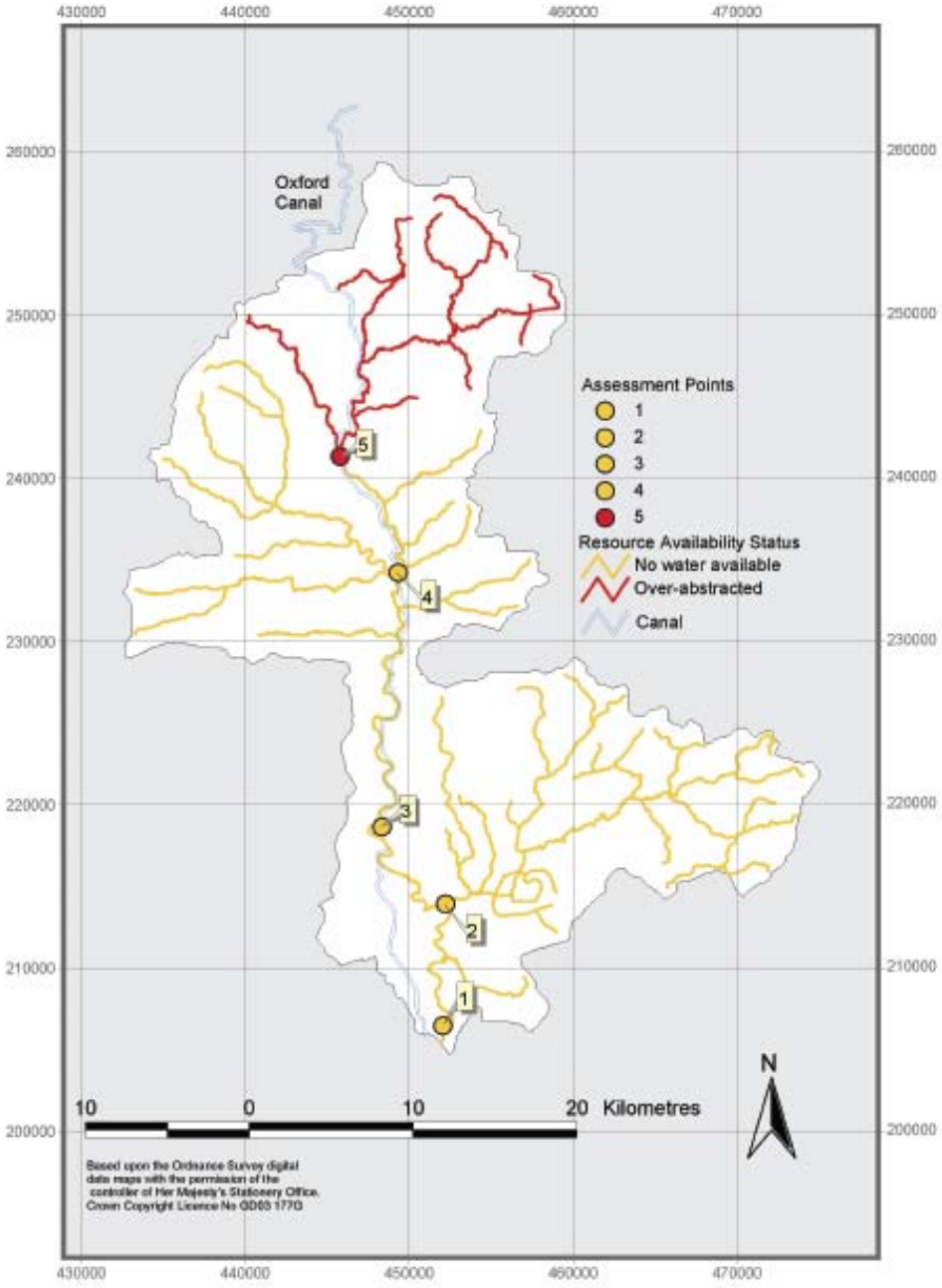
Table 3 Overview of the existing water resource availability and the target water resource availability at low flows for this CAMS

WRMU/GWMU Name	Associated main river	Resource Availability Status				Details of the unit is on page
		Individual WRMU status	Integrated WRMU status[2]	Target status 2014	Target status 2020	
Rivers and unconfined limestone	Glyme, Evenlode, Lower Windrush, Leach, Lower Coln, Thames headwaters	Water available	No water available	No water available	No water available	14
	Upper and Middle, Windrush, Upper Coln, Ampney Brook, Churn	No water available	No water available	No water available	No water available	14
Confined limestone	N/A	No water available	No water available	No water available	No water available	17

Source: Environment Agency, 2007. Cotswolds Catchment Area Management Strategy Consultation Draft, January 2007.

large number of licensed abstractions, including 12 for public water supply

Figure 17 Water resources in the Cherwell Catchment



Source: Environment Agency, Cherwell Catchment Management Strategy, July 2005

- 55% of water abstracted in the Cherwell catchment area is used for public supply.

Table 16 Water resource availability in the Thame and South Chilterns CAMs

Table 2 Overview of existing water resource availability and the target water resource availability at low flows for this CAMS

WRMU Name	Associated main river	Resource Availability Status				Detail of the unit is on page
		Individual WRMU status	Integrated WRMU status[1]	Target status in 2013	Target status in 2019	
WRMU 1 – River Thame and unconfined Chalk	Thame	Water available	No water available	No water available	No water available	15
WRMU 2 – Thame unconfined Chalk and Upper Greensand	Draining to tributaries of the Thame	Over-licensed	Over-licensed	Over-licensed	Over-licensed	17
WRMU 3 – River Wye and unconfined Chalk	Wye	Over-licensed	Over-licensed[2]	Over-licensed	Over-licensed	19
WRMU 4 – Chilterns unconfined Chalk	Draining to the Thames	Water available	No water available	No water available	No water available	21

Source: Thame and South Chiltern Catchment Abstraction Management Strategy. (Final). March 2007

- 60% abstraction used for public water supply

Figure 18 Catchment Management Abstraction areas in the Thames Corridor

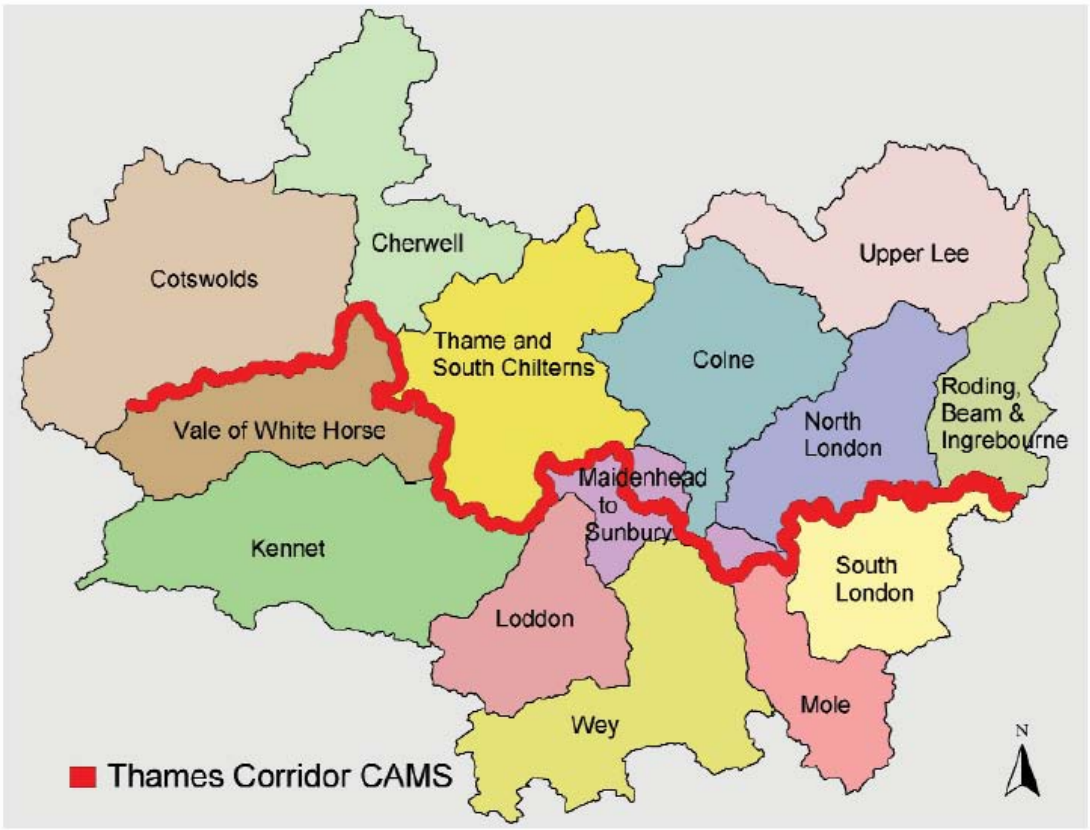


Figure 1 | Thames Corridor CAMS and Tributary CAMS

Environment Agency Thames Corridor Abstraction Management Strategy

Figure 19 Thames Corridor CAMS Water resource availability

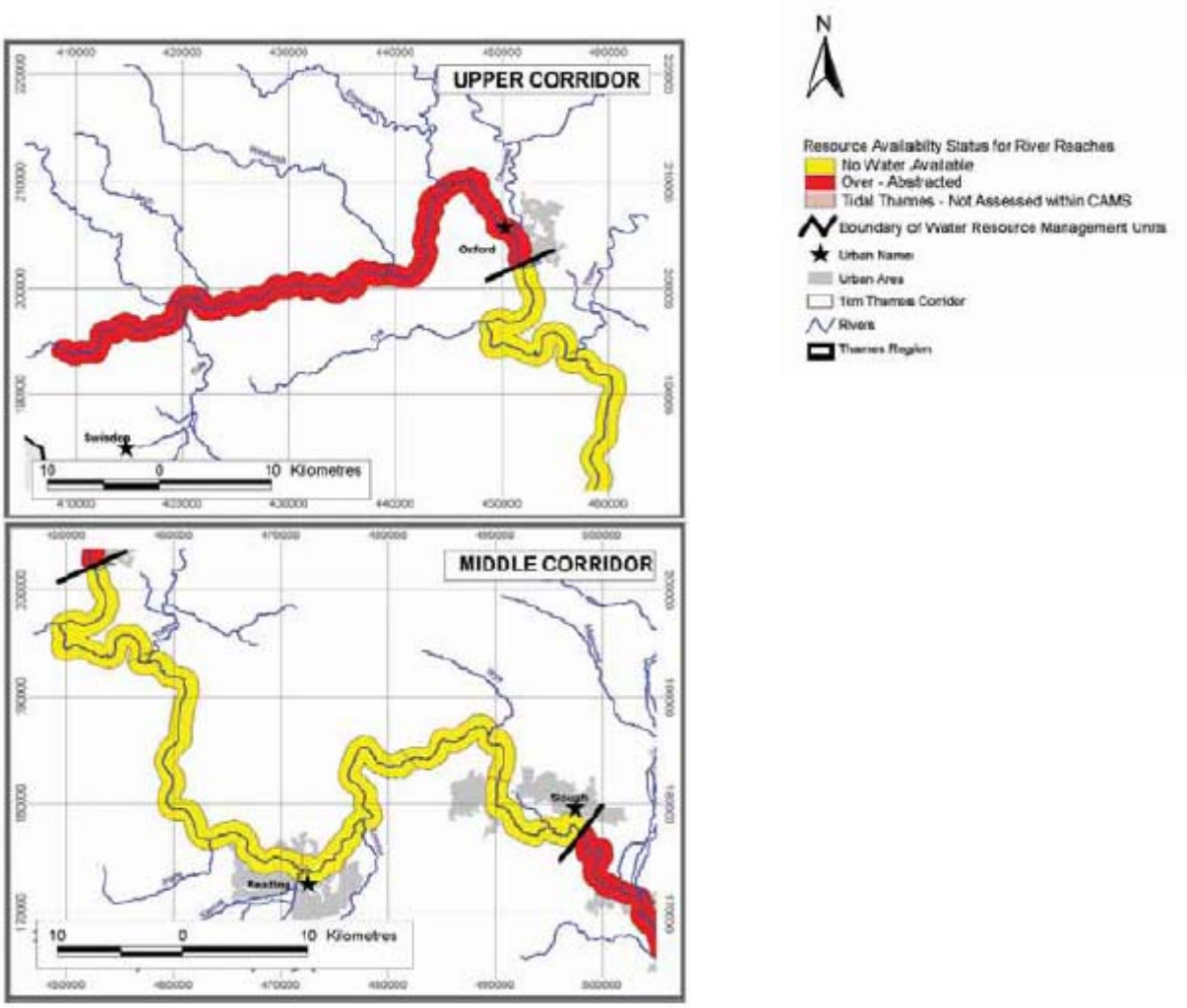


Table 17 Vale of White Horse CAMS Resource availability status

Table 3 Overview of the existing water resource availability and the target water resource availability at low flows for this CAMS

WRMU / GWMU Name	Associated main river	Resource Availability Status				Detail of the unit is on page
		Individual WRMU status	Integrated WRMU status[2]	Target status in 2013	Target status in 2016	
1	Mill Brook	Over-licensed	Over-licensed	'Less' Over-licensed	'Less' Over-licensed	16
2	Rivers Ray, Cole Ock, Ginge Brook, Chalk and Upper Greensand	Water available	No water available	No water available	No water available	18

Source: Vale of White Horse Catchment Abstraction Management Strategy, March 2006.

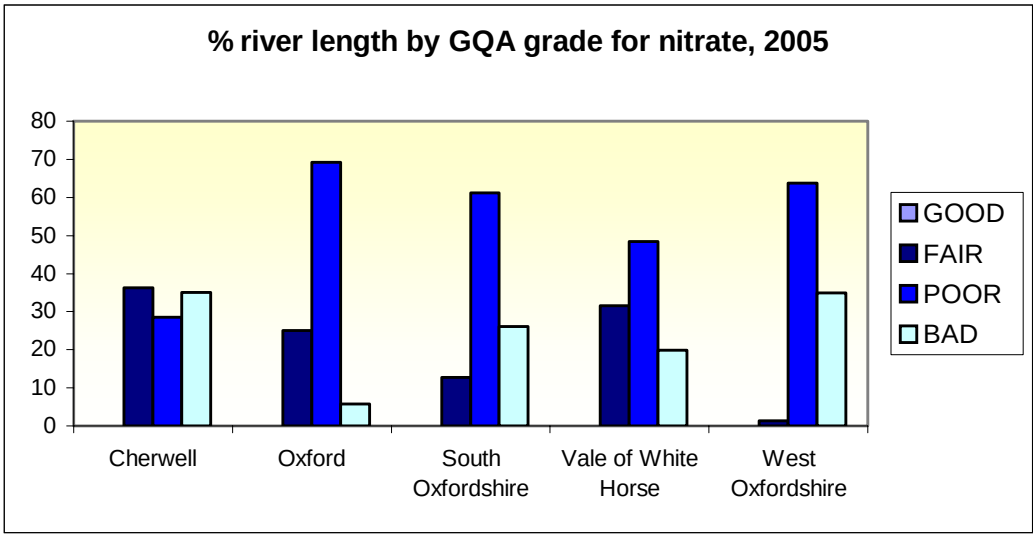
- 47% of water abstracted used for public supply.

Table 18 Household water consumption, 2001-2005

	average household consumption (litres/head/day)				
	2000/01	2001/02	2002/03	2003/04	2004/05
Thames Water	165	159	162	162	157
Industry Average	147	150	150	154	150

Source: Office of Water Services (Ofwat). 'Security of supply, leakage and the efficient use of water 2004 2005 report'

Figure 20 Nutrient status of Oxfordshire rivers - nitrate



Source: Copyright © Environment Agency 2006

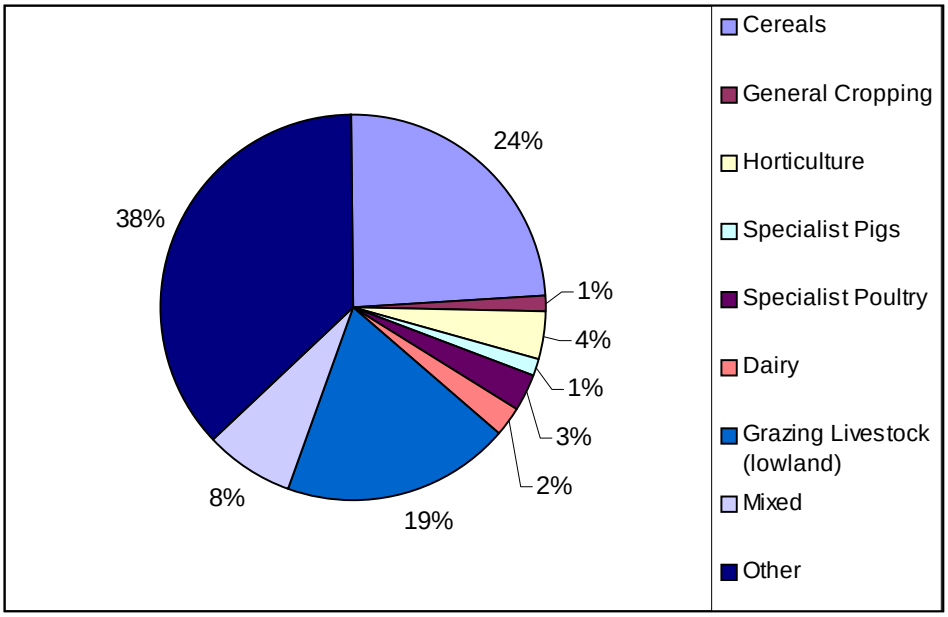
9.2.3 Land Use

Table 19 Agricultural land use in Oxfordshire, 2005

(area in hectares)	Oxfordshire	Cherwell	South Oxfordshire	Vale of White Horse	West Oxfordshire
Crops & bare fallow	106321	23898	25734	26242	30432
Temporary grass	10320	3120	#	2700	2685
Permanent grass	47483	13744	10778	9655	12900
Rough grazing (sole right)	2507	819	#	#	522
Woodland	7337	971	2625	#	2231
Set-aside	18861	3714	4509	#	5898
All other land	4863	847	1340	#	1407

Source: Defra Agricultural Land Use Survey, 2006

Figure 21 Farm types in Oxfordshire, 2005



Source: Agricultural Census, June 2005

Figure 22 Area of crops grown for biofuels in Oxfordshire, 2003 -2007

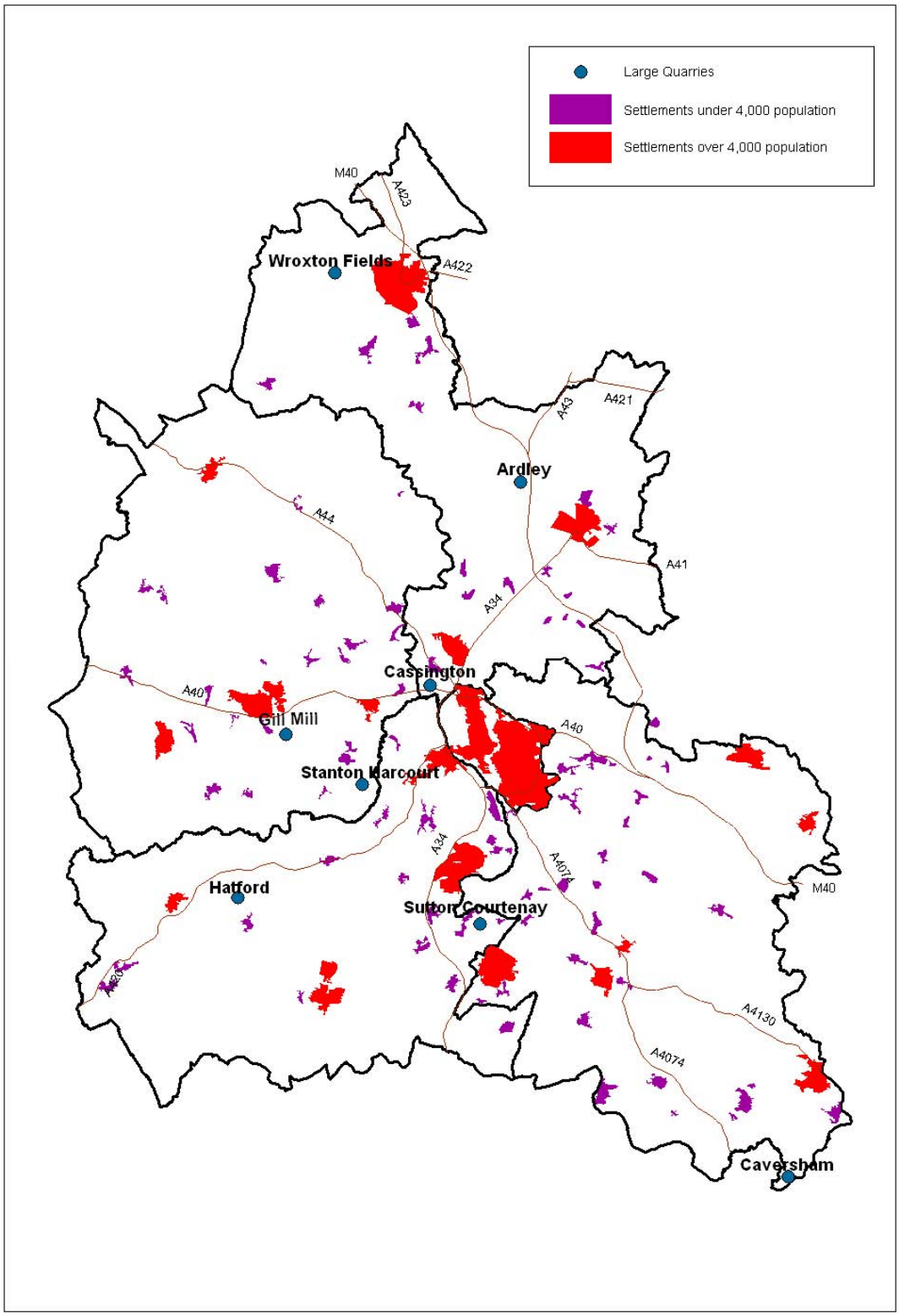
	New areas grown under the Energy Crops Scheme (ha)				
	2003	**2004**	**2005**	**2006**	**2007**
Miscanthus	0.00	0.00	0.00	65.26	1032.76
Short Rotation Coppice	16.95	26.94	5.74	48.65	22.2

Source: Natural England, 2006

Notes:

- the figures in the above table are for new areas given grants under the Energy Crops Scheme. The figures for 2007 are for land under application – not all of this area will necessarily come under agreement and for those who accept an offer of grant aid, some are likely to drop out of the scheme before planting.
- Historically there seems to be quite a high drop-out rate both at the application stage and the agreement stage.
- The current scheme, which ran under the England Rural Development Programme, closed for new applications in July 2006 with a last minute rush of applicants. Nationally there appears to have been a huge surge of interest in energy crops this year. It is suggested that Didcot's renewed interest in biomass may well play a big part in this for holdings in Oxfordshire.

Figure 23 Large minerals sites in Oxfordshire



Source: Oxfordshire County Council

9.2.4 Land Use

Table 20 Dwellings built on previously developed land vs greenfield land

Policy area	Previously developed land						Greenfield land						Total dwellings built
	2001/02	2002/03	2003/04	2004/05	2005/06	Sub total	2001/02	2002/03	2003/04	2004/05	2005/06	Sub total	
Main growth locations													
Oxford	415	246	569	632	*	1,862	24	21	0	1	*	46	1,908
Banbury	36	47	24	76	*	183	53	127	140	203	*	523	706
Bicester	62	8	3	3	*	76	252	182	175	269	*	878	954
Didcot	1	13	19	22	23	78	119	26	0	0	0	145	223
Witney	36	88	42	36	94	296	180	81	207	203	238	909	1,205
Grove	0	9	52	36	11	108	0	0	0	9	6	15	123
Total built in growth areas	**550**	**411**	**709**	**805**	**128**	**2,603**	**628**	**437**	**522**	**685**	**244**	**2,516**	**5,119**
Remaining areas													
Cherwell	72	53	47	109	*	281	58	19	20	18	*	115	396
South Oxfordshire	154	242	114	110	157	777	51	16	39	29	13	148	925
Vale of White Horse	95	104	209	455	572	1,435	46	41	40	245	43	415	1,850
West Oxfordshire	121	102	135	53	194	605	55	178	180	337	203	953	1,558
Total built in remaining areas	**442**	**501**	**505**	**727**	**923**	**3,098**	**210**	**254**	**279**	**629**	**259**	**1,631**	**4,729**
Total dwellings built	**992**	**912**	**1,214**	**1,532**	**1,051**	**5,701**	**838**	**691**	**801**	**1,314**	**503**	**4,147**	**9,848**
% of total dwellings built	***54***	***57***	***60***	***54***	***68***	***58***	***46***	***43***	***40***	***46***	***32***	***42***	***100***

Notes:

(1) Figures for Cherwell District Council for 2001/02 include retrospective completions built between 1996 and 2001

(2) Figures for Vale of White Horse District Council for 2004/05 include retrospective completions built between 2001 and 2005

* Data not available for Oxford and Cherwell at time of compilation

9.2.5 Biodiversity

Table 21 Areas of Oxfordshire designated for their intrinsic environmental value

Designated site	Area in hectares (2006)
Sites of Special Scientific Interest (SSSI)	4402.1
Special Areas of Conservation (SACs)	576.9
County Wildlife Sites	4928.1
Sites of Local Importance for Nature Conservation	202.5
Local Nature Reserves (11 sites)	48.7
Regionally Important Geological or Geomorphological Sites (RIGS) (32 sites plus 12 sites unmapped)	345.9

Source: Thames Valley Environmental Records Centre, 2006

Table 22 Condition of Sites of Special Scientific Interest

(Figures are the percentage land area of SSSI).

	England		South East England		Oxfordshire	
	2005	**2006**	**2005**	**2006**	**2005**	**2006**
Area reaching English Nature target of 100% favourable or unfavourable recovering	68%	70.7%	63%	79%	85.5%	84.2%
Area favourable	45%	45.1%	45%	46.3%	47.8%	48.1%
Area unfavourable declining	12%	9.0%	18%	11.9%	2.6%	2.3%
Area unfavourable no change	20%	18.2%	18%	9.0%	11.9%	13.5%
Area unfavourable recovering	23%	27.6%	18%	32.7%	37.7%	36.1%
Destroyed / part destroyed	0	0.07%	0	0.05%	0	0
% land area assessed this year	NK	NK	NK	NK	26%	19.1%

Source: Thames Valley Environmental Records Centre, 2006

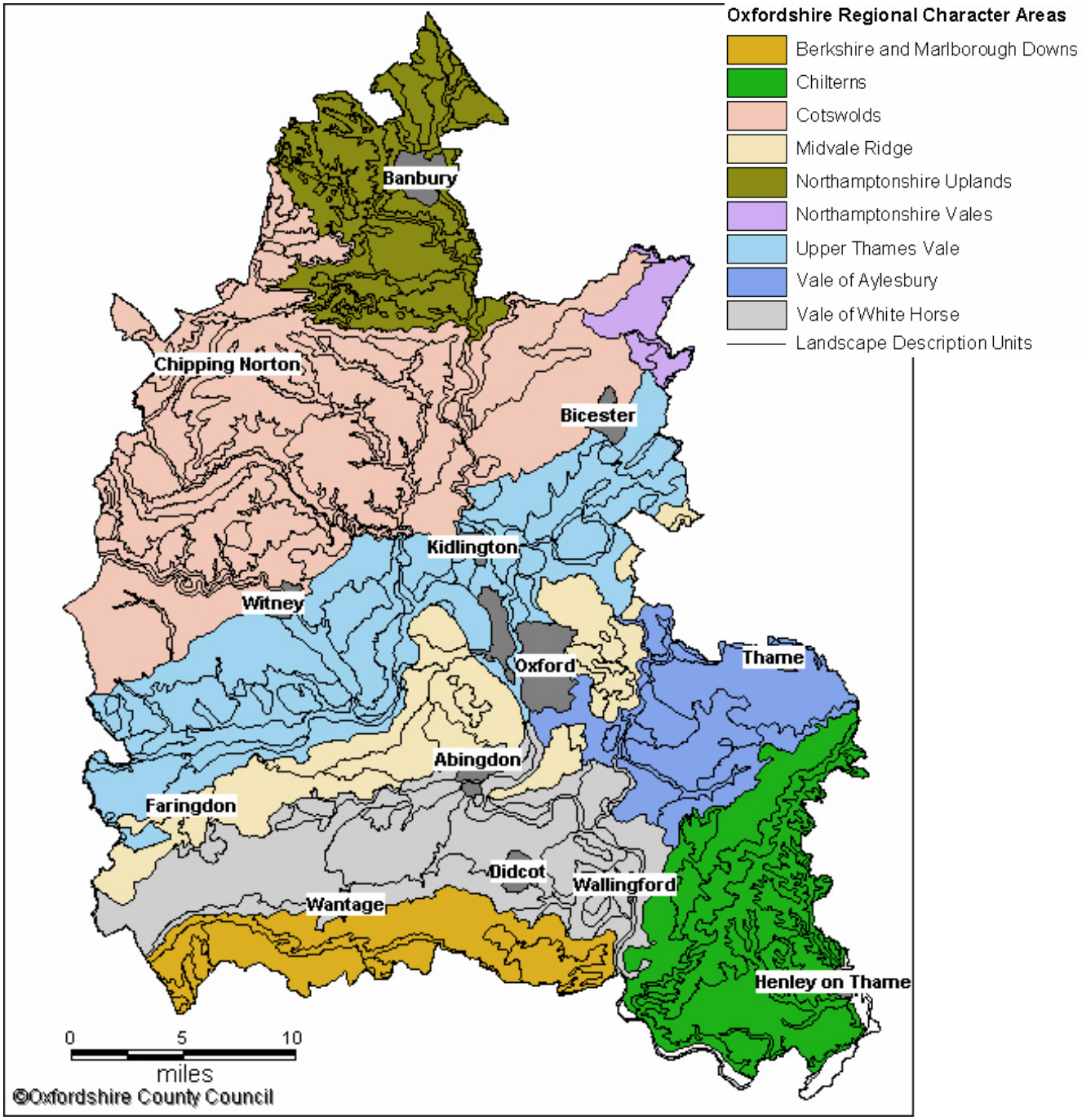
Table 23 UK BAP priority habitats within SSSIs and County Wildlife Sites in Oxfordshire , 2005

UK BAP priority habitat type	Area (hectares) 2005	Regional context	UK context (hectares)
Coastal and floodplain grazing marsh	379.4	No data avail.	300,000
Eutrophic standing water	358.8	No data avail.	1785km^2
Fens	131.8	No data avail.	No data avail.
Lowland beech and yew woodland	567.2	No data avail.	30,000
Lowland calcareous grassland	679.9	No data avail.	<41,000
Lowland dry acid grassland	41.9	No data avail.	<30,000
Lowland heathland	3.0	No data avail.	58,000
Lowland meadows	997.3	No data avail.	15,000
Lowland mixed deciduous woodland	2527.0	No data avail.	No data avail.
Lowland wood pastures and parkland	1148.1	No data avail.	10,000-20,000
Reedbeds	25.9	No data avail.	5,000
Rush pasture and purple moor grass	7.0	No data avail.	56,000
Wet woodland	106.7	No data avail.	50,000-70,000
Total area of BAP priority habitat	6974.0	No data avail.	No data avail.

Source: Thames Valley Environmental Records Centre, 2006.

NB There are no figures available at present for the area of mesotrophic standing water, ancient and/or species rich hedgerows and cereal field margins. Further mapping is planned to complete the survey of UK BAP priority habitat resource in Oxfordshire (TVERC, 2006).

Figure 24 Oxfordshire Regional Character Areas



Source: Oxfordshire Wildlife and Landscape Study

Table 24 Land under agri-environment scheme agreement, Oxfordshire, May 2007

Scheme/s	Number of agreements	Area covered by agreements (hectares)
Organic entry level stewardship/ Higher level stewardship	3	1,006
Organic entry level stewardship	39	6,832
Entry level and higher level stewardship	28	5,446
entry level stewardship	461	86,704

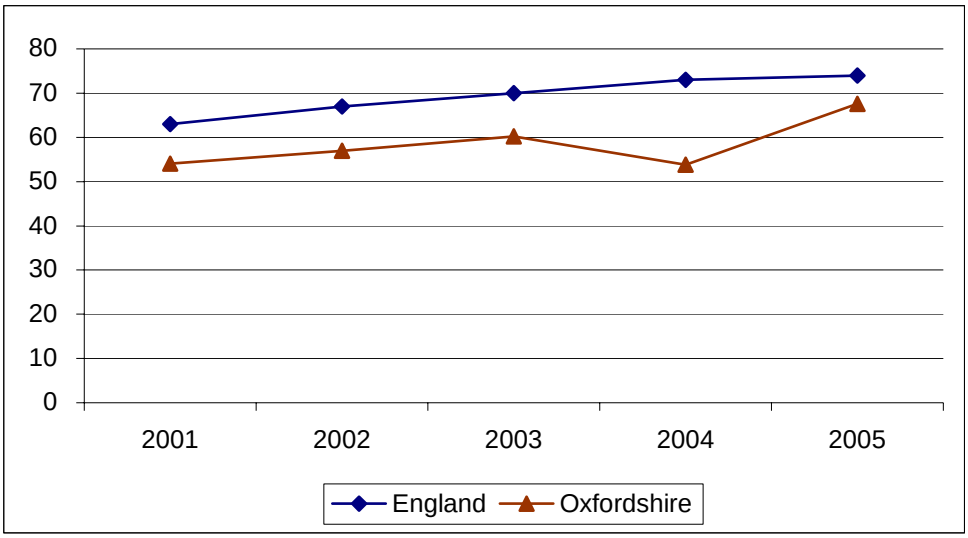
Source: Natural England, June 2007

Oxfordshire total agriculture area: 195,826 Ha

- Figures are accurate to end May 2007, but only include "live agreements" any that are under amendment or awaiting signature by applicant are not included.
- Oxon registered agreements may also include land outside Oxfordshire borders.

9.2.6 Waste collection and recycling data

Figure 25 Percentage of household waste arisings sent to landfill



Source: OCC Waste Management Group

Table 25 Household waste collected

	Household Waste Collected per Head (kg)		
	2003/04	**2004/05**	**2005/06**
England	439.1	444.2	**
Counties	533.5	545.3	**
Oxfordshire	**483.9**	**489.9**	**480.8**
Cherwell	430.3	437.0	436.7
Oxford	333.6	323.7	316.5
South Oxfordshire	381.0	391.0	395.9
Vale of White Horse	358.0	348.0	351.6
West Oxfordshire	397.3	431.8	443.3

Source: 2003/04 and 2004/05, Audit Commission (http://www.audit-commission.gov.uk/performance/dataprovision.asp) 2005/06 Data provided by Oxfordshire County Council Waste Management Group (District figures provisional at time of compilation).

9.2.7 Air quality

Table 46 shows the number of days when ozone levels (a key constituent of photochemical smog) at Harwell have been moderate of high in the past 3 years. The greatest number of days with moderate or high levels occur during hot summers such as 2003.

Table 26 Days with moderate and high ozone levels at Harwell

	2005		2004		2003	
	Number of measure-ments	**Number of days**	**Number of measure-ments**	**Number of days**	**Number of measure-ments**	**Number of days**
Moderate ozone (100 – 179 μgm^{-3})	351	62	163	27	855	90
High ozone (180 – 359 μgm^{-3})		0		0	55	12

Source: National Atmospheric Emissions Inventory (http://www.airquality.co.uk/archive/data_and_statistics_home.php)

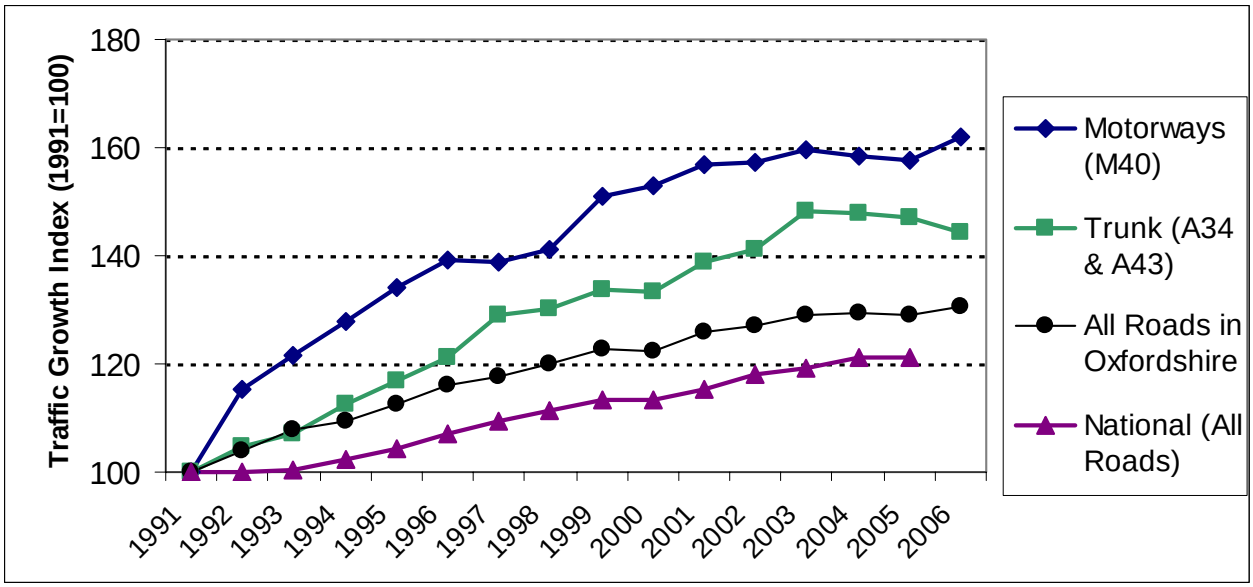
Table 27 Local Air Quality Management Areas

	2006	Pollutant causing problem
Cherwell	0	-
Oxford	2	Nitrogen dioxide
Vale of White Horse	1	Nitrogen dioxide
South Oxfordshire	2	Nitrogen dioxide
West Oxfordshire	2	Nitrogen dioxide

Source:http://www.airquality.co.uk/archive/laqm/laqm.php

Air quality in Oxfordshire is dominated by emissions from transport. Road transport is forecast to continue growing in the coming years.

Figure 26 Traffic growth in Oxfordshire, 1991 to 2006



Source: Oxfordshire County Council Transport planning

9.3 Built environment

Table 28 Grade I and Grade II* Listed Buildings at Risk of Decay

	Total Grade I Buildings#	Grade I at Risk	% of Total Grade I at Risk	Total Grade II* Buildings#	Grade II* at Risk	% of total Grade II* at Risk
Oxfordshire	378	0	0.0	675	2	0.3
Cherwell	39	0	0.0	102	0	0.0
Oxford City	197	0	0.0	67	0	0.0
South Oxfordshire	62	0	0.0	175	2	1.1
Vale of White Horse	41	0	0.0	123	0	0.0
West Oxfordshire	39	0	0.0	208	0	0.0

Source:
English Heritage Buildings At Risk Register, 2006

APPENDIX 2 – Background to work analysing community plans

Parish and market town plans

In May 2007, the Countryside & Community Research Unit at the University of Gloucestershire reviewed and summarised the 30 Oxfordshire parish and market towns plans completed in the past five years (see table below).

Table 29 Parish and town plans analysed

Benson Parish Plan	Goring Village Plan
Blewbury Parish Plan	An Action Plan for Harwell
Brightwell-cum-Sotwell Parish Plan	Henley on Thames Action Plan for Year Three
An Action Plan for Carterton	The Launton Village Plan
Chinnor Parish Plan	Minster Lovell Village Action Plan
Chipping Norton Town Appraisal	Sandford on Thames Parish Plan
The Cholsey Plan	South Hinksey Parish Plan
Crowmarsh Parish Appraisal	Steventon Parish Plan
Dorchester Parish Plan	Tetsworth Village Plan
Dorn Valley Parishes Plan	Thame in Trust: a vision and action plan
Duns Tew Village Plan	Upton Parish Plan
Enstone Action Plan	A Town Plan for Wallingford
Faringdon Action Plan	Suggestions for a Better Watlington
Fencott and Murcott Parish Plan Vision	West Hagbourne Parish Plan
Filkins and Broughton Poggs Parish Plan	Wheatley Parish Plan

Since the total number of plans available for this review was relatively small, any comparisons of the differences between districts or between types of settlements can only be indicative. However they still provide a useful snapshot of issues and perceived priorities of communities in Oxfordshire.

Note that comparisons by district are difficult as a result of the imbalance of plans between the four rural districts, particularly in the case of market towns (see following table).

Table 30 plans considered by district and type of settlement

District	Number of market towns	Number of rural settlements	Total number of plans
Cherwell	0	3	3
South Oxfordshire	7	8	15
Vale of White Horse	1	5	6
West Oxfordshire	2	4	6
Total	10	20	30

Recommendations and more detail on the background to community-led plans are available in the main report "Community-led plans in Oxfordshire: their potential contribution to strategic planning, May 2007" published as part of the Sustainable Community Strategy evidence base (supplementary paper 1).

Oxford Area Action plans

There are six Area Committees in Oxford:

- Central, South and West
- Cowley
- East
- North
- North East
- South East (formerly Iffley Leys)

Each Area Committee is made up of the ward councillors for its Area and, on a non-voting basis, the County Councillors for the Area and the parish councils. Partnerships are being developed with the Police, who are usually present at the Area Committees, and the Oxford City Primary Care Trust.

The Area Committees form part of the City Council's democratic structure and are responsible for the following services in their areas:

- parks, play areas and countryside
- off street car parking
- public toilets
- street cleaning and monitoring of street scene performance
- dog wardens
- abandoned vehicles
- community centres
- planning applications

Each Area has developed an Action Plan the purpose of which is to set out the key improvements needed in the area that local people, local groups, the Area Committee and other organisations through working together can bring about. They seek to embody local issues and activities and be a catalyst for greater local partnership working.

The development of Action Plans in Oxford City has involved substantial consultation with local communities and they are not defined by public sector agencies. In 2004, a survey of all local groups e.g. residents groups was carried out followed by workshops in each of the 6 areas with representatives from residents and tenant groups and community organisations. Overall 76 groups were represented at the workshops. This provided the basis for development of the area plans.

In 2005/06 the area committees facilitated further workshops in each area across the city to discuss priorities in greater detail and possible solutions. These workshops were then followed up with 633 on street interviews (approx 100 in each area). The analysis of the findings has been the basis of refreshing the area plans and the key issues identified for each of the areas and fed into the Sustainable Community Strategy evidence base.

More detail on the priorities from Area Action Plans are available in a supplementary report (2) published as part of the Sustainable Community Strategy evidence base.

APPENDIX 3 - Contribution of the Voluntary Sector

Oxfordshire has a thriving environmental voluntary sector including the Oxfordshire Nature Conservation Forum (ONCF) with its 60 member organisations across the county.

In addition to ONCF there are currently 36 groups registered with the Oxfordshire Network of Voluntary and Community organisations (www.oxnet.org.uk) focused on the environment. Examples of these include:

Climate Outreach Information Network

based in Oxford

Education and innovative action to achieve permenant reductions in domestic greenhouse gases.

Shotover Wildlife

based in Oxford

Volunteer group aiming to maintain the biodiversity of Shotover Country Park SSSI. Species surveying and monitoring. Conservation work. Research. Raising public awareness.

Wolvercote Recycling Group

based in Oxford

Local residents association which aims to encourage the avoidance of waste and promote and co-ordinate recycling and litter control in Wolvercote and district. Newsletter. System of depots to collect wide variety of materials for recycling and fundraising.

Sustainable Wallingford

based in Wallingford

We are a voluntary group promoting sustainability in the Wallingford area including local food, waste management, energy and environmental education.

Trust for Oxfordshire's Environment Ltd

based in Witney

TOE provides grants for environmental and community projects across Oxfordshire through the Landfill Communities Fund. Set up in 1998, TOE works with landfill operators to make landfill tax credits available to make improvements to a wide variety of local amenities and the natural environment.

APPENDIX 4 – References and sources of data

Existing strategies & plans for Oxfordshire's environment

Oxfordshire Structure Plan and local plans. Policies to protect and enhance the built and natural environment are central to the existing Oxfordshire Structure Plan, district council local plans and emerging local development frameworks.

Oxfordshire Structure Plan 2016

Aim1: To protect and enhance the environment and character of Oxfordshire (including biodiversity, landscape and heritage)

Aim 2: To encourage the efficient use of land, energy and resources.

In addition to the local plans, environmental strategies have been prepared by several of the councils, including West Oxfordshire and Cherwell. These strategies include objectives to conserve natural resources, protect and enhance natural areas, adopt energy saving practices and sustainable development.

Programmes to reduce carbon emissions from local authority estate and activities have been adopted by the District Councils and Oxfordshire County Council (Future First).

South East Plan. Once finalised and adopted, the developing South East Plan will replace the Oxfordshire Structure Plan. The Draft South East plan includes cross-cutting policies addressing environmental protection, climate change and sustainable development. It includes targets for reducing carbon dioxide emissions and stabilising and reducing the region's ecological footprint.

Oxfordshire Joint Waste Management Strategy. Produced by the Oxfordshire Waste Partnership, the key policy sets out the vision for sustainable waste management: "we will work in partnership to reduce waste and maximise reuse, recycling and composting. We will treat residual waste before disposal to recover further value and to minimise the environmental impact of disposal".

Oxfordshire's Minerals & Waste Plan, 1996. Current planning policy for minerals and waste is contained in the Oxfordshire Structure Plan 2016 and the Oxfordshire Minerals and Waste Local Plan (adopted 1996). The Minerals and Waste Local Plan is now due for replacement by the Minerals and Waste Development Framework, currently out for consultation.

Local transport plan. The second Local Transport Plan (LTP) covers a five-year period from April 2006 - March 2011. It focuses on five priority areas, including air quality.

Biodiversity Action Plan for Oxfordshire. Originally produced by the Oxfordshire Nature Conservation Forum in 2000, and regularly updated (latest draft, ONCF, 2006).

AONB management plans. Management plans have been prepared for each of the three Areas of Outstanding Natural Beauty (AONBs) with areas in Oxfordshire. These outline the key issues and pressures for each AONB, the management priorities and monitoring programme.

Catchment Abstraction Management Strategies (CAMS). CAMS are six-year plans detailing management of water resources at a local level. The Environment Agency is required to produce these plans under the EU Water Directive, and they need to be taken into account by local authorities when considering planning applications, housing development etc.

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Department of Trade & Industry, May 2007. Meeting the Energy Challenge.

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Environment Agency. Cherwell Catchment Abstraction Management Strategy. Final strategy document, July 2005

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Oxfordshire Nature Conservation Forum, 2006. Biodiversity Action Plan for Oxfordshire

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Oxfordshire Waste Partnership, 2006. No Time to Waste: the Oxfordshire Joint Municipal Waste Management Strategy

Oxfordshire Wildlife and Landscape Study.

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TV Energy, 2004. South East Regional Renewable Energy Production monitoring and targeting. Electricity generating capacity by individual local authority performance comparison: Thames Valley & Surrey sub-region. Discussion paper.

UK Climate Impacts Programme, March 2007. Identifying adaptation options

Other sources of data used

Audit Commission. BVPI Data 2005/06

Beddington Zero Carbon Development. Monitoring statistics

Defra. Agricultural Census

Department for the Environemnt Food and Rural Affairs (Defra). Research & statistics (carbon dioxide emissions)

Department for Trade & Industry. Energy statistics

Environment Agency. General Water Quality Assessment

Oxfordshire County Council. Land Development Planning System

UK Meteorological Office

UK National Air Quality Archive

UK National Atmospheric Emissions Inventory

Organisations

Oxfordshire Data Observatory www.oxfordshireobservatory.info

Environment Agency: http://www.environment-agency.gov.uk/regions/thames/

UK Climate Impacts Programme: http://www.ukcip.org.uk/

Thames Valley Environmental Records Centre: http://www.tverc.org/

Cherwell District Council: http://www.cherwell-dc.gov.uk/

Oxford City Council: http://www.oxford.gov.uk/

South Oxfordshire District Council: http://www.southoxon.gov.uk/ccm/portal/homepage.jsp

Vale of White Horse District Council: http://www.whitehorsedc.gov.uk/

West Oxfordshire District Council: http://www.westoxon.gov.uk/

Oxfordshire Nature Conservation Forum: http://www.oncf.org.uk/

Thames Valley Energy: http://www.tvenergy.org/

Thames Valley Energy Centre: http://www.tvec.org.uk/

Natural England: http://www.naturalengland.org.uk/

English Heritage: http://www.english-heritage.org.uk/server/show/nav.2

APPENDIX 5 – list of briefing papers

	Theme	***Broad content***
	Oxfordshire Futures	Overview of economic, environmental and social trends and issues affecting the long term future of Oxfordshire
THEME PAPERS		
1	Community Life	Active communities, community-led planning, contribution of volunteers
2	Community Safety	Community safety, crime, fear of crime
3	Economy	Employment, income, businesses, change in key industry sectors
4	Children & Young People	Needs of children & young people
5	Learning and skills	Skills for the economy; skills for individuals
6	Environment	Climate change; resources (including waste, water, energy, air quality, countryside, land)
7	Health, care and wellbeing	Lifestyles, older people, long term conditions, vulnerable people
8	Housing	Affordability, housing for vulnerable groups, eco-homes
9	Population and migration	Ageing population, long term and short term migration trends
10	Access to services and travel	Road congestion, accessibility, safer roads, air quality, street environment
11	Recreation, leisure and culture	Participation in culture, sport, leisure activities, internet
12	Spatial Oxfordshire	South East plan, Local Development Frameworks, planning policy; rural, market towns, urban
SUPPLEMENTARY PAPERS		
S1	Community-led plans and their potential contribution to strategic planning	by Gloucestershire University (May 2007) Analysis of the priorities from 30 community-led parish and market town plans completed in past 5 years in Oxfordshire
S2	Priorities from Oxford Area Action plans	by Oxford City Council (July 2007) Priorities from six Oxford City area action plans
S3	Oxfordshire Rural Framework (2007-2010)	by Oxfordshire Rural Forum (July 2007) Challenges and priorities for rural Oxfordshire