

Looking After the Environment

Looking After the Environment

Strategic Objectives

- To protect and enhance Dacorum's distinctive landscape character, open spaces, biological and geological diversity and historic environment.
- To promote the use of renewable resources, protect natural resources and reduce waste.
- To protect people and property from flooding.
- To minimise the effects of pollution on people and the environment.

16. Enhancing the Natural Environment

16.1 The borough's landscape, its appearance, its economy, its habitats and its heritage are a valued asset. The protection and enhancement of its natural environment through prudent investment and careful management is a key local priority.

Protecting and Improving the Landscape

16.2 The majority of Dacorum is within the Chilterns National Landscape Area.¹ Whilst the character of south eastern section has been eroded through 20th century development, much of the remainder is protected by its designation as an Area of Outstanding Natural Beauty (AONB).

16.3 The Chilterns Area of Outstanding Natural Beauty (AONB) is one of the borough's most important landscape assets. It was designated for the natural beauty of its landscape and its natural and cultural heritage. Its special qualities include the steep chalk escarpment with areas of flower-rich downland, woodland, commons, tranquil valleys, the network of ancient routes, villages with their brick and flint houses, chalk streams and a rich historic environment. Its conservation and enhancement is a national priority that will be reflected locally. The Chilterns Conservation Board has a statutory duty to produce a Management Plan, supported by a Delivery Plan. This identifies the management issues faced and provides policies and actions to guide the work of all those who care for the AONB.

¹ The Character of England's Landscape, Wildlife and Cultural Features Map, 2005, Countryside Agency (now part of Natural England)

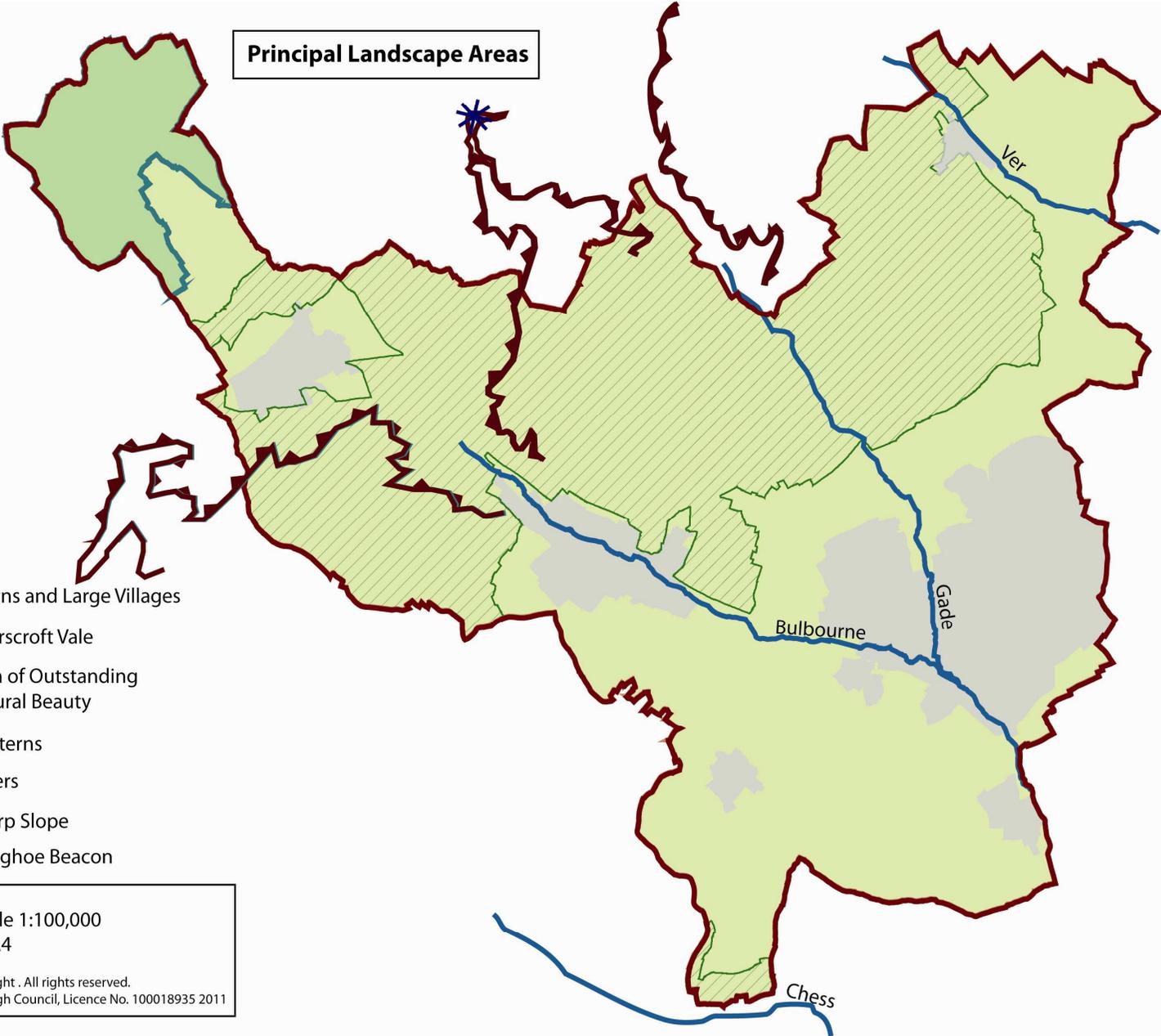
Principal Landscape Areas

Key

- Towns and Large Villages
- Boarscroft Vale
- Area of Outstanding Natural Beauty
- Chilterns
- Rivers
- Scarp Slope
- Ivinghoe Beacon

Scale 1:100,000
@ A4

© Crown Copyright. All rights reserved.
Dacorum Borough Council, Licence No. 100018935 2011



- 16.4 The north western tip of the borough forms part of the Bedfordshire and Cambridgeshire Claylands – an area known locally as Boarscroft Vale. These key landscape types are illustrated on Map 2.
- 16.5 A more detailed landscape assessment for Dacorum divides the borough’s countryside into 30 different landscape character areas. The assessment covers physical influences such as geology and topography, vegetation and wildlife, as well as historical and cultural influences such as the field pattern and settlement form. The character of some areas includes their relative tranquillity and quietness. For each character area, management guidelines have been drawn up based on a condition and sensitivity analysis. Development proposals will be expected to adhere to the guidelines, conserving, restoring or improving the landscape as appropriate. This action will support the prudent management of land and water resources, and benefit ecology.
- 16.6 The borough has extensive areas of surviving high quality historic landscapes. The variety is extremely high, with three of particular rarity in the borough²:
1. coaxial field systems (particularly around Gaddesden Row);
 2. Iron age mining and settlements (beneath the woodlands at Ashridge);
and
 3. deserted Medieval landscapes (Boarscroft Vale).

Some areas, such as the National Trust’s Ashridge Estate are exceptionally well-preserved. Others, such as the vale of Aylesbury and Chiltern dip-slope areas, although altered, still contain many elements of surviving past landscapes of prehistoric Roman, medieval and post-medieval date. There are a large number of commons and parks and gardens of historic interest. Ashridge, Tring Park, Markyatecell Park and the Jellicoe Water Gardens in Hemel Hempstead town centre are listed on the Register of Historic Parks and Gardens. Unregistered parks and gardens are considered to be of significant local interest.

- 16.7 The Hertfordshire Historic Environment Record provides up-to-date information on all of the county’s historic buildings, archaeological remains and historic sites, together with surveys, reports and aerial photographs to help identify both their physical scale and relative importance.

² The Hertfordshire Historic Landscape Character Assessment, which zones land according to its historic character and the likelihood that a particular area will contain historic landscape features – County Council

16.8 The approach to conserving the area's built historic heritage is set out in more detail in section 17.

Green Infrastructure

16.9 'Green Infrastructure' sits within the urban and rural landscape. It is a network of protected sites, nature reserves, habitats, green spaces, waterways and green linkages that crosses the whole area.

16.10 It brings a range of benefits: acting as natural 'air conditioning,' assisting with pollution control and flood management, improving the health and well-being of residents by providing space for leisure activities, reinforcing the character and identity of places, helping support renewable energy production, as well as having a positive impact upon social interaction and property prices.

16.11 Green infrastructure provides a setting for the borough's towns and villages, threading through and connecting them to the wider countryside. It contributes to the character of the area, helping to give Dacorum its strong sense of place and high quality environment, and is particularly important on the urban fringe, where it helps to soften the transition between urban and rural landscapes.

16.12 As a 'life support system' for both people and the wider environment it is vital that the quality and integrity of the borough's green infrastructure network is maintained and improved at all spatial scales, from sustainably designed buildings and gardens and trees, to wildlife corridors, open land within settlements and to the wider pattern of habitats and open space that feature throughout the countryside.

16.13 The high level green infrastructure network for Dacorum (Map 3) includes key landscape features, strategic wildlife corridors and areas of high biodiversity - resources which should be cherished, protected, enhanced and extended. They provide the context for local detailing and finer grained networks, in particular:

- the more detailed borough-wide Green Infrastructure Strategy; and
- the settlement strategies in Chapters 20-26.

16.14 The Green Infrastructure Strategy and associated Action Plan will show habitat management zones for chalk grassland, woodland and farmland and their connection with the key biodiversity areas. It will contain policies for conserving and extending the network. Key projects will focus on enhancement of the river valleys and associated wetlands, enhancement of the Grand Union Canal, enhancement of the Tring Park, Aldbury Nowers and Ashridge areas, links to commons and rural villages and the enhancement and better use of spaces in Hemel Hempstead. It will

also raise understanding and awareness of the green infrastructure network in the borough and outside, and will inform the Infrastructure Delivery Plan.

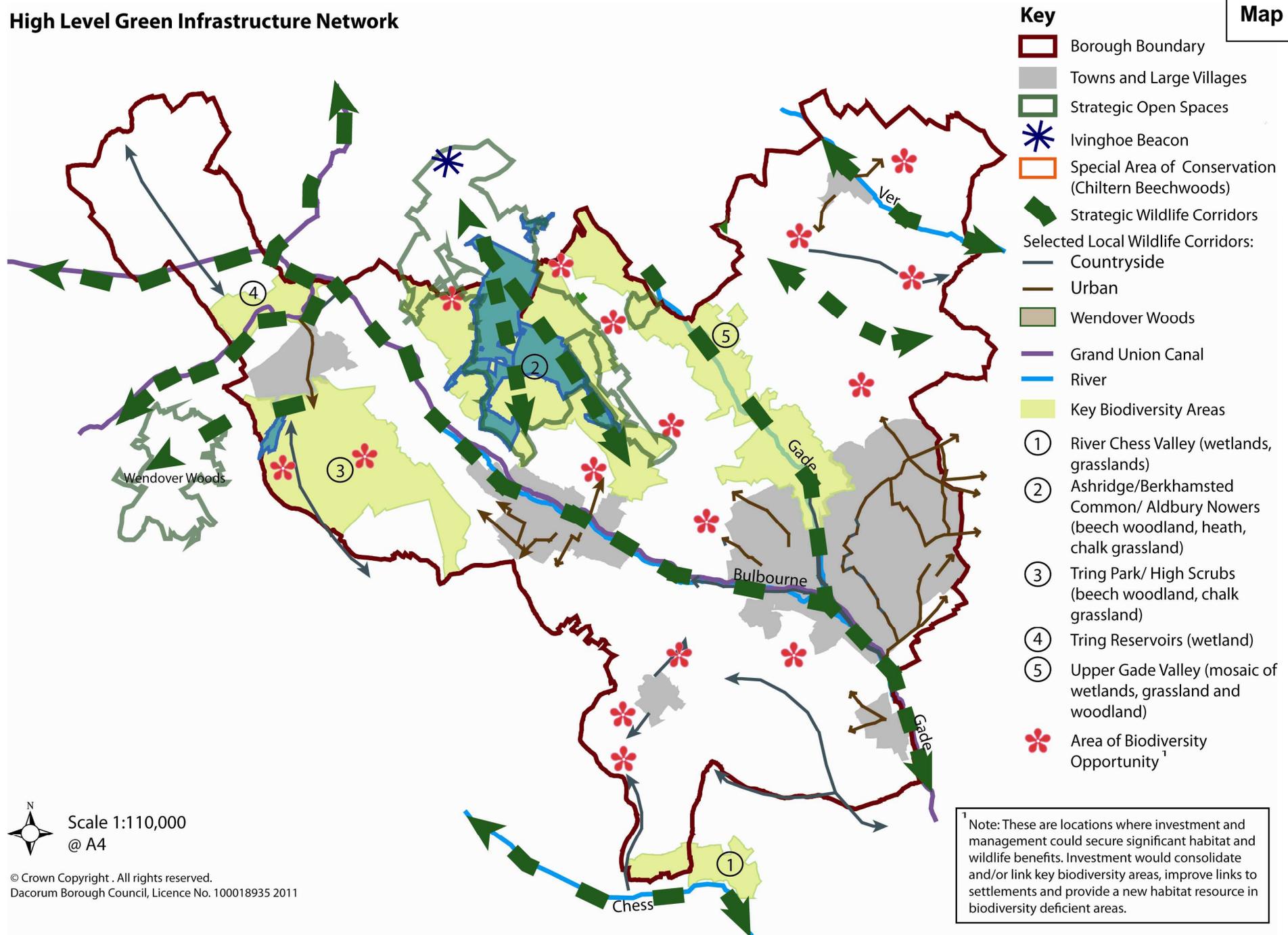
16.15 The vision diagram for each settlement identifies local wildlife corridors and areas of open land that are of particular importance to that town or large village, and which should be protected from development.

16.16 Policy on green infrastructure derives from a number of studies and strategies³. The overall aim is to ensure that environmental assets are protected and enhanced, that opportunities are found to extend and link them together, and that access is provided.

³ The Urban Nature Conservation Study, the Hertfordshire Biodiversity Action Plan, the Green Space Strategy, Appropriate Assessment, Open Space Study and Dacorum Green Infrastructure Plan.

High Level Green Infrastructure Network

Map 3



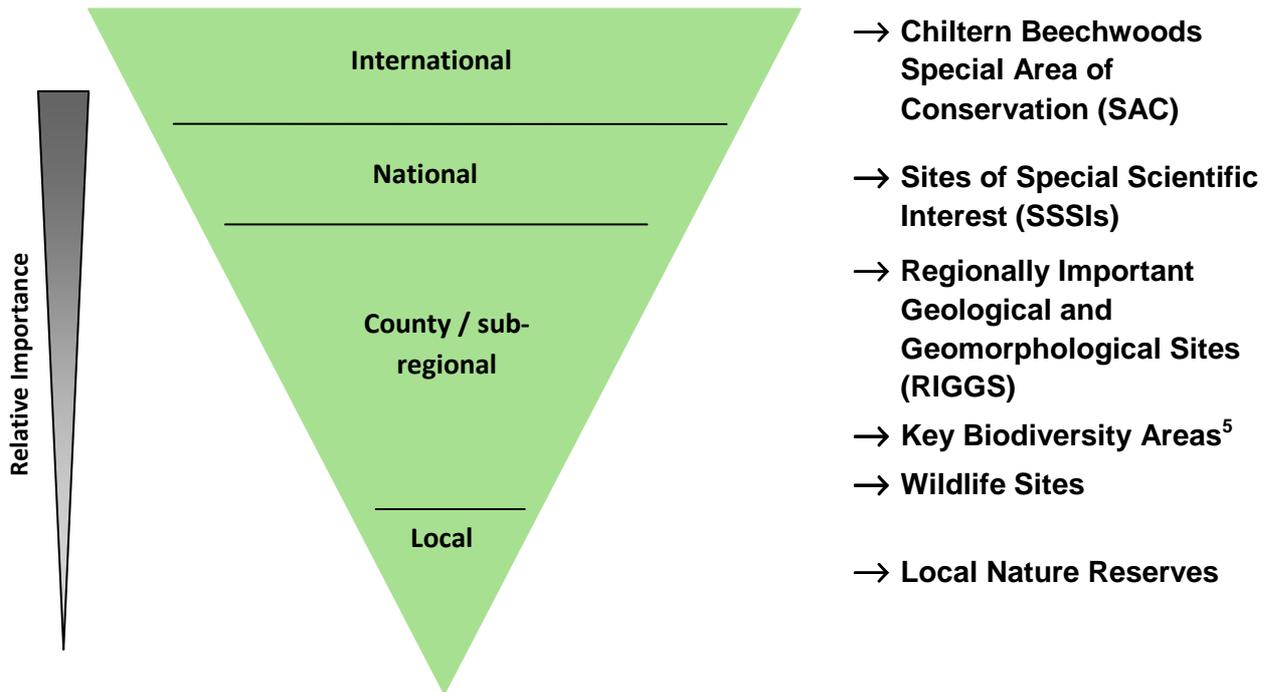
Scale 1:110,000
@ A4

© Crown Copyright . All rights reserved.
Dacorum Borough Council, Licence No. 100018935 2011

Biodiversity and Geological Conservation

16.17 Biodiversity and geological resources are a key component of green infrastructure. Their protection varies according to their relative importance (see Figure 15), the highest being international importance.

Figure 15: Biodiversity and Geology Designations



16.18 The Habitat Survey for Dacorum⁴ identified over 200 Wildlife Sites, some of which overlap with higher designations. This list is updated annually by the Hertfordshire Wildlife Sites Partnership, when new sites are identified or existing sites lose their nature conservation value.

16.19 Not all areas of importance to biodiversity are protected by formal designations. Features such as the Grand Union Canal, river valleys, chalk streams, areas of ancient semi-natural woodland, orchards, nature reserves, important trees and hedges and other local green spaces within towns and villages are collectively very significant and need protection. Opportunities will be taken to create new greenspace, designate new Local Nature Reserves (LNRs) to meet the local accessibility standards set by Natural England and support countryside management initiatives. Management of the water resource and restoration of seasonal flows in the chalk streams will be critical.

⁴ Hertfordshire Habitats Survey and Reports, 1994-1998, Herts and Middlesex Wildlife Trust and the Hertfordshire Biological Records Centre.

- 16.20 The increasing fragmentation of habitats will be addressed. Many areas have become isolated 'islands,' increasingly vulnerable to extreme weather conditions, disease and climate change. Habitat fragmentation is greatest in the southern and eastern parts of the borough.
- 16.21 Key Biodiversity Areas⁵ are identified on Map 3. They contain particularly high concentrations of either woodland, wetland, grassland or a broader mosaic of habitats and have the greatest potential for joining fragments of habitats and creating, restoring and managing large areas of quality habitat.
- 16.22 The Sustainability Offset Fund (Policy CS30) will help provide additional tree and woodland planting, to extend and supplement existing green corridors and to reinforce existing landscape belts. The biodiversity value of new landscaping and open space will be increased through careful design and the use of appropriate native species.
- 16.23 The Hertfordshire Biodiversity Action Plan sets targets for biodiversity within the County and the Chilterns Conservation Board's Management Plan includes biodiversity targets that specifically relate to land within the Chilterns Area of Outstanding Natural Beauty. The Council supports the monitoring of these targets and will promote the sharing of monitoring information.
- 16.24 Geological conservation has been less researched. The two Regionally Important Geological and Geomorphological (RIGGs) sites within the borough - pingos on Boxmoor and puddingstone boulders at Castle Hill, Berkhamsted – will be added to in the light of further information.

⁵ Defined by the Herts and Middlesex Wildlife Trust and included within the Hertfordshire Biodiversity Action Plan.

Policy CS24: The Chilterns Area of Outstanding Natural Beauty

The special qualities of the Chilterns Area of Outstanding Natural Beauty will be conserved.

The scarp slope will be protected from development that would have a negative impact upon its skyline.

Development will have regard to the policies and actions set out in the Chilterns Conservation Board's Management Plan and support the principles set out within the Chilterns Buildings Design Guide and associated technical notes.

Policy CS25: Landscape Character

All development will help conserve and enhance Dacorum's natural and historic landscape.

Proposals will be assessed for their impact on landscape features to ensure that they conserve or improve the prevailing landscape quality, character and condition and take full account of the Dacorum Landscape Character Assessment, Historic Landscape Characterisation and advice contained within the Hertfordshire Historic Environment Record.

Policy CS26: Green Infrastructure

The Green Infrastructure Network will be protected, extended and enhanced. Habitat management zones, projects and more detailed policies will be set out in a Supplementary Planning Document and related Action Plan(s).

National and local Biodiversity Action Plans will be supported. Designated sites will be protected and opportunities taken to link them with the wider Green Infrastructure Network.

Development and management action will contribute towards:

- **the conservation and restoration of habitats and species;**
- **the strengthening of biodiversity corridors;**
- **the creation of better public access and links through green space; and**
- **a greater range of uses in urban green spaces.**

Open spaces will be managed in accordance with the Council's Green Space Strategy.

Monitoring:

Indicator(s)	Target(s)
Change in areas of recognised wildlife habitat importance	No net loss
Management of designated Wildlife Sites	Increase the proportion of local sites where positive conservation management has been, or is being, implemented
Loss of designated Open Land	0 hectares
Development within the Chilterns Area of Outstanding Natural Beauty.	-

Delivery will be achieved through planning and land management, by:

- identification of development sites and their requirements within the Site Allocations DPD and East Hemel Hempstead AAP;
- the Development Management DPD and supplementary planning documents;
- the use of the Landscape Character Assessments (including historic characterisation);
- implementation of the Green Infrastructure and Green Space Strategies and Biodiversity Action Plan objectives;

- adherence to the Chilterns Building Design Guide and associated technical notes;
- implementation of the Management Plan for the Chilterns Area of Outstanding Natural Beauty and associated guidance;
- partnership working with national and local conservation organisations such as the Chilterns Conservation Board, Herts and Middlesex Wildlife Trust, Hertfordshire Biological Records Centre and the Hertfordshire Countryside Management Service;
- supporting measures which develop sound food and woodland economies and help maintain the countryside (e.g. farmers markets);
- encouraging the take up of agri-environment grants through partners; and
- implementation and monitoring of the Infrastructure Delivery Plan (IDP).

17. Conserving the Historic Environment

- 17.1 The borough's historic environment is diverse. It includes the market towns of Berkhamsted and Tring, the planned urban form of Hemel Hempstead New Town, villages and hamlets, the remains of Roman villas and settlement, the motte and bailey castle at Berkhamsted, historic parks and gardens (for example at Ashridge and Markyate Cell), Grim's Ditch, the Grand Union Canal and historic landscapes (see paragraph 16.6).
- 17.2 There are national and local designations to protect the historic environment, but there are also undesignated heritage assets which merit conservation. National designations comprise listed buildings, scheduled ancient monuments and registered parks and gardens. Local designations comprise conservation areas, locally listed buildings and areas of archaeological significance. Undesignated heritage assets include historic buildings, gardens, townscape and landscape, and areas of potential archaeological interest.
- 17.3 Historic features add tradition, continuity and character to a place, as well as being an asset for the economy, the environment and the wider community. People gain enjoyment from visiting memorable places. There are education and community benefits from rediscovering our heritage and crafts, like the heritage of the paper making industry in Apsley. There are significant benefits to the environment through the reuse of historic buildings. The promotion of cultural heritage and tourism, associated with historic places, is a driver of economic development. Higher land values are invariably linked with such design excellence.
- 17.4 The quality of the historic environment is sensitive to change from development and people and even the climate. Changes in economic and social conditions, as well as technological developments, can also mean that the original purpose for which the buildings were designed is outdated and adaptation may be needed. Increasing economic pressures have also resulted in higher numbers of buildings becoming 'redundant.' This is often the case with agricultural and industrial buildings, places of worship and public houses, with a trend towards seeking higher value alternative uses such as housing. Climate change has resulted in more incidents of high winds and heavy rainfall which can have a detrimental impact on the fabric of buildings. Renewable energy installations can also affect the appearance of a building and its setting.
- 17.5 High quality design and proper maintenance can prevent the loss of original character in buildings. Conservation of buildings to alternative uses can extend the life of buildings and is preferable to demolition. Infilling and replacement with new

characterless buildings and public realm should be avoided. This applies to both designated and undesignated historic assets.

- 17.6 The Council needs to re-evaluate its historic assets. This is a continual process and includes a programme of Conservation Area Appraisals and a Heritage at Risk Review.
- 17.7 Conservation Area Appraisals will analyse the character and appearance of each Conservation Area and identify any negative features or issues that could be addressed through development. Boundaries of Conservation Areas will be reviewed. The 'Heritage at Risk' review will identify vulnerable historic assets: the Council will act to ensure their protection, using enforcement action, Article 4 Directions, building preservation and urgent work notices, spot listing and applications for funding.

Policy CS27: Quality of the Historic Environment

All development will favour the conservation of historic assets.

The integrity, setting and distinctiveness of designated and undesignated heritage assets will be protected, conserved and if appropriate enhanced.

Development will positively conserve and enhance the appearance and character of conservation areas. Negative features and problems identified in conservation area appraisals will be ameliorated or removed.

Features of known or potential archaeological interest will be surveyed, recorded and wherever possible retained.

Supplementary planning documents will provide further guidance.

Monitoring:

Indicator(s)	Target(s)
Number of listed buildings	-
Number of buildings on the local list	-
Proportion of conservation areas with up-to-date appraisals	100%
Number of buildings on the at risk register	0 buildings lost

Delivery will be achieved by:

- the Development Management DPD;
- having regard to Conservation Area Appraisals;
- developing the Historic Environment SPD;
- developing the Urban Design SPD;
- partnership working with the Archaeology team at the County Council; and
- reviewing and maintaining inventories of historic assets.

18. Using Resources Efficiently

18.1 In providing for new homes, jobs and infrastructure, local planning policies can help shape and design places with lower carbon emissions and renewable energy technologies, which are ‘future-proofed⁶’ from the effects of climate change. ‘Future proofing’ development includes: minimising the use of natural resources; reducing water run-off from hard surfaces and managing flood risk areas; generating less waste from development; and managing pollution. The benefits of reducing carbon emissions, and mitigating against and adapting the built environment for climate change include:

- reduced heating and electricity bills due to better insulation and efficient appliances;
- less reliance on fossil fuels;
- support for the local economy by increased use of locally sourced sustainable materials;
- reduced water consumption;
- ‘greening’ the built environment by biodiversity enhancements;
- reduced ‘heat stress⁷’ in urban environments; and
- an improved quality of life and feeling of well-being.

18.2 Key legislative and statutory directives aim to reduce CO₂ emissions globally by at least 50% by 2050. In the UK, this is being driven by the Climate Change Act (2008), which has committed the Government to reducing CO₂ emissions by 26% by 2020, and an 80% reduction in all greenhouse gas emissions by 2050 (both from a 1990 baseline).

18.3 Apart from national mandatory standards, currently provided by the Code for Sustainable Homes, there will be similar mandatory standards for all other building types. Further changes are also expected to update the evolving national policy context, including amendments to Building Regulations to further tighten standards.

18.4 The Council’s approach is to encourage new development to be located and designed to optimise its carbon performance and support the supply of decentralised, renewable and low carbon energy sources. The Regional Spatial Strategy sets a target of generating 10% of the region’s energy from renewable sources by 2010 and 17% by 2020 (excluding offshore wind). To help cut water

⁶ ‘future-proofed’ – protecting for the future

⁷ ‘heat stress’ - an increase in air temperature from the absorption and retention of heat by hard and dark surfaces in urban environments

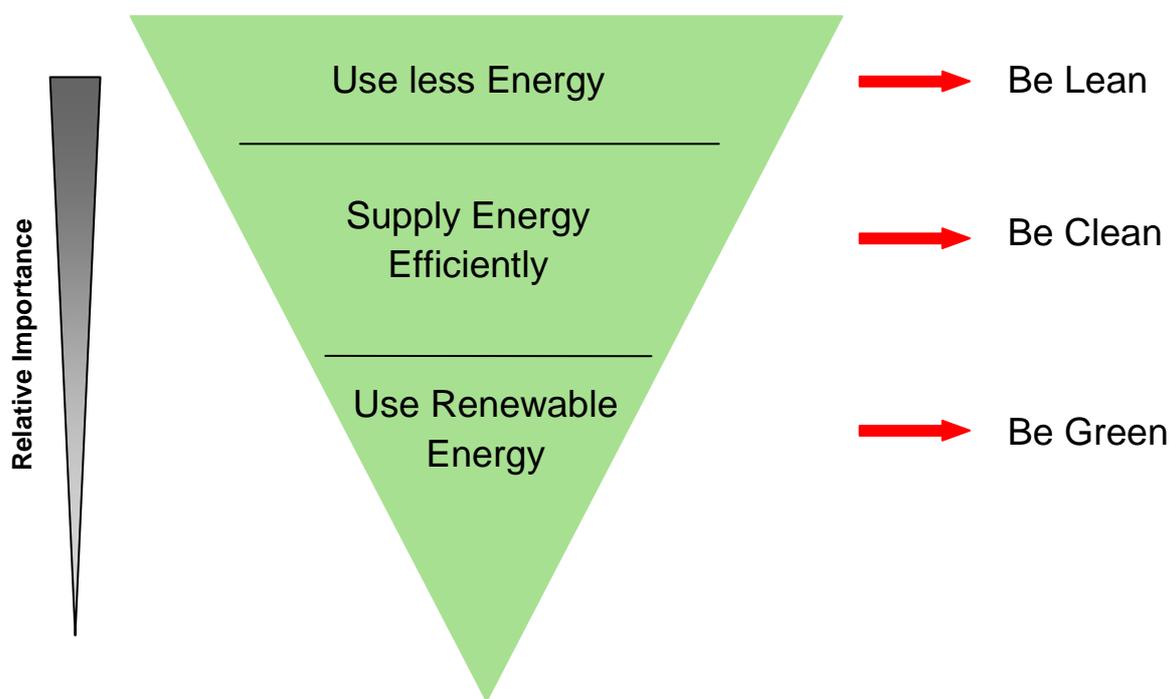
consumption from 150 litres per person per day, it also sets targets for a 25% reduction in new development and 8% in existing development on 2006 rates.

- 18.5 In support of national and regional guidance and targets, the Hertfordshire Climate Change Partnership (HCCP) was set up to bring together the County's key organisations. HCCP has also been made responsible for the delivery of the Hertfordshire Local Area Agreement which commits to a 9.1% cut in CO₂ emissions (from a 2005 baseline) by 2011.
- 18.6 The Council signed the Nottingham Declaration on Climate Change in 2007, and tackling climate change is a key priority of the Dacorum Sustainable Community Strategy.
- 18.7 The current energy performance of the borough has shown that there is a need to make improvements to domestic energy consumption, the existing housing stock, new development, and renewable and decentralised energy for the built environment.
- 18.8 The borough currently shows very good performance on the reduction of domestic energy consumption. Over the 10 years from 1996, consumption has fallen by more than 20%, in line with targets. This has been achieved mainly through relatively cheap insulation and efficiency measures but it is estimated that more expensive measures will be needed from around 2015 onwards in order to maintain momentum. The borough has below South East region average annual per head domestic energy consumption - gas consumption is 10% lower and electricity 13% lower (Low and Zero Carbon Study 2010). Consumption is also below most other regional averages in the country.
- 18.9 Even though nearly 30% of carbon emissions arise from energy use in our homes, there are very few examples of private development in the borough that have been built to reduce these emissions through higher energy efficient standards above 2006 Building Regulations Part L, such as the Code for Sustainable Homes or BREEAM⁸.
- 18.10 There are also no significant examples of renewable energy generation in the borough, apart from a few small-scale wind turbines generating only a small amount of electricity.
- 18.11 The approach to renewable energy will be guided by the Energy Hierarch (Figure 16). This expects carbon emission reductions to be delivered primarily through energy efficiency performance improvements to the building fabric, ensuring that

⁸ BREEAM - www.breeam.org/

carbon emissions reductions are 'future-proofed' for the life of the development. This will include improving the air-tightness of the building before resorting to renewable energy technologies, in order to meet the requirements for carbon emission reductions set out in Policy CS28.

Figure 16: Energy Hierarchy



Renewable Energy

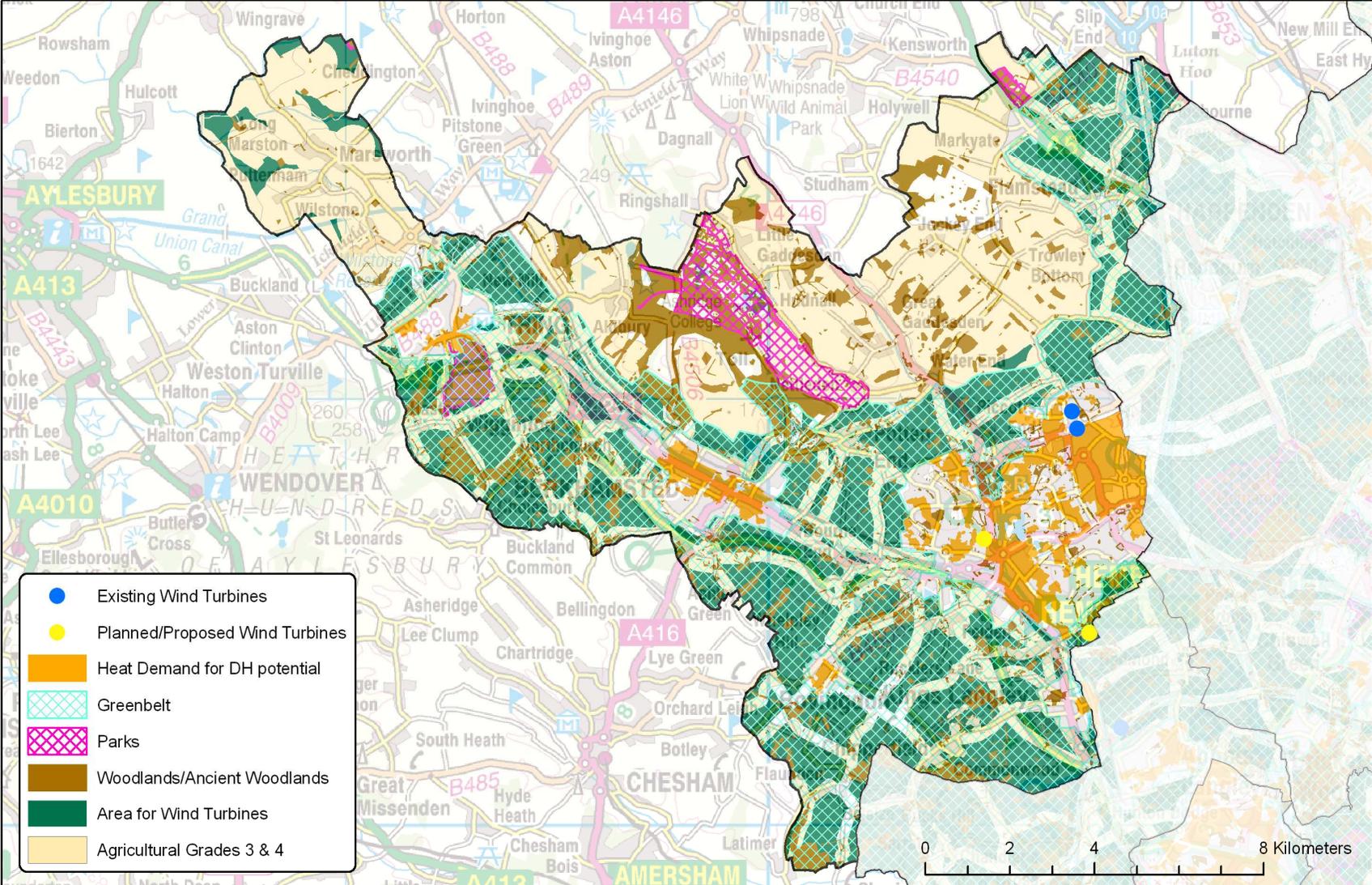
18.12 A 'Low and Zero Carbon Study'⁹ has been undertaken at a county-wide level and includes maps of existing CO₂ emissions, and higher levels of electricity and heat demands in the borough. The maps demonstrate that areas of high energy demand and related CO₂ emissions from existing buildings are concentrated in the higher density areas of major settlements.

18.13 The Energy Opportunities Plan (Map 4) in the study demonstrates the opportunities and constraints for decentralised energy. The plan identifies District Heating Opportunity Areas in the borough's town centres, Maylands Business Park and through any large-scale greenfield development. There are also opportunities to harness wind power. However these opportunities have been identified in the Green Belt and clear justification is required to take these forward (Policy CS5).

⁹ Low and Zero Carbon Study, 2010 – a technical document supporting the Core Strategy

- 18.14 Given the borough's rural and urban character, and prospects for urban regeneration in Hemel Hempstead, District Heating Opportunity Areas and Combined Heat and Power (CHP) will be pursued in high density areas targeted for regeneration. There are also opportunities for these systems to be powered by local biomass¹⁰ and appropriate waste that is not being recycled for other purposes. Micro-generation technologies, particularly solar water heating, photovoltaics and heat pumps will also help reduce carbon emissions.
- 18.15 Due to opportunities for high density development in some areas of the borough, combined with constraints elsewhere, there is justification for carbon reduction targets that exceed the mandatory stepped changes associated with Part L of Building Regulations. An appraisal of cost compliance is set out in the Low and Zero Carbon study.
- 18.16 The stepped change away from Part L of Building Regulations (the Code for Sustainable Homes/ non-residential equivalent) will be directed towards District Heating Opportunity Areas. New development outside the District Heating Opportunity Areas will be expected to comply with Building Regulations Part L as a minimum, with the exception of higher water efficiencies (Policy CS29), requirements to consider the whole life cycle of the building (Policy CS29) and delivering on-site carbon reductions (Policy CS28).
- 18.17 Within the identified District Heating Opportunity Areas, major new development (10 dwellings and above/1000sqm of non-residential and above) will be expected to deliver networks of district heating to help the borough meet renewable energy targets and to improve energy efficiency (see Table 11). The proposed Green Energy Centre in the Maylands Business Park will help fulfil these ambitions and help raise awareness of best practise. Smaller developments in, or close to, District Heating Opportunity Areas should consider delivering suitable technologies to enable connection to district heating networks in the future.
- 18.18 More detailed guidance about District Heating Opportunity Areas and Wind Opportunity Areas will be delivered through a Supplementary Planning Document.

¹⁰ Biomass – waste timber, crops, plants and sustainably sourced trees used to fuel wood burners, district heating systems and CHP



Client: Hertfordshire County & District Local Authorities
 Project: Hertfordshire Climate Change & Planning Study

Dacor Energy Opportunities Plan

AECOM

Beaufort House,
 94-96 Newhall Street,
 BIRMINGHAM, B3 1PB
 Tel: +44 (0) 121 262 1900
 Fax: +44 (0) 121 262 1999
 www.fabermaunsell.com
 © Crown copyright. All rights reserved. (Licence 100019139) (2009)

Date: June 2010
 Created: AGN

Table 11: Step Changes in the Code for Sustainable Homes and Additional CO₂ Reductions compared to Building Regulations Part L 2010

Effects to new development in different parts of the borough	From Oct 1 st 2010	From 2013**	From 2016*** or 2019***
In the whole borough: for development <5 dwellings or non-residential development <235sqm	A minimum of Code Level 3 (or equivalent) for residential development. Comply with Part L2A* 2010 Building Regulations as a minimum for non-residential development.	A minimum of Code Level 4 (or equivalent) for residential development. Comply with Part L2A 2013 Building Regulations as a minimum for non-residential development.	A minimum of Code Level 6 (or equivalent) for residential development. Comply with Part L2A 2019 Building Regulations (or equivalent guidance) as a minimum for non-residential development.
Outside DHOAs¹¹: for development ≥5 dwellings or non-residential development ≥235sqm	As above, plus an additional 5% CO ₂ reductions for residential and non-residential development as a minimum.	As above, plus an additional 5% CO ₂ reductions for residential and non-residential development as a minimum.	
Inside DHOAs: for development ≥5 dwellings or non-residential development ≥235sqm	A minimum of Code Level 4 or equivalent for residential development. Comply with Part L2A 2010 Building Regulations plus an additional 25% CO ₂ reductions as a minimum for non-residential.	A minimum of Code Level 5 (or equivalent) for residential development. Comply with the CO ₂ reductions associated with Code Level 5 (or equivalent) for non-residential development as a minimum.	

Notes:

* Building Regulations Part L2A relates to new non-residential development.

¹¹ District Heating Opportunity Heating Areas – identified in the Hertfordshire-wide Low and Zero Carbon Study

- ** This requirement will come into effect when the next update to Part L 2010 is published that is equivalent to Code Level 4 energy improvements i.e. expected to be Part L 2013.
- *** This requirement will come into effect when successive updates to Part L 2013 (or equivalent) achieve energy improvements equivalent to Code Level 6 or zero carbon. This is expected from 2016 for residential development and from 2019 for non-residential development.

Sustainable design and construction

- 18.19 Sustainable building design and construction is an essential part of the Council's response to the challenges of climate change, natural resource depletion, habitat loss, and wider environmental and social issues.
- 18.20 The way in which buildings are designed, constructed, operated and decommissioned has significant impacts on the built and natural environment, and requires major resource inputs such as energy, water and materials. Designing and constructing buildings that help to minimise these key resources and construction waste from decommissioning buildings, can not only reduce the borough's carbon footprint, but also costs for developers and occupiers. Therefore developers should be considering the refurbishment of existing buildings before considering demolition. Developers should also provide adequate sewerage facilities for new development and ensure that there is sufficient capacity at the relevant wastewater treatment works (see section 28).
- 18.21 The layout of development will be required to make the most effective use of land depending on the site's slope, existing and desired pedestrian and highway accesses, and environmental and brownfield constraints, such as floodplains, rivers, mature trees and contaminated land issues. The orientation and shading of buildings will need to maximise the energy efficiency of the buildings where possible. This will avoid the need for additional energy consumption for heating or cooling purposes. Decentralised energy technologies used to heat and provide electricity to the development will need to be suitable for the site layout, design principles and any observed constraints.
- 18.22 Sustainable design and construction also provides an opportunity to retain and enhance biodiversity. Apart from improving quality of life and property value, enhanced biodiversity also delivers ecological benefits. While all living plant matter absorbs CO₂, trees process more due to their large size and extensive root structure¹². One hectare of woodland can absorb emissions equivalent of 100 family cars (with high emissions). Trees can also remove sulphur dioxide from the atmosphere, attenuate noise pollution, provide natural air conditioning and shade, and moderate the rate of water run-off through rainfall attenuation, which reduces the risk of flooding. Therefore, new development will be expected to retain and replace

¹² Forestry Commission – www.forestry.gov.uk

existing trees, and help to plant more trees to expand the tree canopy in the borough.

18.23 Developers will be expected to complete a Sustainability Statement and carbon compliance check online for their proposal. Payments will also be required into a Sustainability Offset Fund when the appropriate carbon reductions have not been delivered on-site. The fund will be used to support initiatives that help reduce carbon emissions in the existing building stock, fix or absorb carbon (for example by planting trees) and support on and off-site renewable energy supply. Tree planting and other 'greening' initiatives will help to enhance biodiversity, improve quality of life and wellbeing and reduce 'heat stress' in the urban environment.

18.24 Payments may also be made to the Sustainability Offset Fund as part of the allowable solutions to deliver zero carbon development (in-line with Building Regulation changes to Part L), although the following allowable solutions must be considered first:

- carbon reductions on-site, through energy efficiency, low carbon and zero carbon technologies or on-site generation;
- connection to a district heating network;
- reduction of unregulated emissions through energy efficient appliances etc.;
- exporting low carbon or renewable heat from the development site to other developments; and
- investing in low and zero carbon community heat infrastructure.

18.25 Further guidance will be provided to support the implementation of the Carbon Offset Fund and give further consideration to the allowable solutions required.

18.26 Further advice and practical sustainable development solutions are proposed in Hertfordshire's Building Futures Design Guide¹³ for use by developers, planners and the general public. The guide is an evolving website with practical case studies and guidance for new development.

Policy CS28: Carbon Emission Reductions

Carbon emission reductions will be sought in the generation and use of energy, building design and construction, and the use of transport as far as possible.

Targets and opportunities for generating renewable electricity and heat will be set out in further guidance.

Policy CS29 addresses design and construction and Policy CS8 transport. A Sustainability Offset Fund will be used to help reduce carbon emissions and/or enable carbon fixing (see Policy CS30).

Policy CS29: Sustainable Design and Construction

New development will comply with the highest standards of sustainable design and construction possible. The following principles should normally be satisfied:

- (a) Use building materials and timber from verified sustainable sources;**
- (b) Minimise water consumption during construction;**
- (c) Recycle and reduce construction waste which may otherwise go to landfill.**
- (d) Provide an adequate means of water supply, surface water and foul drainage;**
- (e) Plan to limit residential indoor water consumption to 105 litres per person per day until national statutory guidance supersedes this advice;**
- (f) Comply with CO₂ reductions as per Table 11;**
- (g) Maximise the energy efficiency performance of the building fabric, in accordance with the energy hierarchy set out in Figure 16;**
- (h) Incorporate at least one new tree per dwelling/per 100sqm (for non residential developments) on-site;**
- (i) Minimise impermeable surfaces around the curtilage of buildings and in new street design;**
- (j) Incorporate permeable and lighter coloured surfaces within urban areas; and**
- (k) Provide on-site recycling facilities for waste.**

Buildings will be designed to have a long life and adaptable internal layout. Applicants will therefore need to explain how:

- (a) they have considered the whole life cycle of the building and how the materials could be recycled at the end of the building's life; and**
- (b) their design has been 'future proofed' to enable retrofitting to meet tighter energy efficiency standards and connection to decentralised community heating systems.**

For specified types of development applicants should provide a Sustainability Statement.

The principles in this policy may be relaxed if the scheme would be unviable or there is not a technically feasible approach. Where new development cannot meet on-site energy or tree canopy requirements, the applicant will be expected to make an appropriate financial contribution towards the Sustainability Offset Fund.

Policy CS30: Sustainability Offset Fund

The Sustainability Offset Fund will be used to fund and help deliver:

- (a) energy and water efficiency improvements in the borough's existing housing and public building stock;
- (b) on-site and appropriate off-site renewable energy supply systems; and
- (c) new tree planting and habitat improvements.

Details regarding the operation of the Sustainability Offset Fund will be set out in further guidance.

Monitoring:

Indicator(s)	Target(s)
Number of new homes in district heating opportunity areas reaching set levels in the Code for Sustainable Homes or equivalent (see Table 11)	-
Proportion of carbon savings from new development (measured in tonnes of carbon dioxide)	-
Proportion of new homes designed to reduce water consumption to 105 litres per person per day	-
Proportion of household waste that is recycled	-
Number of new homes built with on-site generation of renewable energy (for heat and electricity)	-
Capacity of renewable energy generation (for heat and electricity)	-
Money received for the Sustainability Offset Fund and spent	-

Delivery will be achieved by:

- identifying key sites for decentralised renewable energy in the Site Allocations DPD;
- developing policy in the Development Management DPD and other guidance;

- using a carbon compliance tool requiring Sustainability Statements;
- adherence to the Hertfordshire Municipal Waste Spatial Strategy;
- compliance with Building Regulations;
- use of a Sustainability Offset Fund;
- public and private partnership to deliver community-scale infrastructure; and
- joint working with Council's Energy Conservation team and the Home Energy Conservation Association (HECA).

Sustainable resource management

18.27 Development must be carried out in a sustainable way to protect natural resources for use by future generations, and to adapt against and mitigate impacts of climate change. Natural resources including high quality agricultural land, mineral reserves¹⁴ and water supplies will be safeguarded and all new development will be expected to:

- minimise waste on-site;
- maximise recycling measures;
- consider opportunities for biomass production for renewable energy generation;
- avoid pollutants into the wider environment;
- remediate contaminated land;
- protect and enhance natural features of importance, including wildlife and landscapes; and
- consider the overall carbon footprint of materials used and use locally produced materials and sustainably sourced materials, wherever possible.

18.28 The land is generally stable. Past evidence of chalk mining is very localised, though that will affect construction.

Water management

18.29 The east of England is the driest area in the country receiving only two thirds of the average UK annual rainfall. The effects of climate change and housing growth in the region will result in water becoming a more precious commodity. It will therefore need to be used more sparingly through the application of water efficiency measures in new and existing development.

¹⁴ Mineral reserves – refers to clay reserves at Bovingdon Brickworks, and sand and gravel belt around Kings Langley and any other areas that may be defined in Hertfordshire County Council's Minerals and Waste Development Framework.

- 18.30 Protection of water resources also assists in the retention of often fragile ecosystems, susceptible to the availability and flow of water. Frequent, extreme weather events are also a consequence of climate change. Heavy, frequent rainfall and long dry spells impacts on river levels and flows, creating pressure on underground drainage systems and affecting the level of rainfall left to recharge groundwater sources.
- 18.31 Sustainable Drainage Systems (SUDS) will help reduce and manage surface water run-off, improve water quality, and provide opportunities for nature conservation. Other complementary measures, such as rainwater storage, rainwater recycling, use of green roofs and the use of permeable surfaces will be sought.
- 18.32 The Strategic Flood Risk Assessment, agreed with the Environment Agency, has informed the selection of the strategic development sites and broad locations for development. The sequential approach relating to flood risk set out in national policy has also informed the selection of sites. The majority of the proposed development will be accommodated outside flood zone areas and any new development within flood zones will be expected to develop appropriate mitigation measures to reduce the cause and risk of flooding. This is to avoid an adverse impact on the quality of the groundwater source or a risk to its ability to maintain a public water supply.
- 18.33 Development will be directed away from Flood Zones 2 and 3. Some types of development (such as those categorised as 'Less Vulnerable' and 'Water Compatible') may be appropriate within Flood Zone 3.
- 18.34 A 'Water Cycle Study Scoping Report'¹⁵, has been jointly completed with Three Rivers District Council, St. Albans City & District Council, Welwyn Hatfield Borough Council and Watford Borough Council. The stakeholders involved in the process included the Environment Agency, Thames Water Utilities and Veolia Water Central amongst others. The study examined the condition of the existing distribution network and waste water treatment works and whether it would be able to cope with additional development growth.
- 18.35 The Scoping Study concluded that work would need to be progressed to the next stage (the Water Cycle Study Outline Report) to establish:
- 1) if Maple Lodge or Blackbirds Waste Water Treatment Works would need to increase the Dry Weather Flow consent and introduce new physio-chemical standards; and
 - 2) how extensive the upgrades need to be to the sewerage networks throughout Hemel Hempstead and Kings Langley.

¹⁵ Water Cycle Study Scoping Report, 2010 - a technical document supporting the Core Strategy

18.36 Local Authorities and stakeholders involved will continue to plan for both of the upgrades (see Section 28), as well as any other necessary action as an outcome of the Water Cycle Study Outline Report. This will be progressed as part of the Site Allocations DPD.

18.37 The Council will work with its partners to help:

- restore river flows;
- support the Grand Union Canal system (and its reservoirs);
- restore natural habitats along the chalk streams and in Boarscroft Vale;
- support biodiversity;
- retain water in the catchment area;
- recharge the aquifer;
- limit the effect of variable rainfall and reduce the risk of flooding;
- provide sufficient capacity for foul water drainage;
- increase the efficiency of water use, in part through sustainable design and construction; and
- provide sufficient water for people and to support agriculture.

Pollution and waste management

18.38 The planning system plays a key role in the location and standard of development. Together with other consent regimes and processes, it can limit the impact of (and prevent) polluting emissions – i.e. noise, light, fumes, chemicals, noxious and hazardous substances and waste in general. Standards set nationally should continue to be achieved. When standards become more stringent, efforts must be made to enhance the quality of the air, water and/or soils.

18.39 In Dacorum special consideration also needs to be given to:

- the quality of the groundwater supplying the chalk aquifer;
- protecting the habitat and biodiversity of chalk streams;
- the maintenance of higher quality agricultural areas and the sand and gravel belt;
- limiting the effects of noise and air pollution along major routes (i.e. road, rail and aircraft from Luton Airport);
- retaining tranquil parts of the Chilterns Area of Outstanding Natural Beauty and Boarscroft Vale; and
- the risks associated with Buncefield Oil Terminal.

The planning system has a role to play in the minimisation of waste at or near source and in disposal of household, commercial and construction waste. Unnecessary waste should be reduced and managed nearer to its source. To avoid unnecessary

waste going to landfill sites, developers will be expected to avoid potentially polluting developments, the creation of additional waste, and the location of new development near existing sources of pollution. This may involve the relocation of the existing Household Waste Recycling Centre and Waste Disposal Centre as part of a new Energy and Waste Park in the Maylands Business Park area.

18.40 Hertfordshire County Council is the Waste Disposal Authority and the Waste Management Authority for Dacorum Borough Council. The suite of waste related documents include the Waste Core Strategy, Waste Site Allocations and Waste Development Policies documents form part of the Minerals and Waste Development Framework for Hertfordshire. The Development Plan Documents on waste set out the County Council's overall vision and strategic objectives for waste planning and establishes the broad locations for strategic waste facilities and minerals and waste safeguarding areas. The Framework will be used as a basis for future waste planning, and will be used in the determination of planning applications across Hertfordshire.

18.41 Air quality within Dacorum is generally good, with the main source of air pollution being from traffic emissions, specifically Nitrogen Dioxide. Following a programme of assessment, three areas were found to exceed air quality objectives for this gas and have been designated as Quality Management Areas (AQMA's):

- Lawn Lane, Hemel Hempstead;
- London Road, Apsley, Hemel Hempstead; and
- High Street, Northchurch.

18.41 National Air Quality Standards identify the planning system as one of the key mechanisms for achieving improvements in air quality. It is not necessarily the case that proposed development in an area of poor air quality will have a negative impact. Similarly, it does not mean that there should be a ban on development within that area, rather, that greater weight should be given to the consideration and removal of the impacts. Actions Plans for each AQMA will highlight appropriate mitigation measures.

Policy CS31: Water Management

Water will be retained in the natural environment as far as possible. Measures to restore natural flows in the river systems and the water environment will be supported. Supply to the Grand Union Canal will be maintained.

Development will be required to:

- (a) avoid Flood Zones 2 and 3 unless it is for a compatible use: Flood Risk Assessments must accompany planning applications for development in these areas, explaining how the sequential approach to development has been taken into account and outlining appropriate mitigation measures;**
- (b) minimise water runoff;**
- (c) secure opportunities to reduce the cause and impact of flooding, such as using green infrastructure for flood storage;**
- (d) secure opportunities to conserve and enhance biodiversity; and**
- (e) avoid damage to Groundwater Source Protection Zones.**

Policy CS32: Air, Soil and Water Quality

Development will be required to help:

- (a) support improvements in identified Air Quality Management Areas and maintain air quality standards throughout the area;**
- (b) maintain soil quality standards and remediate contaminated land in line with Environment Agency, Defra and Natural England guidance; and**
- (c) improve water quality standards in line with the Water Framework Directive, Environment Agency and Natural England guidance.**

Any development proposals which would cause harm from a significant increase in pollution (into the air, soil or any water body) by virtue of the emissions of fumes, particles, effluent, radiation, smell, heat, light, noise or noxious substances, will not be permitted.

Advice on the storage and handling of hazardous substances will be taken from the Health and Safety Executive.

Monitoring:

Indicator(s)	Target(s)
Percentage of new dwellings built on floodplains and/or contrary to Environment Agency advice	0
Change in extent and air quality of Air Quality Management Areas	-

Delivery will be achieved by:

- the restriction of development around the Buncefield Oil Depot through the East Hemel Hempstead AAP;
- the Development Management DPD;
- application of the Planning Obligations SPD;
- use of sustainability statements;
- partnership working with the Council's Environmental Health department, the Countryside Management Service and with external agencies and water authorities, such as the Environment Agency, Thames Water and Veolia Water UK;
- air quality monitoring undertaken across the borough;
- monitoring and standards set by external agencies; and
- Action Plans for designated Air Quality Management Areas.