



Climate Change and Sustainability Background Topic Paper

Dacorum Local Plan (2020-2038)
Emerging Strategy for Growth
November 2020

Background Topic Papers

Introduction

A series of background topic papers have been prepared to support the Dacorum Local Plan (2020-2038) Emerging Strategy for Growth consultation. These are as follows:

- **Climate Change and Sustainability**
- **The Development Strategy**
- **Housing**
- **Site Selection**
- **The Green Belt & Rural Area Background Topic Paper**
- **Employment**
- **Retail and Town Centres**
- **Transport and Connectivity**
- **Open Space, Sport and Leisure**
- **Chilterns Beechwoods SAC**

These papers form part of the evidence base and are intended to make it easier to understand how the Council's emerging approach developed, including any conclusions reached at this stage.

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1. Introduction

- 1.1 This topic paper is one in a series produced to accompany the Dacorum Local Plan (2020 – 2038) Emerging Strategy for Growth (Regulation 18) (draft local plan). It explains how the strategy for climate change and sustainability developed, alongside the background information that helped formulate policies. It shows how the Plan took into account:
- national and local policy and guidance;
 - evidence base;
 - feedback from the Issues and Options consultation; and
 - ongoing engagement with key stakeholders and meeting its obligations under the Duty to Cooperate.
- 1.2 The borough is facing challenging pressures for new development over the next 20 years, which it must tackle through its Local Plan. In particular, the need for homes, employment land and associated infrastructure is much higher than faced by previous Plans yet this has to be planned for in the context of the same extensive planning and environmental constraints. Thus the Plan must demonstrate how its policies, standards and allocations took into account the many constraints and opportunities of the borough.
- 1.3 Alongside this, the Plan must also respond to the climate change emergency and ensure that development becomes more sustainable.
- 1.4 This topic paper should be read in conjunction the related and complementary topic papers that explain the Plan’s overall policies, visions and objectives.

2. Policy Context

2.1 The preparation of the new Local Plan, has been influenced by broad national, strategic and local policy context and strategies.

National and Legal Context

2.2 In addition to the established national guidance set out through the National Planning Policy Framework and Planning Practice Guidance, two major new pieces of legislation are expected to have a significant impact our approach to environment and biodiversity over the Plan period. These are:

- the Environment Bill, which is expected to receive royal assent in 2021; and
- future changes in the planning system in England, as set out in the Planning for the Future White Paper, August 2020.
- The Future Homes Standard, to be introduced by 2025.

The Environment Bill

2.3 The Environment Bill will give Government the authority to set long term (minimum 15 years) legally binding environmental targets. At least one target is expected to be set for each of the four priority areas of:

- Air quality
- Biodiversity
- Water
- Resource efficiency and waste reduction.

2.4 There will also be a further target for fine particulate matter and each will be accompanied by interim targets, to ensure the delivery of the long-term goals remains on track. The targets will be in place by October 2022 and progress will be evaluated through the Significant Improvement Test, to be completed by January 2023.

Planning for the Future White Paper August 2020

2.5 The August 2020 Planning for the Future consultation document sets out the Government's proposals to reform the planning system. This would involve an updated National Planning Policy Framework, with development management policies set nationally replacing the need for many of the development guidance policies of the current Local Plan. In the future new local plans will focus on design and sustainability, and will address how new development and green infrastructure management will contribute towards adapting and mitigating for climate change. Local authorities will be expected to consider how new

development will support this, for example by providing open space, utilising densities or maximising opportunities for sustainable transport.

Future Homes Standard

- 2.6 In 2019 the Government launched a consultation on the Future Homes Standard covering potential changes to Part L (conservation of fuel and power) and Part F (ventilation) of the Building Regulations for new homes. From 2025, it would require new homes to produce 75-80 per cent lower CO2 emissions compared to current levels (Approved Document L2013) through measures such as very high fabric standards and a low carbon heating system.
- 2.7 The consultation is on two options:
- Option 1: 20% reduction in carbon emissions compared to the current standard for an average home
 - Option 2: 31% reduction in carbon emissions compared to the current standard.
- 2.8 Whichever option is taken forward, local planning authorities would no longer be able to set higher energy efficiency standards than those in the Building Regulations. Transitional arrangements to achieve delivery by 2025 would also be put in place. The new regulation was originally to be introduced in 2020, however there is currently no timetable for delivery beyond an expectation that it will be in place before 2025.

The Climate Change Act 2008 (2050 Target Amendment) Order 2019

- 2.9 [Section 19\(1A\) of the Planning and Compulsory Purchase Act 2004](#) requires local planning authorities to include in their Local Plans “policies designed to secure that the development and use of land in the local planning authority’s area contribute to the mitigation of, and adaptation to, climate change”.
- 2.10 Recognising the importance of climate change and how this will affect future generations, as part of the Climate Change Act (2008) the Government set out a legally binding target to reduce the UK’s greenhouse gas emissions by at least 34% by 2020 and 80% by 2050 - below the 1990 baseline. This was set in the context of the international ambition to limit warming to no more than 2 degrees above pre-industrial temperatures, and if possible nearer 1.5 degrees celsius.
- 2.11 Based on updated advice from the Committee on Climate Change, in June 2019, the Government passed laws that amended this to 100% below 1990 levels. Effectively, the whole economy target is to be net zero carbon by 2050 and the overall objective is for all new development to be ‘zero carbon’ in the future. This is reflected in the latest recommendations by the UK Committee on Climate Change in the report ‘Net Zero – The UK’s contribution to stopping global warming (2019).

- 2.12 The United Nations' Conference on Climate Change, 2015, provided the starting point for this¹, along with the United Nations' Sustainable Development Goals, both of which the UK government has committed to. Goal 11 considers 'Sustainable Cities and Communities' and is the goal most relevant for local authorities in terms of their land use planning functions. How we manage job growth, housing and transport will play an important part of meeting climate change goal.
- 2.13 The Act also requires the Government to set 5 yearly carbon budgets. These restrict the total amount of greenhouse gases the UK can emit over a 5-year period, and currently run until 2032, shown in table 2.1 below.

Table 2.1 UK Carbon Budgets (2008 – 2032)

Carbon budget	Period	Million tonnes of carbon dioxide equivalent (MtCO _{2e})	Reduction below 1990 levels
First	2008 – 2012	3,018	25%
Second	2013 – 2017	2,782	31%
Third	2018 - 2022	2,544	37% by 2020
Fourth	2023 - 2027	1,950	51% by 2025
Fifth	2028 – 2032	1,725	57% by 2030

- 2.14 The sixth carbon budget (2033 – 2037) is expected to be published later in 2020. Nationally the first and second carbon budgets were achieved, and progress against the third budget is on track. However currently the UK is not on track to meet the fourth or fifth budgets. It should also be noted that these budgets were prepared for the initial target of the Climate Change Act of 80% reduction in emissions by 2050. The Climate Change Committee calculates that the UK needs a reduction in average emissions of around 15.5 MtCO_{2e} per year for the next 30 years to achieve the revised target of 100% emissions – requiring a further acceleration of measures.

The Planning Act 2008

- 2.15 The Planning Act 2008 includes a duty on local development plans to include policies which ensure they make a contribution to both climate mitigation and adaptation.
- 2.16 The Planning and Energy Act 2008 sets out powers for local planning authorities to impose reasonable requirements for a proportion of energy used in new development to be sourced in the locality of the development through renewable or low-carbon generation. It also enables local authorities to set standards for energy efficiency in new buildings beyond those of the Building Regulations, provided this is consistent with national policy. National policy is in the Written Ministerial Statement 2015, which allows local planning authorities to set Code for Sustainable Homes level 4 energy standards.

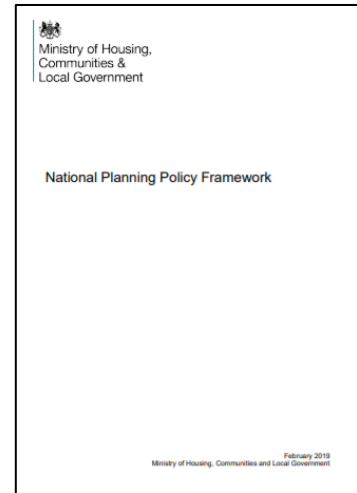
¹ The Paris Agreement opened for signature on 22 April 2016 – Earth Day – at UN Headquarters in New York. It entered into force on 4 November 2016, 30 days after the so-called “double threshold” (ratification by 55 countries that account for at least 55% of global emissions) had been met

[Section 43 of the Deregulation Act 2015](#) would amend this provision, but is not yet in force.

National Planning Policy Framework

2.17 The National Planning Policy Framework (NPPF) sets out the national approach to planning policies for England, with further guidance through the National Planning Practice Guidance (NPPG). The main elements of the NPPF that influence climate change and sustainability are summarised below.

2.18 Mitigating and adapting to climate change and reducing carbon emissions is at the heart of the environmental arm of achieving sustainable development as set out in the NPPF.



“to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.”²

2.19 The NPPF states that all policies *“should be underpinned by relevant and up-to-date evidence which should be adequate and proportionate, focussed tightly on supporting and justifying the policies concerned, and take into account relevant market signals”³.*

2.20 The NPPF also highlights the importance for plans and spatial development strategies to be informed throughout their preparation by a sustainability appraisal that meets the relevant legal requirements, including how it has addressed relevant economic, social and environmental objectives⁴.

2.21 With this, the NPPF is clear that significant adverse impacts on these objectives should be avoided and, wherever possible, alternative options which reduce or eliminate such impacts should be pursued. Where this is unavoidable, suitable mitigation measures should be proposed or, where this is not possible, compensatory measures should be considered.

2.22 When the Plan Local plans are examined they must have been prepared in accordance with legal and procedural requirements, and satisfy the test of “soundness” (para. 35). Plans are ‘sound’ if they are:

Positively prepared – providing a strategy which, as a minimum, seeks to meet the area’s objectively assessed needs; and is informed by agreements with other authorities, so that unmet need from neighbouring areas is

² NPPF, MHCLG, Feb 2019, Paragraph 8

³ NPPF, MHCLG, Feb 2019, Paragraph 31

⁴ NPPF, MHCLG, Feb 2019, Paragraph 32

accommodated where it is practical to do so and is consistent with achieving sustainable development;

b) **Justified** – an appropriate strategy, taking into account the reasonable alternatives, and based on proportionate evidence;

c) **Effective** – deliverable over the plan period, and based on effective joint working on cross-boundary strategic matters that have been dealt with rather than deferred, as evidenced by the statement of common ground; and

d) **Consistent with national policy** – enabling the delivery of sustainable development in accordance with the policies in this Framework.

2.23 Chapter 8 **promotes healthy and safe communities** and for policies to deliver new open space, sport and recreation facilities, taking into account any deficits or surpluses⁵. Policies should also protect and enhance public rights of way and access⁶. The Borough's approach to this is set out in the Healthy Communities/Community Facilities and Open Space, Sports and Leisure topic papers.

2.24 Chapter 14 deals with **the challenge of climate change and flooding**. Addressing climate change is one of the core land use planning principles that the National Planning Policy Framework expects to underpin both plan-making and decision-taking. Plan's are expected to:

- support the UK's transition to low carbon future (paragraph 148);
- be proactive in mitigating and adapting to climate change, and ensure development and infrastructure will be resilient to future environmental conditions – such as increased flood risk (paragraph 149 and 150 (a));
- ensure development is designed to help reduce greenhouse gas emissions, and where local standards are set for the sustainability of buildings, these should be in line with national technical standards (150 (b));
- positively encourage the use and supply of renewable, low carbon and decentralised energy, to include identifying these opportunities and providing support for community-led initiatives (paragraphs 151, 152 and 153);
- support applications for renewable and low carbon development provided the impacts are acceptable (paragraph 154).

2.25 The NPPF addresses several mitigation-related policy issues, including the need to encourage sustainable transport modes by designing and locating development to reduce the need to travel. This not only requires that new development should prioritise provision and access to networks of cycling and pedestrian infrastructure (including accessible cycle storage facilities) and enable easy access to public transport services, but should also create places that are safe, secure and attractive, sited close to services and facilities and

⁵ NPPF, MHCLG, Feb 2019, Paragraph 96

⁶ NPPF, MHCLG, Feb 2019, Paragraph 98

include mixed uses where possible to maximise the opportunity for combining trips and limiting journey length.

2.26 The NPPF states that plans should use opportunities provided by new development to reduce the causes and impacts of flooding (where appropriate through the use of natural flood management techniques).

2.27 Chapter 15 sets the national policy context for **conserving and enhancing the natural environment**. Key elements within this section include the following:

- Protect and enhance valued landscapes, sites of biodiversity or geological value and soils⁷;
- Minimise impacts on and provide net gains for biodiversity, including by establishing coherent ecological networks⁸;
- Prevent new development from contributing to, being at unacceptable risk from, or adversely affected by, unacceptable levels of soil, air, water or noise pollution⁹;
- Where appropriate, remediate and mitigate contaminated and unstable land¹⁰;
- Plans should allocate land with the least environmental or amenity value¹¹;
- Great weight should be given to conserving and enhancing landscape and scenic beauty in Areas of Outstanding Natural Beauty, which has the highest status of protection. The scale and extent of development within this designated area should be limited¹²;
- Plans should promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity¹³.
- On ground conditions, the NPPF makes clear that policies should ensure that sites are suitable for its proposed use taking account of ground conditions and any risks arising from land instability and contamination, including risks arising from natural hazards or former activities¹⁴.
- On air quality, policies should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified¹⁵.

⁷ NPPF, MHCLG, Feb 2019, Paragraph 170 (a)

⁸ NPPF, MHCLG, Feb 2019, Paragraph 170 (d)

⁹ NPPF, MHCLG, Feb 2019, Paragraph 170 (e)

¹⁰ NPPF, MHCLG, Feb 2019, Paragraph 170 (f)

¹¹ NPPF, MHCLG, Feb 2019, Paragraph 171

¹² NPPF, MHCLG, Feb 2019, Paragraph 172

¹³ NPPF, MHCLG, Feb 2019, Paragraph 174 (b)

¹⁴ NPPF, MHCLG, Feb 2019, Paragraph 178

¹⁵ NPPF, MHCLG, Feb 2019, Paragraph 181

- 2.28 Chapter 16 sets the policy context for **conserving and enhancing the historic environment**. It makes clear that heritage assets range from sites and buildings of local historic value to those of the highest significance and are an irreplaceable resource. Such assets should be conserved in a manner appropriate to their significance¹⁶.
- 2.29 Plans should set a positive strategy for the conservation and enjoyment of the historic environment. When considering the impact of a proposed development on the significance of the designated heritage assets, great weight should be given to the asset's conservation. Any harm to, or loss of, the significance of a designated heritage assets (from its alteration or destruction, or from development within its setting), should require clear and convincing justification¹⁷.

Planning Practice Guidance

- 2.30 The National Planning Practice Guidance (PPG) is a comprehensive list of guidance produced by the Ministry of Housing, Communities and Local Government that is available online and is subject to regular review and updates¹⁸.
- 2.31 It contains a number of important sections relevant to the preparation of Local Plans and expands upon many of the chapters and policies set out in the NPPF as described above.
- 2.32 Government guidance in PPG '*Climate Change*' sets out examples of mitigation and adaptation measures to both reduce the causes of climate change and adapt to the effects of climate change, and advises local authorities to pay particular attention to integrating these two approaches to support sustainable development.
- 2.33 It sets out the benefits of using local risk assessments to identify those climate risks the planning system should address, for example the Strategic Flood Risk Assessment, which can inform Sustainability appraisal.
- 2.34 Appropriate mitigation measures can draw on national statistics by local authority area from the Department for Business, Energy & Industrial Strategy to identify emission reduction options.
- 2.35 It states that when setting any local requirement for a building's sustainability, local planning authorities should do so in a way consistent with the government's zero carbon buildings policy and adopt nationally described standards.

¹⁶ NPPF, MHCLG, Feb 2019, Paragraph 184

¹⁷ NPPF, MHCLG, Feb 2019, Paragraph 193

¹⁸ National Planning Practice Guidance (PPG), available to view online at: <https://www.gov.uk/government/collections/planning-practice-guidance>

- 2.36 The PPG confirms that local planning authorities can set energy performance standards for new housing or the adaptation of buildings to provide dwellings, that are higher than the building regulations, but only up to the equivalent of Level 4 of the Code for Sustainable Homes. They are also not restricted or limited in setting energy performance standards above the building regulations for non-housing developments.
- 2.37 The PPG also confirms that planning policies can impose reasonable requirements for a proportion of energy used in development to be from renewable and / or low carbon sources in the locality of the development.
- 2.38 The PPG also contains a wide range of other sections that are relevant to Climate Change and Sustainability and relate closely to areas of the NPPF summarised above. While not repeated in detail here, these include:
- Air quality;
 - Appropriate Assessment;
 - Effective use of land;
 - Flood risk and coastal change;
 - Green Belt;
 - Historic environment;
 - Housing and economic land availability assessment;
 - Housing and economic needs assessment;
 - Housing supply and delivery;
 - Land affected by contamination;
 - Land stability;
 - Light pollution;
 - Natural environment
 - Neighbourhood planning;
 - Noise;
 - Open space, sports and recreation facilities public rights of way and local green space;
 - Permission in principle;
 - Plan-making;
 - Strategic environmental assessment and sustainability appraisal;
 - Town centres and retail;
 - Transport evidence bases in plan making and decision taking;
 - Tree Preservation Orders and trees in conservation areas;
 - Viability; and
 - Water supply, wastewater and water quality.

Joint Strategic Plan (JSP)

- 2.39 Dacorum has a substantial history of co-ordinated working with adjoining districts on planning issues and its evidence base. It has agreed with St Albans City and District, Three Rivers, Watford and Hertsmere, and Hertfordshire County Council (HCC), to prepare a growth and development plan (Joint Strategic Plan) for South West Hertfordshire. This will plan for the delivery of strategic infrastructure for

the period up to 2050 and is being progressed under a signed Memorandum of Understanding between the partners and supported by planning delivery funding from MHCLG.

2.40 The five districts and HCC are currently carrying out high-level visioning work, which will be informed by consultation on ‘SW Herts, Your Future’, which took place between February and May 2020. Two major and complementary projects are also underway: a strategic growth location study and a multi modal transport study. Both studies are due to report in spring 2020.

2.41 Given the time horizon of the JSP, it will not influence how the Council prepares the development strategy.

Local Plan Context

2.42 The new Local Plan (2018-2036) will replace the following previous Plan documents:

- Dacorum Borough Local Plan 1991-2011 (adopted April 2004) (saved policies);
- Dacorum Core Strategy (adopted September 2013); and
- Dacorum Site Allocations DPD (adopted July 2017).

The current planning policies on open space, sports and leisure provision can be found in these documents and are set out below.

Core Strategy and Saved Policies

2.43 Dacorum’s Core Strategy was adopted in September 2013 and sets a clear strategic policy framework. Relevant policies to this topic area include:

- CS28: Carbon Emission Reductions
- CS29: Sustainable Design and Construction
- CS30: Sustainability Offsetting

Table 2.2 Summary of Saved Policies

Saved policy	Summary of main provisions
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
CS29: Sustainable Design and Construction	Sets principles for which new development will be expected to follow covering waste, water, CO2 emissions, energy efficiency, tree planting and biodiversity, materials, recycling and future proofing for future standards.
CS30: Sustainability Offsetting	Enables contributions to be sought towards sustainability offsetting measures such as

	reducing carbon emissions and/or enabling carbon fixing.
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2.44 The Core Strategy policies are complemented by 'saved' policies from the Dacorum Borough Local Plan (DBPL) 1991-2011, adopted in 2004. These policies will be revised and superseded through the new Local Plan (2018-2036). Policies that relate directly to climate change and sustainability:

- Appendix 1: Sustainability checklist

2.45 Other relevant saved guidance to the Dacorum Borough Local Plan and Core Strategy

- Environmental Guidelines SPG May 2004
- Energy Efficiency and Conservation SPG July 2005
- Water Conservation SPG July 2005
- Towards 2021 The Dacorum Sustainable Community Strategy 2008
- Refuse Storage Guidance Note February 2015
- Sustainable Drainage Policy Statement February 2015
- Sustainable Development Advice Note December 2016
- Sustainable Development Checklist December 2016

2.46 The Council is preparing the Dacorum Strategic Design Guide Supplementary Planning Document (SPD) in order to improve the quality of the design of new homes, estates and employment use buildings in the Borough. The Guide sets out a design process and design principles for developers to follow when preparing their plans for new development, and has a separate section on employment use buildings, such as offices and industrial units. The approach aims to create distinctive, attractive and successful places to live and work that are adaptable for the future.

Under ten broad categories are grouped detailed design principles. These broad categories are

- A Distinctive Place
- A Compact Place
- A Place for All
- A Connected Place
- Great Streets and Public Spaces
- Great Homes
- Active and Healthy
- Facing the Climate Crisis
- Flexible and Adaptable
- For the Long Term

Many of the detailed design principles that sit below contribute towards climate change and sustainability. Key principles and points from the Facing the Climate Crisis category include

- Design principle: Certify sustainability – to make it clear that homes and workplaces have been designed and assessed to meet specific sustainability standards. Designs should demonstrate
 - BREEAM standards design certificates of a minimum level of very good for buildings below 1000m² and specifying a minimum BREEAM level of excellent for each non-residential building of 1000m² or more
 - BRE's Home Quality Mark Five Star for all residential buildings
 - Route towards achieving zero-carbon homes. This may be achieved through certification such as Passivhaus or appropriate carbon offsetting
 - WELL Building standards for all commercial buildings
- Conserve water
 - BREEAM credits for water efficiency in non-residential buildings maximised, rainwater and grey water recycling, water saving devices
- Maximise natural heating and ventilation
- Conserve energy and reduce carbon emissions – to make low-carbon building techniques and locally sourced sustainable materials the norm for all development in order to reduce energy use and embodied carbon emissions. To deliver carbon neutral where possible. Homes should demonstrate
 - Innovative proposals such as carbon-neutral parks or on-site energy generation
 - LED street lighting throughout
 - Discrete on-street electric car charging points, such as in lamp posts, especially in neighbourhood centres, to a quantum that meet local authority requirements
 - Smart meters installed in all homes
 - Use of Modern methods of Construction
 - Source low carbon and locally sourced materials for construction with 25% of materials to be recycled
 - Reducing the development's use of resources across its life cycle, including during the construction phase. Low-carbon and recycling targets should be included in development contracts
- Create opportunities for energy production – to secure opportunities for carbon-free energy production within developments to meet on-site needs insofar as possible
 - Installation of solar panels and battery storage in homes and commercial buildings. These should be integral to the design with consideration to innovative use of materials. Any buildings that do not have solar panels integrated should be future proofed to enable future installation of panels.
 - For larger developments, incorporation of sustainable district heating and power networks
- Be resilient to climate change and extreme weather
 - Trees and soft landscape species should be climate resilient

- Use of green infrastructure to mitigate the Urban Heat Island Effect and in creating shade
- Buildings should be weather tight and robust enough to withstand anticipated extremes of weather

Neighbourhood Plans

- 2.47 There is currently one made neighbourhood plan within the borough. The Grovehill Neighbourhood Plan was adopted April 2018, the designated neighbourhood plan area encompasses part of the Grovehill ward in north east Hemel Hempstead. The plan's themes include enhancing public spaces through new development and improvements. In addition community projects are identified where future monies from CIL and s106 will be directed such as improving youth leisure facilities, play area facilities, and outdoor gym and fitness trails in park areas. The Grovehill Future Neighbourhood Forum will receive 25% of CIL contributions within the neighbourhood plan area, which includes LA1 Marchmont Farm.
- 2.48 Bovingdon Parish Council is in the process of developing a neighbourhood plan. The neighbourhood area for the parish was designated on 24th December 2018 and encompasses the village, including open spaces and the surrounding countryside.
- 2.49 Kings Langley Parish Council has also applied to designate its parish area as a neighbourhood area.

Other Local Strategies

Dacorum Corporate Plan 2020-2025

- 2.50 The Corporate Plan outlines the Council's vision and priorities for a five year period, and provides a focus for service delivery and performance, aiding strategic decisions. The Council regularly reviews its strategic vision to ensure it remains relevant.

Vision 'The Council is committed to working in partnership to create a borough which enables the communities of Dacorum to thrive and prosper. This requires us to play a leadership role in bringing together a range of organisations and individuals to support and sustain good conditions for local growth'

- 2.51 This followed by a delivery plan focussed on the Council's the five key priorities:
- A clean, safe and enjoyable environment
 - Building strong and vibrant communities
 - Ensuring economic growth and prosperity

- Providing good quality affordable homes, in particular for those most in need
 - Ensuring efficient, effective and modern service delivery
- The Council has also made a commitment to addressing climate change, a theme which cuts across all five priority areas.

2.52 Within the five key priority areas, the Council makes commitments for a five-year period including:

- We will strive to increase recycling.
- We will encourage greater use of green energy within our own buildings through a range of projects and activities.
- We will review the tree planting programme to facilitate net tree growth across the borough.
- We will continue with the programme of standardising the front line refuse fleet to reduce the amount of vehicles required.
- We will introduce a recycling service to commercial businesses.
- We will recruit a Climate Change Lead Officer to co-ordinate the Council's response to the Climate Change Emergency.
- We will work with Hertfordshire County Council to deliver a sustainable transport plan for Hemel Hempstead linked to major growth and regeneration, helping to provide residents and businesses greener alternatives to travel by private vehicles.
- Working with our partners to improve public transport connections by delivering a Multi Modal Transport Interchange for Maylands.
- We will invest in improvements to make our existing homes more energy efficient.

Dacorum Growth and Infrastructure Strategy to 2050

2.53 This strategy provides direction on how the Council will respond to the challenges of growth pressures in Dacorum in the long term. It sets both a vision for the future of the borough and a series of high level proposals for how the Council, working with partner agencies and organisations, will seek to manage the growth agenda to the benefit of local residents, businesses and the economy, and the environment. The Strategy is centred around six key themes:

Theme 1	Building Dacorum's future with homes for everyone
Theme 2	Generating a vibrant economy with opportunities for all
Theme 3	A happier, healthier and safer Dacorum
Theme 4	Creating a clean, green and attractive Dacorum
Theme 5	On-track for a better transport network
Theme 6	Harnessing the opportunity of technology and digital connectivity

2.54 Each theme has a separate section structured into four parts: a vision; a summary of recent achievements; a discussion on challenges and issues; and a set of proposals to set the direction for future work and action.

2.55 For vision for theme 4 creating a clean, green and attractive Dacorum seeks to protect the environment by providing more green spaces, encouraging sustainable living and reducing the Council's own environmental impact.

Proposals include:

- *'work to continue the increase in the recycling rate and to minimise the amount of household waste that arises';*
- *'significantly reduce single-use plastics in the work of the council';*
- *'seek to incorporate the best possible sustainability measures in new construction, including energy efficiency in new buildings and the use of renewable technologies'.*

Climate Change Emergency

2.56 The Council signed the Nottingham Declaration on Climate Change in 2007, and committed to reducing per capita CO2 emissions in the Dacorum Sustainable Community Strategy (45). Along with other local authorities in the UK, in July 2019 it declared a Climate Change Emergency – recognising urgent planning and action is required. This includes a commitment to a number of actions:

- That we work towards ensuring that the full range of council activities are net carbon neutral by 2030.
- That an action plan will be developed as soon as possible.
- That we ensure all services make the maximum possible impact in challenging the extent and causes of climate change. The developing new Local Plan will incorporate the maximum possible sustainability requirements that the system will allow, and encourage developers to go beyond this in order to future proof homes and buildings.
- It will act to improve social housing energy efficiency through direct action and take full advantage of Government and energy provider funding to improve the energy efficiency of private homes.
- Engage with all sectors of our residents, communities and businesses to publicise the climate emergency declaration and work together to reduce the possible impact.
- That we will ensure the new Local Plan and associated regulations when adopted contains all available measures to cut carbon emissions and reduce the impact on the environment.

This climate emergency has placed an even greater emphasis on the Plan delivering growth in a sustainable way.

Dacorum Climate Change Emergency Statement

2.57 In May 2020 the Council approved a Climate Change Emergency Statement with a vision and statement of intent to be:

'A Borough that takes robust action to tackle the local and worldwide threat of climate change, both internally and in partnership with local organisations and

residents, and to minimise its environmental impact by cutting carbon, waste and pollution.'

- 2.58 This was accompanied by a pledge to:
- *'lead by example in reducing carbon emissions year on year;*
 - *use our powers, such as Town Planning, to require all new development to be as low carbon as is possible;*
 - *work with government, business, community groups and other partners to maximize our impact on decarbonisation;*
 - *encourage and support residents, community groups and businesses to reduce their emissions across the borough;*
 - *prepare and plan for the impacts of climate change and their mitigation in our own services together with residents, community groups, businesses and partners;*
 - *keep residents and businesses as fully informed as possible about what action can be taken.'*

Dacorum Climate Change Strategy and Action Plan

- 2.59 In June 2020 the Council approved a Climate Change Strategy and Action Plan that sets out how our target for the Council to be carbon neutral in its impact through its services and assets by 2030, will be achieved. Alongside this will be the contribution the Council can make to help deliver the government's policy commitment for the whole economy to be carbon neutral by 2050. The proposed actions will evolve and adapt over time and take account of both the outcome of the interventions and external changes, for example in government policy.
- 2.60 In 2019 the Council undertook an initial baseline assessment of its carbon footprint, which grouped emissions under three categories, of which Scope One and Two are under direct control of the Council.
- Scope One is where the emissions are directly as a result of the councils' assets or service delivery which are completely under its control.
 - Scope Two are emissions the result from the purchase of elements such as gas and electricity where there is limited or no control that the Council can employ.
 - Scope Three are the emissions that are not under the Council's direct control. These result from the activities of the tenants and lessees of Council owned facilities (Council housing, sports centres, commercial assets). As the Council owns over 10,000 Council houses and flats it is unsurprising that this forms the vast majority of emissions.
- 2.61 The report recorded 37,625 tCO₂e, against which the likely impact of interventions set out in the action plan will be measured. From this it is estimated that there will be 21,919 tCO₂e from hard to reduce sources from Scope 1, 2 and 3 emissions that will be unavoidable by 2030 and that will

need to be offset. The action plan is grouped into seven themes, under which sit projects including:

- Service delivery – built assets; reducing the carbon footprint of the Council's housing stock and buildings, and private rented sector, setting high standards for new build construction projects
- Service delivery – environment; increasing the area for trees, local food growing, and biodiversity, reducing waste from businesses and increase the use of electric/hybrid vehicles in the Council's fleet
- Service delivery – increase in remote working, climate change training for staff and members, reduction in single car journeys
- Procurement of goods and services – more consideration of environmental impact when evaluating bids, use of renewable energy suppliers
- Policy maker and enforcer of regulation and statute (planning) – climate change to be key objective of the new Local Plan, new planning policies to guide major new developments to have high energy performance and provide for local energy generation, Hemel Garden Communities to encourage substantial modal shift, policies to enable local food growing, wildlife corridors and at least 3 new trees for each specimen lost through development, improved cycle routes, and mitigate for the individual and cumulative impact of air quality from new development.
- Policy maker and enforcer of regulation and statute – initiatives aimed at taxis, organisers of special events, and to encourage the uptake of electric vehicles
- Working with the community – raising awareness of initiatives and practical guidance on reducing environmental impact
- Creator and participant in partnerships to tackle the climate emergency – working with organisations within both the borough and county, and encouraging environmental businesses to the Enterprise Zone.
- As an investor and landowner – identifying land for new planting opportunities
- As a lobbyist for change at national level and with the private sector – working with other councils

3. Evidence Base

3.1 The policy approach to Climate Change and Sustainability has been developed in light of a number of key evidence base work and studies, including:

- sustainability appraisals;
- strategic environmental appraisal;
- strategic flood risk assessment;
- habitat regulation assessment, and
- greenfield site assessment.

3.2 Climate change and sustainability is interrelated with many of the policy areas the Plan needs to consider. Further explanation on how findings from these reports has guided decisions, including sites for new homes and employment, proposals for transport and services, and the provision of new open space, can be found in the relevant topic paper.

3.3 There is a growing body of articles and studies which provide detailed evidence on the causes, impact, and potential mitigation factors of climate change. This includes assessments at county and local level, from which specific results for Dacorum and Hertfordshire can be found. Useful references include:

- Committee on Climate Change, June 2019
- UK Committee on Climate Change report 'Net Zero – The UK's contribution to stopping global warming' (2019)
- Scatter GHG Inventory - local authority focused emissions tool
- Nature – Rate of tree carbon accumulation increase continuously with tree size <https://www.nature.com/articles/nature12914>
- CABI - Ever wondered how much carbon is stored in a tree? Review of paper in Ecometrica https://cabiblog.typepad.com/hand_picked/2011/06/ever-wondered-how-much-carbon-is-stored-in-a-tree.html
- Climate change: The massive CO2 emitter you may not know about <https://www.bbc.co.uk/news/science-environment-46455844>
- Low carbon concrete <https://www.pbctoday.co.uk/news/energy-news/low-carbon-concrete/72344/> ;
- <https://www.forbes.com/sites/jeffkart/2019/02/23/carboncure-technology-says-goodbye-to-carbon-dioxide-hello-to-greener-concrete/> ;
- <https://www.carbontrust.com/client-services/programmes/industrial-energy-efficiency-accelerator/mineral-products-association/>
- Carbon Brief <https://www.carbonbrief.org/analysis-why-the-uks-co2-emissions-have-fallen-38-since-1990>
- DECC estimations of emissions within the scope of influence of local authorities available at <https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-2014>

Carbon dioxide emissions

3.4 Each year the Department for Business, Energy and Industrial Strategy produces a breakdown of carbon dioxide emissions by local authority area as a subset of its annual inventory of greenhouse gas emissions. The latest data, covering the period 2005 – 2018 was released in June 2020. Table 3.4 shows the emissions for Dacorum.

Table 3.1 Dacorum CO2 emissions estimates 2005-2018 (excluding large industrial sites, railways, motorways and land-use) (2005-2018 UK local and regional CO2 emissions – data tables, Department for Business, Energy and Industrial Strategy, June 2020)

	Industry and Commercial Total	Domestic Total	Transport Total	LULUCF Net Emissions	Grand Total kt CO2	Population ('000s, mid-year estimate)	Per Capita Emissions (t)	Area (km²)	Emissions per km² (kt)
2005	332.4	355.7	291.4	-7.4	972.1	138.6	7.0	212.5	4.6
2006	254.8	354.0	295.3	-8.2	895.8	139.0	6.4	212.5	4.2
2007	243.6	345.3	297.1	-8.8	877.2	139.5	6.3	212.5	4.1
2008	249.2	343.6	279.1	-9.3	862.5	140.8	6.1	212.5	4.1
2009	224.5	312.4	279.5	-9.4	807.0	142.2	5.7	212.5	3.8
2010	236.1	337.2	271.8	-9.9	835.2	143.7	5.8	212.5	3.9
2011	204.4	294.7	265.0	-10.4	753.7	145.3	5.2	212.5	3.5
2012	234.9	318.3	263.2	-10.8	805.6	146.7	5.5	212.5	3.8
2013	228.0	313.5	265.1	-11.5	794.9	148.1	5.4	212.5	3.7
2014	252.4	264.6	271.7	-11.7	777.0	149.5	5.2	212.5	3.7
2015	179.2	258.6	279.6	-12.3	705.1	151.1	4.7	212.5	3.3
2016	165.0	247.2	284.7	-12.2	684.6	152.4	4.5	212.5	3.2
2017	151.4	230.6	290.7	-12.8	659.9	153.3	4.3	212.5	3.1
2018	147.5	229.0	287.7	-13.1	651.1	154.3	4.2	212.5	3.1

- 3.5 This shows that total carbon dioxide emissions have fallen from 972.1 kt CO₂ pa in 2005 to 651.1 kt CO₂ in 2018 a total reduction of -33%, and -1.33% reduction between 2017 and 2018.
- 3.6 Recent research published by the Tyndall Centre for Climate Change Research suggests that to meet its contribution to the UK commitment to the Paris Agreement, Dacorum needs to deliver cuts in emissions averaging a minimum of -13.6% pa. This would enable the Borough to stay within a maximum cumulative carbon dioxide emissions budget of 4.1 million tonnes for the period 2020 to 2100 and reach zero or near zero carbon by 2041. (Tyndall Carbon Targeter for UK Local Authorities, Setting Climate Commitments for Dacorum, October 2020).

Table 3.2 Periodic Carbon Budgets for 2018 for Dacorum

Carbon Budget Period	Recommended Carbon Budget (Mt CO ₂)
2018 - 2022	2.8 (0.56 pa)
2023 - 2027	1.4
2028 - 2032	0.7
2033 - 2037	0.3
2038 - 2042	0.2
2043 - 2047	0.1
2048 - 2100	0.1

3.7 Data on local authority emissions is also available from SCATTER (Setting City Area Targets and Trajectories for Emissions Reductions), funded by BEIS. The inventory sets out emissions by sector and subsector within three categories based on where they occur:

- Scope 1 (Direct emissions) – greenhouse gas emissions from sources within the local authority boundary
- Scope 2 (Indirect emissions) – greenhouse gas emissions occurring as a consequence of the use of grid-supplied electricity, heat, steam and/or cooling within the local authority boundary
- Scope 3 – all other greenhouse gas emissions that occur outside the local authority boundary as a result of activities taking place within the local authority boundary

Table 3.3 Summary Dacorum Greenhouse Gas emissions (SCATTER, 2017)

Notation keys:
Not Occuring
Integrated Elsewhere
Not Estimated
Confidential
Combination of notation keys
N/A
Required
Optional

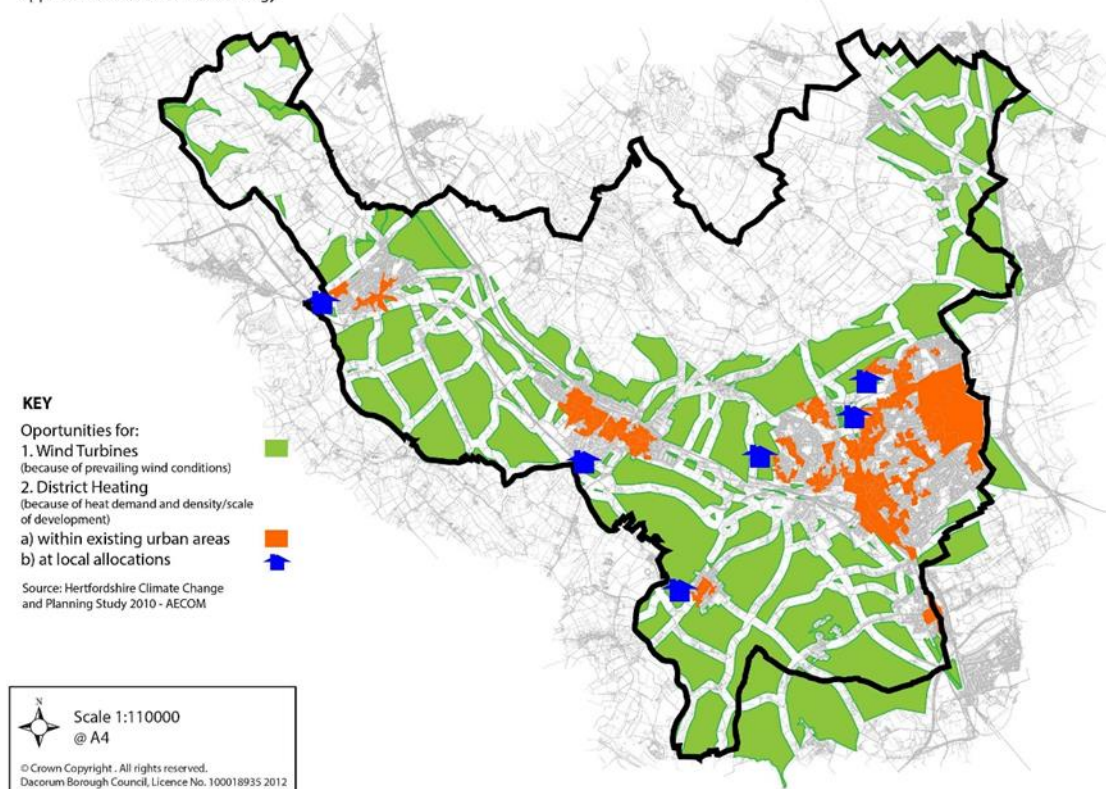
Summary Greenhouse Gas emissions (tonnes CO2e) Dacorum 2017

		Scope 1	Scope 2	Scope 3	
Sector	Sub-sector	Total tCO2e	Total tCO2e	Total tCO2e	Total tCO2e
		DIRECT	INDIRECT	OTHER	TOTAL
Stationary energy	Residential buildings	160,906.82	91,983.92	41,338.98	294,229.72
	Commercial buildings & facilities	14,279.10	13,779.85	4,826.97	32,885.92
	Institutional buildings & facilities	25,427.22	69,632.44	15,462.14	110,521.80
	Industrial buildings & facilities	18,536.10	40,364.64	10,081.48	68,982.23
	Agriculture	2,732.30	0.93	652.34	3,385.57
	Fugitive emissions	NO	-	-	-
Transportation	On-road	248,391.83	IE	48,111.91	296,503.74
	Rail	903.77	IE	215.49	1,119.25
	Waterborne navigation	1,323.94	IE	IE	1,323.94
	Aviation	NO	IE	81,181.76	81,181.76
	Off-road	2,483.92	-	NE	2,483.92
Waste	Solid waste disposal	4,870.99	-	IE	4,870.99
	Biological treatment	NO	-	IE	-
	Incineration and open burning	NO	-	IE	-
	Wastewater	9,577.36	-	NO	9,577.36
IPPU	Industrial process	10,040.01	-	-	10,040.01
	Industrial product use	0.00	-	NE	0.00
AFOLU	Livestock	10,708.52	-	-	10,708.52
	Land use	- 24,685.69	-	-	24,685.69
	Other AFOLU	NE	-	-	-
Generation of grid-supplied energy	Electricity-only generation	NO	-	NO	-
	CHP generation	NO	-	NO	-
	Heat/cold generation	NE	-	-	-
	Local renewable generation	NO	NO	-	-

Hertfordshire Renewable and Low Carbon Energy Technical Study (July 2010)

- 3.8 This technical document supporting the Core Strategy mapped CO2 emissions, levels of demand for electricity and heat, and opportunities and constraints for decentralised energy (see map below). Areas of high energy demand and CO2 emissions from existing buildings are concentrated in the higher density areas of major settlements.
- 3.9 The Study identifies opportunities for district heating in the Borough's town centres and Maylands Business Park and through large-scale greenfield development. Opportunities and constraints for other types of renewable energy, including wind power, are also identified. Natural opportunities for wind power are in the countryside, particularly in the Green Belt but are constrained by environmental concerns and associated policies. Micro-generation technologies, particularly solar water heating, photovoltaics and heat pumps can also help reduce carbon emissions.

Map 4:
Opportunities for Renewable Energy



Social impact of climate change

- 3.10 While the reports above, identify the constraints and pressures on the borough's environment, it is also important to recognise the impact climate change has on communities.

- 3.11 The Climate Just toolkit¹⁹ shows how [social vulnerability](#) combined with [exposure](#) to hazards, like flooding and heat, may lead to uneven impacts in different neighbourhoods, causing [climate disadvantage](#). The toolkit has been used to pinpoint places in Dacorum which may be most disadvantaged through climate impacts.
- 3.12 The river flooding indicator, identifies three areas in Dacorum that presently show signs of flood risk at the neighbourhood level: Brook Street, Tring, Durrants Lane, Berkhamsted and Queensway / Alexandra Road, Hemel Hempstead. This social flood risk will rise alongside any increase in average temperature.
- 3.13 For surface water flooding, the toolkit identifies Brook Street and Durrants Lane together with large areas of Hemel Hempstead as presently being subject to social flood risk of varying degrees, including very high and acute. In Hemel Hempstead, modelling shows this risk will significantly worsen, and be more wide spread, if average temperatures rise by 2 degrees. Large parts of Highfield and Adeyfield will be particularly affected.
- 3.14 In terms of fuel poverty, a relatively low proportion of households in Dacorum as a whole are defined as being in this category under the low income high costs definition. However, this masks geographic variations in the borough whereby in many rural areas up to 26% of households are classified as being in fuel poverty, in particular the Parishes of Little Gaddesden and Flamstead.
- 3.15 Socially vulnerable residents of Dacorum are also at a disadvantage where they live in homes which may be:
- built to lower standards for example solid wall construction, single glazing, inefficient heating and water systems;
 - located in off gas rural locations.
- This has multiple impacts, increasing financial costs, reducing health and wellbeing and higher carbon emissions.
- 3.16 Over the past five years the Council has undertaken a raft of energy improvements to its existing stock including:
- installing solar photovoltaic panels into seven sheltered housing schemes
 - programme of fitting LED fittings in the housing service's street lighting columns
 - installing external wall insulation at 265 individual houses of solid wall construction
 - investment of 988 window replacements, with thermally efficient double glazed units, 6632 composite doors, which have an insulated core and 3941 condensing boilers with a Seasonal Efficiency of a Domestic Boiler in the UK (SEDBUK) rating of A

¹⁹ See Climate Just webtool, <http://www.climatejust.org.uk/> (accessed 23/03/20)

- upgrading of individual blocks of flats and housing through measures including solar photovoltaics, external wall insulation, biomass boilers,
- loft installation to the majority of Council properties and cavity fill to properties with cavity construction.

3.17 The Plan can protect residents of new build properties from the risk of climate disadvantage by setting building efficiency standards and also by supporting programmes to alleviate existing inequalities through retrofitting and other schemes.

Flood Risk

3.18 The NPPF discusses the challenges of climate change alongside flooding and coastal change (paragraphs 148-149). Information on flood risk is an important aspect in development adapting to climate change, by avoiding areas of flood risk and reducing the risk of flooding elsewhere. In future years, South West Hertfordshire is likely to experience milder, wetter winters and short yet high intensity summer storms.

3.19 The Environment Agency for the Hertfordshire and North London Area has provided local guidance on the level of climate change assessment required for a development, which is available on request.

3.20 The South West Hertfordshire Level 1 Strategic Flood Risk Assessment (October 2018) considered all sources of flooding including fluvial, surface water, groundwater, sewers and reservoir within four local authority areas (Dacorum, St Albans, Three Rivers and Watford districts).

3.21 The study found fluvial flood risk to generally be confined to the Main River floodplains such as the River Colne and River Lee catchments. Overall fluvial flood risk is in close proximity to watercourses, with few areas of extensive floodplain.

3.22 Surface water flooding is shown to correlate with watercourses throughout the South West Hertfordshire Study Area, with the higher proportion of surface water flooding in densely urbanised areas such as Hemel Hempstead, St. Albans, Rickmansworth and Watford. A heightened groundwater flood risk is present in the chalk valleys of the Rivers Bulbourne, Colne, Chess, Gade, Lee and Ver, however was shown to be low for over the rest of South West Hertfordshire.

3.23 Flooding from the Grand Union Canal, although largely a residual risk, was identified within recorded incidents of breach or overtopping, predominantly in Berkhamsted and Rickmansworth, where the canal interacts with the adjacent rivers.

3.24 The potential Local Plan sites within the study area were screened to identify the proportion of the sites shown to be within fluvial Flood Zones, historic flood outlines, as well as areas at risk of reservoir and surface water flooding.

4. Consultation and Engagement

4.1 This section of the Topic Paper explains what consultation and engagement the Council has undertaken in developing the climate change and sustainability policies within the draft Local Plan, and the responses it received at each stage.

Draft (Issues and Options) Local Plan (Reg. 18) Consultation

4.2 The Council undertook a Reg.18 consultation during November-December 2017, which has helped inform and develop the Local Plan. The approach to climate change and sustainability considered at that stage, and the responses received, are summarised below. The consultation material and responses are available in full on the Council's website.

4.3 The Council's approach to climate change and sustainability policies (issue 20), involved discussions over:

- reducing emissions and energy consumption, including the use of more efficient large scale heating systems;
- sustainable building design and construction; and
- wider climate change impacts.

After each issue discussion, consultees were asked whether they supported the proposals and for their suggestions on alternative approaches.

4.4 The Council received 22,708 responses to 46 questions from 2,376 individuals and organisations. Full responses on climate change and sustainability issues can be found in the link below under question 28 – Do you think we have addressed the key issues relating to how we can help reduce the impacts of climate change.

4.5 The main issues arising relating to climate change and sustainability were:

- general support for policies, and in particular, the renewable energy proposals;
- the opportunity to introduce district heating is limited and therefore it should not be encouraged through policy as it could restrict development;
- CRT believe that the canals can be used for energy production and potentially help with the heating and cooling of new developments;
- SFRA should be reviewed to look at the potential future flood risk with climate change, and to satisfy the Environment Agency (Aylesbury Vale District Council);
- concern over site options shown at Issues and Options including:
 - unsustainable locations will make policies undeliverable,
 - sites chosen will worsen climate change, and that
 - development should instead be focused in large settlements and industrial areas;
- development along the A41 will increase congestion and pollution in Berkhamsted town centre, and that the topography of the area does not

- encourage active travel (Berkhamsted Town Council, Berkhamsted Residents Action Group);
- Kings Langley Community Benefit Society would like to see a pilot study of Passivhaus standard homes on the KL-h2 Rectory Farm site;
- concerns regarding the impact of sustainability on development including ;
 - only the minimum standards being met,
 - viability comments will discourage high efficiency development,
 - increasing environmental standards will raise house prices and reduce affordability,
- requirements for environmental accreditation including;
 - the Council should encourage environmental credentials above Building Regulations standards,
 - there should be a policy about building regulations,
 - planning permission requirements should include BREEAM, Code for Sustainable Homes and energy hierarchy to help make homes carbon neutral,
- the efficiency of the existing housing stock should also be addressed;
- policy suggestions regarding the impact of energy efficiency equipment in conservation areas, historic buildings and historic landscapes (Historic England);
- concern at the availability of water resources to serve new developments;
- issues relating to the natural environment;
 - the natural environment is an important carbon store,
 - sustainable farming and land management practices approaches to climate change should be encouraged (Chilterns Conservation Board),
 - concern at the impact of climate change on woodland,
 - more tree planting is needed,
 - removal of Green Belt/farmland/woodland would have a negative impact on climate change mitigation,
- transport measures also effect on climate change should be mentioned (Hertfordshire County Council);
- plans should include more on the provision of electric vehicle infrastructure;
- there should be policy for development to include a site waste management plan (Hertfordshire County Council).

Duty to Cooperate/Cross Boundary Matters

4.6 Since the Draft (Issues and Options) Local Plan consultation was completed, the Council has continued to engage with nearby authorities and other organisations (identified on the Statement of Community Involvement). These ongoing discussions focus on strategic and cross boundary matters, including, for some parties, climate change. Summarised below are points relevant to the Climate Change Topic Paper.

- (i) Environment Agency (EA)
 - The EA would like Plan policy to set a positive example in its response to climate change, for example by reducing domestic water consumption.

- The EA asked that ensuring development avoids areas of flood risk and is resilient to future risk of flooding be considered within climate change adaptation policy.
- (ii) Natural England (NE)
- NE is concerned at the impact growth will have on features within the Chilterns Beechwoods Special Area of Conservation that are sensitive to air quality such as the beech, semi-natural dry grasslands and stag beetle habitat.

External stakeholder consultation

4.7 The Council also approached other key stakeholders with an interest in climate change and sustainability, their feedback is detailed below.

- (i) National Trust (NT)
- The NT consider that growth in Dacorum combined with neighbouring growth will place recreational pressure on the AONB and a mitigation strategy would be appropriate, such as funded Suitable Alternative Natural Greenspace and green infrastructure within development allocations

Internal stakeholder consultation

4.8 The Strategic Planning team undertook a series of internal workshops across a range of Council teams in order to test evolving approaches to policy. This work has helped to shape and refine the emerging plan. It has delivered a range of revisions that take into account recommendations and address concerns and issues raised.

Key overarching points are summarised below

- More adaptation measures to climate change are needed, in addition to flood infrastructure (Development Management)
- Further guidance on climate change mitigation and adaptation is needed to help officers implement policy at application, such as through a Supplementary Planning Document
- Some specific matters, such as limiting personal water consumption, is difficult to enforce (Development Management)
- In addition to tree planting, other types of green infrastructure can help mitigate for climate change. Trees should ideally be locally grown (Development Management).
- Further guidance required on carbon offsetting, including management arrangements for the land involved (Development Management).
- Further guidance is needed on what will be needed through the planning application process, such as the validation requirements (Development Management).

- Need a procedure for monitoring energy reduction in developments (Development Management)
- Policy should take a fabric first approach (Development Management and Housing Development).
- Concern that mechanical ventilation (as a retrofit measure) may make a property too hot, leading to risks to health (Development Management)
- Need clarity on when stand-alone renewable measures would be acceptable in sensitive areas such as the AONB and where more flexibility will be allowed (Development Management).
- More guidance is needed on carbon offsetting, and how it will be achieved (Development Management).

Task and Finish Group Meetings

- 4.9 Officers have been working closely with the Local Plan Task and Finish Group which is a cross party panel of Members that has provided both high level guidance and detailed scrutiny of the emerging plan, its policies and proposals. As with the internal workshops discussed above, the feedback helped the Council refine the scope of, and broad approaches to and wording, of key policies.
- 4.10 In these sessions Members have expressed their ambition for Dacorum to exceed the current government target of the whole UK being carbon neutral by 2050. This directive has been a key consideration in the development of policies.

5. Local Context and Challenges

Hemel Garden Communities

- 5.1 The Council, in partnership with Hertfordshire County Council, St Albans City & District Council and the Hertfordshire Local Enterprise Partnership, is striving to maximise the benefits this can bring through the Hemel Garden Communities initiative.
- 5.2 The programme seeks to ensure that growth is delivered in tandem with interventions to integrate new communities with the town's existing neighbourhoods. The ambition is to create innovative and sustainable developments that:
- reduce the need to travel, and where it is needed, encourage modal shift to sustainable transport, reduce congestion and environmental pollution;
 - provide green infrastructure alongside development;
 - deliver high quality designed buildings, that anticipate lifetime uses, and are resource efficient in their build and ongoing servicing; and
 - take advantage of decentralised energy schemes.
- 5.3 The policies of the Plan need to enable and support the high environmental credentials and quality intentions set out in the Hemel Garden Communities Charter.

Hertfordshire Innovation Quarter

- 5.4 The aspirations of Dacorum Borough Members for the authority to advance measures to tackle climate change is shared by the Hertfordshire Local Enterprise Partnership. In 2015 the Herts LEP was successful in its bid to create a new Enterprise Zone, the Herts Innovation Quarter. This seeks to develop 3 million sq ft of new commercial space across Dacorum and St Albans districts into a leading place for green businesses, such as environmental technology, agri-tech and modern construction technologies.
- 5.5 Climate change policies need to guide design and construction standards and emission targets towards a carbon neutral standard. The need and allocation for employment space is discussed in the economic development topic paper.

6. Plan Evolution

What is the Council's approach to dealing with climate change?

- 6.1 Paragraph 20 of the NPPF highlights climate change as a key part of Strategic planning policy which local authorities are legally obliged to set out in their local plans. The Emerging Strategy for Growth seeks to address climate change by making the achievement of sustainable development a central theme throughout the document.
- 6.2 All aspects of sustainable development fall within two categories - mitigation measures that reduce greenhouse gas emissions, and adaptation measures which increase the resilience of the Borough to the consequences of rising temperatures.
- 6.3 Given undeniable evidence that global warming and climate change is a result of human intervention, a key element of the Plan's policy is to reduce carbon emissions across all areas it can influence. While the framework for reducing emissions is set out through national guidance, it is acknowledged that much of the implementation will need to be at the local level and there is a clear mandate from the Government and Council that the Plan should set high expectations in all areas within its control that affect climate change.
- 6.4 The Council's strategic approach to sustainable development supports climate change by first maximising delivery within the urban area through the reuse of previously developed sites. It then directs the majority of growth to the main towns, where the level of development can be self-sufficient and sustainable for services, deliver new infrastructure, reduce the need for travel by individual private vehicles, and take advantage of low carbon energy initiatives.
- 6.5 The NPPF paragraphs 148 and 150 make it clear that planning policies should be developed to require and / or support proposals that reduce reliance on greenhouse gas emitting processes, fuels and design.
- 6.6 To this end, a key requirement of the Council's climate change policies will be that all new development will be based on the premise of achieving sustainable development.
- 6.7 In order to monitor this, and ensure that applications are assessed consistently, developers will be expected to complete a Sustainability Statement in support of their planning applications, which demonstrates how the Council's adaptation and mitigation principles will be delivered.

What climate mitigation measures will the Council seek?

Reducing carbon emissions

- 6.8 Emissions for local authority areas are monitored annually by BEIS and provide an overview of the scale of greenhouse gas emissions and the challenges facing the Borough. According to DBEIS data, per capita CO₂ emissions in Dacorum Borough declined from 7 tonnes in 2005 to 4.2 tonnes in 2018, with total borough emissions falling from 972.1 to 651.1 kt of CO₂ in the same period. This constitutes a 33% reduction from 2005 and a 51% reduction from the base year of 1990 (1333.5 kt CO₂). This exceeds the Government's commitment to a 37% reduction by 2020 (Climate Change Act) and the results of the UK national reduction in emissions of 44% (1990 – 2018).
- 6.9 Despite this fall, our evidence shows that the rate of reductions in emissions needs to significantly increase if the Borough is to achieve its contribution to the 2050 target. The Tyndall Carbon Budget Tool suggests that the Borough should reach zero or near zero carbon by 2041, requiring cuts in emissions averaging a minimum of -13.6% pa.
- 6.10 To date, 36% of the total reduction in UK carbon emissions has been primarily driven by the transition from coal to gas and renewable energy grid electricity generation and reductions in per capita electricity use, concentrated in the industrial and residential sectors (18% of CO₂ reductions). Going forward, reductions in CO₂ emissions will be more difficult to achieve, leaving the transport and domestic sectors as key areas that will need to be targeted. Improvements in emissions reductions will come at an increased cost as the amount of building fabric investment increases, however this should be offset to the homeowner by lower running costs.
- 6.11 The Plan can help drive emission reductions through its policy requirements. New development must make a greater contribution towards climate mitigation, as the challenge and scale of retrofitting existing buildings means it will be more difficult for them to achieve the highest levels of energy efficiency and as a result, they will take up more of Borough's carbon budget.
- 6.12 To this end, the strategic policy on Climate Change sets a higher and accelerated target for all development to be net zero carbon from 2030, alongside the overarching means by which the Council will seek to achieve this through its other development management policies. Leading up until 2030 the Plan will set energy standards that prepare development to progress towards net zero carbon.

Energy performance standards

- 6.13 Some 33% of carbon emissions arise from energy use in Dacorum's homes and a further 24% from commercial, industrial and institutional buildings and facilities. This shows that, despite significant progress on the reduction of domestic energy consumption, there is still a need to make improvements in this area.

- 6.14 National legislation requires homes and buildings to meet the energy efficiency standards of the Building Regulations Part L. The last major review was in 2013. The demise of the Code for Sustainable Homes in March 2014, removed the progressive stepping up of energy efficiency standards to zero carbon by 2016. Furthermore, the expansion of permitted development to include the conversion of buildings to residential use has made the delivery of actions to secure mitigation and adaptation much more difficult. Whilst there are a few isolated examples of developments in the Borough that have been designed to exceed Part L of the Building Regulations, and indeed some that target Passivhaus standards, the majority of developments only achieve Part L.
- 6.15 The energy performance of new buildings is one area that the planning system can influence. Local authorities currently have powers under the Building and Energy Act 2008 to set energy efficiency standards in planning policy that are higher than Part L of the Building Regulations.
- 6.16 The UK Green Building Council recommends that local planning authorities set a requirement for new homes that is equivalent to the energy performance requirements in the Code for Sustainable Homes Level 4, as follows:

A 19% reduction on the Dwelling Emission Rate (DER) against the Target Emission Rate (TER) based on the 2013 Edition of the 2010 Building Regulations (Part L) whilst meeting the TER solely from energy efficiency measures as defined within the SAP calculation model.

For absolute clarity, the reference to 'solely energy efficiency measures' refers to DER against the TER (i.e. the current requirements of Part L 2013) not to the 19% improvement factor.

In addition, it is recommended that:

Requirements for new homes delivered through local authorities' own procurement processes, and homes built on land disposed of by local authorities should at least match this requirement and where possible act as a trailblazer for higher standards.

- 6.17 For all new major residential development taking place up until 2030, the Plan's starting point for energy performance will be the above recommendation from the UK Green Building Council of a 19% reduction on the Dwelling Emission Rate (DER) against the Target Emission Rate. For new-build non-residential development, or multi-occupation residential, a BREEAM standard of Excellent for buildings will apply.
- 6.18 However, there is a limit to how much carbon emission reductions can be delivered through energy efficiency standards and the Council recognises that more is needed to achieve our future carbon budgets and meet our carbon emergency resolution. For this further focus is needed on the source of the energy used by development. Table 3.3 Summary of Greenhouse Gas Emissions shows that in 2017, 91,983 tCO_{2e} occurred as a consequence of

residential buildings use of grid supplied electricity, heat, steam and/or cooling.

- 6.19 Supporting the use of energy from clean, renewable sources can help reduce this figure. To aid this, in addition to the 19% reduction on Dwelling Emission Rate, Plan policy will require new-build major residential development to either provide on-site renewable energy generation or to provide and connect to decentralised low carbon energy sources. This will help contribute towards a further 20% reduction in residual carbon emissions.
- 6.20 This tiered approach of reduced energy performance up until 2030, and all development to be net zero carbon from 2030 onwards, will remain in place unless superseded by the Future homes standard or other national legislative requirements.
- 6.21 Policy will require new development to explain how the ongoing use of buildings will limit CO₂ emissions through the submission of an energy statement and other supporting information.

Closing and monitoring the performance gap

- 6.22 However high the standards the Plan sets for new development there is still the risk that the performance of the building as predicted at the design and planning application stage, will not be achieved once it is constructed and in operation – this is known as the performance gap. Even in homes designed to be low carbon, the Building Performance Evaluation Programme (Innovate UK 2016) found that buildings were using up to 3.5 times more energy than expected. The overall differential between design and operation across all development is likely to be much higher, but is largely not evaluated or recorded.
- 6.23 As buildings contribute 57% of total Borough emissions, both setting energy standards and monitoring their delivery, are key tools in the drive towards net zero carbon.
- 6.24 For commercial buildings, schemes such as BREEAM require the operation of any building that achieves an Excellent or Outstanding rating to be tested post occupancy, through the BREEAM In Use tool.
- 6.25 The Plan can help by requiring development to set out how it will close the performance gap, including a monitoring regime with the results to be submitted to the planning authority.

Carbon off-setting

- 6.26 However low the energy performance requirements within the Plan, development is still likely to generate unavoidable carbon emissions that will need to be offset in order for the Borough to become net zero carbon. In

offsetting, the carbon emissions are counteracted by investing in activities that will remove an equivalent amount of carbon dioxide from the atmosphere.

- 6.27 For carbon off-setting to work in practice, a calculation is needed of both the emissions to be offset and those that will be removed by the carbon saving activity. Best practice guidance on calculating carbon footprints is provided by the Greenhouse Gas Protocol and carbon conversion factors published by BEIS. The energy consumption of commercial buildings can be estimated using the Building Regulation UK Part L report (BRUK Report).
- 6.28 The types of initiatives that could be funded through carbon off-setting include tree and woodland planting, renewable energy generation schemes and improving the energy efficiency of existing buildings.
- 6.29 Further guidance will be developed on the Council's carbon off-setting scheme.

Carbon storage

- 6.30 New development should also make a positive contribution to the capture and storage of carbon, to help reduce carbon dioxide volumes in the atmosphere. While all living plant matter absorbs carbon dioxide, trees process more due to their large size and extensive root structure²⁰. They do this by converting carbon dioxide into carbon and locking it up into the biomass of the tree, both above and below ground. Moreover, the rate at which trees absorb carbon dioxide increases as they become older and larger²¹.
- 6.31 One hectare of woodland can absorb emissions per year approximately equivalent to the emissions that 566 family cars make in a day.²² Trees also have other significant benefits including removing sulphur dioxide from the atmosphere, attenuating noise, providing habitat for wildlife, and natural air conditioning and shade, thereby attenuating heat waves and urban heat island effects, and moderating the rate of water run-off through rainfall attenuation, which reduces the risk of flooding.
- 6.32 New development will therefore be expected to retain and replace existing trees, and help to plant more trees to expand the tree canopy in the Borough and assist in reversing climate change.
- 6.33 The previous requirement under the Core Strategy to plant a minimum of 1 tree per dwelling, or 100 sq m floorspace for non-residential development, has

²⁰ Each tonne of carbon equals approximately 3.67 tonnes of CO₂
https://cabiblog.typepad.com/hand_picked/2011/06/ever-wondered-how-much-carbon-is-stored-in-a-tree.html

²¹ <http://theconversation.com/big-old-trees-grow-faster-making-them-vital-carbon-absorbers-22104>

²² Based on coniferous forest plantation and cars having an average fuel economy of 37.6 mpg and driving an average of 12,000 miles per year
https://www.sfmcanada.org/images/Publications/EN/C02_Sink_EN.pdf

been increased to 2 trees in recognition of trees importance in helping to reduce global warming and climate change.

- 6.34 The current Core Strategy also requires important trees on development sites to be retained, or otherwise replaced with a suitable species if their loss is justified. As explained above, as trees mature they absorb more carbon. As a result planting one tree to replace a specimen felled due to development will not provide the same amount of carbon absorption as the tree that has been lost. The Council's Climate Emergency Action Plan sets out that any trees lost through development should be replaced with at least three new trees, either on site or in a new location.
- 6.35 While this requirement has been taken into policy of the new Local Plan, further guidance will be needed on how this will work in practice alongside the biodiversity net gain and carbon off-setting requirements.
- 6.36 When new trees are planted, it is important that they are given sufficient space to grow to maturity in order to maximise the amount of carbon they absorb over their lifetime. Ensuring new trees are planted in conditions that enable them to thrive into maturity will be secured through the policy on landscaping on development sites.

Low carbon energy

- 6.37 The Plan also has a role in promoting low carbon energy generation to reduce dependency on fossil fuel. Energy generation schemes range from microgeneration renewable energy technologies (producing some of the energy used by a single household) through to energy projects at a community scale. Within the UK the majority of community energy projects currently focus on electricity generation. Other project areas include energy efficiency measures and a small share on heat generation.
- 6.38 It is these types of low carbon energy measures – on-site renewable energy generation and decentralised energy sources – that Plan policy will support by requiring all new major residential development to provide and connect to in order to improve on the carbon emissions reductions up to 2030.
- 6.39 The Hertfordshire Renewable and Low Carbon Energy Technical Study (July 2010) considered where there may be suitable opportunities across the Borough to locate district heating and renewable and low carbon technologies, such as wind turbines (shown on map under 3.9 above).
- 6.40 The map shows areas of Dacorum's countryside where wind turbines may be suitable. Much of Dacorum's countryside is constrained by environmental and green belt policies and the presence of the Chilterns Area of Outstanding Natural Beauty. The Chilterns Conservation Board recognises the environmental benefit these types of measures can deliver and has prepared a Position Statement on Renewable Energy to explain how such development can be made appropriate.

- 6.41 The study also showed potential areas within the three main towns of Hemel Hempstead, Berkhamsted and Tring where the density and future types of development may make a district heating scheme viable. A district heating system supplies heat to multiple buildings from a central local and efficient heat source such as a combined heat and power plant. District heating schemes are most effective in areas where there is a significant demand for energy within a compact area. The type of technology used is tailored to local circumstances and cost effectiveness and can utilise energy generated from community or commercial use buildings or energy generated by the natural environment.
- 6.42 The Council has commissioned a further energy mapping study from BEIS, to identify areas of high energy usage within the main towns which could benefit from district heating or other decarbonisation measures.
- 6.43 It is important to note that the Hertfordshire Renewable and Low Carbon Technical Study did not consider solar energy, which is currently the most dominant technology, or large scale battery storage which may be found co-located with solar energy collection.

Low embodied carbon

- 6.44 Using materials with low embodied carbon can help reduce greenhouse gas emissions, and as the construction industry uses large quantities of materials in the construction of buildings and infrastructure, this is an important area that should be targeted.
- 6.45 Embodied carbon is the carbon footprint of a material. It considers how much greenhouse gas has been emitted during its manufacture, transport and construction, together with end of life emissions. For example, if concrete is specified on a project then carbon will have been emitted during its manufacture. Cement manufacture is the source of about 8% of the world's CO₂ emissions, contributing more than aviation fuel (2.5%)²³.
- 6.46 Broadly, materials with low embodied carbon should be specified before those with high embodied carbon. Regard must of course be had to the quantities required. Brick has a higher embodied carbon per kg than concrete, but since it is a porous material, the tonnage required will generally be less. Subject to design and appearance requirements, timber should be targeted in preference to brick or concrete for main structural elements. Furthermore, timber is also an excellent insulator and a carbon sink, as the carbon dioxide within it is only released when it is burnt or decays. Timber should always be Forest

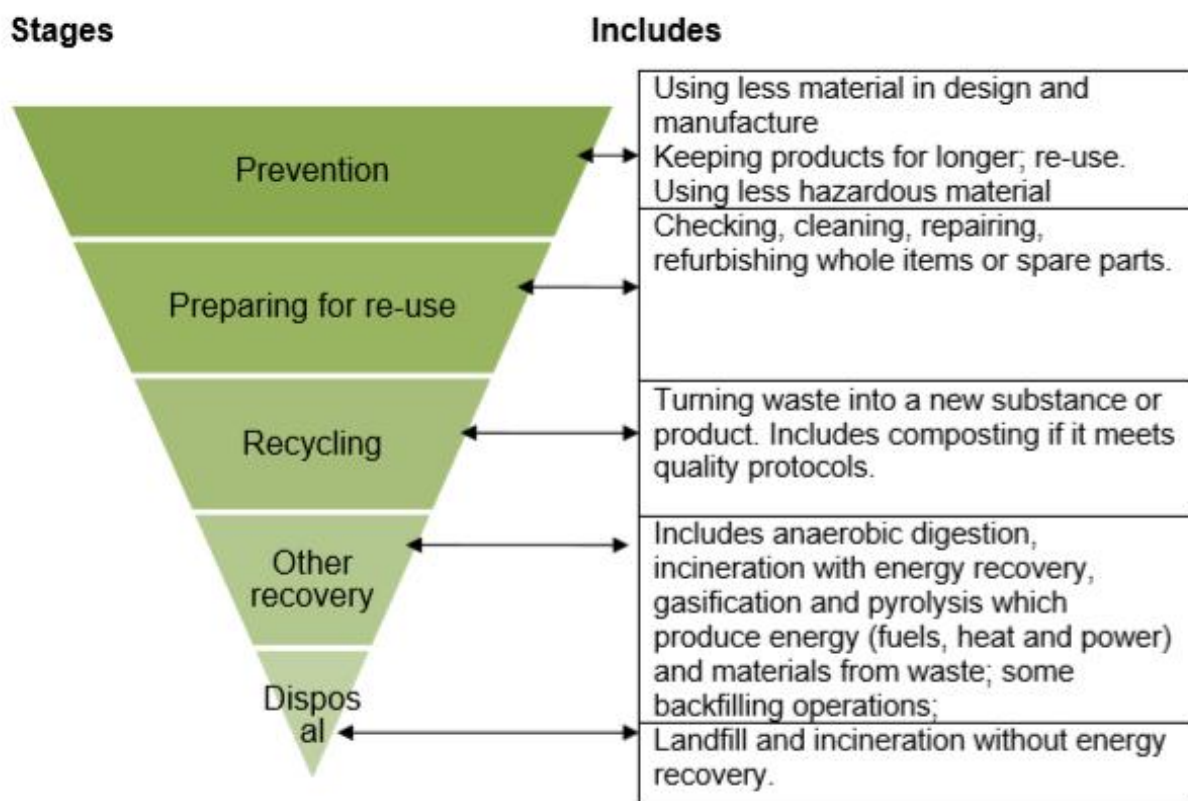
²³ Climate change: The massive CO₂ emitter you may not know about
<https://www.bbc.co.uk/news/science-environment-46455844>

Stewardship Certified. Where there is no substitute for concrete, it is possible to specify a low carbon equivalent that locks up CO₂ in its manufacture²⁴.

Construction waste

- 6.47 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.
- 6.48 DEFRA UK Statistics On Waste (February 2018) recorded that 202.8 million tonnes of waste was generated in the UK in 2014, of which 59% resulted from the construction, demolition and excavation sector. While non-hazardous construction waste can be recovered, designing buildings that help to minimise the consumption of resources, and the construction waste from decommissioning, reduces both the Borough’s carbon footprint and costs for developers and occupiers. Waste should therefore be minimised as far as possible in construction and should be considered in accordance with the following waste hierarchy²⁵.

Figure 1 Waste hierarchy of materials usage



²⁴ <https://www.pbctoday.co.uk/news/energy-news/low-carbon-concrete/72344/> ; <https://www.forbes.com/sites/jeffkart/2019/02/23/carboncure-technology-says-goodbye-to-carbon-dioxide-hello-to-greener-concrete/> ; <https://www.carbontrust.com/client-services/programmes/industrial-energy-efficiency-accelerator/mineral-products-association/>

²⁵ Ibid

6.49 Whilst there is no legal requirement for a Site Waste Management Plan (SWMP), implementing one will help manage materials more effectively and help reduce waste and costs. Where practical, developers should consider the reuse or refurbishment of existing buildings first, before demolition. If demolition is then proposed, materials should be reused on site as much as possible. Working down the hierarchy, materials should next be used elsewhere, and then recycled if this is not possible. Sending them to land-fill is the last option. To limit the future waste train, the design and construction of buildings should allow for the easy recovery and recycling of materials at the end of the building's life.

Design and built environment

6.50 Design can have a profound effect on a household's contribution towards climate change. Design can impact at all scales of development from creating compact walkable development, with local services, and access to walking, cycling and green space connections to the orientation, layout and specification of homes that cuts carbon emissions, is efficient in its use of resources, and will be resilient to rising temperatures and extreme weather events.

6.51 The layout of development should maximise the benefits of solar gain and energy efficiency through the size, layout and orientation of buildings, and the size and position of windows, but should do this in a way that avoids overheating or cooling. This will limit the need for additional active energy consumption for heating or cooling purposes. The design of development should follow the cooling hierarchy in figure 2 in order to minimise the need for mechanical ventilation.

Figure 2 Cooling Hierarchy

<u>1</u>	Passive design to minimise unwanted heat gain during the summer and manage heat – for example by using building orientation, external shading, albedo, fenestration, green roofs and walls, a well insulated and air tight building envelope, high levels of thermal mass and energy efficient lighting and equipment (to reduce waste heat entering the building).
<u>2</u>	Passive ventilation / natural cooling – using outside air to ventilate and cool a building without the use of a powered system, for example by maximising cross ventilation (single

	aspect developments are generally discouraged), passive stack ventilation, night-time cooling and/or ground coupled passive cooling.
<u>3</u>	Passive and active ventilation / mixed mode cooling with local mechanical ventilation / cooling provided where required to supplement the above measures using (in order of preference): i. Low energy mechanical cooling (e.g. fan-powered ventilation with / without evaporative cooling or ground coupled cooling) ii. Air conditioning (not a preferred approach as these systems are energy intensive)
<u>4</u>	Active ventilation / full building mechanical ventilation / cooling system using (in order of preference): i. Low energy mechanical cooling ii. traditional air conditioning

6.52 The policies of the new Plan can establish the main principles but more guidance is needed to fully cover all aspects of design and support the Council's carbon neutral targets. For this purpose, the Council is preparing comprehensive new design guidance, of which the first part – the Strategic Design Guide and Employment Uses Guidance – will shortly be adopted.

Transportation and electric vehicles

6.53 A significant amount of greenhouse gas emissions arise from transportation in all forms. In Dacorum this accounted for 38.6% of all emissions in 2017 or 330,484 tonnes CO₂e²⁶, three quarters of which was from road transport²⁷. It is therefore an important area that should be targeted by policy.

6.54 The NPPF addresses several mitigation-related policy issues, including the need to encourage sustainable transport modes by designing and locating development to reduce the need to travel (Paras 103, 104, 105).

6.55 The Local Plan will seek to prioritise sustainable transport modes over private motorised vehicle usage, and ensure places are located and designed to ensure they are accessible neighbourhoods that encourage use of non-motorised transport. New development will also be expected to

²⁶ 6 Carbon dioxide equivalent

²⁷ Scatter GHG Inventory - local authority focused emissions tool

provide accessible cycle storage facilities and convenient electric vehicle charging points.

- 6.56 Measures introduced through new development may also benefit existing neighbourhoods if new cycle and pedestrian routes and passenger transport initiatives are well connected and integrated.

Retrofitting existing building stock

- 6.57 The need to retrofit the existing building stock is recognised as very important to meeting the Government targets for reducing GHG emissions. The existing building stock contributes some 19% of total carbon emissions in the UK, and of this 77% is attributable to homes (Committee on Climate Change, Reducing UK Emissions Progress Report to Parliament, June 2018). Unfortunately, this is largely beyond the direct influence of the planning system as it cannot require that existing development make energy efficiency improvements to reduce GHG emissions.
- 6.58 However, where planning permission is required, for example due to external alterations to a building, the Council's policies can ensure proposals for retrofitting existing buildings that will improve energy efficiency and reduce CO₂ emissions, or that will improve their suitability for reuse (thereby avoiding demolition and resulting greenhouse gas emissions), will be given strong support.

Future-proofing development

- 6.59 In order to future-proof development, proposals should be designed to enable retrofitting to meet higher energy efficiency standards that may be introduced. Sustainability statements will be expected to explain how proposals have met this future-proofing requirement. Future retrofitting changes could include replacing outmoded gas or fossil fuel boilers with renewable sources such as Air Source Heat Pumps (ASHP)²⁸ or other low or zero carbon sources, or improving the efficiency of the building fabric. In Renewable Energy Opportunity Areas, and other defined locations, development will be expected to be suitable to connect to networks of community heating if these become available.
- 6.60 Proposals should explain how buildings will enable internal adaptation to cater for all life stages, such as allowing for Equality Act 2010 compliance, introduction of a stair lift or conversion of a ground floor room to a bedroom or walk in shower.

²⁸ Conventional gas fired boilers are expected to be phased out in new builds by 2025 and substituted by alternative heating based on ASHPs

What climate adaptation measures will the Council seek?

- 6.61 A further key element to the Council's policy is climate adaptation²⁹, through which new development can help minimise or limit the effects of climate change such as flooding or overheating risk. The range of applicable measures is wide, and encompasses green infrastructure, which provides multiple environmental benefits.
- 6.62 The NPPF states that plans should use opportunities provided by new development to reduce the causes and impacts of flooding (where appropriate through the use of natural flood management techniques). The need to minimise flood risk and increase resilience through incorporation of Sustainable Urban Drainage Systems (SuDS), as well as avoiding flood zones, is an important adaptation measure to the increased risk of flooding.
- 6.63 The level of water stress in Dacorum and the wider Thames Water Region demonstrates the need to adopt the optional higher water efficiency standard within Building Regulations Part G for new dwellings. Installation of water efficient fixtures and fittings is a cost-effective way to reduce water consumption at new development. For the same reason, proposals should also commit to reducing water consumption during construction, for example by specifying non-wet trades.
- 6.64 Sustainable design includes measures such as the planting of native species, landscaping and green infrastructure provision, and the provision of ecological enhancements such as nesting sites or roosts. These can provide an important element of resilience and adaptation to climate change effects and are recommended to help sites link with wildlife corridors and the wider natural environment. Enhanced biodiversity will improve the quality of life and property values, as well as delivering ecological benefits.

²⁹ i.e. measures that reduce the effects of climate change and build in resilience

7. Conclusions and next steps

- 7.1 This Topic Paper has been prepared to support the emerging policy approach set out in the Emerging Strategy consultation by providing further explanation of the Council's approach.
- 7.2 Further work will be needed following the consultation to refine the policy approach in response to comments received and any further evidence that the Council prepares. The final policy approach will also be informed by national policy and legislative changes and further work on whole plan viability.
- 7.3 The Council will also be preparing a Supplementary Planning Document to provide more detail on our approach to securing developer contributions.