Harborough District Council: Climate Change and Renewable Energy Study

Policy Review

Harborough District Council

Final Report

Prepared by LUC

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Executive Summary

LUC was commissioned by Harborough District Council (HDC/the Council) to undertake a climate change study to inform the preparation of its new Local Plan covering the period 2020 to 2041. The climate change study comprises three elements, which have been produced as separate reports, listed below:

- Climate Change Risk Assessment;
- Policy Review (this report); and
- Renewable Energy Assessment.

This Policy Review provides evidence and recommendations for the Council on appropriate policies and approaches for addressing climate change mitigation and adaptation within and alongside its Local Plan update.

Advice in this report on climate change adaptation is informed by the climate change risk assessment (CCRA) and the likely changes to the climate it projects for Harborough in future years. It highlights spatially specific risks linked to the impacts of climate change in Harborough, particularly in relation to flood risk from rivers and surface water and overheating. Some of these spatially specific risks were shown to coincide with areas of social vulnerability, which is a measure of how the personal, social, and environmental factors come together in particular neighbourhoods to make them more vulnerable to climate risks such as flooding or overheating (e.g. sensitivity due to age profile, level of exposure to the risk, ability to prepare, respond and recover to risks). For instance, there is a concentration of vulnerable neighbourhoods in Market Harborough where large numbers of the most vulnerable people are exposed to surface water flood risk, therefore policy could seek to require higher standards of risk avoidance and mitigation in those areas.

The CCRA highlighted where opportunities exist within planning policy to address this climate risk and the broad policy approaches available, and found that there were some risks which may be better addressed through other mechanisms e.g. risks to energy and transport infrastructure from extreme

weather, or the effects of climate on agricultural productivity of soils. It also highlighted that planning policies need to consider how climate change risks over different timescales vary and therefore need to be incorporated in to policy responses in the built environment and land use to achieve successful adaptation. This was used to inform the selection of policy approaches reviewed in the subsequent Policy Review (set out in this report).

Following and building upon the CCRA, the Policy Review explored existing policies in the 2019 Adopted Local Plan and their suitability for addressing climate change mitigation and adaptation. It then identified alternative policy approaches that HDC could consider and, where necessary, developed recommendations for more stringent or ambitious policy approaches that HDC should include in its new Local Plan to adequately respond to mitigation and adaptation needs.

Recommendations in the Policy Review comprise, therefore, a mix of policies continued from the currently adopted plan, amended policies and new policies to be included in the Local Plan update. There are also recommendations for policies or initiatives outside of the Local Plan, where appropriate. All recommendations have taken into account the deliverability and viability of such policy approaches in the economic and policy landscape faced by HDC and its Local Plan.

The two tables below identify the recommendations that have been made in this Policy Review to HDC. Each recommendation corresponds to a topic of policy intervention on mitigation and adaptation identified by the Council. The table signposts where in the main Policy Review Report each recommendation to the Council is discussed, along with the location of the background to each policy recommendation made.

Table 1.1: Summary of climate change mitigation recommendations

Topic	Recommendation	Recommendation Page Number	Policy Background Page Number
Net zero carbon emissions in new developments	Align policy requirements with HQM and BREEAM	Page 53	Page 21
Reducing carbon in transport	Sustainable travel hierarchy	Page 85	Page 60
Reducing carbon in transport	EV charging points	Page 85	Page 66
Reducing carbon in transport	Car clubs	Page 85	Page 78
Renewable energy projects and infrastructure (see 'Harborough Renewable Energy Study' for main recommendations)	Local Development Orders for rooftop solar	Page 90	Page 88
Supporting land based carbon sequestration	Canopy cover in new developments	Page 106	Page 91
Supporting land based carbon sequestration	Identify priority sites for woodland creation	Page 106	Page 101
Reducing waste and the circular economy	Require developments to minimise waste during construction and operation of the development	Page 128	Page 108

Topic	Recommendation	Recommendation Page Number	Policy Background Page Number
Reducing waste and the circular economy	Produce local guidance to influence residents and businesses	Page 128	Page 108

Table 1.2: Climate change adaptation recommendations

Topic	Recommendation	Recommendation Page Number	Policy Background Page Number
Avoiding flood risk	Incorporate drainage hierarchy in policy	Page 153	Page 133
Avoiding flood risk	SuDS designed as part of wider GI objectives	Page 153	Page 133
Water efficiency in new developments	110l/p/d requirement made mandatory	Page 169	Page 154
Greywater recycling/ rainwater harvesting	No policy recommendation	Page 175	Page 171
Designing for a changing climate	Developments to achieve credits in HQM and BREEAM adaptation categories	Page 195	Page 176
Designing for a changing climate	Publication of guidance on designing for adaptation	Page 195	Page 176

Chapter 1

Introduction

1.1 LUC was commissioned by Harborough District Council (the Council) to undertake a climate change study to inform the preparation of its new Local Plan covering the period 2020 to 2041. The climate change study comprises three elements, which have been produced as separate reports:

- Climate Change Risk Assessment;
- Policy Review (this report); and
- Renewable Energy Assessment.

1.2 This report provides evidence and recommendations for Harborough District Council (HDC) on appropriate policies and approaches to addressing climate change mitigation and adaptation within and alongside its Local Plan update.

1.3 It reviews existing policies in the 2019 Adopted Local Plan and advises on their suitability for addressing climate change mitigation and adaptation, identifies alternative policy approaches that HDC could consider, and where necessary, recommends more stringent or ambitious policy approaches that HDC is encouraged to include in the new Local Plan. The other studies conducted as part of this commission are discussed in a sub-section below.

Structure of this report

1.4 This chapter introduces the overall Climate Change study that LUC has been commissioned to carry out for HDC and describes the method used to undertake the policy review which is the subject of this report. Chapter 2 presents the policy review and is structured thematically, discussing 10 policy areas where the Council may consider advancing its Local Plan and related policy:

- **Climate change mitigation**
  - Net zero carbon emissions in new development
  - Reducing carbon emissions from transport
  - Renewable energy projects and infrastructure (note this policy theme is presented in the separate Renewable Energy Study report).
  - Supporting land-based carbon sequestration
  - Reducing waste and the circular economy
- **Climate change adaptation**
  - Avoiding flood risk, including Sustainable Drainage Systems (SuDS)
  - Water efficiency in new developments
  - Greywater/rainwater harvesting
  - Designing for a changing climate

1.5 A Glossary of terms used in the report is provided in **Appendix A**.

Other reports within this evidence base study

1.6 As noted above, there are two other elements to this climate change study that have been reported on separately: the climate change risk assessment and the renewable energy study.

Climate Change Risk Assessment

1.7 A high-level risk climate change risk assessment (the CCRA) was developed to inform HDC of the climate-related impacts it should adapt to.

1.8 This report presents both past climate trends and future projections at different regional scales. Past climate trends and future climate projections for England, regionally, and for Harborough largely draw on different sources provided by the Met Office. Climate projections are then used to inform a discussion of the key economic, social, and physical risks facing Harborough from climate change, drawing on various secondary sources and based on significant mapping of risks across the District along different themes of climate impact, conducted by LUC.

1.9 The risks identified have informed the selection of policy areas addressed in the policy review (in the climate change adaptation section).

Renewable Energy Study

1.10 This study undertakes an assessment of the 'technical' renewable energy resource potential within Harborough, covering onshore wind (from small to large in terms of blade tip height); ground-mounted solar PV (at a variety of scales); roof-mounted solar; biomass (including forestry and woodland residues, energy crops, recycled wood waste, agricultural residues (including anaerobic digestion) and sewage where data are available); micro-hydro and heat pumps.

1.11 The renewable energy potential for each technology is expressed as generating capacity in MW, typical annual energy yield in MWh or GWh, and resulting carbon savings if compared to using fossil fuels. Maps have been produced showing areas where different technologies have technical potential.

1.12 The report also reviews renewable and low carbon energy planning policy approaches that could be incorporated within the Local Plan including criteria-based policies, areas of suitability for wind and solar, energy opportunity maps (in line with footnote 58 of the NPPF and para 165 of the proposed draft NPPF of August 2024) and community renewables. The advantages and disadvantages of these approaches and examples of successfully adopted plan policies are presented.

1.13 Therefore, although renewable energy and low carbon infrastructure is one of the key policy themes to be considered by HDC in preparing its new Local Plan, detailed review of policy approaches and recommendations is presented in the Renewable Energy Study Report, rather than this Policy Review Report.

The role of the Local Plan in addressing climate change

Drivers for reducing greenhouse gas (GHG) emissions

1.14 There is clear evidence for the need to respond to the threat of climate change, as laid out in the latest Intergovernmental Panel on Climate Change (IPCC) reports **[See reference 1]**. Over the past ten years, global GHG emissions were at their highest levels in human history, and without immediate and deep emissions reductions across all sectors, we will be unable to avoid dangerous impacts of climate change. Local governments can reduce their contribution to climate change by reducing emissions through mitigation measures, as well as preparing their area for any likely or unavoidable impacts through adaptation measures.

1.15 In 2016, the UK became a signatory to the **Paris Agreement**, thus joining an international effort to keep global temperature rise 'well below' 2°C above pre-industrial levels, while aiming for temperature rise of no more than 1.5°C.

1.16 The **UK Climate Change Act**, first adopted in 2008 and amended in 2019, aligns with this international commitment by setting a legally binding target for the UK to achieve a 100% reduction in net emissions by no later than 2050. Under the Climate Change Act, the Government is also required to set interim 5-year carbon budgets, which specify the volume of GHGs that can be emitted in a given period.

1.17 The **6th Carbon Budget**, which will run from 2033-2037, was announced by the Climate Change Committee (CCC) in late 2020 **[See reference** 2**]**. Although such carbon budgets are legally binding, the UK is currently not on track to meet the latest reduction budget of 78% below 1990 levels by 2035. The proposals set out in the **UK Net Zero Strategy** (2021), which sets out 'policies and proposals for decarbonising all sectors of the UK economy', go some way towards addressing this gap.

1.18 Section 19 of the **Planning and Compulsory Purchase Act 2004** places a legal duty on local planning authorities (LPAs) to ensure that development plans 'include policies designed to secure that the development and use of land in the LPA's area contribute to the mitigation of, and adaptation to, climate change.' **[See reference** 3**]**.

1.19 The **Planning and Energy Act 2008** enables local authorities to impose 'reasonable requirements' for:

a) a proportion of energy used in development of their area to be energy from renewable sources in the locality of the development;

b) a proportion of energy used in development in their area to be low carbon energy from sources in the locality of the development;

c) development in their area to comply with energy efficiency standards that exceed the energy requirements of building regulations **[See reference** 4**]**.

1.20 The current **National Planning Policy Framework (NPPF)**, provides a national framework for local authorities to support the preparation of planning policies and planning decisions **[See reference** 5**]**. It explains that the planning system should 'shape places that contribute to radical reductions in greenhouse gas emissions.' It goes on to say that plans should consider suitable areas for renewable and low-carbon energy sources, and that new development should be planned in such a way that GHG emissions are reduced. Paragraph 158 of the NPPF requires that development plans should take a proactive approach to

mitigating and adapting to climate change in line with the objectives and provisions of the Climate Change Act 2008 (see above).

1.21 In August 2024, a new, draft proposed NPPF was published by central government. With regards to climate change, there are no significant changes to its content and resulting requirements, though it does elevate the expectation to identify suitable areas for renewables and low-carbon energy generation from a consideration to a requirement and puts greater onus on local planning authorities to support applications for such development. It has also removed a key footnote that effectively prevented onshore wind energy generation by requiring significant community support for any such scheme.

1.22 At a local level, Harborough District Council has affirmed its commitment to tackling climate change. In July 2019, Harborough District Council declared a Climate Emergency, recognising that there is a need for urgent action to reduce emissions and to ensure that communities are prepared and resilient to the effects of climate change. The Council has adopted a Climate Emergency Action Plan **[See reference** 6**]** with key commitments including:

- The Council commits to demonstrate political and corporate leadership in acting on climate change.
- The Council commits to managing its own assets and services, with the aim of reducing carbon emission to net zero by 2030, as far as practical.
- The Council commits to working with residents and communities to support their actions in reducing emissions and help them increase their resilience to the impacts of climate change.
- The Council commits to working with businesses to support their actions in reducing emissions and help them increase their resilience to the impacts of climate change.
- The Council commits to ensuring that new development is designed to mitigate emissions and be resilient to the impacts of climate change.
- The Council commits to working in partnership to promote resilient natural systems that will help to reduce the impacts of climate change.

1.23 HDC's commitment, above, to ensuring that new development mitigates emissions and be resilient to climate change, is most pertinent to the work of the Local Plan. The Plan can specify expectations of new developments in terms of their design, build quality and use of renewable energy. It can also support the Council in its commitment to promoting resilient natural systems (by influencing the development of green infrastructure and making spatial decisions across Harborough) and in its commitment to demonstrating leadership on acting on climate change. The relevant remits of land-use planning are explored in the next sub-section, below.

How can a local plan help achieve net zero

1.24 The UK Net Zero Strategy highlights the crucial role local authorities play in achieving net zero targets, stating that "*Devolved and local government play an essential role in meeting national net zero ambitions,… Taking a place-based approach to net zero is also vital to ensuring that the opportunities from the transition support the government's levelling up agenda*".

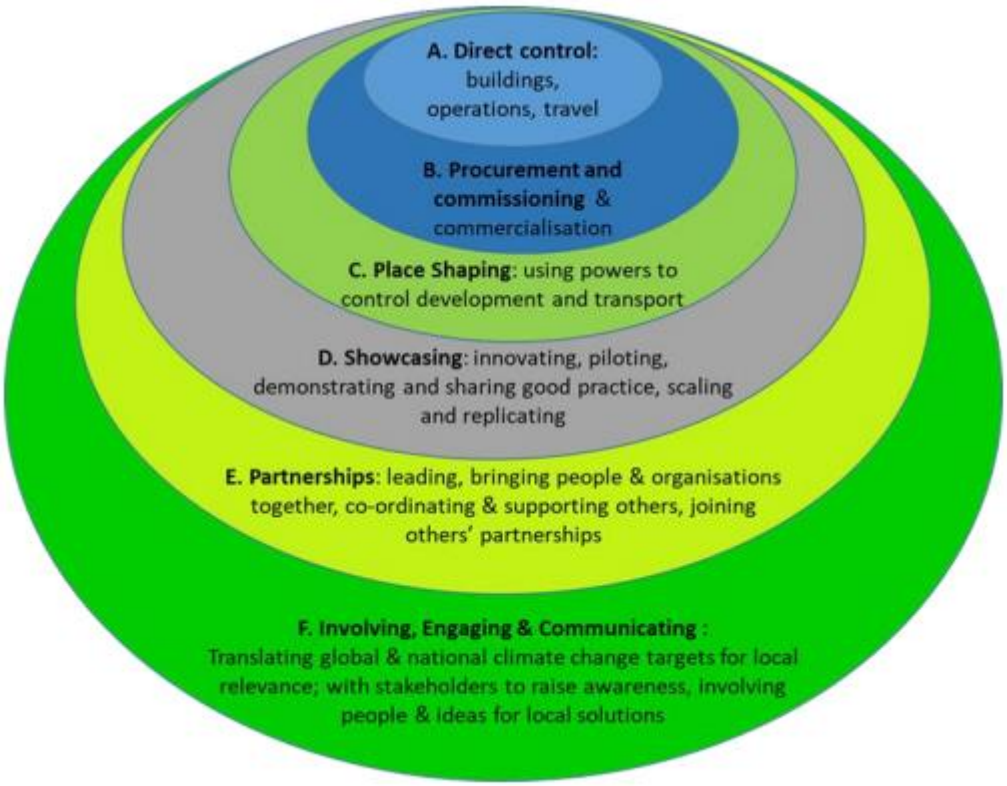
1.25 The Climate Change Committee (CCC) states that while local authorities directly contribute between 2-5% of their local area emissions, their place-shaping powers and actions potentially influence around a third of UK emissions principally in the buildings, transport, waste and land-use sectors **[See reference 7]**. The CCC believe that local authorities' main powers and duties in delivering net zero are:

- An overarching role to support the economic, health and social wellbeing of communities
- Planning powers over buildings and transport
- Enforcement of building regulations
- Powers to ensure buildings meet basic energy efficiency standards
- Duties to prevent homelessness and prevent hazards in housing
- Duties to manage risk including climate risks such as flooding

- Duties and powers to protect the environment, wildlife and heritage
- Duties to collect and dispose of waste
- Borrowing and investment powers

1.26 Beyond these powers and duties, the CCC see local authorities wielding different types of levers to control or influence behaviours and practices for net zero targets. This is important to understand for local authorities. Controlling and regulating is a very different act to influencing and showcasing practices but both ends of this spectrum of public policy practice can be effective in seeking to achieve net zero. These levers range from direct control (e.g. emissions from council operations), to place-shaping (e.g. spatial planning) to engagement and communication (e.g. raising awareness in the community) (see Figure 1.1, below).

Figure 1.1: How local authorities control and influence emissions (adapted from CCC)



1.27 In its remit as a local planning authority (LPA), any activities that require planning permission present leverage points for Harborough District Council. Key areas of influence include new buildings, spatial planning (particularly because this impacts the ways people travel and the mix of uses/facilities in a given area), and changes of land use. LPAs can also support decarbonisation of the wider UK energy system by supporting renewable energy developments and identifying land suitable for this purpose. To a lesser extent, there is an opportunity to influence emissions reductions in existing buildings and create climate resilient buildings via policies aimed at refurbishments, retrofits and extensions.

Policy review methodology

1.28 The first stage of the climate change study was the production of a high-level assessment of climate risk for the Harborough area – the Climate Change Risk Assessment (see below in 'other reports within this evidence base study' for further detail). This identified the key climate change risks the Council should respond to, alongside the challenge of reducing its carbon emissions. These risks have informed the subsequent selection of relevant and recommended policy interventions.

1.29 The second stage involved an analysis of existing policy in the Adopted Local Plan. These were recorded and categorised against key policy areas, relevant to climate change, which the Local Plan update can respond to.

1.30 Within each of these categories, potential policy approaches have been identified. These build on those currently being developed or already adopted by other local planning authorities and LUC's own technical understanding of appropriate policy framing and other approaches that HDC could realistically pursue and deliver.

1.31 These policy approaches were then presented and discussed with HDC staff from Planning Policy, Development Management and Regulatory Services teams at HDC through an online workshop. These discussions were used to identify the most relevant policy approaches for the Local Plan update based on Harborough's current and anticipated development context, an understanding of adaptation needs and the ambition of local members. These policy approaches have subsequently been promoted as 'recommended policy approaches' in this Policy Review. The Review also presents other approaches that have not been recommended but are still considered relevant to the Local Plan update and worth consideration by the Council. It is noted that these alternative policy approaches should be subject to Sustainability Appraisal (SA) as well, as part of the SA for the new Local Plan.

Chapter 2

Policy Review

2.1 This chapter sets out possible policy approaches and recommendations for HDC to consider including in its Local Plan update to respond to the mitigation and adaptation challenges of climate change.

2.2 It is structured by policy themes relating to climate change mitigation (i.e. reducing carbon emissions in built development and transport) and adaptation (i.e. designing development to avoid or be resilient to the impacts of climate change such as flooding, increased temperatures, water shortages). These themes are considered to be the most relevant to the preparation of Harborough's new Local Plan, and are listed below:

- **Climate change mitigation**
  - Net zero carbon emissions in new development
  - Reducing carbon emissions from transport
  - Renewable energy projects and infrastructure (note: this policy theme is presented in the separate Renewable Energy Study report).
  - Supporting land-based carbon sequestration
  - Reducing waste and the circular economy
- **Climate change adaptation**
  - Avoiding flood risk
  - Sustainable Drainage Systems (SuDS)
  - Water efficiency in new developments
  - Greywater/rainwater harvesting
  - Designing for a changing climate

Climate change mitigation

Net zero carbon emissions in new development

2.3 It is important to note that carbon emissions from new developments arise from:

- **Site clearance** - loss of carbon storage and sequestration provided by any existing habitat cleared for building site (impact will be minimised where deforestation is avoided).
- **Embodied carbon** - carbon emissions embodied in construction materials (e.g. concrete) used in the buildings and associated infrastructure (transport, water/sewerage, energy), flood defence and public realm/landscaping, as well as the maintenance of the development.
- **Operational emissions** - carbon emissions associated with:
  - occupying/using the development, from fixed services and fittings such as heating, hot water, ventilation, fixed lighting ('regulated' emissions) or non-fixed systems such as electrical appliances, IT equipment ('unregulated' emission);
  - daily travel to and from the development; and
  - infrastructure associated with the development such as water supply, waste collection/ processing and wastewater treatment.

2.4 Only 'regulated' emissions tend to be quantified in typical Local Plan or Building Regulations approval processes. Yet embodied carbon, transport emissions and unregulated building emissions can all be significant, and represent opportunities for more stringent policies to be included in Local Plans, as discussed below.

Policy background

2.5 HDC must achieve a pathway to achieving net zero by 2050 (the national target) and for council-controlled emissions by 2030. The built environment accounts for around 30% of the UK's carbon emissions **[See reference 8]** and, as such, there is no credible pathway to net zero without ensuring that new development meets net zero carbon standards. Unless new developments in Harborough meet such a standard, they will cause emissions in the district to increase significantly. This is counterproductive to the UK's legally binding decarbonisation targets, which (according to the Climate Change Committee) are already at risk of not being achieved.

2.6 As such, LPAs are increasingly looking to develop strong local plan policies that require new development to ensure net zero operational carbon emissions, motivated by the NPPF's requirement that Local Plans should 'contribute to radical reductions in greenhouse gas emissions'. These policies have been pursued alongside requirements in Part L of the 2021 Building Regulations related to energy use, which many have argued are too low.

2.7 Three LPAs have already achieved adopted Local Plans containing net zero planning policies (Bath and North East Somerset, Cornwall and Central Lincolnshire) and many others are considering adopting a similar approach.

2.8 However, a series of announcements and policy shifts in late 2023, first half of 2024 have resulted in uncertainty as to whether LPAs can set net zero requirements for new development in their Local Plans. The most important of these is the 2023 Written Ministerial Statement (WMS) 'Planning – Local Energy Efficiency Standards Update', which states that "*Any planning policies that propose local energy efficiency standards for buildings that go beyond current or planned buildings regulation should be rejected at examination if they do not have a well-reasoned and robustly costed rationale that ensures:*

- *That development remains viable, and the impact on housing supply and affordability is considered in accordance with the National Planning Policy Framework.*

- *The additional requirement is expressed as a percentage uplift of a dwelling's Target Emissions Rate (TER) calculated using a specified version of the Standard Assessment Procedure (SAP)…*"

2.9 The 2023 WMS should not be interpreted in a way that undermines the legislative requirements or powers granted by primary legislation to local planning authorities to respond to climate change. Maintaining a requirement beyond current Building Regulations on energy use is in accordance with the Planning and Energy Act (PEA) 2008, provided such standards comply with the plan-making requirements of section 19 of the Planning and Compulsory Purchase Act 2004 and are reasonable, in that they do not undermine the viability of new development. Government clarified in the 2021 Future Homes Standard consultation that it had no plans to amend the PEA in the immediate term (and repeated this position in correspondence with Bath and North-East Somerset Council during the examination of their local plan update in 2022). In addition, the NPPF and national Planning Practice Guidance (PPG) are clear that plans should take a 'proactive approach' to mitigating and adapting to climate change, in line with the objectives of the Climate Change Act 2008. Further, The Levelling Up and Regeneration Act 2023 requires that 'the local plan must be designed to secure that the use and development of land in the local planning authority's area contribute to the mitigation of, and adaptation to, climate change' (15C(6)).

2.10 The advice in the 2023 WMS has also been brought into question by the High Court recently quashing the Planning Inspectorate's attempt to water down stringent net zero buildings policies that had been included in the Salt Cross Area Action Plan **[See reference 9]**. The judgement upholds the right of local authorities to set planning policies that deliver net zero homes and highlights the uncertainty created by current government policy and advice.

2.11 Further uncertainty exists for LPAs due to the general election in July 2024, which has seen a new Labour government voted in, which is likely to make further changes to the net zero national policy ambitions.

2.12 While it may be argued that HDC could merely recommend in the new Local Plan that developments align with Building Regulations, and the Future Homes Standard (FHS) and Future Building Standard (FBS), scheduled to be introduced in 2025, this would be insufficient to achieving satisfactory emissions reductions. This is explained in the box below:

- FHS/FBS requires 'net-zero ready' homes. This means that they would deliver net-zero energy only once the national grid has become decarbonised. The government hopes for the grid to be decarbonised by 2035 (a distinctly optimistic ambition). However, this would mean at least ten years, from 2025-2035, of unwanted carbon emissions that further damages the UK's attempt to achieve its pressing decarbonisation targets.
- Moreover, should there be a failure to enact the relevant legislation and implement the new FHS/FBS regulations nationally, developments would not be expected to deliver raised standards on emissions, not even delivering net zero-ready standards from 2025. The emissions profile post 2025 would likely be even poorer. Given the uncertain policy landscape of recent years with regards to climate change-related regulations (since the 2015 Written Ministerial Statement and onwards), a delay to a legislated uplift is a legitimate risk worth consideration.
- There is also a significant risk that the national grid will not be decarbonised in time, which the FHS/FBS depends on to deliver net zero homes. The House of Commons' Environmental Audit Committee (2024) estimates that non-fossil fuel generation capacity of the grid will have to increase by 250% in just over a decade to meet the 2035 target for a decarbonised grid.
- As part of wider decarbonisation, the grid also risks day-to-day failure at a local level due to the increased total capacity needed to handle electric heating, cooling, vehicle charging and other decarbonised activities (at new and existing developments). There is therefore a need for new developments to be net zero, as early as possible via improved energy efficiency (rather than just using cleaner forms of energy). More energy efficient homes, e.g. via insulation, air tightness, optimised solar gain

and natural ventilation, would impose reduced energy demand on the local grid.

- Further shortcomings of the FHS/FBS-led approach include a failure to require improved fabric performance standards meaning a missed opportunity to reduce energy bills for residential and commercial building users. The FHS/FBS also make very limited requirements for onsite renewable energy from developments, putting further pressure on the grid. The FHS and FBS also include no requirements to reduce embodied carbon – the carbon emissions involved in the construction of the development.

Existing policy in Harborough Local Plan

2.13 HDC's existing Local Plan does not contain explicit policy requiring low carbon or net zero development to be achieved. However, **Policy CC1 'Mitigating climate change'** partly addresses this, asking major development proposals to demonstrate:

"a. how carbon emissions would be minimised through passive design measures;

b. the extent to which it meets relevant best practice accreditation schemes to promote the improvement in environmental and energy efficiency performance; … along with how the building demonstrates low carbon construction, renewable energy, how it will be cooled, improving energy efficiency of retained buildings and justification of demolishing buildings."

2.14 HDC also has a **Development Management Supplementary Planning Document** (SPD) **[See reference** 10**]**, which provides guidance to assist with

the interpretation and implementation of planning legislation and the Local Plan. The SPD is not policy, but offers useful guidance for people submitting planning applications as to what could be acceptable (or not), before time and money is spent on drawing up plans or investing in a site, and how and when developer contributions (section 106 agreements) may be sought. It covers guidance on design principles of new residential housing estates, extensions to homes, running a business from home, converting disused buildings in the countryside, economic development, shop fronts and adverts. There is also a chapter on how to address climate change, which contains a useful list of questions for developers to consider when designing a scheme to help it try to reduce carbon emissions from the buildings, reduce consumption of fossil fuels and reduce emissions during construction.

Alternative policy approaches considered

2.15 The following alternative policy approaches for addressing carbon emissions in new development have been considered:

- Maintain existing Policy CC1
- Align policy requirements with Home Quality Mark (HQM) and Building Research Establishment's Environmental Assessment Method (BREEAM)
- Operational emissions targets set within the Local Plan
- Embodied carbon targets set within the Local Plan
- Require Whole Life Carbon assessments

Maintain Existing Policy CC1

2.16 Maintaining policy CC1 will not require specific commitments from development proposals. Rather, it requires major developments to demonstrate efforts, rather than the achievement of targets, towards low carbon practices such as practices within construction, materials, passive design, renewable energy, cooling, and retrofit.

2.17 If Policy CC1 were to be retained in its current form, it would be advisable within supporting text to refer to the national policy requirement of all developments, including residential and commercial, to adhere to Part L of the Building Regulations, which will align with any future changes in government policy such as with the Future Homes Standard and beyond.

Deliverability

2.18 Maintaining the existing policy will not require any change on the part of the Council or developers and would extend current practices in Harborough.

2.19 It has helped to steer net zero ambition within major developments. However, its scope does not extend to other development types and it is understood that it has been addressed primarily through conditions after approval rather than through submitted designs at application.

2.20 HDC officers are keen for a policy of greater prominence within the plan that emphasises to applicants the expectation of delivering low carbon or net zero development. Corporate and member ambitions also seek new low-carbon development. It is therefore necessary to evolve and strengthen adopted local plan policies, in particular Policy CC1.

Viability

2.21 Maintaining the existing policy will not resulting in any additional costs beyond costs currently incurred by the Council and developers to comply with Policy CC1.

Summary

Benefits

- Maintaining the existing policy will not require additional resource or capacity from HDC to check compliance.

Limitations

- The existing policy does not place any specific requirement to achieve net zero carbon emissions on developers.
- HDC would not help to make significant carbon emissions reductions from new development, which is not in accordance with global targets and its own climate emergency declaration.
- Future updates to the Local Plan may be needed to reflect any changes to national policy arising from the new Labour government.

Align policy requirements with HQM and BREEAM

2.22 To assess if a carbon reduction or net zero target has been achieved in new development, LPAs often set out requirements for the submission of an 'energy statement' which sets out the relevant calculations and assumptions demonstrating carbon reductions.

2.23 HDC's existing Policy CC1 does not state specific requirements for developers to submit energy statements demonstrating carbon and energy efficiency capability. Like many LPAs, HDC may also be limited in their ability to expand resources and technical capacity to assess detailed energy or sustainability statements in-house. Therefore, to realistically achieve a scaling up of net zero delivery in Harborough, HDC could set policy with reference to 'off the shelf' third party accreditation schemes. This would mean that HDC could seek proof of certification/performance from those accreditation organisations rather than having to review detailed energy modelling themselves. The Council could have confidence in the ratings as they are completed by independent assessors.

2.24 The recommended accreditation schemes are BREEAM (for non-residential development) and Home Quality Mark (for residential development). These are the most commonly used and are applicable to development currently proposed across Harborough.

2.25 Both schemes address topic areas other than energy and greenhouse gas (GHG) performance as well. A major benefit of this is that they prompt developers to consider a full spectrum of sustainability issues. Their comprehensive set of categories prompt developers to consider wider impacts of their development alongside local and global sustainability concerns. In the absence of further resource, HDC's use of established accreditation tools would be a powerful mechanism for ensuring sustainability values are embedded into the design and construction of new, local developments and enable consistent monitoring.

2.26 It should be noted, though, that neither scheme steers developers towards achieving fully net zero buildings, rather to achieve lower carbon emission profiles than standard buildings currently achieve.

2.27 BREEAM and HQM are explained in the box below:

BREEAM is an industry recognised sustainability assessment and rating methodology from the Building Research Establishment (BRE). Assessment and rating certification is delivered through accredited third-party assessors. BREEAM assessments consider a wide range of sustainability factors and are completed throughout the lifecycle of the development. The assessments include an analysis of energy use, health and wellbeing, innovation, land use, materials, management, pollution, transport, waste and water.

HQM is a relatively new scheme for new build homes (also from the BRE). Like BREEAM, it considers a range of sustainability topics, including energy

performance but also design and construction quality, running costs, and measures to promote occupant health and wellbeing.

Specifically relating to energy, HQM uses some of the same SAP (Standard Assessment Procedure) outputs that are currently used to show compliance with minimum standards in Building Regulations. The HQM Energy Performance methodology considers three metrics of the modelled performance of a new building when determining the number of credits achieved for this issue. It is a ratio that defines the performance of a HQM assessed home in terms of its:

- Heating and cooling energy demand (the fabric performance);
- Primary energy consumption (system efficiency); and
- Total resulting CO2-eq emissions.

Examples of policy wording

2.28 One of the most recently adopted Local Plans which includes a range of specific BREEAM requirements for different types of development is **Islington Local Plan Policy S3** (adopted in September 2023) **[See reference** 11**]**. This includes:

- A BREEAM 'Excellent requirement' for major residential refurbishments and the same requirement for minor residential developments involving refurbishment or extensions. This includes a stipulation that the rating should be a final (post-refurbishment) certified rating under BREEAM Domestic Refurbishment 2014 (or equivalent scheme) and must make reasonable endeavours to achieve an Outstanding rating.
- All non-residential and mixed-use developments proposing 500sqm+ net additional floorspace must achieve a final (post-construction stage) certified rating of Excellent as part of a fully fitted assessment within BREEAM New Construction 2018 (or equivalent scheme) and must make reasonable endeavours to achieve an Outstanding rating. A 'verification

stage' certification at post occupancy stage must also be achieved, unless it can be demonstrated that this is not feasible.

- In addition, the policy sets out requirements for *minimum credit scores* in specific areas of BREEAM for both new construction and domestic refurbishment schemes e.g. responsible sourcing of materials.

2.29 Fewer local plans have specified HQM requirements in policy. There is no single factor explaining this absence. Previous adoption of the Code for Sustainable Homes as a Government-owned voluntary scheme for sustainable residential development was popular but was wound down in the mid-2010s, at which point BRE launched its HQM scheme. Standards within the Code for Sustainable Homes had been consolidated in to Building Regulations and it became common for local authorities to rely on this instead. In future years, a lack of clarity for local planning authorities on going beyond Building Regulations and central government policy on sustainable development, well before the most recent uncertainty after the publication of the WMS in 2023, discouraged the adoption of ambitious local plan policies whilst HQM remained a relatively new and unheralded standard.

2.30 Tunbridge Wells Local Plan (2021) **[See reference** 12**]** and Islington's Local Plan (2023) **[See reference** 13**]** do provide two examples of its use though. Policy EN2 of the Tunbridge Wells plan specifies different HQM scores, either 3 and 4 stars for residential schemes of 10-150 dwellings and over 150 dwellings and for the period 2022-2025 and for 2026 onwards. Policy S3 of Islington's Local Plan states that: "Major and minor new-build residential developments must achieve a 4-star rating (as a minimum) under the BRE Home Quality Mark scheme."

2.31 Mid-Sussex's Regulation 19 Submission Local Plan **[See reference** 14**]** states that development must achieve sufficient credits in the "Energy performance" and "Towards carbon negative" categories of HQM (or equivalent) to demonstrate that the development produces net zero regulated and unregulated emissions. It requires a minimum three-star rating for residential new builds.

Deliverability

2.32 Developers are familiar with BREEAM and HQM requirements and processes and the use of these accreditations is commonplace around the country.

2.33 BREEAM and HQM assessments use recognised measures of performance, which are set against established benchmarks, to evaluate a building's specification, design, construction and use. The measures used represent a broad range of categories and criteria from energy to ecology. Each category focuses on the most influential factors, including reduced carbon emissions, low impact design, adaptation to climate change, ecological value and biodiversity protection. A step-by-step guide to obtaining BREEAM ratings in the UK is contained at the reference **[See reference** 15**]**.

2.34 Where applicable, consideration of how the appropriate design standard will be achieved must start at the inception stage of the design process in order to maximise the development's potential to achieve the highest scores. Details should be set out in an accompanying Sustainability Statement and Design and Access Statement, including evidence of registration of the project with BRE. Unless otherwise specified by a LPA, compliance with BREEAM and Home Quality Mark (HQM) standards should be demonstrated via formal certification submitted to the LPA.

2.35 Applicants would be expected to provide proof of BREEAM/HQM certification of designs (using design stage BRE certification). BRE will also list accredited projects on its 'GreenBook Live' (this is a free to use online database designed to help users identify products and services that have achieved reduced impact on the environment). This would allow HDC officers to verify accreditation has been received.

2.36 In delegating responsibility to third-party bodies, HDC would not be unduly burdened by the resource required to deliver this policy. However, this approach would remove control over quality assurance from HDC. Additionally, HDC will

be reliant on BRE to update their methodologies as time progresses with limited involvement with the process.

Viability

2.37 Most costs to developers for BREEAM and HQM compliance are expected to arise from implementing the various sustainability measures required, including energy and GHG performance requirements set in policy, rather than the cost of completing compliance processes for each of these schemes.

2.38 although BREEAM requires developers to consider various sustainability topics other than energy and GHG emissions, these measures account for most of the increase in costs to developers.

2.39 Research conducted by Currie & Brown on behalf of the Centre for Sustainable Energy found that, for a building that achieved a BREEAM 'Excellent' rating and a 100% reduction in regulated carbon emissions, only about 1/5th of the cost uplift was associated with the wider sustainability measures. The rest was associated with energy efficiency and other on-site carbon reduction measures, plus contributions towards a carbon offsetting fund (where sufficient carbon reduction could not be achieved) **[See reference** 16**]**.

2.40 As such, when considering the viability of achieving emissions requirements via BREEAM or HQM - this policy option - it is necessary to concentrate primarily on available research assessing the costs of achieving net zero emissions in residential and non-residential buildings - and *not* the costs of achieving the wider sustainability measures required under BREEAM and HQM.

Viability for non-residential buildings via BREEAM:

2.41 Various studies have assessed the viability of achieving high environmental performance in non-residential buildings. Some of these have specifically used BREEAM as the benchmark for achievement but many have used more exacting standards and assessed their viability.

2.42 Viability studies conducted by Currie & Brown on behalf of Greater Cambridge **[See reference** 17**]** and West Oxfordshire Councils **[See reference** 18**]** have evaluated the costs of achieving net zero operational emissions via the LETI standard in schools and offices, based on modelled building archetypes. LETI is the Low Energy Transformation Initiative's Climate Design Guide **[See reference** 19**]**. The results indicate that the cost uplift for schools and offices would be c. 0-4% compared with meeting Part L of the 2021 Building Regulations (Part L 2021).

2.43 A separate Currie & Brown report published in 2018 found that achieving a 100% reduction in regulated emissions through a combination of onsite measures plus contribution towards a carbon offsetting fund would result in a cost uplift of around approximately 1-4% compared with Part L 2021 **[See reference** 20**]**.

2.44 A study conducted by the UK Green Building Council (UKGBC) explored different options for a high-rise office block to achieve net zero operational - regulated and unregulated - emissions based on a real-world case study. Achieving reductions in unregulated emissions is a more ambitious target and one that has rarely found its way in to planning policy (see the Policy Background section under 'Net zero carbon emissions in new development' above). It found that this standard could be achieved through different packages of measures, resulting in a c. 2-13% costs increase compared with Part L 2021 **[See reference** 21**]**.

2.45 Based on all of the studies above, it would be reasonable to assume cost uplifts in the range of up to 5% for non-residential buildings to achieve net zero regulated emissions, and up to 10-15% to achieve both net zero regulated and unregulated emissions, a more challenging standard. This is a greater level of emissions-performance than required by BREEAM.

2.46 As for studies specifically assessing the achievement of BREEAM, research conducted by the BRE in 2016 suggests that the capital cost uplift of obtaining BREEAM certification depends on the rating that is achieved, but an 'Excellent' rating would increase capital costs by around 1-2% whereas an

'Outstanding' rating would increase costs by 5-10% across a range of commercial typologies. This was cited as evidence in the Climate Change Local Plan review for Lancaster City Council in 2021 **[See reference** 22**]**. These costs use Part L 2013 as a baseline so might equate to approximately just a 1-6% cost increase for Excellent and Outstanding compared to Part L 2021 of the Building Regulations.

2.47 Costs may still be higher or lower for individual developments. Non-residential buildings do vary more in their scale, usage, and energy consumption patterns than residential buildings. Our review found that published cost information covers a relatively limited number of non-residential building archetypes, while at the same time indicating a relatively wide range of potential outcomes. This should be considered when understanding viability, where residential developments are more uniform in type and easier to compare and model.

Viability for residential buildings via HQM:

2.48 Unlike with BREEAM, there are no available research studies that look at the cost of achieving HQM accreditation overall (i.e. taking into account other sustainability criteria that need to be met). However, like BREEAM, the majority of costs are most likely to be associated with the reduction of operational emissions via achieving the energy credits, rather than meeting the requirements of other categories. As such, we can look at other studies that have assessed the viability of low or net zero carbon residential development as a proxy for the likely viability of delivering HQM. Examples include Local Plan evidence base studies for Cornwall, Greater Cambridge, West Oxfordshire and Winchester Councils. All four studies were based on modelled building archetypes, with cost information provided by Currie & Brown.

2.49 In the 2021 Cornwall study, modelling was carried out to evaluate how these standards could be achieved via different ‘packages’ of energy efficiency measures (that is, using various specifications for glazing, insulation, airtightness, heating systems, etc.) Results showed that the cheapest package of measures would deliver net zero carbon homes for a construction cost of just

0.5-2.7% more than a home that is compliant with Part L of the 2021 Building Regulations **[See reference** 23**]**. Some more ambitious energy efficiency measures were also modelled (achieving a minimum of Passivhaus with heat pumps and solar PV) and results showed that these could be adopted 'with a cost uplift of less than 5%' in all of the major residential building typologies. The Cornwall study was used as evidence in the viability assessment of the recently adopted net zero policy for residential buildings in Bath & North East Somerset (BANES). In 2022, an assessment carried out by the same consultancies on behalf of Winchester City Council found that the cost uplift compared with Part L 2021 was c. 5-6% for residential buildings.

2.50 The Greater Cambridge **[See reference** 24**]** and West Oxfordshire studies **[See reference** 25**]** used the same modelling approach of achieving a net zero operational carbon home via a mix of energy efficiency and on-site renewables including solar and air source heat pumps, but used Building Regulations Part L 2013 as the baseline for cost comparisons. This is less ambitious than the 2021 Regulations. Converting these results to provide a comparison against a baseline of Part L 2021 would equate to cost uplifts for net zero carbon averaging approximately 4% for residential buildings.

2.51 These studies highlight the range of outcomes that can be obtained depending on the precise building specification that is modelled. On average, they indicate that residential buildings can achieve net zero operational emissions at a cost uplift of roughly 3-5% compared with Part L 2021.

2.52 Achieving HQM certification would also incur registration and certification fees, but these are expected to be small in comparison to build costs. (For context, the registration and certification fees are updated periodically, but for developments of up to 6 dwellings the charges may total c. £400, and for larger developments there may be an additional charge of c. £30-50 per dwelling.) **[See reference** 26**]**

2.53 There are also consultancy fees which, according to anecdotal research, can range from c. £4,000 for a small scheme, or where the design team is new to HQM, down to c. £1,000 per unit **[See reference** 27**]**. There appears to be a

'learning curve' with the costs falling as developers and their design teams become more familiar with the different requirements. The scale of a scheme is also a material factor **[See reference** 28**]**. We note that slightly lower estimates of consultancy fees have been used elsewhere. The authors of a viability study carried out for Leeds City Council included a budget estimate of £750 per apartment and £1,000 per house for consultancy fees for HQM completion **[See reference** 29**]**.

2.54 Achieving net zero operational emissions via HQM and BREEAM: Findings above suggest that cost uplifts of up to 5% for non-residential buildings and up to 5% for domestic buildings are required for achieving net zero regulated emissions. Different accreditation standards or benchmarks were used across the studies but, taken together, they provide a relatively robust set of cost estimate for achieving net zero regulated emissions. For the achievement of net zero regulated *and* unregulated emissions, cost estimates are less clear with less evidence having been generated.

2.55 All considered, a cautious approach would be to require buildings to achieve net zero regulated emissions only, via HQM and BREEAM, but not to require them to achieve net zero unregulated emissions until there is clear evidence that it is technically feasible and viable for all development types.

2.56 Finally, it should be noted that highly energy efficient, zero carbon buildings offer a range of other benefits, including much lower energy bills for occupants (up to 50% savings) and higher rental/sale prices (up to a 10% increase), which may help to offset some of the additional build costs for developers. Requirements to increase the energy efficiency of homes and other buildings should not just be considered solely as a cost for the developer but rather, too, an investment allowing the home to be more affordable in the long-run for the user (which may itself have positive effects on sale and rental values for the developer).

Summary

Advantages

- Ensures that carbon reduction in the built environment is achieved even if delays to future Building Regulations occur.
- Using HQM and BREEAM (third party assessors) to secure net zero developments is pragmatic if there is a lack of in-house technical expertise/capacity within the council to interrogate energy statements.
- Tried and tested approach in many local plans. Less risk that this approach will be challenged. BREEAM already deployed in neighbouring local authorities.
- BREEAM and HQM assess a wide remit of sustainability considerations in the built environment. Therefore, these tools could be used in other policies to create cohesion throughout the Local Plan and reduce the burden on developers who could use the tool to demonstrate compliance across a broad spectrum.

Disadvantages

- HDC will not have control of quality assurance. Also relies on BRE to update their methodologies as time goes on.
- HDC will have less engagement with the verification process compared with other assessment methods. Would rely on third party assessors to prove applicants' compliance with HDC policy.
- Risk of the policy being superseded if BREEAM or HQM credits are rewritten, or if credit requirements are superseded by changes to Building Regulations (though wording can be designed to future proof the policy).

Operational emissions targets set within the Local Plan

2.57 LPAs may decide whether they want to have their own, specific operational carbon emissions targets included in their local plans. Any LPA, pursuing the option of demanding more ambitious targets beyond what is currently specified

in Building Regulations, would need to set its own specific LPA local plan policy that goes further than current national policy requirements.

2.58 A new Harborough Local Plan policy could set operational carbon reduction targets relative to those in existing Building Regulations or through other mechanisms, such as a Target Emissions Rate or absolute energy-based targets for new developments (explored below).

2.59 The legitimacy of HDC setting its own carbon targets for development beyond the expectations of the Building Regulations and current national policy is explored in the Policy Background section, above, particularly with respect to the 2023 Written Ministerial Statement and subsequent High Court rulings.

Examples of Policy Wording

2.60 Carbon emissions targets may be expressed as a percentage uplift of the dwelling's Target Emissions Rate (via Building Regulations) (which would be fully WMS compliant) or expressed as absolute energy-based targets (a more ambitious pushback against the WMS's request to use the Target Emissions Rate). It should be noted that Target Emissions Rates-based targets do not cover unregulated energy (e.g energy use from cooking and other appliances) and as such are vulnerable to the 'performance gap', whereby the energy performance of a building in operation is much poorer than the original design predicts, leading to much higher buildings emissions than first anticipated.

2.61 This has long been deployed in local plans. For instance, **Policy 28 of the 2018 Cambridge Local Plan [See reference** 30**]** applied specific carbon targets against Part L 2006 Building Regulations. It placed expectations for new homes to achieve 44% on-site reduction of regulated carbon emissions relative to Part L and included a staggered timetable for this target.

2.62 HDC may similarly choose to include a policy that sets a timeline of targets for achieving different levels of reduction in carbon emissions, whether using a target that is proportional to the Target Emissions Rate (e.g. '30% on adoption

of the plan' followed by '75% by 2028', followed by '100% by 2030') or absolute energy use targets that set a numeric maximum on annual energy usage in a new development.

2.63 Three LPAs - Bath and North East Somerset, Cornwall and Central Lincolnshire - have included energy-based targets in adopted local plans. The relevant part of **Cornwall's Policy SEC1 – Sustainable Energy and Construction Development** is displayed below:

> 2b – New Development – Residential
>
> Residential development proposals will be required to achieve Net Zero Carbon and submit an 'Energy Statement' that demonstrates how the proposal will achieve:
>
> - Space heating demand less than 30kWh/m2 /annum;
> - Total energy consumption less than 40kWh/m2 /annum; and
> - On-site renewable generation to match the total energy consumption, with a preference for roof-mounted solar PV.

2.64 As is shown above, rather than expressing energy-use targets in relation to other targets, these are absolute quantitative maximums, using relevant energy units. Several other LPAs are currently developing such targets for their emerging local plans **[See reference** 31**]** as it is felt that these would have a greater effect in reducing energy use in new developments and would mean local energy efficiency policy is not subject to improvements to the Building Regulations taking place as planned.

Deliverability

2.65 There is evidence of this policy option being implemented by other LPAs, including the more ambitious absolute energy-use targets in Bath and North East Somerset, Cornwall and Central Lincolnshire. HDC would need to develop rigorous local emissions forecasts as evidence to justify more ambitious policy

as seen with the Local Plan evidence base and supporting documents for the Bath and North East Somerset Council **[See reference** 32**]**.

2.66 Absolute energy use targets tend to be of greater ambition than targets based on Target Emissions Rates in that they assess regulated and unregulated emissions. Unregulated emissions, by their very nature, are more challenging to plan for as they are usually associated with items plugged in by occupants after occupation and are generally outside of the designer's or developer's control. To ensure that operational emissions are in line with any estimates submitted at planning stage, it would be necessary to measure the actual energy use once the development is occupied. Building occupants would therefore need to agree to some form of data collection and the LPA would need to decide how to process and monitor that data, which would be likely to require additional staff resource. In non-residential buildings, where unregulated emissions often account for a higher proportion than is common in residential buildings, such agreements may be easier to achieve.

2.67 Carbon offsetting payments by the developer may be required to achieve the necessary credits should the developer be unable to achieve the required operational carbon emissions reductions on site through the design of the development. Carbon offsetting is the process of compensating for residual carbon emissions from a building by contributing, usually financially, towards measures to reduce emissions elsewhere. This involves developers making a payment into a carbon offset fund to pay for carbon reduction projects elsewhere in the LPA area (e.g. funding carbon emissions reductions from existing buildings by installing insulation, upgrading heating systems or solar PV panels).

2.68 Schemes to support developer payments on carbon offsetting have been successfully delivered by LPAs across London and in other parts of the country for a number of years. The London Plan includes a net zero-carbon target for major development, and the Greater London Authority has published detailed guidance on carbon offset funds for LPAs (recently updated) **[See reference 33]** including on how to calculate the amount of carbon to be offset. The aim of the net zero-carbon standard is to achieve significant carbon reductions on site and to get as close to zero-carbon as possible. Only then should offsetting be

considered i.e. as a last resort measure. LUC concurs with this approach and would recommend HDC take a similar position in any policy update as it ensures on-site carbon savings – which are more certain – are locked in before resorting to offsetting.

Viability

2.69 Setting specific Target Emissions Rates or absolute energy-based targets in Local Plans, either as a timeline of targets and/or relative to the Building Regulations in specific themes has been deemed viable in many recent Local Plans.

2.70 However, it will result in added costs to building developers. Viability studies assessing the cost of achieving net zero operational emissions are explored in detail in the viability section of the HQM/BREEAM policy option above.

2.71 There are a range of potential cost outcomes for delivering development with net zero carbon emissions from total energy use, i.e. 'regulated' and 'non-regulated' energy.

2.72 Specific costs will vary depending on the approach taken (i.e. Target Emissions Rates or energy-based targets and the quantitative levels specified) and the percentage emissions reduction required. However, the cost evidence presented in the previous viability section above showed that cost uplifts of up to 5% for residential and non-residential buildings would be expected when achieving net zero regulated emissions. Costs were greater, up to 10% if also attempting to achieve net zero unregulated emissions but the evidence is less clear and less developed in this area. To get a better understanding of associated costs, HDC would need to identify specific emissions targets to be tested through the wider viability assessment conducted for the Local Plan.

Summary

Advantages

- Depending on stringency of the carbon targets and policy wording, would likely deliver a major reduction in carbon emissions from new development.
- Ensures that carbon reduction in the built environment is achieved even if delays to future Building Regulations occur.
- Puts Harborough District ahead of the curve by requiring more widespread adoption of current best practice approaches, in advance of national standards.
- Setting targets in Local Plans relative to the Building Regulations in specific themes is a tried and tested approach.
- Carbon offsetting (which could be allowed as a last resort where it is demonstrated a developer cannot achieve the targets on-site) could generate funds to invest in local, existing homes for energy efficiency improvements, further reducing emissions and fuel poverty.
- Major decrease in occupants' energy bills.
- Helps to reduce grid infrastructure requirements in the long term by ensuring that developments have lower energy demands than they would otherwise.
- This approach would require HDC to bring in-house expertise to evaluate energy assessments. However, net zero requirements are likely to become an increasing focus of development proposals, and (regardless of if or when these are adopted into the Building Regulations) officers will therefore need to be able to evaluate the merits of individual schemes.

Disadvantages

- Uncertainty that targets over and beyond Building Regulations will be found sound at examination, in light of the recent WMS. Please see the

discussion above in 'Policy Background', advising HDC on how to approach the publication of the WMS.

- Added costs to developers from meeting net zero targets.
- Lack of in-house expertise/resource to: review energy calculations/verify calculations are robust; or – if carbon offsetting was pursued – to identify relevant carbon reduction projects and run the scheme. Training is likely to be required.

Embodied Carbon targets set within the Local Plan

2.73 Embodied carbon refers to the carbon emissions emitted producing a building's materials, their transport and construction/installation on site as well as their maintenance/repair and their disassembly/demolition and disposal at end of life. Construction also produces a significant amount of waste which itself carries major carbon impacts.

2.74 About 80% of the annual carbon emissions associated with buildings today are related to the ongoing operational carbon emissions with the remaining 20% related to the embodied impact of new construction. However, as buildings become more energy efficient and electricity generation decarbonises, operational emissions will reduce significantly, and embodied carbon emissions will potentially represent 40-70% of whole life carbon in a new low carbon building **[See reference** 34**]**. Therefore, greater priority should be given to buildings' embodied carbon. Indeed, zu Ermgassen et al (2022) estimate that embodied carbon emissions from new housing construction (based on the government's targeted housing delivery rate) could consume 8% and 27% of the national carbon budgets for 2038-2042 and for 2043-2050 respectively **[See reference** 35**]**.

2.75 HDC could choose to include specific policy requirements to achieve minimum scores against set embodied carbon targets to ensure limits on carbon in construction materials in new developments.

2.76 Targets could be related to the construction materials categories in key building standards such as BREEAM and HQM, which look across the environmental impacts of construction materials. However, to use a target specifically focused on embodied carbon, HDC could select embodied carbon emission targets for building elements for residential and non-residential developments, such as presented in the Low Energy Transformation Initiative (LETI)'s Climate Design Guide **[See reference 34**].

2.77 Following the approach in the Climate Design Guide will help developers create strategies to identify alternative construction methods and building elements and quantify the magnitude of carbon reduction that each would provide. The Climate Design Guide process involves establishing a baseline for building elements of a development before carbon saving measures are developed, allowing the designer to focus attention on areas where greater carbon mitigation interventions can be achieved.

2.78 The Guide has summarised the primary actions required of applicants to achieve significant reductions in developments' embodied carbon:

- Build less: Refurb and re-use.
- Build light: Consider the building structure.
- Build wise: Longevity and local context.
- Build low carbon: Review material specifications.
- Build for the future: Assess end of life and adaptability.
- Build collaboratively: Involve the whole team.

2.79 However, the approach neglects operational carbon, so any such policy should be paired with those addressing operational emissions (above).

Examples of policy wording

2.80 LETI indicates that there is a baseline of 800 $kgCO_2/m^2$ for residential developments and suggests introducing a target of <500 $kgCO_2/m^2$ in the 2020s, decreasing to <300 $kgCO_2/m^2$ by 2030 as the industry has time to adapt. For non-residential properties, LETI suggests a baseline of 1,000 $kgCO_2/m^2$. An interim target of <600 $kgCO_2/m^2$ and a 2030 target of 350 $kgCO_2/m^2$ are recommended.

2.81 In its **Local Plan Partial Update** (adopted January 2023), **Bath and North-East Somerset** (BANES) introduced **Policy SCR8 (Embodied Carbon)** which states:

> Large scale new-build developments (a minimum of 50 dwellings or a minimum of 5,000m2 of commercial floor space) are required to submit an Embodied Carbon Assessment having regard to the Sustainable Construction Checklist SPD that demonstrates a score of less than 900 kgCO2e/m2 can be achieved within the development for the substructure, superstructure and finishes.

2.82 The BANES policy is the only example of a quantitative embodied carbon target in an adopted Local Plan identified in this policy review. As such, it is an example of best practice. HDC could consider adopting a similar approach, perhaps initially only applying it to large scale site allocations where the benefits would be most marked, and the added cost and technical input required could be best managed.

Deliverability

2.83 Embodied carbon targets shown above have been set at a level that is deliverable.

2.84 Consideration of these issues at an early stage of design development will facilitate an efficient and cost-effective solution. For example, there may be opportunities to use specific low carbon materials such as wood to displace high-carbon materials such as concrete and steel and store carbon long-term in buildings.

2.85 Relying on external assessors for third-party schemes provides a valuable resource for evaluating developers' strategies for embodied carbon, ensuring an unbiased and thorough assessment. The use of well-established accreditation methods reduces the burden on developers, making the process more streamlined and efficient.

2.86 If BREEAM's embodied carbon targets are used in the Local Plan policy, it is important to note that the Building Research Establishment has indicated future consolidation of operational and embodied carbon credits. Any future policy wording in the Harborough Local Plan referencing specific credits would therefore need to be suitably caveated to future-proof the policy against these changes.

Viability

2.87 The cost of procuring low carbon materials is not anticipated to be onerous for developers. Further consideration could be given to the promotion of low carbon materials like wood to displace high-carbon materials that can lock-up carbon within buildings.

2.88 This approach could also stimulate a local timber production industry for buildings, boosting the local economy, which would be in line with other objectives of the Harborough Local Plan. It should, however, be noted that this could have impacts on woodland stock and the benefits it provides (not least for carbon sequestration) would need to be considered and addressed e.g. through forestry management plans that ensure new trees of the right type are planted to place those felled.

2.89 Where LETI or similar targets are implemented, in-house or contracted resources will be needed to assess developers' embodied target strategies within HDC. This could require additional time and investment.

Summary

Advantages

- Directly targets developers' choice of materials and their carbon content, noting the increasing importance of tackling embodied carbon.
- Using well-established accreditation methods reduces burden for developers.
- HDC could specify preference for specific materials, such as timber, which would, in turn, promote the emerge of a new local industry.

Disadvantages

- Focusing on embodied carbon targets may come at the expense of operational carbon policies/targets, lessening the achievement of carbon reduction.
- If using LETI or another target system, HDC would need to develop in-house or contracted resource to be able to assess developers' embodied target strategies.
- It could be challenging to monitor/enforce embodied carbon targets as it is often up to the developer regarding construction materials.

Require Whole Life Carbon assessments

2.90 A Whole Life Carbon (WLC) assessment approach builds on the intentions above of considering embodied carbon in buildings but marries this with an assessment of operational emissions to see ensure developers look at the full spectrum of unwanted emissions from developments.

2.91 HDC could require new developments to undertake a comprehensive WLC assessment (WLCA), also called a Life Cycle Assessment, as explained in the box below.

Whole Life Carbon Assessment

A WLCA is a comprehensive multi-step methodology to quantify total carbon emissions (embodied and operational) and other environmental impacts (such as acidification and eutrophication) through the life stages of a building. The EN 15978 standard is typically used to define the different life cycle stages A1-3 ('Cradle to Gate'), A1-3 + A4-5 ('Cradle to Practical Completion of Works'), B1-5 ('Use'), C1-4 ('End of Life'), D ('Supplemental') as illustrated in the helpful diagram in the LETI Climate Design Guide, reproduced below **[See reference 34]**.

Figure 2.1: Life Cycle Stages (from LETI Climate Design Guide)

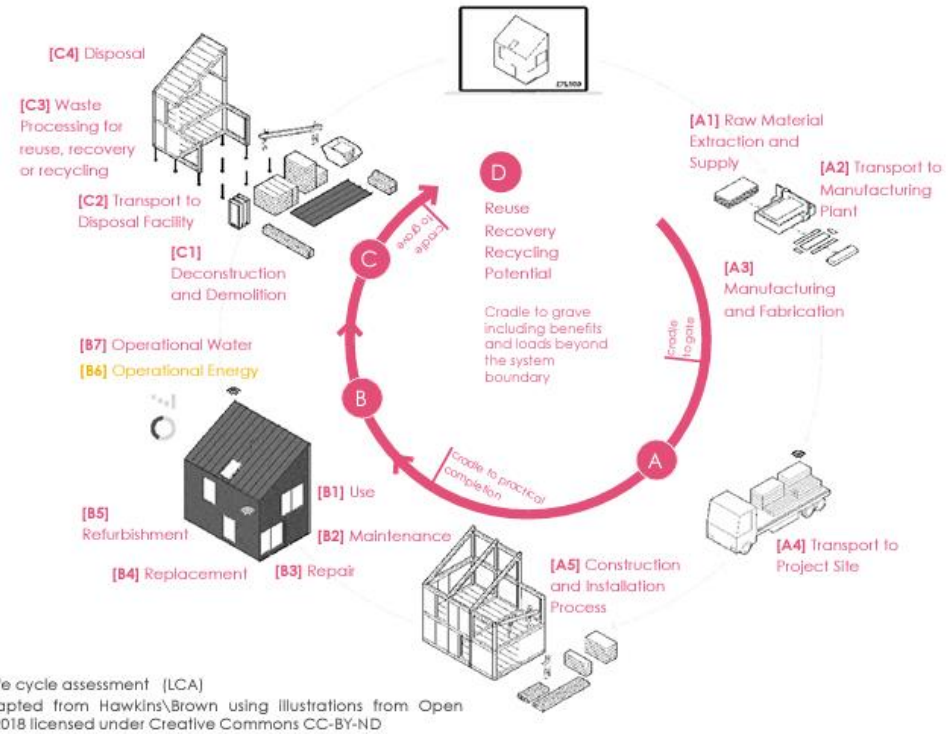


Figure 2.1 - Life cycle assessment (LCA)
Diagram adapted from Hawkins\Brown using illustrations from Open Systems Lab 2018 licensed under Creative Commons CC-BY-ND

2.92 WLC encourages carbon emissions profiles to be considered at early stages as developments are proposed and designed, which has the potential to achieve efficient and cost-effective solutions for emissions reductions. This could include the potential use of low-carbon materials, such as wood, to replace high-carbon materials like cement and steel, thereby enabling long-term carbon storage in buildings.

2.93 To demonstrate high performance in managing whole life carbon emissions (including both embodied and operational emissions), developers can achieve relevant credits within recognised sustainability assessment schemes, as discussed in the policy approach above on 'align policy requirements with HQM and BREEAM'. Specifically, credits related to WLC assessments can be targeted in the HQM (Home Quality Mark) or the BREEAM (Building Research Establishment Environmental Assessment Method) standards.

2.94 BREEAM offers up to seven credits within the category labelled 'Mat 01'. Developers can earn these credits by actively reducing the environmental life cycle impacts of their buildings. This reduction is achieved through conducting a rigorous WLC assessment and integrating its outcomes into the design decision-making process.

2.95 With regards to the HQM framework, the relevant assessment category is 'Environmental Impact of Materials'. The primary aim of this category is to minimise the impact of construction products on the environment. While it covers various environmental aspects beyond embodied carbon, the latter remains a critical output of this assessment.

Examples of policy wording

2.96 The most advanced adopted policy relating to embodied carbon is included in the **London Plan [See reference** 36**]** and supplementary guidance. **Policy SI2** includes the requirement that "Development proposals referable to the Mayor should calculate whole life-cycle carbon emissions through a

nationally recognised Whole Life-Cycle Carbon Assessment and demonstrate actions taken to reduce life-cycle carbon emissions".

2.97 The supporting text highlights the increasing importance of embodied carbon emissions as operational carbon targets become more stringent and flags the importance of a 'whole life-cycle approach' to capture unregulated emissions (see earlier section) and embodied emissions. Further guidance on how to complete a whole life carbon assessment is provided in dedicated supplementary guidance **[See reference** 37**]**. A reporting template is also provided along with suggested wording for a planning condition to secure the assessment in line with this guidance.

2.98 Policy EN1 of the draft Leeds Local Plan sets out requirements for major and minor developments:

> All major development should calculate their whole life cycle carbon emissions using a nationally recognised assessment methodology and demonstrate actions to reduce life-cycle carbon emissions of the development.
>
> All applications to demolish a building will need to demonstrate how the replacement development will be more energy efficient and use less carbon over its lifetime than reusing the existing building.
>
> Minor and household applications should consider the whole life cycle emissions of the development and make reasonable efforts to reduce those emissions using natural and recycled materials in the construction process.
>
> This should be demonstrated by assessing the scheme against the Council's whole life cycle carbon assessment checklist for minor and household applications. Whole life cycle carbon assessments will be monitored and this policy will be subject to a future plan review to set a benchmark figure for future development to achieve.

2.99 On the opposite end of the scale to the London Plan, the Ivers Parish Council implemented a whole life carbon and embodied carbon approach within the **Ivers Neighbourhood Plan** 2021-2040 **[See reference** 38**]**. **Policy IV14:**

Passivhaus within the plan requires that “All planning applications for major development are also required to be accompanied by a Whole Life-Cycle Carbon Emission Assessment, using a recognised methodology, to demonstrate actions taken to reduce embodied carbon resulting from the construction and use of the building over its entire life.” The supporting clause requires the submission of an energy statement that covers an assessment to minimise both regulated and unregulated emissions, the embodied emissions and the emissions associated with maintenance, repair and replacement of the new building. Crucially, the clause requires that proposals reduce carbon emissions beyond the Future Homes Standard and Building Regulations.

2.100 The examples above show that where requirements for WLC assessments have been included in local plans, they are typically applied for larger developments.

Deliverability

2.101 A WLC approach can be achieved using tools prescribed by BREEAM and HQM. These methods are well established, based on deliverable targets, and in most cases, familiar to developers. The technical feasibility of this approach can therefore be dependent on the targets set within BREEAM and HQM which can be submitted as part of a planning application.

2.102 It is anticipated that the use of accreditation schemes will reduce burdens for HDC, allowing HDC to rely on external resources for assessing WLCs as they would be conducted by BREEAM and HQM-affiliated assessors. There would not be a need to provide specifically-trained internal resource to review WLC assessments.

2.103 It is important to note that the findings of the House of Commons Committee report stated that “Local authorities are mandating WLC assessments of their own accord. Evidence so far shows that the policy is achievable and is working, with few barriers to its introduction” **[See reference**

39]. The report also suggests that WLCAs and related efforts will become national policy in the near future.

Viability

2.104 WLC requirements tend to only be applied to major developments. Given the deliverability considerations summarised above, the costs of completing WLC assessments for developers delivering major developments are not anticipated to be significant.

2.105 Using the tools prescribed by BREEAM and HQM, or other guidance, can help developers identify opportunities to reduce environmental impacts and submitting the results to the independent assessors. These methods are well established and the targets have been set at a level that should be readily deliverable. Consideration of these issues at an early stage of design development will facilitate an efficient and cost-effective solution.

2.106 The general uplift in costs, required to achieve a BREEAM certification, compared with the Building Regulations Part L 2013, could be between 0.2-5% for residential buildings and between 0.2-7.6% on average for non-residential buildings **[See reference 40]**. The costs associated with BREEAM accreditation is given further consideration in the 'Align policy with HQM and BREEAM' section above.

Summary

Advantages

- Whole life cycle assessments ensure a holistic view is taken and look at the causes of all damaging carbon emissions from development during its life cycle from materials production, construction, operation to deconstruction and are the most robust way to address embodied carbon.

- Carrying out WLCAs at application stage encourages developers to consider carbon profile at an early stage of design, allowing them to facilitate efficient, cost-effective solutions.
- Targets from BREEAM and HQM related to WLCs are readily achievable.
- Using well-established accreditation methods reduces burden for developers.

Disadvantages

- By not introducing a quantitative target for embodied carbon, possible within the completion of a WLCA, there is a missed opportunity to tackle this significant source of GHG emissions.

Recommended policy approach for net zero carbon emissions in new development

2.107 Based on the discussion above, in particular, the deliverability and viability of the different policy approaches, and an understanding of the context in Harborough, we recommend HDC incorporate the use of 'off the shelf' third party assessment tools and certification schemes (such as HQM and BREEAM) to require and help demonstrate that carbon reduction or net zero targets have been achieved in new development.

2.108 The use of third-party assessment schemes is considered most appropriate as HDC do not have in-house specialist expertise to review and challenge technical energy and GHG emissions calculations (see ‘operational emissions targets set within the Local Plan’ policy option, above). The use of a third-party assessment process and requiring certification will provide more certainty with implementation and delivery of the policy requirements, since they will be carried out by independent assessors. Furthermore, the cost will be borne by those who are securing uplift in value from the development. In the long term, it is strongly recommended that HDC allocate additional resources to enable planning officers to be confident in reviewing and assessing planning

applications that set out how emissions reductions will be achieved, and to ensure sufficient resources are available for monitoring implementation of these requirements. This may allow HDC to set more ambitious specific emissions reduction targets in the Local Plan in the future.

Recommended policy approach for net zero carbon emissions in new development:

It is recommended that HDC produce new policy that requires applicants to achieve high overall scores on HQM and BREEAM accreditation. This could then be supplemented by specifying additional requirements to achieve maximum credits in specific emissions-related categories.

HDC could state additional BREEAM requirements, specifying that all major non-residential developments must achieve *maximum credits* specifically in the 'Energy performance', and 'Prediction of operational energy consumption' and 'Beyond zero net regulated carbon' categories of BREEAM (or equivalent) to demonstrate that the development has surpassed net zero regulated emissions (this is different from being asked to achieve a rating simply for overall performance on BREEAM). For minor new build developments, they can be provided the option to demonstrate achievement of zero operational GHG emissions through Part L of Building Regulations rather than a BREEAM assessment.

As with BREEAM above, HDC could consider setting requirements for minimum HQM credit scores in specific areas e.g. to require a higher level of energy/carbon performance. For example, it could require that new build homes achieve sufficient credits in the 'Energy performance' and 'Towards carbon negative' categories of HQM to demonstrate that the development produces net zero regulated emissions, while achieving an overall standard at a minimum ranging between 3-4 Star at the Council's choosing (The Islington Local Plan requires major and minor new-build residential

developments to achieve a four-star rating (as a minimum) under the BRE Home Quality Mark scheme.)

HDC could consider the inclusion of a clause stating that where it can clearly be demonstrated that the net zero target cannot be fully achieved on-site, any shortfall should be provided, in agreement with HDC, either by a contribution to a new HDC carbon offset fund or off-site via an alternative proposal for emissions reduction

Were HDC particularly keen to motivate reductions in whole-life carbon through local plan policy, it could also specify that major developments undertake whole life-cycle assessments within the HQM and BREEAM process. This would encourage applicants to minimise embodied carbon (which will constitute a greater proportion of the carbon profile in buildings in future).

For guidance on how to construct or write such a policy, please see the recently adopted Islington Local Plan example (Policy S3), provided above.

Reducing carbon in transport

Policy background

2.109 Transport is a significant contributor to the UK's greenhouse gas (GHG) emissions, contributing about 26% of all emissions **[See reference 41]**. Harborough District is a mainly rural district which means that a significant proportion of journeys are made by car. Additionally, according to the Harborough District Climate Emergency Plan, road transport is the largest source of emissions, accounting for 55% of the overall emissions from the

district, highlighting the role reducing carbon in transport will have for Harborough **[See reference 6]**.

2.110 Local Plans play a key role in promoting the creation of sustainable transport and active travel links throughout the local plan area and within new developments as well as encouraging the use of those transport methods.

2.111 Section 9 of the NPPF relates to 'promoting sustainable transport' and states that "transport issues should be considered from the earliest stages of plan-making and development proposals, so that:

- *The potential impacts of development on transport networks can be addressed;*
- *Opportunities from existing or proposed transport infrastructure, and changing transport technology and usage, are realised – for example in relation to the scale, location or density of development that can be accommodated;*
- *Opportunities to promote walking, cycling and public transport use are identified and pursued;*
- *The environmental impacts of traffic and transport infrastructure can be identified, assessed and considered – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains; and*
- *Patterns of movement, streets, parking and other transport considerations are integral to the design of schemes, and contribute to making high quality places."*

2.112 In relation to the setting of parking standards for residential and non-residential development, the NPPF requires local planning policies to consider, in addition to local accessibility, types of development and vehicle ownership levels, "*the need to ensure an adequate provision of spaces for charging plugin and other ultra-low emission vehicles.*"

2.113 Furthermore, the National Design Guide **[See reference** 42**]** notes that the patterns of movement of people are integral to well-designed places. A well-designed movement network should limit the impacts of car use (including carbon emissions) by prioritising and encouraging walking, cycling and public transport.

2.114 Local authorities play an important role in increasing walking, wheeling and cycling. Through influencing planning and taking a wider, strategic view of travel infrastructure across their area, authorities can ensure that active travel infrastructure connects residents to services.

Existing policy in Harborough Local Plan

2.115 HDC's existing Local Plan provides some consideration for emissions from transport in relation to the promotion of sustainable modes of travel. **Policy IN2 Sustainable Transport** of the Harborough Local Plan states that, residential and commercial development proposals will be permitted, subject to the:

- provision of measures to facilitate and encourage safe access by cycle and on foot;
- protection of, connection to, and extension where practicable of existing pedestrian, cycle and equestrian routes;
- provision for public transport enhancement where justified, including information and waiting facilities and measures to encourage public transport use; and
- provision of electric vehicle recharging facilities where appropriate.

2.116 Policy GD8 'Good design' also includes consideration for transport in new development, requiring "*ensuring the safe, efficient and convenient movement of all highway users, including bus passengers, cyclists, pedestrians and horse riders.*"

2.117 Harborough District Council's Development Management Supplementary Planning Document (SPD), adopted December 2021 **[See reference Error! Bookmark not defined.]** provides further consideration for sustainable transport requiring consideration for the reduction of the use of fossil fuels by increasing sustainable transport choices, highway layout and design to provide electric/other vehicle charging, facilities for electric bikes, cycle storage, closer to the site or to facilities than cars.

2.118 As transport emissions make up a significant portion of Harborough's carbon emissions, HDC should consider all alternative approaches to strengthen requirements in the Local Plan and reduce emissions from transport as much as reasonably possible.

Alternative policy approaches considered

2.119 Although the Harborough Local Plan intends to achieve reductions in transport emissions, other approaches can be adopted to increase ambition in this area. The following alternative policy approaches for reducing carbon emissions from transport associated with new development have been considered:

- Maintain existing Policy IN2
- Require a sustainable travel hierarchy
- Support liveable 20-minute neighbourhoods in major developments
- Require electric vehicle (EV) charging points
- Require car clubs
- Demand management of private vehicles

2.120 We recommend that the policy approaches presented should not be considered in isolation, but rather, as able to complement and/or supplement each other to strengthen the overall consideration for transport emissions and maximise the benefits to Harborough.

Maintain existing policy IN2 'Sustainable transport'

2.121 HDC could simply maintain existing policy IN2 'Sustainable transport' requiring considerations for the access for cyclists and pedestrians, protection and extension of existing pedestrian and cycle routes, and provision for public transport enhancement and provision of EV recharging facilities, where appropriate.

Deliverability

2.122 Maintaining the existing policy will not add any additional considerations for the council and development proposals will be required to consider, where appropriate, the requirements of the existing policy.

Viability

2.123 Maintaining the current policy will not add additional costs beyond costs currently incurred by the Council and developers to comply with Policy IN2.

Summary

Benefits

- Maintaining the existing policy will not require additional resource or capacity from HDC to check compliance.

Limitations

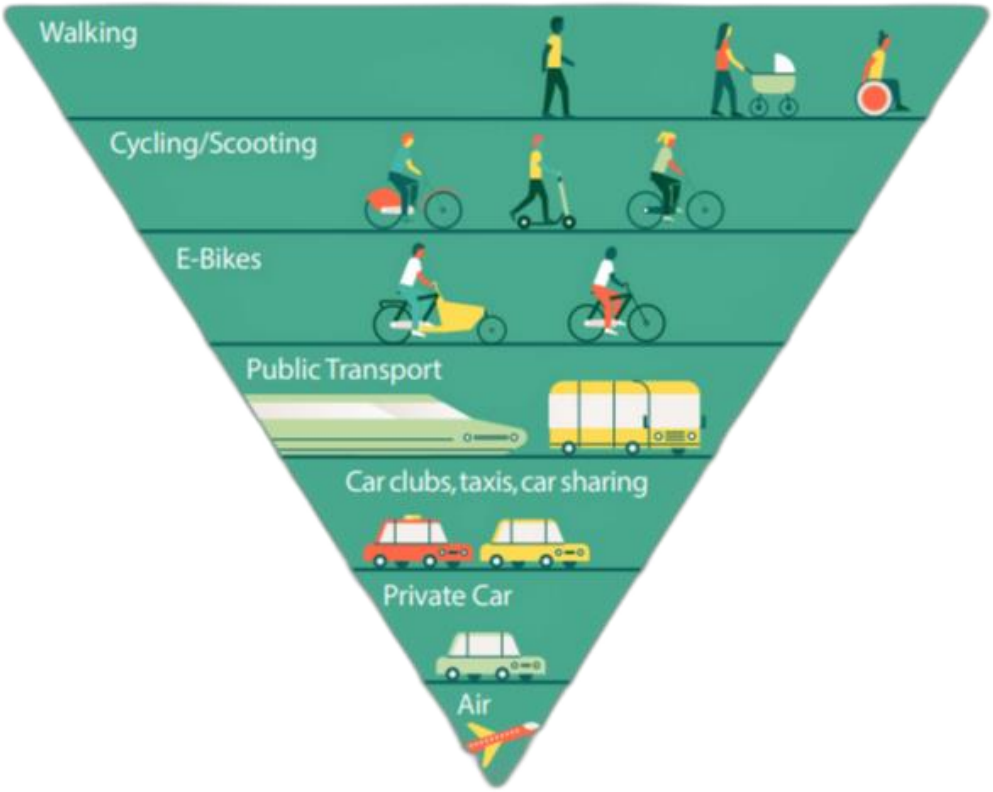
- The existing policy does not place any specific requirements on developers to achieve reduced carbon emissions from transport.

- HDC would not help to make significant carbon emissions reductions from transport in the district, which is not in accordance with global targets and its own climate emergency declaration.
- Future updates to the Local Plan may be needed to reflect any changes to national policy arising from the new Labour government.

Require a sustainable travel hierarchy

2.124 The sustainable travel hierarchy is a structure that aims to reduce high carbon travel modes in favour of alternatives. The sustainable travel hierarchy can range from walking as the most sustainable travel mode, through to air travel as the least sustainable. The image below illustrates the types of travel options at each level presented in the Surrey County Council Local Transport Plan 2022–2032.

Figure 2.2: Overview of the Sustainable travel hierarchy [See reference **43**]



2.125 The location of services within or outside new development must be considered and an assessment of the suitability of walking and cycling to these services should be undertaken. This firmly establishes a movement hierarchy with priority given to active travel. Following which, public transport movements should be considered and, finally, movement of general traffic. Walking and cycling routes should be designed to be both convenient and attractive e.g. through greening measures such as tree planting, to encourage modal shift. Re-shaping the environment in this way can encourage people to walk and cycle as part of their daily lives. In addition, cycling infrastructure must be considered when creating cycling routes for commuting and leisure activities, for example requiring provision of appropriate levels of cycle parking facilities, which are well designed, under cover, secure, conveniently located and easily accessible.

2.126 Figure 2.3 presents an example of incorporating cycle infrastructure as well as green infrastructure into developments.

Figure 2.3: Example of incorporating green bus stops and cycle parking into development

2.127 This approach should be set out within policy to ensure developers understand that walking and cycling should be prioritised. The current policy (IN2: Sustainable Transport) in the Adopted Harborough Local Plan would be strengthened by references to the inclusion of the sustainable travel hierarchy. To ensure Policy IN2 is delivered 'on the ground', HDC could also include key requirements for sustainable travel within site allocation policies. These would be site specific and take into account the varied applicability of sustainable travel measures at each site, given sites' differing contexts, with reference to the hierarchy.

Examples of policy wording

2.128 Many local plan policies simply set out the principle of promoting the use of sustainable transport and active travel. For example, **Policy DM33 Safe, Sustainable and Active Travel of the Brighton and Hove City Plan** Part 2, adopted October 2022 **[See reference** 44**]**, sets out that it *'will promote and provide for the use of sustainable transport and active travel by prioritising walking, cycling and public transport in the city.*' However, this policy then goes further, setting out how new developments should accommodate for each transport method: pedestrians, cyclists, public transport users and safe and inclusive travel. For example, for pedestrians (including wheelchair users and buggies/prams) it states: In order to encourage walking, new development should:

"*a) provide for safe, comfortable and convenient access to/from proposed development for all pedestrians, irrespective of their level of personal mobility and cognition; and*

b) where appropriate contribute towards improvements to the wider pedestrian environment, providing for a safe and attractive public realm, including signage, seating, shade/shelter and planting, including consideration of assigning some parts of streets and spaces for shared use by pedestrians and small numbers of vehicles; and

c) maintain, improve and/or provide pedestrian/wheelchair accessible routes that are easy, convenient and safe to use, giving consideration to pedestrian desire lines within and outside site boundaries."

2.129 Policy 21: Street hierarchy of the Proposed Submission North East Cambridge Area Action Plan (not yet adopted) **[See reference** 45**]** sets out how the area will be designed around active travel as the first choice, but with a functional street network for vehicular access including for public transport,

emergency vehicles, servicing local businesses, and for people with mobility issues as well as community transport and taxis. This policy is connected to Policy 16: Sustainable Connectivity, Policy 7: Legible streets and spaces, and Policy 19: Safeguarding for Cambridge Autonomous Metro and Public Transport, of the Area Action Plan which provides further direction to developers to reduce the need to travel and encourage sustainable travel.

Deliverability

2.130 Local Plan policy can only do so much to help encourage behaviour changes to use more active forms of travel. A study conducted in 2021 by the Centre for Aging Better and Sustrans **[See reference** 46**]** identified the key benefits of active travel including physical and mental health benefits and recreation, and key barriers to active travel including:

- Poor infrastructure
- Prevailing car culture
- Distance travelled in rural areas
- Too much traffic
- Concerns about personal safety/crime

2.131 In order to prioritise and encourage sustainable travel, infrastructure must be considered at the start of any development or masterplan process by developers and the Council alike. As noted above, it should be designed to be both convenient and attractive. Travel infrastructure is far more challenging to incorporate at later stages of development. Including policies requiring the sustainable travel hierarchy to be followed and setting out how new developments should accommodate each transport mode, will require developers to undertake good masterplanning and urban design of new streets and communities. These requirements should be straight forward to deliver if considered from the outset of the site design process.

2.132 It may be more relevant to require this for larger site allocation policies and major development proposals. However, if not required on smaller development sites, opportunities to provide new public transport routes may be lost in villages where a number of small development proposals would combine to increase overall housing numbers and potential demand for the new service (as was recently the case in Gilmorton within the district).

Viability

2.133 Satisfying the demands of the sustainable travel hierarchy does not necessarily add cost to the development process but may require greater coordination between developers and local transport authorities. The incorporation of active travel measures over road space for vehicles may, in some cases, reduce overall development costs.

Summary

Benefits

- Encouraging mode shift to walking, wheeling and cycling is one of the most cost-effective ways of reducing transport emissions.
- Walking, wheeling and cycling can decrease congestion, air and noise pollution, and both are linked to health and economic benefits.
- Requiring the sustainable travel hierarchy to be followed will further encourage active travel and ensure that residents can meet their daily needs without being dependent on using cars, avoiding the associated negative impacts on carbon emissions, air quality and congestion.
- Beyond climate-related benefits, this approach can provide improved public realms, support to the local economy, healthier lifestyles and support a vibrant, cohesive community.

Limitations

- Agreeing with developers on the validity of design choices made to support a sustainable travel hierarchy and encourage active travel may be difficult, however, the production of a design code for Harborough would help planning officers and developers understand local expectations for supporting a sustainable travel hierarchy.
- If not required on smaller development sites, opportunities to provide new public transport routes associated with a number of new developments may be lost in villages.

Support liveable 20-minute neighbourhoods in new developments

2.134 HDC needs to ensure that new development in the district helps to achieve the priorities within its Climate Emergency Plan of "*promoting health and wellbeing and encouraging healthy life choices*" and "*creating a sustainable environment to protect future generations*", as well as the objective of the current Harborough Local Plan "*Provide greater opportunities to reduce car use, thereby reducing the impacts of road traffic on local communities, the environment and air quality, by locating development where there is good access to jobs, services and facilities, and by supporting improvements in public transport, walking and cycling networks and facilities*".

2.135 The concept of '20-minute neighbourhoods' – creating places in which most people's daily needs can be met within a short walk or cycle – is a useful tool for informing the design of schemes and the assessment of planning applications. Scheme design will require measures to minimise the distance required by individuals to travel, and further encourage access on foot or bicycle, or access to well-connected public transportation links. It should consider access to local services as well as journeys to work (mode and distance). We note that **Policy IN2 Sustainable transport** of the Harborough Local Plan, promotes sustainable modes of travel, however, a focus around the 20-minute neighbourhood concept would ensure HDC can reduce emissions arising from short distance travel (less than 5km), thereby strengthening the

existing policy by ensuring that opportunities for sustainable travel modes are maximised.

2.136 The image below presents an illustration of a 20-minute neighbourhood including the provision of green spaces, sustainable transport modes, homes, and key local services.

Figure 2.4: Overview of a 20-minute neighbourhood

2.137 HDC could also highlight the importance of incorporating green infrastructure along active travel routes in the updated Local Plan to help create attractive routes. In addition, where appropriate, specific wording within each large site allocation policy could be added regarding the 20-mininute neighbourhood concept as this scale of development would be able to facilitate

delivery of this concept from the design stage and ensure that key services can be accessed easily within 20 minutes' walk from all homes.

2.138 There are different design solutions for achieving a 20-min neighbourhood depending on the specific context. Lessons can be learnt from elsewhere. For instance, the Trumpington Meadows development in Cambridge of 1,200 homes includes a 60 ha country park on the periphery, while the new homes are built around public transport access and cycle paths with a compact urban form, creating a walkable neighbourhood that encourages public transport use and active travel to reduce car dependency **[See reference 47]**. However, the scheme has struggled to establish local shops, cafes and businesses; a lesson learned was the need to get retail in early.

Examples of policy wording

2.139 Leeds City Council included a policy in their most recent Local Plan update concerning the 20-minute neighbourhood concept (Reg 19 Pre-Submission Draft changes, October 2023) **[See reference 48]**. This inclusion acknowledges the correlation between the principles of local living, which involves the establishment of well-equipped, secure, accessible, and walkable neighbourhoods, and the reduction of emissions.

2.140 Leeds City Council refer to the concept as '*complete, compact and connected places*'. It had originally been branded as a 20-minute neighbourhood concept. However, the council have recently considered that the varying nature of cities, town centres, urban suburbs and rural areas would be different. Therefore, the focus should be on integrating the key features of the 20-minute neighbourhood concept to allow people to live locally, rather than focussing exclusively on the 20-minute walk aspect. This involves giving people the ability to meet most of their daily needs within a 20-minute return walk/wheel from home, with access to safe cycling and local transport/shared mobility alternatives to access facilities and services that are not within a 20-minute walk/wheel.

2.141 To support this policy, the council commissioned an analysis of local accessibility, producing a heat map showing the walkability of neighbourhood areas in relation to the ease of walking to local amenities. This analysis gave a score to areas within the authority which are classified under four categories of walkability.

2.142 Similar assessments could be commissioned by HDC when requiring new large-scale development to implement this approach to identify specific site locations to satisfy the demand for 20-minute neighbourhoods. Depending on the results of the assessment, **Policy IN2 Sustainable transport** might need to state that the 20-minute neighbourhood approach would only apply to selected site allocations.

2.143 Surrey County Council has introduced the concept of the 20-minute neighbourhood within their Local Transport Plan (LTP4) (Draft for consultation) **[See reference** 49**]**. The council has also developed guidance for planners on net-zero compatible street and travel-related design and spatial planning guidance, in the 'Surrey Street Design Guide: Healthy Streets for Surrey' **[See reference 50]** which provides guidance on this approach in the 'General layout principles' section.

Deliverability

2.1 Requiring large scale developments to implement this approach should be straightforward to deliver if considered at the outset of the site design process. However, as noted above, if the 20-minute neighbourhood concept is not also applied to smaller development sites, opportunities to provide liveable neighbourhoods with good access via walking and cycling to services and facilities may be lost in some locations, e.g. where there may be a number of small developments combining to increase overall housing numbers and extend or create new neighbourhoods.

2.2 Delivering on the concept is more viable in denser locations or larger greenfield developments where the number of people present provides a

'market' for local services and sustainable travel modes. This also relates directly to costs whereby the provision of related infrastructure would represent a smaller proportion of delivery costs for a larger development as well as, possibly, for an urban development where the extent of provision needed to satisfy the 20-minute concept would be smaller given the availability of local services.

2.3 The sustainability appraisal process being undertaken for the Local Plan update could help to identify potential site allocations that are more suitable for deploying the principles of a 20-minute neighbourhood than others, based on scale and quantum of housing, location in relation to existing sustainable transport links/routes, employment opportunities and other services and facilities.

2.4 Depending on the preferred spatial strategy that is selected for the new Local Plan, and the extent to which planned growth in Harborough will be delivered through large, mixed use development sites providing services and facilities on-site, there could be significant potential for delivering 20-minute neighbourhoods. As sites move through the various stages of planning and into construction, it is important to ensure that appropriate services will be delivered on these sites, and that means of connectivity to and from them to facilities elsewhere is achieved. This will require due consideration during the planning application process by HDC's Development Management team.

Viability

2.5 The design and provision of appropriately connected street networks to enable 20-minute neighbourhoods is particularly low-cost as a proportion of construction costs. The provision of services and facilities on-site, rather, is likely to be a matter of ensuring a local market exists such that it could sustain them.

2.6 Supporting evidence is, however, needed to identify specific areas and sites where 20-minute neighbourhoods should be implemented (i.e. through the

Sustainability Appraisal process and/or additional heat mapping showing walkability of different neighbourhoods of the district). Areas with a higher density of population are more likely to be able to support new services and facilities (e.g. retail), making them more viable.

Summary

Benefits

- A 20-minute neighbourhood approach has the potential to strengthen HDC's policies on sustainable travel supporting an increasing proportion of journeys being undertaken by sustainable travel modes.
- Beyond climate-related benefits, this approach can provide improved public realms, support to the local economy, healthier lifestyles and support a vibrant, cohesive community.
- This approach can support greater integration of retail and transport strategies in line with HDC's housing and economic objectives.

Limitations

- Implementing a 20-minute neighbourhood approach should involve the production of supporting evidence (e.g. heat mapping) to identify appropriate sites where this approach should be applied.
- Not all sites, in the context of largely rural Harborough, could sustain a 20-minute neighbourhood. This approach is more suited to denser, urban locations.

Require electric vehicle charging points

2.7 Local Plans should require provision for electric vehicle charging infrastructure to support the transition from internal combustion vehicles to electric, in order to help reduce carbon emissions from transport. Part S of the

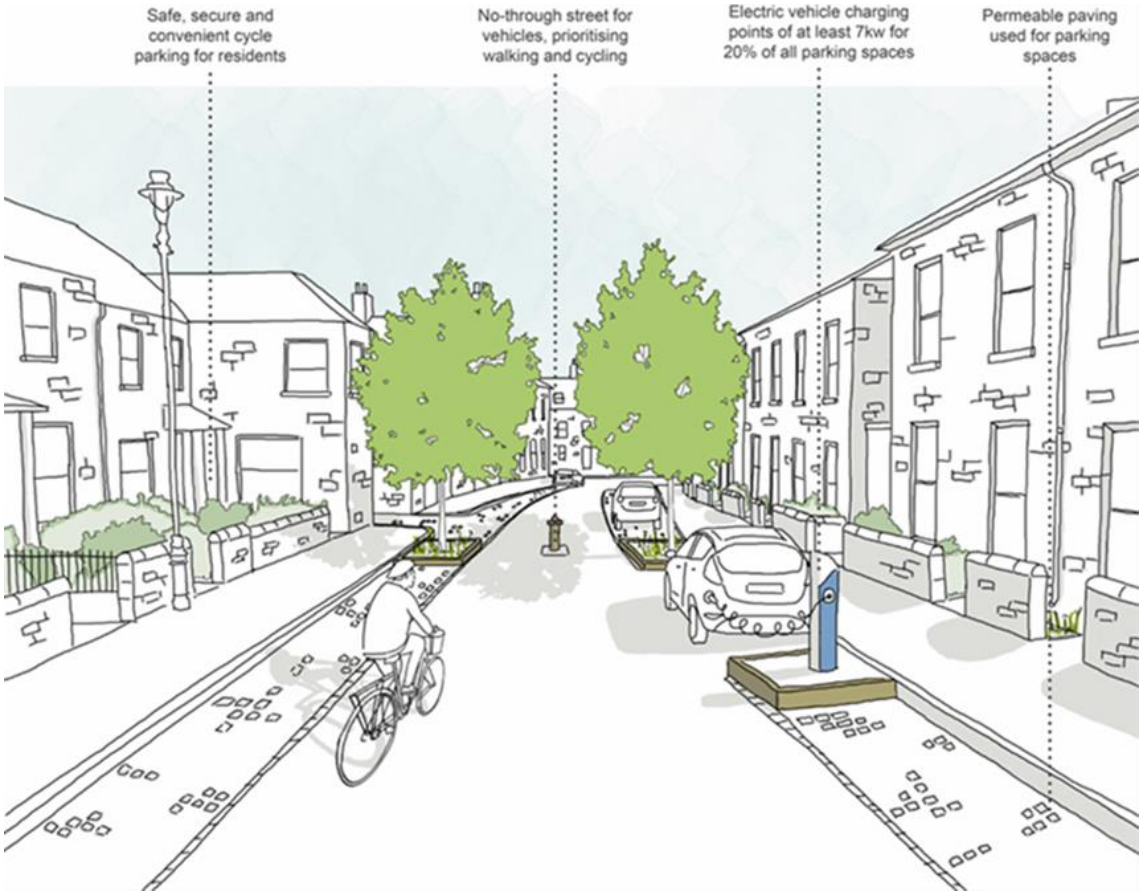
Building Regulations establishes minimum requirements for provision of EV charging infrastructure. Electric vehicle charging points are required to be installed so that every new home with associated parking has an EV charge point. Where there is a renovation of residential buildings with 10 or more dwellings, there must be at least one EV charge point for each dwelling with associated parking and cable routes in all spaces without charge points. Similarly, new non-residential buildings with more than 10 parking spaces must have a minimum of one charge point with cable routes for one in five of the total number of spaces, and any non-residential buildings undergoing major renovation with more than 10 parking spaces will require the same.

2.8 However, given the critical need to expand the provision of this infrastructure to support EV uptake, this policy approach considers requiring more ambitious standards.

2.9 Existing Policy IN2 requires the provision of electric vehicle recharging facilities 'where appropriate' in residential and commercial developments, but HDC could strengthen its policies by specifically requiring that a majority of car parking spaces included in new residential and non-residential development are either fitted with a charging point (also referred to as ‘active’) or have the infrastructure to have one fitted in the future (also referred to as ‘passive’). In addition, it could require that developers of smaller sites contribute to electric vehicle infrastructure as part of the Council’s sustainable transport agenda.

2.10 As shown in Figure 2.5 and Table 2.1 in the Viability section below, EV charging is feasible and deliverable. Charging infrastructure can be easily integrated into the delivery of wider parking infrastructure on- or off-street.

Figure 2.5: Example of a street that incorporates electric vehicle infrastructure



Examples of policy wording

2.11 There do not seem to be many examples of adopted Local Plans that have required more than the minimum standard of EV charging currently required in the Building Regulations. **Leeds City Council implemented Policy EN8: Electric Vehicle Charging** Infrastructure in their adopted local plan **[See reference** 51**]**, requiring that parking spaces meet the minimum standard of electric vehicle charging points for new developments. The policy states:

All applications for new development which include provision of parking spaces will be required to meet the minimum standard of provision of electric vehicle charging points. This requires:

- i) Residential: 1 charging point per parking space and 1 charging point per 10 visitor spaces.
- ii) Office/Retail/Industrial/Education: Charging points for 10% of parking spaces ensuring that electricity infrastructure is sufficient to enable further points to be added at a later stage.
- iii) Motorway Service Stations: Charging points for 10% of parking spaces ensuring that electricity infrastructure is sufficient to enable further points to be added at a later stage.
- iv) Petrol Filling Stations: Provision of fast charge facilities."

2.12 Salford City Council included a policy on EV charging points, Policy A10: Electric vehicle charging points, in its Local Plan, adopted 2023 **[See reference 52]**, so that new development would support the development of a network of EV infrastructure, stating that:

New development shall make provision for electric vehicle charging infrastructure, using dedicated charge points specifically designed for charging all types of electric vehicle, in accordance with the following standards (unless superseded by higher standards in the Building Regulations):

- 1. For dwellings with off street parking, at least one dedicated charge point per dwelling.
- 2. For non-residential developments, 10% of spaces shall accommodate a dedicated charge point. In addition to this, 20% of spaces shall accommodate appropriate ducting infrastructure to facilitate future provision. A reduced requirement will be permitted where it can be

demonstrated that the specific characteristics of development would result in lower levels of demand for electric vehicle charging.

2.13 The **Greater Cambridge Local Plan** 'First Proposals' consultation **[See reference** 53**]** sought to go higher than the minimum standards, but this has not yet been tested through the Examination process:

Vehicle parking should include electric charging infrastructure (with appropriate grid reinforcement), which should be designed into the public realm, to address the national commitment to phase out the sale of petrol and diesel cars within the plan period. Charging infrastructure should be able to accommodate other vehicles including mobility scooters, electric cycles and electrification of the bus fleet.

Where car parking is provided, it is proposed that electric car charging points (minimum of 7kW) should be included at all developments at the following levels:

- Dwellings with private parking: 1 charge point per dwelling (100% active)
- Communal parking areas: 1 charge per parking space (50% active, 50% passive)
- Employment: 30% with active charge points, and 30% with passive.
- Retail: 20% of bays with active charge points, and 20% with passive.

Developers will be required to submit evidence of a management strategy for any communal charge points.

Deliverability

2.14 The approach toward electric vehicle infrastructure employs existing technology. EV charging stations can be seamlessly integrated into the public realm as shown in Figure 2.5 above.

Viability

2.15 The provision of EV infrastructure in new developments will have cost implications for developers. Table 2.1 below sets out indicative costs for domestic and public EV charging stations, indicating the limited cost per domestic and 'standard' space **[See reference** 54**]**. Building Regulations require each electric vehicle charging point to have a minimum normal rated output of 7kW.

Table 2.1: Indicative charging infrastructure costs

Type	Description	Indicative Cost
Domestic	Up to 7kW	£500-£1,000
Public – Standard	7kW	£10,000
Public – Fast	22kW	£12,000
Public – Rapid	43kW	£34,000

2.16 Costs for developers of installing EV infrastructure are likely to decline over the coming years as the drive to support a transition to electric vehicles accelerates. The cost of EVs for consumers is also anticipated to continue to decrease over the coming decade making them more affordable to the general public, which could raise the demand for charging points significantly.

Summary

Benefits

- Support for EV infrastructure (along with car clubs, see below) will reflect the need for car use in rural settings such as within Harborough, while tackling the emissions that vehicles typically produce.
- Ensuring developments provide car charging options also provides options for those seeking to switch to electric cars but are unable to do so without available charging facilities.
- This policy approach may be pursued as an alternative to other harder-to-achieve sustainable travel approaches which may receive greater pushback during Local Plan consultations.

Limitations

- Implementing policies that support EVs raises concerns around embodied carbon. The production of EVs involves considerable carbon emissions in their production. Harborough's support to EVs cannot, therefore, be solely considered as a net zero approach.
- Supporting EVs also helps to maintain the potential for traffic congestion, rather than tackling it as other sustainable travel policies might do, which has its own negative consequences on pollution and wellbeing.
- There is a need to consider the capacity of local energy grids before allowing EV charging infrastructure. (Alongside the wider shift towards electric heating in buildings, electrification of transport will place pressure on grid infrastructure in the future, which reaffirms the need to reduce operational energy demands, undertake infrastructure upgrades, and provide as much renewable electricity on-site as possible.)
- The impacts of on-street charging infrastructure (and associated EV charging bays) on the street scene and wider parking provision will also need to be considered in siting such infrastructure.

Require car clubs

2.17 Car clubs allow users to access a vehicle without owning one and can offer a flexible, cost-effective alternative to private car ownership or leasing. Drivers who belong to a car club, instead of owning a private car, will help to reduce overall numbers of cars on the road and therefore reduce carbon emissions. As car club vehicles are often newer, they tend to have lower emissions than private cars, which also helps to reduce carbon emissions and air pollution.

2.18 According to the Department for Transport (DfT), local authorities have a role to play in promoting car clubs by ensuring policies and interventions supporting car clubs are integrated with wider local transport and net zero strategies **[See reference** 55**]**. In addition to net zero targets, car clubs can help HDC deliver against wide-ranging objectives such as Objective 10 of the Adopted Local Plan which states "*Provide greater opportunities to reduce car use, thereby reducing the impacts of road traffic on local communities, the environment and air quality, by locating development where there is good access to jobs, services and facilities, and by supporting improvements in public transport, walking and cycling networks and facilities.*"

2.19 The DfT states that car clubs have a higher proportion of hybrid and zero emission vehicles, with battery EVs making up 12% of the current UK car club fleet, compared to 1% of private vehicles. The promotion of car clubs can also serve as a means of behavioural change towards more sustainable travel modes within the borough. HDC could require that all car clubs provide only low-emissions vehicles.

Examples of policy wording

2.20 Islington's Draft Local Plan [See reference 56**]** includes wording in **Policy T3: Car-free development** which supports car clubs where they use EVs:

> The Council will support the provision of car clubs, including the provision of accessible car club parking spaces and/or contributions towards the provision of car clubs in the vicinity of the development, where appropriate. Car club vehicles must be 'clean,' i.e. it must be powered by alternative fuels to minimise harmful impacts on the environment.

2.21 Policy T6.1 Residential parking of the **London Plan** incorporates consideration for car club spaces stating that:

> Outside of the Central Activities Zone (CAZ), and to cater for infrequent trips, car club spaces may be considered appropriate in lieu of private parking. Any car club spaces should have active charging facilities.

2.22 The supporting text states that in some areas, car club spaces can help support lower parking provision and car-lite lifestyles by enabling multiple households to make infrequent trips by car.

Deliverability

2.23 Considerations for car clubs should be straight forward to deliver if considered from the outset of the site design process, relating to the masterplanning and urban design of new streets and communities.

2.24 There is evidence of the successful implementation of car clubs in London's boroughs. The London Borough of Kensington and Chelsea now has over 210 dedicated car club bays, in addition to provision for one-way flexible services and back to area parking areas **[See reference** 57**]**. Since the introduction of car clubs into the borough, the council has worked to progressively expand the number of vehicles available to residents. The London Borough of Lewisham also created a 'floating' car club permit to allow a set

number of car club vehicles to park in permit-controlled spaces across the borough.

2.25 Local authorities should identify stakeholders and engage early with the community where car club vehicles are planned to manage expectations, build trust and address potential concerns. There are a number of companies willing to support local authorities and developers who have planning obligations to provide car clubs to local residents or staff such as Hiyacar **[See reference** 58**]** and Enterprise car club **[See reference** 59**]** . Local authorities should use their marketing and communications teams to engage with residents in advance of implementing a car club. For instance, the Bath Riverside development was designed to promote sustainable travel options and residents are offered incentives to take up walking and cycling, join the car club or use public transport. The development is well served by buses and residents are offered a 1 month free bus pass, free car club membership and a £100 cycle voucher. Bath and North East Somerset Council included the Bath Riverside development in its Local Plan site allocations. Developers then made provision for sustainable travel and car clubs on site, with Enterprise providing the car club.

Viability

2.26 The inclusion of car club policies is not expected to add significant uplift in costs for developers if inclusion of car clubs is considered at the design stage. The only exception is for provision of car club parking with electric vehicle charging points.

2.27 As with all EV infrastructure, early engagement with distribution network operators (DNO) on charge point installations for EV car clubs, will allow developers to understand local grid constraints and the potential upgrade costs to enable charge points.

Summary

Benefits

- Car clubs provide a cost-effective alternative to driving a private car which can reduce carbon emissions and air pollution, while relieving parking pressure and congestion.
- For local authorities, there are benefits for reducing tailpipe emissions from air pollutants (NOx and particulate matter) resulting in better health outcomes, reducing demand for residential parking spaces, encouraging the release of brownfield land for redevelopment – where developments include car clubs, less space is required for parking, which allows for the inclusion of more shared amenity space and for the development of sites previously thought too small, because they lacked space for parking.
- For communities, car clubs can enable access to newer, more environmentally-friendly vehicles, remove the costs and hassle of vehicle ownership, and provide access to employment opportunities and services where public transport is less viable.

Limitations

- Car clubs may require a minimum level of demand to make them viable and may therefore only be suitable for larger-scale developments. However, when considering neighbouring properties, demand may be sufficient. Additionally, developers could be asked to contribute towards the delivery of car club schemes nearby if they are unable to provide these on-site.

Demand management of private vehicles

2.28 HDC can strengthen the use of sustainable travel modes via policy measures that reduce the demand for private transport. To address issues of

carbon emissions, and air quality, local authorities should explore all means available to increase usage of forms of transport which offer an alternative to carbon-heavy private cars.

2.29 The policy approaches considered above, i.e. encouraging 20-minute neighbourhoods and supporting on-site facilities in new developments, active travel provision and amended road design for people and active travel modes can all be considered an indirect method of managing demand for private vehicles.

2.30 More direct private vehicle demand management policies specifically aim to directly limit the convenience and, therefore, demand for private vehicle use and include: charges for using the road network on a pay-as-you-go model, increases in parking charges, reductions in the amount of parking available and traffic calming. If appropriate, certain road users can be made exempt, such as blue badge holders. Note however that such measures can be negatively viewed as ‘anti motorist’ so may not be supported by all.

2.31 Demand management of private vehicles works best where there are alternative transport modes available to switch to. This is particularly difficult to provide in rural contexts, common across Harborough. A new demand-responsive bus service has been successfully operating in South-West Leicestershire since 2022 **[See reference** 60**]**. Future roll-outs to the rest of Leicestershire (including Harborough) would support people to use more sustainable transport means than their cars and dovetail well with any demand management measures.

Examples of policy wording

2.32 This type of policy is typically implemented in densely populated cities, which are very different to the rural context of Harborough. London, Bristol and Glasgow City Council have implemented road user charging schemes in place, including the Congestion Charge, the Low Emission Zone (LEZ) and the Ultra Low Emission Zone (ULEZ). As part of a consultation last year on the Mayor of

London's Transport Strategy and the ULEZ expansion, Transport for London asked for views on the future of distance-based road user charging and how it might be implemented.

2.33 More information on distance-based road user charging for Local Authorities can be found in the Local Government Association's report "Understanding local authorities' views on a national road user charging system" **[See reference 61]**.

Deliverability

2.34 Private car management policies have been implemented in major cities in the UK. Case studies within England and Scotland demonstrate the technical feasibility of this approach. Rather than costs (see below), ensuring effective consultation on the sensitive subject of measures to restrict local car use is a greater challenge for local councils. In addition, it is recognised that road user charging schemes are more relevant in a densely populated urban context, so are unlikely to be deliverable in Harborough. Given the new demand-responsive bus service in South-West Leicestershire has been successfully operating since 2022, it seems likely that this would be more achievable within Harborough District.

Viability

2.35 Parking charges, traffic calming and reductions in the amount of parking are low-cost interventions and may raise revenue in some cases. We are not aware of any areas of the UK that have installed pay-as-you-go road pricing in more rural areas. However, the Local Government Association has recently commissioned research to gather local government views on a potential national road pricing system.

Summary

Benefits

- Managing the demand for private car will have a direct impact on the ease of using private vehicles. This may have a greater impact in reducing car use, with its negative externalities than indirect measures such as 20-minute neighbourhoods, as it directly targets car-use and car users rather than targeting alternative transport methods.
- National policy requires that income raised by local authorities through traffic related fines are spent on essential transport projects. Money raised by new demand management measures may, therefore, be reinvested in Harborough's transport network. This could provide an important source of revenue to fund other policy areas such as active travel, strengthening alternatives to car use, with priority over funding an improved road network to affected road users.

Limitations

- Restrictions on car use may have negative impacts (e.g. for the local economy) if they are not supported by policies and infrastructure that make it easier to find alternative carbon-friendly transport. Similarly, efforts to make active travel more inviting may be insufficient to effect behaviour change without disincentives to use cars.
- Policies to manage car use are therefore best applied when dovetailing with appropriate liveable neighbourhood-related policies (discussed above) – helping to ensure that local services and facilities are accessible through other means, either through proximity or the availability of other transport options.
- Demand management policies are politically sensitive and currently have only been delivered in densely populated urban cities. Drivers may be sensitive to suggestions that car use may be restricted in any way. Policies and initiatives must therefore be delivered carefully, with communication designed to show how any such policies do not prevent

car use but rather discourage its use for certain activities. This challenge also provides a case for firmer commitments to delivering private vehicle management on new developments (e.g. restricting car ownership for new homes or ensuring road layouts that prioritise people and active travel modes), given its comparative ease and potential for ensuring carbon reductions.

Recommended policy approach

2.36 In light of the significant contribution to carbon emissions that transport makes in Harborough District, and based on the discussion above, in particular, the Deliverability and Viability of the different policy approaches, we recommend HDC strengthens its existing Sustainable Transport policy by doing some or all of the following.

Recommended policy approach for reducing carbon emissions from transport:

It is recommended that HDC introduce the principles of the sustainable travel hierarchy within the Local Plan, requiring a 'sustainable travel hierarchy' to be delivered within major developments (and any relevant site allocation policies).

Although this is currently recommended in national guidance, insertion of a requirement for applicants to show adherence to the sustainable travel hierarchy in strategic policy and policy for strategic site allocations would require applicants to alter transport plans accordingly. Currently, whilst this guidance should be followed by Highways Officers in reviewing and approving transport statements, often the focus is on private vehicle impact and making this a requirement in the local plan would strengthen the implementation of the guidance.

As travel infrastructure is far more challenging to incorporate at later stages, HDC should require the sustainable travel hierarchy to be considered at the start of any development or masterplan process. Application of the hierarchy at strategic sites could have a major impact on the carbon profile of new development in Harborough.

While the current Local Plan includes some support for elements of active travel, HDC could also include policy wording for strategic sites, as in the North East Cambridge Area Action Plan (see above) that sets out how the development should be designed around active travel as the first choice, but with a functional street network for vehicular access including for public transport, emergency vehicles, servicing local businesses, and for people with mobility issues as well as community transport and taxis.

It may be difficult to agree with developers on the validity of design choices made to support a sustainable travel hierarchy and encourage active travel. The production of a design code for Harborough may help planning officers and developers understand local expectations for supporting a sustainable travel and movement hierarchy.

Smaller sites, particularly under 10 units, are unlikely to be able to incorporate the concept of the sustainable travel hierarchy given limited space for and available funds for active travel infrastructure. There should be a strengthened design policy which would include measures to incentivise the use of alternative transport modes including through parking standards. However, smaller sites could be expected to make a contribution per dwelling to new or improved active travel infrastructure or public transport services to be provided in their surrounding settlement. Either in the in-development Infrastructure Delivery Plan (IDP) or in future iterations, active travel infrastructure could be incorporated in the same way education and utilities are, whereby contributions are clearly justified based on the expected increase in residents and need. The IDP would specify the

manner in which contributions are made (which fund or legal agreement is deployed).

Such infrastructure could include, in the future, on-demand bus services (see above) that could have a major impact on the profile of transport in rural Harborough. In the immediate term, these contributions could be directed towards new policy promoting the installation of car clubs and EV charging infrastructure across Harborough.

It is recommended that HDC strengthens its existing policy by, at a minimum, requiring that all new development meets the minimum EV charging standards in the Building Regulations. However, HDC could go further by specifically requiring that a majority of car parking spaces included in new residential and non-residential development are either fitted with a charging point or have the infrastructure to have one fitted in the future. The more ambitious percentages for active and passive charging infrastructure within different types of development required in the Greater Cambridge Local Plan First Proposals could be considered (see 'Examples of Policy Wording' above). In addition, it should require that developers of smaller sites contribute to electric vehicle infrastructure as part of the Council's sustainable transport agenda.

It is also recommended that HDC incorporate a policy promoting car clubs and the provision of space for car club parking (with EV charge points) within major developments, to provide a cost-effective alternative to driving a private car in rural areas, which would also reduce carbon emissions and air pollution. The policy should also require that car club vehicles must be 'clean,' i.e. powered by alternative fuels to minimise harmful impacts on the environment. Where developments are clearly unable to 'house' car clubs due to their smaller size, contributions to them should be part of the typical infrastructure contributions package, as described above.

Renewable energy projects and infrastructure

2.37 In order to have a realistic chance of meeting net zero targets, LPAs need to adopt a presumption in favour of renewable energy projects, provided they are not subject to technical, environmental or safety concerns. Increasing the amount of energy from renewable and low carbon technologies is essential to making sure the UK has a secure energy supply, reduces greenhouse gas emissions to slow down climate change and will help to stimulate investment in new jobs and businesses. Planning has an important role in the delivery of new renewable and low carbon energy infrastructure **[See reference** 62**]**.

2.38 The key consideration for HDC is therefore whether more can be done to promote renewable and low carbon energy developments in the District. Renewable energy generation projects and related policy approaches have been considered in detail in a separate document prepared by LUC - 'Harborough Renewable Energy Study'.

2.39 Beyond larger-scale renewable energy generation schemes, this evidence study also recommends that HDC implement policy that more readily supports particular new developments to install micro-scale renewable energy generation of their own. In particular, solar generation could be encouraged for particular developments with relatively poor sustainability profiles whose characteristics support significant solar arrays, namely car parks and warehouse and logistics sites. This is covered below.

Policy background and Recommendation

2.40 There is growing demand and supply of solar canopy infrastructure in the UK with many businesses keen, in the wake of high energy prices, to use solar to help keep operational costs down over the longer term.

2.41 LPAs could support commercial locations to more readily adopt solar arrays through a streamlined planning process. The 2023 NPPF update places a renewed emphasis on encouraging LPAs to use Local Development Orders (LDOs) to help bring development forward (paragraphs 51 and 52). LDOs are promoted as a flexible tool to simplify and streamline the planning process, creating certainty for new development and saving time and money for those involved. Although originally used to encourage speedier progress for employment sites, they have come to be used for a range of uses, including, most recently, the provision of low carbon solutions.

2.42 Car parks and warehouse/logistics sites themselves present sustainability challenges given that they promote vehicle use. Taking inspiration from a new legal requirement in France for all large car parks to have solar canopies **[See reference** 63**]**. HDC could look to develop an LDO to encourage use of solar canopies above existing and newly proposed car parks, particularly for the district's warehousing and logistics providers. LDOs could also support solar arrays on logistics rooftops. In both cases, these sites feature large, or potentially large, roofs with limited height. Solar arrays could then be used to power on-site EVs (see Reducing carbon in transport section above), with any excess fed into the local grid (subject to local capacity) or stored locally through on-site battery storage.

2.43 Harborough faces growing demand for large-scale warehousing and logistics sites, along with the rest of Leicestershire **[See reference** 64**]** UK warehouse stock has available roof space for up to 15GW of new solar, which if installed would double the UK's solar PV capacity, the equivalent of saving three billion and generating up to 13.8 TWh of renewable electricity each year **[See reference** 65**]**.

2.44 LDOs for these solar arrays would employ a 'call for sites' type process, with identified sites then assessed against a series of criteria in a similar manner to a sustainability appraisal/strategic environmental assessment process, to ensure that the locations which benefitted from the LDOs were appropriate and acceptable for solar arrays.

2.45 Alternatively, LDOs could be used on single, large industrial sites, where the council wants to encourage the use of solar power and ensure a sustainable development.

2.46 While other LPAs have used LDOs for other renewable energy generation beyond solar, the use of LDOs on single employment/industrial sites that fast track permission for solar generation is more common. This has been delivered, amongst others, by Central Bedfordshire Council **[See reference** 66**]** and Newcastle City Council **[See reference** 67**]**.

2.47 Swindon's 'Low Carbon Local Development Order 3: Sites for solar arrays and solar farms LDO June 2015 Sites 10 to 25: Canopy Mounted Solar Arrays' grants planning permission for the installation of canopy mounted solar arrays at a series of car parks in the borough. These are primarily supermarket car parks and other retail as well as a hospital car park and a police HQ car park. Detailed specification is then informed by a series of reserved matters submissions. Of the low-carbon LDOs issued by Swindon Borough Council, the solar arrays LDO is seen to be the most often used and most successful as it has contributed significantly to the delivery of a corporate policy to encourage solar arrays. The LDOs are viewed as having significantly de-risked the planning process for these developments **[See reference** 68**]**.

Recommended policy approach for supporting solar arrays on employment/industrial sites and/or car parks:

We recommend that HDC consider developing an LDO to encourage use of solar canopies above existing and newly proposed car parks, particularly for the district's warehousing and logistics providers. Alternatively, HDC could develop an LDO for use on a single large employment/industrial site to fast track permission for solar generation.

The Local Government Association has provided case study research and analysis on the use of LDOs by LPAs as well as guidance to help LPAs through preparation of LDOs **[See reference** 69**]**.

Supporting land-based carbon sequestration

Policy background

2.48 To achieve Net Zero, a whole-system approach to decarbonisation is required given the interdependencies between almost all areas of the UK's society, infrastructure, natural environment and wider economy. The Climate Change Committee (CCC) has stated that, beyond efforts to reduce emissions of the UK's key sectors and adapting to the inevitable impacts of climate change, long-term efforts to sequester carbon must be a key element of this whole-system approach **[See reference** 70**]**.

2.49 Carbon sequestration is the process of capturing and storing atmospheric carbon dioxide. It is one method of reducing the amount of carbon dioxide in the atmosphere with the goal of reducing the impact of climate change.

2.50 The CCC has indicated that the UK needs to achieve an average of 30,000ha of new woodland planting per year up to 2050 to help sequester and store atmospheric carbon and mitigate the effects of climate change.

2.51 There is limited reference to carbon sequestration and storage through trees and woodlands in the NPPF, with most attention to preventing the loss of existing trees rather than on the role of the planning system in supporting national woodland expansion targets. However, the NPPF states that 'the purpose of planning is help achieve sustainable development' and with regards to achieving well-designed and beautiful places, the NPPF (paragraph 136)

states that *"Planning policies and decisions should ensure that new streets are tree-lined, that opportunities are taken to incorporate trees elsewhere in developments (such as parks and community orchards), that appropriate measures are in place to secure the long-term maintenance of newly-planted trees, and that existing trees are retained wherever possible.*"

2.52 In addition, the National Model Design Code Guidance Notes (part 2) set out design principles for street trees, stating that "All schemes will be expected to follow national policy by achieving a 10% net gain in biodiversity. All new streets should include street trees" **[See reference** 71**]**, and signposts the Urban Tree Manual for guidance on installation and ongoing management and maintenance.

2.53 There are both opportunities and risks facing the UK's land-based carbon storage. Tree and hedgerow planting can have benefits for increasing climate resilience, sequestering carbon and biodiversity improvement. Carefully considering species that will be suitable to the future climate of the area is essential to ensure that long-term benefits are secured. This is critical to any future planning policy on increasing carbon sequestration in Harborough District.

Existing policy in Harborough Local Plan

2.54 There is no explicit reference to carbon sequestration within the Adopted Harborough Local Plan. Policies within the Harborough Local Plan focus on retaining and maintaining existing vegetation within the district. Consideration for tree planting within the Local Plan is provided in relation to the site allocation of Bruntingthorpe Proving Ground in **Policy BE4 Bruntingthorpe Proving Ground**, to enhance existing perimeter tree planting and in relation to sustainable drainage in **Policy CC4 Sustainable drainage**. However, sequestration is not the stated aim.

2.55 A review of other local authority development plan policies confirmed that most focus on the protection of existing trees and woodland or on new planting as part of development.

2.56 HDC's own Development Management Supplementary Planning Document (DM SPD), adopted December 2021 **[See reference Error! Bookmark not defined.]**, highlights that the planning system could be a useful tool in encouraging more sustainable farming practices, such as encouraging farmers to plant more trees, hedgerows and enhanced field margins to create a carbon store and improve biodiversity.

Alternative policy approaches considered

2.57 The following alternative policy approaches for supporting land-based carbon sequestration have been considered:

- Require new trees/vegetation in new developments
- Conduct research to identify priority sites for woodland creation
- Require new trees to be selected from specified species
- Require appropriate tree canopy coverage

Require new trees/vegetation and canopy cover in new developments

2.58 Tree planting has significant potential to boost carbon sequestration within Harborough and mitigate climate change. Trees, woodland and hedgerows within new developments enhance on-site green infrastructure and also help to increase resilience to the effects of climate change.

2.59 Table 2.2 below sets out a short list of habitat types, including trees and other habitats that can help sequester carbon, along with their varying rates of

carbon sequestration. As the table shows, compared with other habitat types, tree planting (in particular woodland – see also policy approach below) has the greatest potential to boost land-based carbon sequestration in Harborough. However, it is noted that smaller vegetation such as scrub also has good potential.

Table 2.2: Carbon sequestration rates for typical habitat types [See reference **72**]

Habitat type	Habitat	Carbon sequestration ($tCO_2e/ha/yr$)
Woodland	Broadleaved woodland	5.7
Grass	Neutral and semi-improved grassland	0.4
Grass	Scrub	3.7
Hedgerow	Native and non-native Hedgerow	2
Aquatic	Reedbed	3.3

Examples of policy wording

2.60 A good example of taking a proactive approach to general tree planting is the **St Helen's Borough Local Plan (2020-35) [See reference** 73**]**, which includes a policy for trees and woodland that states:

- The Council will, working where necessary with the Mersey Forest and other partner organisations, seek to increase the extent of tree cover across the Borough and to protect and enhance the multi-purpose value of trees, woodlands and hedgerows.

2.61 A recently adopted example of a policy requiring retention and planting of trees in new developments (major and minor) is **Policy G3 in Cornwall's Climate Emergency DPD [See reference** 74**]**. It distinguishes between major and minor development proposals and requires major developments to provide, canopy coverage equal to a specified percentage of the site area:

> All major development should provide, through the retention of existing and or / the establishment of new, canopy coverage equal to at least 15% of the site area (excluding areas of the site that are priority habitat types) in accordance with a Cornwall Council approved calculator or metric).
>
> 1) Any proposal to remove canopy on the site should be justified in accordance with the canopy mitigation hierarchy [defined in the supporting text].
>
> 2) Where a pre-development site already contains canopy that exceeds the 15% requirement, the development proposal should ensure the retention of as much canopy as possible on site in line with the mitigation hierarchy and should justify the losses proposed. An alternative canopy cover percentage, as evidenced by a council approved canopy metric, should be agreed with the Local Authority.
>
> 3) Where there are significant ecological, historical, landscape or operational reasons to justify a canopy requirement of less than 15% on site and this can be fully evidenced, an alternative percentage of canopy provision shall be agreed with the Council.
>
> 4) Minor development sites (with the exception of householder development and Change of Use (not creating new dwellings or additional floorspace) are not required to demonstrate the 15% canopy target but should explore all options in relation to canopy provision, and take appropriate measures to

both avoid or reduce harm to existing onsite trees. Proposals shall include where appropriate and practicable provision of new canopy.

5) New canopy should provide a mix of species that are resilient to pests, diseases and climate change and should be delivered in sustainable locations, in a manner that supports the growth and spatial requirements of canopy. New canopy should positively contribute to the climate resilience of the site in a manner which protects and enhances existing canopy.

2.62 The supporting text defines the 'canopy mitigation hierarchy' and requires proposals to demonstrate how the onsite layout design of the development has:

- a) Explored options to avoid causing harm to existing canopy;
- b) Explored options to reduce harm to existing canopy;
- c) Explored the above options before canopy is removed and restored.

2.63 The supporting text also explains that “in order to both encourage on-site retention of existing trees and to plant new trees, the Council has determined that a 15% canopy coverage, as measured by the overhanging spread of a mature tree, is an achievable aim for major developments in the Cornish climate and fits generally within the character of the Cornish landscape.”

2.64 Policy G1 in the same **Climate Emergency DPD** also requires street trees and other vegetation to be integrated into street design and public open spaces:

Street trees and other greening shall be integrated into street design and public open spaces wherever possible while remaining sympathetic to the historic environment. Streets should be designed to accommodate tree pits, whilst maintaining the space for the necessary runs of services (e.g. water, electric, sewerage).

2.65 Policy DM34 in **Wycombe District's Local Plan 2019 [See reference** 75**]** is more ambitious, requiring most development to achieve a 25% canopy coverage, justified by the district's existing overall canopy coverage of 25%. Inland areas generally would aspire to higher coverage than coastal areas given their baseline canopy cover is likely to be higher:

> Development (excluding householder applications) is required as a minimum to:
> a) Secure adequate buffers to valuable habitats;
> b) Achieve a future canopy cover of 25% of the site area on sites outside of the town centres and 0.5 ha or more. This will principally be achieved through retention and planting of trees, but where it can be demonstrated that this is impractical the use of other green infrastructure (e.g. green roofs and walls) can be used to deliver equivalent benefit;
> c) Within town centres and on sites below 0.5 ha development is required to maximise the opportunities available for canopy cover (including not only tree planting but also the use of green roofs and green walls);
> d) Make provision for the long term management and maintenance of green infrastructure and biodiversity assets;
> e) Protect trees to be retained through site layout and during construction

Deliverability

2.66 These policy requirements relate to the masterplanning and urban design of new streets and communities. They should be straight forward to deliver if considered from the outset of the site design process.

2.67 Natural England's Green Infrastructure Framework **[See reference** 76**]** includes GI design guidance and online mapping and a range of training materials to support GI planning and design.

2.68 In order to determine an appropriate tree canopy coverage metric to require in major developments, HDC would need to undertake research to understand the existing tree canopy cover across Harborough and what would be an appropriate and achievable canopy coverage target for the district.

2.69 Urban tree planting is a particularly long-term investment with a slow but increasing return of benefits over time, particularly where the right species are chosen for the right location. Canopy cover, particularly where overheating and resilience are the main objective, takes many years to develop. However, particularly where appropriate species selection and soil preparation takes place, trees can persist and grow over decades and beyond 100+ years of growth, providing increasing benefits over time, particularly in comparison to street trees that need replacing every 10-15 years **[See reference** 77**]**.

2.70 Any policy requiring a certain canopy cover from new development should be based on a baseline of canopy cover for the district. This information is likely to emerge from the ongoing development of the new Harborough Open Spaces Strategy and Green and Blue Infrastructure Strategy. These strategies will, moreover, advise on an overall approach to providing trees and canopy cover beyond new developments.

2.71 The Urban Forestry and Woodland Advisory Committee Network advises that inland areas should aim for 20% tree canopy cover, and so apply this to new developments too **[See reference** 78**]**. Others suggest targets should be higher. Back in 2008, CABE felt that a canopy cover of at least 25% in residential areas and 15% in mixed-use or commercial areas should be a minimum goal for developers of eco-towns **[See reference** 79**]**. Since then, targets of 25% have been implemented by LPAs not delivering eco-towns but rather seeing this as worthwhile target to ensure the delivery of those ecosystem services that trees can provide and because of their deliverability at common development densities **[See reference** 80**]**.

2.72 Appropriate species selection and the preparation of planting areas, particularly soil, is vital to achieving tree maturity and associated climate benefits. For example, trees grown in less compacted structural soils grow more quickly, have a better physiological performance and provide five times greater cooling than the same tree planted in a highly compacted soil. Developers should be expected to describe such conditions in their proposals to Council, including the orientation of tree planting. They should also consider the use of climate-resilient species in face of climate change.

Viability

2.73 Where HDC implements its own tree planting efforts, there are a range of central government sources of finance for non-woodland tree planting that HDC could seek. In 2021/22, over half a million trees were planted outside of woodlands with grants from the Urban Tree Challenge Fund, the Local Authority Treescapes Fund and the Levelling Up Parks Fund. However, ongoing costs of management and maintenance are also important to consider.

2.74 Masterplanning for green infrastructure is a relatively inexpensive activity, particularly where existing trees and vegetation are retained on site as part of the new development design. The costs of installing new green infrastructure interventions will vary substantially be scale and type. For example, simple extensive green sedum roofs are a relatively affordable intervention but more intensive green roofs with deeper substrates and a wider variety of planting will create more biodiversity value, hold more water and provide more insulation. As a guide, prices can vary from £50/m^2 for a sedum roof to £200/m^2 for a fully planted intensive roof **[See reference** 81**]**.

2.75 The installation of street trees may involve more infrastructure, and therefore cost, than many may assume. These include supply, delivery, installation, tree guard and tree grille, warranty, traffic management and watering/ongoing management. A cost benefit analysis by GreenBlue Urban **[See reference** 82**82]** modelled the installation cost of a standard 18-20cm (7-8”) London Plane street tree, including supply, delivery, installation, tree guard and tree grille, warranty, traffic management and watering, planted in a 1m x 1m

(3¼ ft x 3¼ ft) pit, to be £4,946 when rooting volume was greatly enhanced by the Root Space system to provide 25m³ (885 ft³) of available rooting space. However, the report notes that in all probability the value of tree benefits can provide a net positive.

2.76 Long-term maintenance of trees and other green infrastructure is also required and involves ongoing expenditure. Lack of maintenance can mean that some trees seldom live long enough to reach maturity and provide meaningful canopy and other ecosystem services. Maintenance arrangements for new trees, and wider GI measures such as green roofs, must be established prior to planting to ensure value for money, healthy growth and effective performance.

2.77 Ensuring that mature, existing trees can be maintained in developed spaces can be a very cost-effective solution when the long-term multi-functional benefits of these trees are considered **[See reference** 82**]**.

Summary

Benefits

- Trees play a key role in climate change mitigation and adaptation through the storage and sequestration of carbon and increased resilience of urban areas to the effects of climate change, including flooding, heat, pollution, and soil nutrient depletion.
- Nature-based solutions can help regulate the temperature inside and around buildings, reducing the need for air conditioning which can lead to reductions in energy emissions as well as result in cost savings for occupiers.
- There are also potential amenity and health and wellbeing benefits from nature-based solutions including a positive impact on the mental health for more green spaces.
- Proximity to trees and greenspace has also been shown to produce a premium on house prices **[See reference** 83**]**. Therefore, tree planting

can boost the desirability and liveability of homes in the eyes of existing and future residents.

Limitations

- Planners and developers will need to consider cost and delivering the long-term maintenance of trees and other green infrastructure.
- Appropriate species selection and the preparation of planting areas, particularly soil, is vital and developers should be expected to describe such conditions in their proposals, including the orientation of tree planting. They should also consider the use of climate-resilient species in face of climate change.

Conduct research to identify priority sites for woodland creation

2.78 We recommend that HDC conduct research to identify priority sites for woodland creation, including within major developments, and allocate/protect these sites in Local Plan, supporting BNG efforts. Local plans have a key role in identifying the most suitable sites for development, but from a carbon sequestration perspective, ideally such site allocations would also take into account land required for woodland expansion i.e. a proactive approach would see the local plan identifying areas to be zoned for woodland expansion/creation. This could be informed by and link to the biodiversity priority areas to be identified through the Leicestershire Local Nature Recovery Strategy (LNRS). There is also potential to link woodland creation to off-site biodiversity net gain proposals, although it will be important to take expert ecological advice to ensure tree planting is appropriate on any given site.

2.79 Detailed estimates of carbon sequestration from existing and potential new woodland could be developed based on an assessment of the sites most suitable and feasible for woodland creation, taking into account competing land

uses. This could also identify some of HDC's own landholdings, which may offer good opportunities e.g. parks, golf courses.

Examples of policy wording

2.80 The same trees and woodland policy in the **St Helen's Borough Local Plan (2020-35)** **[See reference** 84**]** referred to above, also encourages woodland creation and enhancement:

- Proposals that would enhance the value and / or contribution of woodland in respect of: recreational or educational needs; health; the landscape or townscape; heritage; biodiversity; tourism; and / or economic regeneration will be supported.

Deliverability

2.81 To implement policies to identify priority areas for woodland creation, a research study would be needed to identify priority sites for woodland creation to boost carbon sequestration and provide wider benefits. This would include:

- A technical review to identify the tree species (native, locally sourced, resilient to disease and pests etc.) and recommended planting to support biodiversity, carbon sequestration, climate adaptation resilience and landscaping objectives.
- Research could highlight planting constraints including areas at risk of climate change impacts, thereby providing further guidance for developers. Targeted planting can support other climate objectives such as flood risk management and water resource management in specific areas. Appropriate planting area identification, is also vital to achieving tree maturity and the realising of benefits from tree planting and woodland development.
- Development of a detailed forestry and woodland strategy to inform the most appropriate locations for forestry and woodland.

2.82 With this evidence the council could take a proactive approach to woodland creation in the Local Plan by allocating sites, or parts of larger development sites, to be protected for woodland expansion/creation (noting that woodland creation could be supported by the mandatory biodiversity net gain requirements).

Viability

2.83 The costs to HDC associated with this approach will relate to the costs of a technical review to identify priority sites for woodland creation within the district. This would likely be comparable to the costs involved in commissioning other evidence base studies required to support the Local Plan.

2.84 A useful source of cost data for establishing woodland once suitable sites have been identified is the standard costs in the English Woodland Creation Offer (EWCO) Grant Manual **[See reference** 85**]**. Appendix 1 of the manual includes standards cost items that are available through EWCO. The EWCO grants provide £300 per hectare to maintain a woodland.

Summary

Benefits

- Research will highlight planting constraints including areas of climate risk, thereby providing further guidance for developers.
- Targeted planting can support other climate objectives such as flood risk management and water resource management in specific areas.
- Appropriate planting area identification, particularly soil, is vital to achieving tree maturity and the realising of benefits from tree planting and woodland development.

Limitations

- The approach is resource intensive, requiring costs to undergo research
- The usefulness of this research will be dependent on the quality and availability of data and information required.

Require new trees to be selected from specified species

2.85 HDC could include a requirement in relevant policy/ies (such as the two above regarding tree planting in new developments and woodland creation) for new tree provision to be selected from species providing higher rates of carbon sequestration than other habitat types.

2.86 The table below presents an overview of sequestration rates available for three types of broadleaved trees – beech, oak and a generic 'broadleaved mixed woodland' dataset for sycamore, as and birch.

Table 2.3: Carbon sequestration rates by broadleaved tree species [See reference **86**]

Tree species (30 yr)	Carbon sequestration rates ($tCO_2e/ha/yr$)
Beech	11.5
Oak	15.5
Broadleaved mixed woodland	14.5

2.87 Specifying tree species for planting will allow more accurate estimations to be made of carbon sequestration and later, carbon storage in the district.

2.88 A policy that requires specific trees for planting will also encourage the expansion of existing tree coverage, as well as allow HDC to ensure that

climate resilient vegetation is considered in new planting activities for new developments. HDC will need to identify tree species which are appropriate to the district (and wider area) in order to direct building developers towards climate resilient species with higher carbon sequestration rates. The Natural England and RSPB Climate Change Adaptation Manual provides information on adaptation and resilience building in semi-natural woodlands **[See reference** 87**]**. With regards to design, this policy option will allow HDC to predict future landscape and visual amenity based on recommended tree species.

Deliverability

2.89 As with the option for requiring new trees in new developments, these requirements relate to the masterplanning and urban design of new streets and communities. They should be straight forward to deliver if considered from the outset of the site design process. However, an assessment on potential tree species appropriate for Harborough is needed.

Viability

2.90 Masterplanning for green infrastructure is an inexpensive activity. The costs of installing green infrastructure interventions will vary substantially by scale and type.

2.91 For developers, the installation of street trees will incur additional costs, including the costs of trees, supply, delivery, installation, tree guard and tree grille, warranty, traffic management and watering/ongoing management. Sourcing the appropriate tree species that will be resilient to future climate change may also involve more cost in some cases, if they are not widely available locally, particularly in the short term.

Summary

Benefits

- Appropriate species selection and planting area identification, particularly soil, is vital to achieving tree maturity and the realising of benefits from tree planting and woodland development.
- HDC could deliver higher rates of carbon sequestration by specifying the planting of trees species with higher carbon sequestration rates.
- HDC can have more control over the future landscape and visual amenity in the borough.
- HDC can ensure that future planting involves climate resilient trees.

Limitations

- Such a policy may risk the increase of diseases and pests due to a lack of diversity in tree species. However, this is likely through any new planting scheme involving single species and the policy could be worded to ensure this is avoided, and an appropriate mix of species is required.
- Consideration will need to be made by planners and developers for the long-term maintenance of trees and other green infrastructure.

Recommended policy approach

2.92 In light of the significant contribution to carbon sequestration and climate mitigation that increasing tree planting and canopy cover would make in Harborough District, and based on the discussion above, in particular, the Deliverability and Viability of the different policy approaches, we recommend HDC includes a policy(ies) that do some or all of the following.

Recommended policy approach for supporting land-based carbon sequestration:

We recommend that HDC include a specific policy requiring retention and planting of trees in new developments for carbon sequestration. This could refer to the canopy mitigation hierarchy used in the Cornwall Climate Emergency DPD and require a certain percentage of development sites to have canopy coverage. Although Harborough has relatively low tree canopy coverage **[See reference** 88**]**, it should set a target of at least 20% for new developments to support initiatives to improve coverage in the district.

We also recommend that HDC conduct research to identify priority sites for woodland creation, including within major developments, and allocate/protect these sites in the Local Plan to account for land required for woodland expansion. A proactive approach would see the local plan identifying areas to be zoned for woodland expansion/creation. This could be done in conjunction with the work currently taking place to prepare the Leicestershire LNRS. There is also potential to link woodland creation to off-site biodiversity net gain proposals, although it will be important to take expert ecological advice to ensure tree planting is appropriate on any given site.

HDC should consider including a requirement in these policies for new tree provision to be selected from species providing higher rates of carbon sequestration than other habitat types.

HDC's decision as to whether tree canopy coverage policy and species policy extends to minor, major and other developments may be predicated on whether it considers itself to have the resource to check submission of these details at application stage for all qualifying developments. Currently, most strategic developments are expected to submit detailed landscape

scheme designs at application. These would be expected to contain details satisfying the requirements discussed above. Wycombe District's Canopy Cover Supplementary Planning Document **[See reference** 89**]** could be emulated to provide methods for applicants to demonstrate compliance with any new canopy cover and species requirements.

Reducing waste and the circular economy

Policy background

2.93 One of the three overarching objectives of the NPPF for achieving sustainable development is "an environmental objective to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy". Notwithstanding this, the NPPF does not specifically address reducing waste and the circular economy.

2.94 The policies concerning the management of waste in England include the Resources and Waste Strategy (RWS) for England **[See reference 90]**, which forms part of the UK government's commitment in the 25 Year Environment Plan for England to leave the environment in a better state than we inherited it. The strategy aims to preserve material stock by minimising waste, promoting resource efficiency towards a circular economy, minimise damage to the environment, and eliminate avoidable waste, including plastic waste by 2050.

2.95 A more circular economy will see resources kept in use for as long as possible, extracting maximum value from them, then recovering and regenerating products and materials at the end of their lifespan. The Circular Economy Package (CEP) introduces a revised legislative framework, identifying

steps for the reduction of waste and establishing an ambitious and credible long-term path for waste management and recycling. Shifting towards a more circular economy will mean optimising the use of resources within the economy by increasing the duration of a product's useful life and ensuring that when a product has reached the end of its life, its resources can be productively used repeatedly, creating further value.

2.96 Although much of the national policy and legislation relating to waste is addressed through Waste Local Plans prepared by county councils and unitary authorities (in HDC's case, Leicestershire County Council), there are approaches that could be taken in the Harborough Local Plan to help reduce waste in construction of new buildings and support the circular economy.

Existing policy in Harborough Local Plan

2.97 Objectives 9 and 12 of Harborough's existing Local Plan highlight the need for waste reduction in the borough.

2.98 As such, **Policy CC1 Mitigating climate change** of the Harborough local plan presents HDC's approach to minimising waste from construction, stating that major developments will be permitted where they demonstrate "*how demolition of existing buildings is justified in terms of optimisation of resources in comparison to their retention and re-use…"*.

2.99 Policy GD8 Good design in development also includes criterion j for high standards of design in development, stating that developments "*ensuring safe access, adequate parking and servicing areas including for refuse collection in new residential development.*"

2.100 Harborough's Development Management SPD emphasises in its design principles that waste collection and storage must be accounted for in design with the style and layout of developments providing storage space for waste collection and recycling bins (and providing dimensions for a minimum storage area.

Alternative policy approaches considered

2.101 The following alternative policy approaches for reducing waste and the circular economy have been considered:

- Maintain existing policies
- Produce local guidance to influence residents and businesses
- Require developments to minimise waste during construction and operation of the development
- Produce a design code
- Require Whole Life Carbon Assessments
- Policy support for retention and retrofit over demolition

Maintain existing policies

2.102 HDC can Maintain Policy CC1 and Policy GD8, with limited specific mention of waste-related policy for developments in the Local Plan.

2.103 The current policy does not specifically address waste management or the circular economy within the Local Plan, not providing adequate guidance for building developers with regards to the use of sustainable materials or the reuse and recycling of those materials.

Deliverability

2.104 Maintaining the existing policy will not add any resource implications for the council, however, the council could be missing out on significant emission saving that can result from efficient waste reduction and management with regards to embodied carbon emissions from developments.

2.105 Note that as explained earlier in this chapter, embodied carbon refers to emissions associated with the extraction and manufacturing of materials, including emissions from transportation of materials to manufacturing site, from the maintenance and replacement of materials during the operational period, and emissions from materials during demolition of buildings.

Viability

2.106 It is not expected that there will be any additional cost associated with this policy option.

Summary

Benefits

- This approach will not add any addition costs or considerations for HDC and developers.

Limitations

- The district would not contribute as well to reducing embodied carbon emissions associated with new development.
- Existing policies may not be fully optimised for effectiveness against future needs and the changing climate.

Produce local guidance to influence residents and businesses

2.107 HDC could provide guidance on reducing waste and the circular economy, either by signposting to existing guidance or through the creation of a Supplementary Plan. The guidance could refer to the Circular Economy

Package, identifying steps for the reduction of waste and establishing an ambitious and credible long-term path for waste management and recycling.

Example of policy wording

2.108 Examples can be taken from the **London Plan Circular Economy Statement Guidance** **[See reference** 91**]** which puts circular economy principles at the heart of designing new buildings, requiring buildings that can more easily be dismantled and adapted over their lifetime. It treats building materials as resources rather than waste, and puts in place a clear hierarchy, prioritising the retention of existing structures above demolition, where this is the more sustainable and appropriate approach. It should be noted that this guidance applies to major developments in London, however boroughs are encouraged to apply the policies for smaller developments.

Deliverability

2.109 Policymaking, accompanied by guidance, can drive transformational change across businesses and society, empowering circular economy initiatives and set the direction for systemic change. The provision of a guidance document is not expected to be an onerous process. The London Plan Circular Economy Statement Guidance was shaped by a range of individuals and organisations in order to incorporate circular economy principles in design, construction, and operation. This ensures that appropriate consideration is given to these measures at the onset and during the operational phase of a development.

2.110 HDC could incorporate examples from the London Plan Circular Economy Statement Guidance in the Harborough context, developing a, potentially slimmed down, form for developers of all development types to complete to show that they have considered ways to reduce residual waste.

Viability

2.111 It is not expected that the cost of producing local guidance on waste management and the circular economy will be significant.

Summary

Benefits

- A guidance document could provide the necessary advice and reassurance to developers seeking to satisfy policy prioritising waste management.
- A guidance document can help minimise indirect emissions up and down the supply chain, prevent pollution, and conserve natural resources.

Limitations

- A guidance document does not place as strong a requirement on developers to make the changes to construction practices needed to help contribute to reducing carbon emissions.

Require developments to minimise waste during construction and operation of the development

2.112 According to the Department for Environment Food & Rural Affairs UK Statistics on Waste July 2021) the development industry made up over half (62%) of the UK's total waste production in 2018 from construction, demolition and excavation. In addition, a notable proportion of materials delivered to building sites are never used and go straight to waste.

2.113 HDC could introduce a specific policy requiring developments to minimise waste during both construction and operation of the development, including requirements for developers to submit a Site Waste Management Plan at application.

2.114 The site waste management plan provides information on how construction waste is minimised and managed during the construction of a development. The site waste management plan can be used by developers to show compliance of waste management measures in construction.

2.115 Consideration for construction and operational waste in developments can also prioritise keeping resources in use as long as possible, extracting maximum value from them, minimising waste, and promoting resource efficiency, which can help Harborough accelerate the achievement of net zero targets via resource efficiency and the associated reduced embodied carbon emissions.

2.116 A circular economy approach requires a range of interventions and policies to introduce a resource efficient and circular local economy. Alongside these options for minimising waste during construction, a local plan policy that encourages the use of sustainable materials via targets on reducing embodied carbon in new development (outlined above in ‘Embodied Carbon targets set within the Local Plan’ and ‘Whole Life Carbon Assessments’) would have a major effect in reducing the overall resource profile of new construction in Harborough.

2.117 The UK Green Building Council provides some best practice approaches for circular economy principles in the built environment that HDC could promote within policy, including:

- Reducing material used where appropriate.
- Designing buildings for disassembly/deconstruction.
- Aiming to reuse and/or recycle material where possible such as demolition material, offcuts, and other products, as well as utilising excavation material within the landscape, processing to cob or rammed earth

construction, resulting in a cheap building material with very low embodied carbon.

2.118 To demonstrate compliance, HDC can also use the BREEAM (Building Research Establishment Environmental Assessment Method) standards.

2.119 The 'waste' requirement on the BREEAM standards focuses on the promotion of schemes to bring about the reduction of waste during the construction phase of a build, and having measures in place to avoid waste being sent to landfill during its operational life. This includes:

- Reuse the waste where possible.
- The sustainable management of waste generated during construction, operation and through maintenance and repair.
- Efforts to reduce construction waste and future waste.

Examples of policy wording

2.120 The **Lake District Design Code SPD**, adopted in September 2023 **[See reference** 92**]**, places a strong emphasis on using local materials in new developments which can reduce waste during construction, stating:

To minimise the carbon generated through construction and development, new development must:

- Re-use and adapt existing buildings and building materials, especially traditional buildings and materials that contribute to local distinctiveness such as locally quarried stone and slate;
- Use locally sourced and/or low carbon building materials such as:

- Sustainably sourced timber;
- Locally quarried building stone and aggregate;
- Locally quarried slate; and

- Natural lime for mortars, renders and limewashes.

- Minimise the use of building materials that require large amounts of energy and resources to produce and/or cannot be readily recycled:
  - Concrete and cement, including in render and other finishes; and
  - uPVC, aluminium and steel-framed glazing, windows and doors (aluminium is preferred to uPVC).
- Avoid synthetic materials such as artificial roof tiles or cladding.

Deliverability

2.121 Minimising waste in construction can largely be achieved through a design approach by using common materials already in common use within construction. As such, it is technically feasible.

2.122 The key consideration is to ensure that each material be chosen only where it is optimal at performing the function it is required to perform with the lowest whole life carbon impact.

2.123 Wherever possible, local reclaimed materials should be used as this also reduces packaging and transport emissions from delivery to site.

2.124 The process of identifying all required materials and quantities to determine the impact of embodied carbon can be time-consuming for developers. Therefore, HDC could recommend design teams to refer to Environmental Product Declarations (EPDs) **[See reference** 93**]**, obtained through a thorough Life Cycle Analysis (LCA), where available.

2.125 With regards to minimising waste during operation, incorporating the principles of a circular economy within policy can help reduce waste from developments.

Viability

2.126 Sustainable materials may have higher upfront costs compared to traditional materials, however, they often prove to be economically viable over the lifecycle of a building.

2.127 The British Assessment Bureau states that when compared to regular methods, sustainable construction brings about an increase in upfront costs of about 2% which would, on average, pay for itself, with a life cycle saving of 20% of total construction costs, more than ten times the initial investment **[See reference** 94**]**.

Summary

Benefits

- There are potential benefits for the local economy in stimulating the use of locally-sourced sustainable materials like wood via planning policy.
- A reduction in waste can also reduce emissions associated with waste management, thereby reducing overall emissions in the Borough.

Limitations

- While there are also potential benefits for the local economy in stimulating the use of locally-sourced sustainable materials via planning policy, the use of materials like local wood would require other consideration over the impact on woodland stock, carbon storage and sequestration.
- Using sustainable materials to lower the embodied carbon of new buildings will require both material and procurement innovations.
- Sustainable materials may have higher upfront costs compared to traditional materials.

- The process of identifying all required materials and quantities to determine the impact of embodied carbon can be time-consuming for developers and they may be resistant.

Produce a design code

2.128 HDC can produce a design code that includes guidance or strict codes for providing space for recycling, composting and other waste reduction design measures in new developments. This would build on the current Development Management SPD which specifies minimum standards for waste storage in new developments.

2.129 The NPPF highlights that local planning authorities should prepare design codes that are consistent with the principles that are set out in the National Design Guide (NDG) and National Model Design Code (NMDC).

2.130 An illustrative authority wide design code could include simple, concise and illustrated parameters, reflecting local character and design preferences for physical development in the area; and could specify development principles and standards that relate to waste management and the circular economy. The design code should use words like ‘must’ and ‘shall’ and include figures and precise parameters within which there is large flexibility. The design code should be adopted as a Supplementary Planning Document, building upon existing policies set out in the Local Plan.

2.131 The design code could point to the Circular Economy Package, which sets a target to recycle 65% of municipal waste by 2035 and to have no more than 10% municipal waste going to landfill by 2035. It restricts the materials which can be landfilled or incinerated and includes a requirement that waste which is separately collected for recycling must not be incinerated or sent to landfill. This paves the way for more recyclable materials to be kept in circulation within the resources and waste system, instead of being burned or buried. The UKGBC also provides some best practice approaches for circular economy principles in the built environment.

2.132 Any new design code could also provide further guidance or coding that supports the implementation of embodied carbon policies included in the Local Plan (see 'Embodied Carbon targets set within the Local Plan' and 'Whole Life Carbon Assessments' on policies to reduce embodied carbon in new developments). A design code could provide guidance on appropriate materials to be used that can help reduce embodied carbon, or coding that enforces embodied carbon standards in different development typologies.

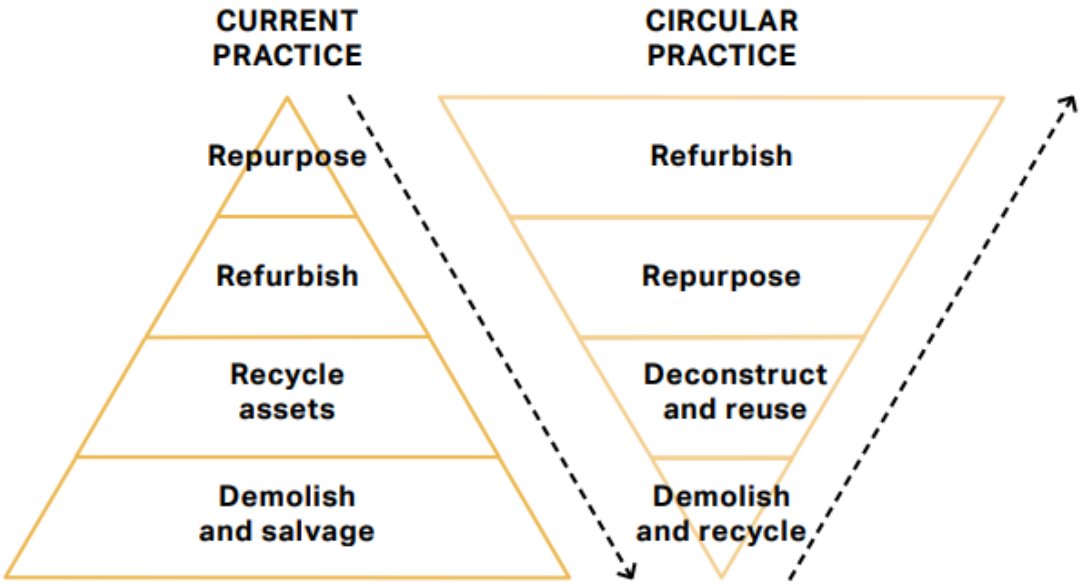
Examples of policy wording

2.133 The **London Plan** Policy SI7 'Reducing waste and supporting the Circular Economy' **[See reference** 95**]** is supported by the **Design for a Circular Economy Primer [See reference** 96**]**, which includes principles to:

- create buildings that are high quality, flexible and pay attention to the building lifespan, through appropriate construction methods and the use of attractive, robust materials which weather and mature well;
- Improve resource efficiency to keep products and materials at their highest value use for as long as possible; and
- Promote waste avoidance and minimisation and ensure that there is zero biodegradable or recyclable waste to landfill by 2026

2.134 The primer contains the circular economy hierarchy that can be adopted to inform key decisions, as presented in the figure below.

Figure 2.6: The circular economy hierarchy [See reference **97**]



Deliverability

2.135 Design codes rely on the balance being found between being positive and ambitious about design quality and considering local constraints. The UK Government's Design Code Pilot – monitoring and evaluation report **[See reference** 98**]** found that "A steep learning curve is required to produce design codes and to use the new methodology in the National Model Design Code, and with a few exceptions local authorities were not set up to deliver design coding in-house. Key skills gaps include urban design, graphic communication, viability assessment and digital engagement". Therefore, HDC might need to seek support from external specialists to develop an area wide design code or expand the skills of their in-house expertise.

Summary

Benefits

- A design code offers a means to help deliver high quality, climate resilient places by complementing the local plan policies.

Limitations

- Design codes rely on the balance being found between being positive and ambitious about design quality and considering local constraints.
- It would be a challenge to produce an authority-wide design code that can speak to waste matters across all development with equal accuracy and applicability.
- HDC might need to seek support from external specialists to develop an area wide design code and/or expand the skills of their in-house expertise.

Require Whole Life Carbon Assessments

2.136 N.B. Whole Life Carbon assessments are discussed in greater detail within ‘Net Zero carbon emissions in new developments’.

2.137 HDC can incorporate a policy requiring Whole Life Carbon Assessments (also called a Life Cycle Assessment), such as those highlighted above for net zero policy, to reduce waste and support the circular economy.

2.138 As highlighted, to demonstrate high performance in managing whole life carbon emissions, developers can achieve relevant credits within the HQM (Home Quality Mark) or the BREEAM (Building Research Establishment Environmental Assessment Method) standards.

2.139 BREEAM provides developers with the opportunity to earn up to seven credits in the ‘Mat 01’ category by actively reducing the environmental life cycle impacts of their buildings. This reduction is achieved through rigorous WLC assessments and integrating their outcomes into the design decision-making process.

2.140 With regards to the HQM framework, the 'Environmental Impact of Materials' category aims to minimise the impact of construction products on the environment. Although it covers various environmental aspects, embodied carbon remains a critical focus of this assessment.

Examples of policy wording

2.141 Examples where WLCAs are used specifically to manage waste are rare, however, there are several examples where compliance is demonstrated through off the shelf third party assessments. This is highlighted in the Net zero carbon emissions in new development section above.

Deliverability

2.142 There are several London-centred case studies of the implementation of assessment tools in Local Plans. This is discussed in the Net zero carbon emissions in new development section above.

Cost Implications

2.143 As highlighted in the Net zero carbon emissions in new development section, the uplift costs required for BREEAM and HQM compliance will arise from meeting the energy and GHG performance requirements depending on the energy/GHG performance requirements set.

Summary

Benefits

- This approach is tested in many local plans, limiting risk that this approach will be contested.

- It can lead to significant emission savings.
- It is practical when in-house technical expertise is lacking.

Limitations

- It may increase costs for developers.
- This approach removes quality assurance control from HDC, making them reliant on BRE for methodology updates.

Policy support for retention and retrofit over demolition

2.144 HDC could include policy to support retention and retrofit of buildings over demolition, which would help to tackle waste inherent in construction. One of the most effective ways of ensuring the local built environment's carbon profile remains low is to prevent unnecessary demolition and construction. Retention, supported by retrofit, can, in many cases, respond to local development needs without resource-intensive construction.

2.145 Harborough contains a significant stock of heritage buildings from grand listed buildings to older residential properties, including care homes, many of which are in conservation areas. Policy to support retention and retrofit would help to maintain these assets and reduce the carbon profile of demolition.

2.146 HDC could include policy wording that encourages retrofitting and maintenance of existing building stock. This could also be supported with the provision of guidance on sustainable retrofitting. The guidance could refer, in the main, to the Building Regulations Part L which covers 'consequential improvements' which refer to energy efficiency improvements that are consequential to changes to a building. Regulation 28 of the Building Regulations and Section 12 require that, for an existing building with a total useful floor area of over 1,000 sqm, additional works may be needed to improve the overall energy efficiency of the building ("to the extent they are technically,

functionally and economically feasible") if proposed work consists of an extension or specified works to building services.

2.147 Consequential improvements could include:

- Upgrading heating, cooling or air handling systems;
- Upgrading lighting systems;
- Installing energy metering;
- Upgrading thermal elements;
- Replacing windows;
- On-site energy generation; and
- Applying measures proposed in a recommendations report accompanying an Energy Performance Certificate.

2.148 This requirement provides a useful driver to wider improvements to the energy efficiency of existing buildings when specific works are proposed, but it only applies to buildings over 1,000 sqm floor area. HDC could consider including the various consequential improvements above within policy or guidance for smaller buildings as well, encouraging developers and residents to make consequential improvements.

2.149 Such guidance could also refer to the Passivhaus EnerPHit standard **[See reference** 99**]** which is a version of the Passivhaus standard adapted for whole house retrofits.

2.150 An alternative approach HDC could consider is rather than or in addition to policy that encourages retrofit and retention, it could include a Local Plan policy that encourages new developments to be adaptable and ready for re-use and retention in future years. It could require that all development or certain types of development are adaptable to new uses.

2.151 This could be displayed by applicants through the selection of durable, easy to maintain materials. It could involve designs for adaptability to meet

users' diverse and changing needs (e.g. flexible and accessible homes) or involve the use of new technologies or be shown to be adaptable to climate change. This is shown in the 'long life, loose fit' policy of Islington, below.

Examples of policy wording

2.152 Camden Council's adopted Local Plan Policy CC1 Climate Change Mitigation [See reference 100] provides an insight into the potential wording on a future policy at HDC. This policy includes a requirement for:

> all proposals that involve substantial demolition to demonstrate that it is not possible to retain and improve the existing building.

2.153 This policy puts the onus on the developer to prove that retention and refurbishment was not possible. The supporting text to the policy indicates that:

> all proposals for substantial demolition and reconstruction should be fully justified in terms of the optimisation of resources and energy use, in comparison with the existing building. Where the demolition of a building cannot be avoided, we will expect developments to divert 85% of waste from landfill and comply with the Institute for Civil Engineer's Demolition Protocol and either reuse materials on-site or salvage appropriate materials to enable their reuse off-site. We will also require developments to consider the specification of materials and construction processes with low embodied carbon content.

2.154 Islington Council's Policy CS10 (G) requires all developments to be:

> designed and managed to promote sustainability during their operation.

2.155 Its **Environmental Design SPD [See reference 101]** further sets out that to meet this Policy, buildings will need to be:

> 'long life, loose fit'. This concept requires that buildings will be operable and habitable for many years but also, importantly, that they are adaptable to new uses other than those planned for at the start of their life. The SPD goes on to explain how a development can show and achieve 'long life, loose fit'.

Deliverability

2.156 For applications demanding demolition and re-build where policy prioritises retention, it will be necessary for HDC development management officers to assess the evidence submitted that makes the case for demolition. This may require them to seek inputs and advise from others within the Council including Building Regulations officers, providing capacity exists. Criteria and information requirements embedded in a retention and retrofit policy should be clear for the policy to be implementable and applied consistently by officers.

2.157 On sites where retrofit is clearly not possible, it would still be important for HDC to address embodied carbon in the new construction. Options for addressing embodied carbon in construction are highlighted above.

Viability

2.158 There are specific cost implications of encouraging retention of buildings over demolition and construction. While developers are currently disincentivised from pursuing retention by the tax system, there will be significant savings from pursuing this lighter form of development.

2.159 Heritage buildings (buildings pre-1919) offer a unique challenge regarding reuse and retrofit. There are planning constraints on how many heritage buildings can be repaired or altered. These buildings also often behave very differently to modern buildings due to their building materials and construction methods. Therefore, they are not compatible with modern building standards and often incorrectly assessed in current Building Regulations. Sustainable retrofit can be achieved by adopting a Whole Building Approach whereby there is integration of the fabric measures (such as insulation, new windows, draught proofing), and services (particularly ventilation, heating, controls and renewables) along with proper consideration of how people live and use the building. All of these must be adapted to the context of the building (its exposure, status, condition, form etc). More detail can be found in Historic England's publication "Energy Efficiency and Traditional Homes **[See reference** 102**]**.

Summary

Benefits

- Avoiding the costs of demolition, waste disposal, and constructing new foundations and structural elements represents major savings for developers.
- Local communities benefit from avoiding the problems normally incurred by demolition and construction.
- Significant embodied carbon savings from retaining existing structures.

Limitations

- A bolstered planning policy on retention and retrofit would inform and regulate those seeking to re-develop properties. However, alternative schemes, providing funding for retention and retrofit activities (which are only likely to come from central government) would have a much bigger impact on carbon savings by encouraging existing properties to retrofit

irrespective of plans to re-develop and providing the necessary financial injection to do so.

- For the policy to be applied consistently and effectively, clear criteria and information requirements would need to be expressed to applicants. They should also be readily understandable to Development Management officers who, in turn, should feel able to consult with Building Regulations officers where further guidance is needed. This may impact on the capacity of staff involved.
- Pursuing retention and retrofit may impede intentions to densify local housing sites; or may constrain the options for redevelopment. In the context of significant housing need and the NPPF's stated intentions to drive housing delivery through density discouraging the demolition of existing low-density sites where they could make way for new high-density developments reduces one major method for densification. This is particularly so in an area, like Harborough where few completely vacant brownfield sites exist for new developments. Retrofit-first policy could, therefore, be seen as moving against a national planning agenda.

Recommended policy approach

2.160 Based on an analysis of the different policy approaches and an understanding of the context in Harborough, we recommend that HDC produce local guidance on the adoption of circular practices and waste reduction while also developing policy to require developments to minimise waste during construction and operation of developments. These are deliverable at low cost and without putting undue burden on developers or impeding the housing delivery challenge.

Recommended policy approach for supporting reducing waste and the circular economy:

We recommend HDC include policy requiring developments to minimise waste during both construction and operation of the development including requirements that applicants for major developments submit a Site Waste Management Plan (SWMP) at application stage. A site waste management plan template is provided in the Department for Environment, Food and Rural Affairs' 'non-statutory guidance for site waste management plans Annex A **[See reference** 103**]**.

Should HDC wish to encourage positive practices across other development types, it could consider developing its own local circular economy guidance. This would ask applicants to, at a minimum, consider how site waste will be managed through the construction phrase, consider the full lifecycle of the building from concept to demolition (and how demolition materials can be used), the use of local suppliers, renewable and/or low carbon materials and sustainable forms of construction. It could reiterate and inform developers of their legal duties under the Waste Regulations 2011 and build on the guidance in the GLA's Circular Economy Statement Guidance **[See reference** 104**]**. It would ideally end with a form or statement for developers to submit to the Council on application, though without the information needing to be scored or approved. Should the Council wish, it could require that developers provide explanation for demolition decisions, including why conversion was not possible, via this mechanism.

Applicants needing to submit BREEAM and HQM statements will have to produce such information to respond to its waste-related categories, submitting these to external assessors. Locally submitted SWMPs and circular economy statements would allow HDC to ensure it understands waste management practices ongoing in local development and construction.

We recommend HDC produce local guidance to influence residents and businesses to adopt circular practices and reduce the amount of waste generated. This could draw heavily on existing local guidance produced by LPAs across England. This would sit outside of land-use planning, extending to other policy themes. It would, therefore, not need to go through the new ‘Local Guidance’ production process.

Climate change adaptation

2.161 As part of this overall Climate Change evidence base study, a high-level Climate Change Risk Assessment has been produced for HDC in a separate that demonstrated that the UK, England and East Midlands' climate is changing, and that continued change should be expected in the near and long term. It showed that under all likely emissions pathways, even the most optimistic, there will be significant changes to the country's climate, and therefore, to the climate in Harborough.

2.162 As a result, Harborough District Council must consider not just the need to reduce the area’s contribution to climate change (mitigation) but also the urgency of helping residents, businesses and communities adapt to the risks brought about by climate change now and in the near future. The decisions made now in developing planning policy and resulting decisions via the planning process will have implications for generations. New building developments, energy and transport infrastructure gaining planning approval now, will be in place and operational for decades, possibly even centuries, and will in turn influence future patterns of development.

2.163 Among the identified risks across health, communities, the built environment, infrastructure, the natural environment and business and industry, the following areas were highlighted as to where land use planning policy can have a major role in tackling these climate-related risks.

2.164 All of the risks outlined below are addressed via policy suggestions and recommendations contained in this section on climate change adaptation. It should be noted that risks to businesses are addressed via policies in this section that can be applied to commercial properties.

- Risks to health and wellbeing from high temperatures
- Risk to people, communities and buildings from flooding
- Risks to household water supply due to water stress or shortage
- Risks to the historic environment from flooding, changing temperatures and storms
- Risks to soils from changing climatic conditions, including seasonal aridity and wetness
- Risks to freshwater species and habitats from pests, pathogens and invasive species due to changing temperatures
- Risk to businesses from flooding
- Risk to business from reduced employee productivity due to infrastructure disruption and higher temperatures in working environments

2.165 The following risks discussed in the CCRA cannot be addressed directly as they lie outside of the remit of Local Plan policy:

- Risks to health and social care delivery
- Risks to infrastructure (water, energy, ICT and transport) from flooding
- Risks to terrestrial species and habitats
- Risks for natural carbon stores and carbon sequestration
- Risks to agricultural productivity

2.166 However, planning policy can address these risks indirectly by ensuring that flood risks to all new developments are reduced, that watercourses are not damaged or overly abstracted from, and that development is sited in appropriate locations so as to not affect vital carbon stores or Harborough's most productive agricultural land.

2.167 There are other risks in the CCRA that have been highlighted for Harborough District where there is limited potential to address them via local planning policy. These include food safety (variations in rainfall and changing annual temperatures will impact the occurrence and persistence of bacteria, viruses, parasites, harmful algae, fungi and their vectors), and future changes to landscape character. Landscape character may be altered due to incremental changes to terrestrial habitats or land management practices, or more sudden changes as a result of extreme events e.g. erosion or landslips precipitated by periods of intense rainfall or landscape modification by large-scale wildfire. HDC will need to consider other policy remits and mechanisms, along with national government, to respond appropriately to them.

Avoiding flood risk, including SuDS

2.168 The latest Environment Agency flood risk data **[See reference** 105**]** suggests that Harborough is prone to flooding, particularly surface water flooding.

2.169 The Harborough Climate Change Risk Assessment undertaken as part of this wider Climate Change study by LUC and reported on separately, highlighted the future climate projections for Harborough are likely to result in hotter, drier summers and warmer, wetter winters on average. The overall pattern of warming is likely to be accompanied by more frequent episodes of extreme weather, including events such as storms and flooding. The major receptors in the district identified at risk from the risk of flooding within the assessment include:

- People, communities, and buildings;
- Businesses;
- The historic environment;
- Infrastructure;
- Terrestrial species and habitats;
- Agricultural productivity; and

- Freshwater species.

Policy background

2.170 The NPPF states at para. 158 that “plans should take a proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for flood risk”. The NPPF (paragraph 159) also states that "Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere. …Strategic policies should be informed by a strategic flood risk assessment, and should manage flood risk from all sources. They should consider cumulative impacts in, or affecting, local areas susceptible to flooding, and take account of advice from the Environment Agency and other relevant flood risk management authorities, such as lead local flood authorities and internal drainage boards. …All plans should apply a sequential, risk-based approach to the location of development – taking into account all sources of flood risk and the current and future impacts of climate change – so as to avoid, where possible, flood risk to people and property."

2.171 Managing flood risk involves a range of approaches to minimise flood risk from all sources including surface water, such as steering new development away from current and future flood risk areas, implementing flood resistance and resilience design measures in new and existing buildings/developments, implementing sustainable drainage techniques and ensuring best practice guidance has been adhered to (e.g. the Code of Practice for Property Flood Resilience, 2021 **[See reference** 106**]**).

2.172 Sustainable drainage systems (SuDS) use nature-based approaches to slow, store or infiltrate rainwater that would otherwise risk overwhelming sewers, causing flooding and sewage pollution. SuDS try to mimic natural drainage systems and retain water on or near the site, reducing the rate of surface water run-off even at times of peak rainfall. Unlike a pipe, SuDS can

provide a raft of benefits locally such as, managing flood risk, filtering and cleaning contaminated water, increasing nature habitat in urban areas (note the link to mandatory biodiversity net gain), providing shading from heatwaves (e.g. where trees form part of the scheme), helping recharge water resources, and improving local air quality. Depending on how 'nature-based' the sustainable drainage system design is, and the extent to which it incorporates natural flood management measures (e.g. swales, balancing ponds, rain gardens etc.), SuDS can not only reduce local flood risk but also provide wider benefits for human health, amenity and biodiversity.

2.173 In 2023, the Government announced it would implement Schedule 3 of the Flood and Water Management Act 2010 **[See reference** 107**]**, which includes a mandatory requirement for SuDS in new development. This legislation will ensure sustainable drainage systems are designed to reduce the impact of rainfall on new developments by using features such as soakaways, grassed areas, permeable surfaces and wetlands, reducing the overall amount of water that ends up in the sewers and storm overflow discharges. Implementing Schedule 3 requires a consultation on the national standards for sustainable drainage systems, however, the consultation has yet to take place.

Existing policy in Harborough Local Plan

2.174 The relevant policies within the Local Plan which provide a strong foundation for flood risk management in Harborough are **Policy CC3 Managing flood risk** and **CC4 Sustainable drainage**. (Sustainable drainage is covered separately in the policy theme below.)

2.175 Policy CC3 Managing flood risk seeks to ensure new developments are located in the areas at lowest risk of flooding (FZ1) where possible, and to apply the Sequential Test and Exception Test if needed. Site-specific flood risk assessments are required for different types of development within the different flood risk zones.

2.176 Policy CC4 Sustainable drainage of the local plan outlines HDC's existing policy approach to sustainable drainage systems, stating that:

1. All major development must incorporate sustainable drainage systems (SuDS).

2. Prior to the commencement of development, the responsibilities for management and maintenance in perpetuity of the SuDS must be agreed.

3. The design and layout of the SuDS, taking account of the hydrology of the site, will:

- a. manage surface water close to its source and on the surface where reasonably practicable to do so;
- b. use water as a resource, re-using it where practicable, and ensuring that any run-off does not negatively impact on the water quality of a nearby water body;
- c. use features that enhance the site design and make an active contribution to making places for people;
- d. incorporate surface water management features as multi-functional greenspace wherever possible;
- e. provide for the re-naturalisation of modified water courses where practical;
- f. be located away from land affected by contamination that may pose an additional risk to groundwater or other waterbodies;
- g. demonstrate that the peak rate of run-off over the lifetime of the development, allowing for climate change, is no greater for the developed site than it was for the undeveloped site and reduced wherever possible; and h. ensure that flooding would not occur to property in and adjacent to the development, in the event of an

> occurrence of a 1 in 100 year rainfall event (including an allowance for climate change) or in the event of local drainage system failure.

2.177 Where relevant, site allocation policies also refer to the need for flood management to be addressed, with reference to Policies CC3 and CC4, such as **Policy L1 East of Lutterworth Strategic Development Area**, which states:

> 3. The masterplan will guide the creation of a high quality sustainable urban extension to Lutterworth and an attractive environment for living, working and recreation…It will provide for:
>
> v. sustainable drainage and flood storage measures to be agreed with the Environment Agency and Lead Local Flood Authority to prevent flooding downstream in accordance with Policy CC3 and CC4 and to ensure no adverse impact by flooding on the hydrology which underpins the health of the SSSI.

Alternative policy approaches considered

2.178 The following alternative policy approaches for avoiding flood risk and incorporating SuDS have been considered:

- Maintain existing flood management policies
- Address surface flooding in flood management policy
- Maintain existing Policy CC4 requiring major developments use SuDS
- Require all developments to use SuDS
- Incorporate rigorous drainage hierarchy into policy
- Strengthen requirements for all SuDS to be designed as part of wider GI objectives

Maintain existing flood management policies

2.179 HDC could maintain Policy CC3 managing flood risk, as it is in line with the NPPF, and feedback from HDC officers during the workshop noted that Policy CC3 is successfully ensuring that development avoids areas of higher flood risk.

Deliverability

2.180 The existing policies in the Harborough Local Plan are being implemented and helping to avoid development located in existing areas of flood risk and reduce the likelihood of flooding elsewhere.

2.181 However, the Lead Local Flood Authority (LLFA, which is Leicestershire County Council for Harborough) currently only reviews planning applications for major developments that may impact on flood risk and also reviews their SuDS schemes, and may not have the resources to review all development proposals i.e. minor applications as well.

Viability

2.182 It is not expected that there will be any additional cost to developers, HDC or the LLFA associated with this policy option.

Summary

Benefits

- Maintaining the existing policy can standardise practices in Harborough.
- Ensures the avoidance of significant financial losses for householders and developers from flooding.

- This policy is road-tested, backed by evidence and is being successfully implemented.

Limitations

- Maintaining the existing policy may hinder innovation and responsiveness to evolving national policy/legislation.
- Existing policies may not be fully optimised for effectiveness against future needs and the changing climate.

Address surface flooding in flood management policy

2.183 Although the Adopted Local Plan already includes Policy CC3 Flood management, which is helping to avoid locating development in existing areas of flood risk and reduce the likelihood of flooding elsewhere, HDC officers did note that surface water flooding is more of a risk than fluvial flooding in the district, and the policies could be strengthened to address this. Given the significance of surface water flood risk in Harborough, also highlighted through the CCRA, it is clear that this issue does need to be considered carefully, in liaison with the Environment Agency (EA) and Leicestershire County Council as the LLFA.

2.184 The Surface Water Management Plan Technical Guidance **[See reference** 108**]** provides a simplified overarching framework which allows different organisations to work together and develop a shared understanding of the most suitable solutions to surface water flooding problems. Principally, the surface water management plan guidance has been written for local authorities to assist them as they co-ordinate and lead local flood risk management activities.

2.185 The supporting text to Policy CC3 in the Adopted Local Plan also highlights the surface water flooding risk: "The majority of the District has clay

soils, which are particularly prone to surface water flooding. Various settlements across the District are at risk, including: Market Harborough, Lutterworth, Broughton Astley, Great Glen, Scraptoft and Thurnby and Bushby, as well as some smaller villages. These settlements are particularly at risk during extreme flood events and sewers on new developments should be designed to safely accommodate extreme rain events, beyond the normal design criteria."

Examples of policy wording

2.186 Policy CE8: Sustainable Drainage in the Newham Regulation 18 Draft Local Plan [See reference 109**]** states the following with respect to surface water flooding:

> 1. All development is required to reduce the risk of surface water flooding, through separating foul and surface water flows and incorporating Sustainable Urban Drainage Systems (SuDS) that reduce surface water run-off.
>
> 4. All Major development and any new development falling within a Critical Drainage Area must reduce surface water run-off to greenfield run-off rates through the application of Sustainable Urban Drainage Systems and other design considerations which: a. maximises the use of Sustainable Urban Drainage Systems and follows the Drainage Hierarchy of the London Plan (2021); and b. has regard to the recommendations of the latest Newham Surface Water Management Plan (SWMP) and Local Flood Risk Management Strategy (LFRMS).

2.187 The **City of London Local Plan (2015) Core Strategic Policy CS18: Flood Risk [See reference** 110**]** states:

> To ensure that the City remains at low risk from all types of flooding, by:

1. Minimising river flooding risk, requiring development in the City Flood Risk Area to seek opportunities to deliver a reduction in flood risk compared with the existing situation:

- (i) applying the sequential test and exception test as set out in the NPPF and Planning Practice Guidance and requiring Flood Risk Assessments to be submitted, in support of all planning applications in the City Flood Risk Area (Environment Agency Flood Zones 2 and 3 and surface water flood risk hotspots) and for major development proposals elsewhere;
- (ii) protecting and enhancing existing flood defences along the riverside, particularly those identified as fair or poor in the current City of London SFRA. Development adjacent to the River Thames must be designed to allow for maintenance of flood defences.

2. Reducing the risks of flooding from surface water throughout the City, ensuring that development proposals minimise water use and reduce demands on the combined surface water and sewerage network by applying the London Plan drainage hierarchy.

Deliverability

2.188 In order to include more reference to surface water flooding in the Local Plan flood management policy, HDC will need to consult with the EA and Leicestershire LLFA to help identify surface water flooding hotspots (so these can be referred to in the policy and/or supporting text) and understand any additional resourcing that the requirement for all types of flooding to be considered may place on them in their role as statutory consultees on development proposals.

Viability

2.189 There may be some additional HDC officer time needed to explore the inclusion of surface water flood management requirements within the Local Plan policy.

2.190 Where extensive flood management infrastructure is required to make a development acceptable in planning terms, significant costs may be involved. Preferably, development on sites at risk of flooding would not occur in the first place, but if it is permitted, this is a necessary safety requirement.

2.191 The financial and reputational damage that occur where developments suffer flooding is immense. Beyond the pain experienced by homeowners and residents, this is a damage shared by both local authorities and developers responsible for decision-making. In an increasingly wet winter climate with strained supporting infrastructure, a close concern for flooding risk is in the best of interests of all involved in the process of development in the long-run.

2.192 There should not be any significant additional cost to developers as they should have already been taking surface water flooding into account in their flood risk assessments and SuDS designs under the existing Local Plan policies.

Summary

Benefits

- Strengthening the existing policy to include direct reference to surface water flooding should help to reduce the likelihood and impacts of surface water flooding in those settlements with high existing risk in the district.

Limitations

- HDC will need to get input and approval of the policy from the EA and Leicestershire LLFA.

Maintain Policy CC4 requiring major developments use SuDS

2.193 Maintaining the existing policy will limit the use of hard drainage systems like piping, and should provide other benefits locally in addition to managing flood risk, such as improving water quality and increasing biodiversity (depending on how the SuDS are designed).

2.194 Any SuDS should be installed in accordance with the industry Code of Practice for Property Flood Resilience.

2.195 SuDS are much easier to implement where there are public open spaces or large developments to utilise. As such, these spaces should be considered in early designs for new development.

Deliverability

2.196 The Adopted Harborough Local Plan as well as other local plans, demonstrate the technical feasibility of this approach.

Viability

2.197 For the council, maintaining the existing policy is not expected to add any additional costs.

2.198 The implementation of SuDS in major developments will results in costs which vary greatly by type and scale. Consideration of SuDS at an early stage in the design process is key to maximising benefits and minimising costs.

Although costs will vary depending on the size of the development or scope of works associated, the cost for the planning and design of SuDS are typically 15% of the eventual capital costs of implementing the SuDs **[See reference 111]**.

Require all developments to use SuDS

2.199 Although the Adopted Local Plan already includes Policy CC4 requiring SuDS to be used in major developments, HDC officers consider SuDS should also be implemented on minor development proposals as well. The Harborough Local Plan policy could pre-empt the mandatory requirement for SuDS to be used in minor developments as well (the former Conservative government announced it would implement Schedule 3 of the Flood and Water Management Act 2010 but the implementation timeline is currently unclear).

2.200 Extending requirements for SuDS to all scales of development will extend the benefits for Harborough especially for sites with insufficient land but where flood risk remains high.

2.201 Where developers for minor developments seek to implement SuDS, this can be achieved through small-scale SuDS such as green roofs, permeable paving and rain gardens, which are potentially applicable to a wide range of schemes.

2.202 A study **[See reference 112]** investigated the implementation of small-scale SuDS, proving that, distributed at scale across a catchment, small-scale SuDS will collectively maximise flood risk reduction.

Examples of policy wording

2.203 Examples of policies requiring SuDS in all developments can be seen in **Policy CC1: Flood Risk and Sustainable Drainage of the Harrogate Local Plan** **[See reference 113]**, stating that:

> …All development will be required to ensure that there is no increase in surface water flow rate run off. Priority should be given to incorporating sustainable drainage systems (SuDS) to manage surface water drainage, unless it is proven that SuDS are not appropriate. Where SuDs are provided arrangements must be put in place for their whole life management and maintenance…

2.204 Policy EE13 of the Runnymede Local Plan [See reference 114] also states that :

> All new development is required to ensure that sustainable drainage systems are used for the management of surface water unless demonstrated to be inappropriate. All new developments in areas at risk of flooding must give priority to the use of sustainable drainage systems.

Deliverability

2.205 There are several examples of SuDS being delivered within Harborough District and other local authorities. Government research on the cost of constructing SuDS accepts this varies widely between schemes but that the cost of providing water storage via SuDS, where there is open space for it to be implemented, is considerably cheaper than constructing sewers and underground storage. It is also implementable where open space does not exist – such as through permeable paving and roads **[See reference** 115**]**.

2.206 HDC officers are familiar with assessing major development proposals incorporating SuDS and the smaller-scale nature of SuDS on minor developments should not require any additional technical expertise. However, the Lead Local Flood Authority (LLFA, which is Leicestershire County Council for Harborough) currently only reviews planning applications for major

developments that may impact on flood risk and also reviews their SuDS schemes, and may not have the resources to review all development proposals i.e. minor applications as well.

Viability

2.207 Consideration of SuDS at an early stage in the design process is key to maximising benefits and minimising costs. Although costs will vary depending on the size of the development or scope of works associated, the cost for the planning and design of SuDS are typically 15% of the eventual capital costs of implementing the SuDS **[See reference** 116**]**.

2.208 The national Planning Practice Guidance makes clear that where cost is a reason put forward by a developer for not including sustainable drainage systems, they should provide information to enable comparison with the lifetime costs of a conventional public sewer connection **[See reference** 117**]**.

2.209 The maintenance required for SuDS and the responsibilities for that maintenance are often cited as putting off developers from installing SuDS. HR Wallingford's work for the DTI on whole life costing for SuDS components suggested that annual operational and maintenance costs as a proportion of construction costs ranged from just 0.5% to 10% for all components with the exception of an infiltration trench for which a 20% figure was cited as a maximum **[See reference** 118**]**.

Summary

Benefits

- SuDS can relieve pressure on existing drainage systems and be installed in existing and new developments.
- Likely to be a cost saving on harder forms of drainage infrastructure.

- Can provide a range of benefits beyond drainage including biodiversity and amenity.

Limitations

- SuDS are easier to implement in large schemes that include public open space (although measures such as green roofs and rain gardens are potentially applicable to a wide range of schemes). This should be considered in early designs for new developments and details sought in outline planning applications.

Incorporate rigorous drainage hierarchy into policy

2.210 The council could also consider expanding the existing SuDS policy to explicitly refer to a 'drainage hierarchy' to reduce the rate and volume of surface water runoff arising from new development. This would incorporate into policy an ambitious rigorous drainage hierarchy, expecting all (or just major) developments to achieve greenfield run-off rates and ensure that surface water run-off is managed as close to its source as possible, including water re-use.

2.211 The national Planning Practice Guidance (PPG) sets out the Hierarchy of Drainage to promote the use of Sustainable Drainage Systems, by aligning modern drainage systems with natural water processes. The hierarchy is set out below with the most preferred methods of drainage at the top, down to the least preferred at the bottom:

- Surface water runoff is collected for use.
- Discharge into the ground via infiltration.
- Discharge to a watercourse or other surface water body.
- Discharge to surface water sewer or other drainage system, discharging to a watercourse or other surface water body.
- Discharge to a combined sewer.

Examples of policy wording

2.212 Policy SI13 Sustainable drainage of the London Plan [See reference 119] 2021 states that developments should aim to achieve greenfield run-off rates and that there should be a preference for green over grey features, in line with the following drainage hierarchy that has been developed for London based on the PPG:

- Rainwater use as a resource (for example rainwater harvesting, blue roofs for irrigation);
- Rainwater infiltration to ground at or close to source;
- Rainwater attenuation in green infrastructure features for gradual release (e.g. green roofs, rain gardens);
- Rainwater discharge direct to a watercourse;
- Controlled rainwater discharge to a surface water sewer or drain; and
- Controlled rainwater discharge to a combined sewer.

2.213 This policy is also complemented by the London Sustainable Drainage Action Plan which contains a series of actions to make the drainage system work in a more natural way with a particular emphasis on retrofitting.

Deliverability

2.214 The practical considerations for the discharge of surface water within the drainage hierarchy are easy to implement, and provide reasonably applicable guidance for developers. The layout and function of SuDS needs to be considered at the start of the design process for new development, as integration with roads and other infrastructure can maximise the availability of developable land. Particular types of sustainable drainage features may not be practicable or appropriate in some locations, such as the use of infiltration

techniques from potentially polluting development in areas where groundwater provides a potable supply of water.

2.215 Design guidance could highlight such locations' constraints, and could also encourage the incorporation of rainwater harvesting in sustainable drainage systems (top of the drainage hierarchy) to help manage potable water demand from new development. A relevant example of a good SUDS design guide is the Sustainable Drainage: Cambridge Design and Adoption Guide which can be accessed at: https://www.cambridge.gov.uk/media/5457/suds-design-and-adoption-guide.pdf. Other examples include the Surrey County Council Sustainable Drainage System Design Guidance **[See reference** 120**]**, and the Sustainable Drainage Systems Design Guide For Essex **[See reference** 121**]**.

Viability

2.216 For new developments, it is likely that implementing a drainage hierarchy in combination with SuDS will lower costs compared to considerations for alternative drainage systems. Integrating SuDS into the site not only ensure the best use of space but could potentially reduce the costs of maintenance. For example; costs to sustain the SuDS scheme in Lamb Drive, in Cambridge were £38/per property, per year, 4% cheaper than the average equivalent for a traditionally drained system **[See reference** 122**]**. Early stage considerations will maximise benefits from this option.

Summary

Benefits

- Implementing a drainage hierarchy will ensure that water is evacuated efficiently, contributing to flood resilience.

Limitations

- Designing an effective drainage hierarchy will require careful consideration of site specific factors, however, design guides can be a useful tool to aid developers.

Strengthen requirements for all SuDS to be designed as part of wider GI objectives

2.217 HDC can strengthen the requirements within Policy CC4 wording for all SuDS to be required to be designed as part of wider green infrastructure (GI) objectives and policies, including clear references to biodiversity and amenity provision within SuDS designs.

2.218 This approach will take advantage of the cross-cutting nature of climate adaptation measures, integrating with other policies in the Local Plan regarding protecting, planting and enhancing habitats and tree canopy cover, thereby increasing the resilience of the natural environment to climate change while providing additional benefits for avoiding flood risk. The Government's National Adaptation Programme **[See reference** 123**]** recognises this interrelationship and the importance of using green infrastructure and nature-based solutions that can help protect homes and communities from extreme heat and surface water flooding, while enhancing space for nature.

Examples of policy wording

2.219 Examples of SuDS policies that require SuDS to be designed as part of wider green infrastructure objectives include **Policy CE8: Sustainable drainage** in the **Newham Local Plan (**Reg. 18, 2022) **[See reference 124]**:

2. All development must promote an integrated approach to water management through greening and incorporating rainwater storage for reuse and irrigation. Major Development must maximise the multifunctional

benefits of Sustainable Urban Drainage Systems such as biodiversity, amenity, cooling and water quality.

2.220 The recently adopted **Cornwall Climate Emergency DPD** includes **Policy CC4: Sustainable Drainage System Design**, **[See reference** 125**]** which states:

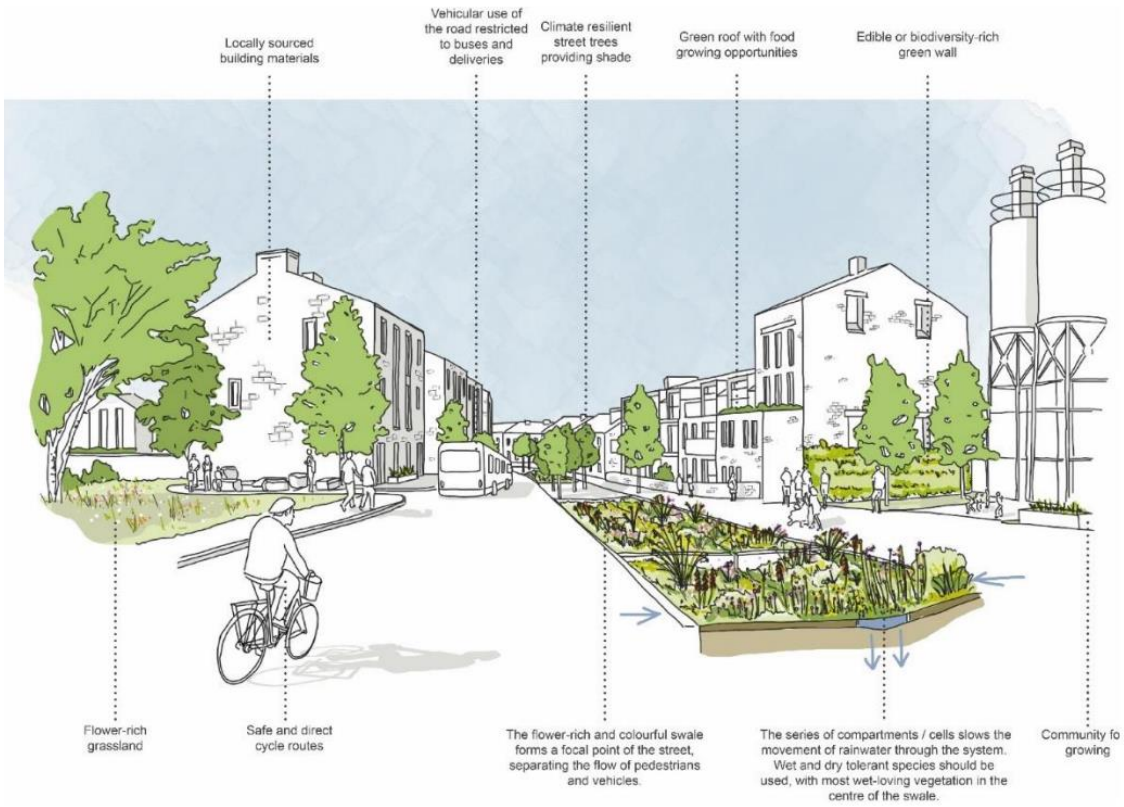
Sustainable Drainage Systems (SuDS) proposals shall prioritise the use of above non-buried SuDS, including retrofit SuDS and where feasible within existing town centres, commercial and retail areas, and redevelopment projects and shall be designed to achieve the following criteria:

- 1) Maximise the benefits to the sense of place, amenity and biodiversity; and
- 2) Reduce the overall level of flood risk on the site and the surrounding areas; and
- 3) Provide attractive, biodiverse and non-buried systems; and
- 4) Incorporate SuDS within greenspace, blue and green infrastructure, amenity, and biodiversity schemes to manage surface water flows, improve water quality, educate and improve the wellbeing of communities; and
- 5) Where built into public green or open space have sufficient room to provide a safe, naturalised system without the need for fencing or barriers; and
- 6) Provide for simple and straightforward maintenance, including the provision of a plan and mechanism for on-going maintenance.

Deliverability

2.221 The variety of SuDS techniques available and how they can incorporate green infrastructure is illustrated in Figure 2.7.

Figure 2.7: Example of sustainable drainage systems and green infrastructure working in tandem



2.222 SuDS can be successfully implemented alongside wider infrastructure needs. The Greener Grangetown project delivered jointly by Cardiff Council, Welsh Water and Natural Resources Wales, applied the latest sustainable drainage techniques to catch, clean and divert rainwater directly into the River Taff, and also delivered a host of other benefits for the local community, including 1,600 square metres of new green space, the creation of Wales' first 'bicycle street', increased biodiversity, and a community orchard. This project demonstrates the deliverability of SuDS which achieve wider GI objectives. It also highlights the need for HDC to work jointly with the EA, Leicestershire

County Council and relevant water companies where necessary to co-ordinate and realise the potential multifunctional benefits associated with SuDS, particularly those included within major development proposals.

Viability

2.223 It is expected that there will not be additional costs in requiring SuDS to be designed as part of wider GI. Early consideration of SuDS in the design process will be key to minimising costs and maximising benefits. As such, the costs for developers associated with this policy approach are expected to be the same as costs associated with implementing SuDS which will vary depending on the size of the development or scope of works associated. As already stated, the cost for the planning and design of SuDS are typically 15% of the eventual capital costs of implementing the SuDS.

Summary

Benefits

- Not only will SuDS relieve pressure on existing drainage systems and reduce flood risk, additional benefits will be achieved through the delivery of wider GI objectives such as carbon sequestration, biodiversity and amenity.
- There is likely to be a cost saving when nature-based SuDS incorporating green infrastructure techniques are considered at the design stage, compared to harder forms of drainage infrastructure (i.e. pipes, concrete drains etc.).

Limitations

- For most SuDS measures, there are limitations to what can be accomplished for smaller schemes, however, measures such as green

roofs and rain gardens are potentially applicable to a wide range of schemes.

Recommended policy approach

2.224 In light of the high risk of surface water flooding that exists in Harborough District due to its clay soils and the likelihood of hotter summers and warmer, wetter winters with more extreme storms, and given that the existing flood risk policy CC3 already covers all sources of flood risk, we recommend HDC strengthens the policy requirements for SuDS in the Local Plan.

2.225 Well-designed SuDS can help to deliver multiple climate adaptation benefits, not just avoiding and reducing flood risk. When SuDS incorporate green infrastructure and nature-based solutions, they can also help to protect homes and communities from extreme heat, increase biodiversity and improve health and amenity particularly in urban areas. Therefore, based on the discussion above, in particular, the Deliverability and Viability of the different policy approaches, we recommend HDC strengthens the existing Policy CC4 on sustainable drainage by including some or all of the following.

Recommended policy approach for sustainable drainage systems:

It is not possible to recommend that HDC require all developments to incorporate SuDS, rather than just major developments, given the resourcing challenge that would be faced by HDC and the LLFA to review all designs at application stage.

However, the Local Plan update should highlight in the supporting text to Policy CC4 that Schedule 3 to the Flood and Water Management Act 2010 is due for implementation. This will alert developers ahead of time, including those delivering minor developments, of the need to understand how to

deliver SuDS requirements. Details of how SuDS designs will be reviewed and resource for this will be presented by central government upon Schedule 3's implementation.

We also recommend that HDC strengthen requirements within the policy wording to the need for all SuDS within major developments to be in line with the drainage hierarchy and be designed to incorporate green infrastructure and maximise the additional multifunctional benefits for biodiversity, amenity, cooling and water quality.

Further, either as an update to Policy GI1 (Green Infrastructure Networks), in policies for 'Places and Sites' or in a more appropriate location, HDC should include policy wording that requires that new or enhanced green infrastructure be designed to manage surface water run-off. This will support flood avoidance measures in the absence of a national statutory requirement for all development to incorporate SuDS. Simultaneously, policy wording should require that new SuDS be designed as part of wider green infrastructure.

Water efficiency in new developments

Policy background

2.226 The water supply for Harborough District comes mainly from Severn Trent Water, with a small part of the east of the district served by Anglian Water. Both of these water company areas are determined to be classed as seriously water stressed, according to the Environment Agency **[See reference** 126**]**, and England as a whole is the most water stressed region in the UK.

2.227 When new developments result in clean water being taken from natural sources, this issue is further exacerbated. For this reason, water efficiency in new developments must be maximised.

2.228 The National Infrastructure Commission's report 'Preparing for a drier future: England's water infrastructure needs' **[See reference** 127**]** suggested that two thirds of the additional capacity required to maintain the current level of resilience should come from demand management measures. The report stated that increasing efficiency savings and near universal smart metering would reduce the average per capita consumption (PCC) from 141 to 118 litres/person/day (l/p/d) by 2050. Further to this the Environment Agency's National Framework for Water Resources **[See reference** 128**]** suggests a planning assumption of 110 l/p/d is adopted.

2.229 The key options for this planning policy area therefore relate to protecting and conserving water resources through the setting of water efficiency standards and considering opportunities in new developments to capture and reuse water at the household level.

2.230 The Building Regulations Part G requires new homes to limit water use to 125 l/p/d, however, the optional technical standards states that "Where there is a clear local need, local planning authorities can set out Local Plan policies requiring new dwellings to meet the tighter Building Regulations optional requirement of 110 litres/person/day" **[See reference** 129**]**. Regionally, there is precedent for local authorities to set even higher targets.

2.231 The PPG states that LPAs can set additional technical standards for housing beyond those of the Building Regulations in respect of certain issues, with water efficiency identified as one of the few **[See reference** 130**]**. Paragraph 014 of the category on "Housing: optional technical standards" states that "where there is a clear local need, local planning authorities can set out Local Plan policies requiring new dwellings to meet the tighter Building Regulations optional requirement of 110 litres/person/day." LPAs are, therefore, supported by planning guidance should they want to deploy 110 l/p/d targets, as long as justification ("clear local need") is provided. However, if an LPA decides

to go beyond this figure, a Planning Inspector may query this on the basis that it does not align with national policy. LPAs should, therefore, consider the best available evidence on water availability and water supply constraints and consider if this can be used to try to justify a higher target.

2.232 There is currently no government guidance on setting water efficiency standards for non-residential development. As with residential development it is important to consider how to increase water efficiency while avoiding perverse outcomes. For example, setting a high water efficiency target that requires the installation of greywater recycling systems could lead to the installation of measures that are complex, energy intensive (resulting in carbon emissions) and/or hard to maintain.

2.233 A Water Cycle Study (WCS) has recently been conducted (August 2024) for Leicestershire authorities including HDC, by JBA Consulting to inform their local plans **[See reference** 131**]**. It updates the previous WCS, published in 2017 and provides the required evidence to support a strategy to ensure that planned growth occurs within environmental constraints, with the appropriate infrastructure in place in a timely manner so that planned allocations are deliverable. As part of its review of evidence and its assessment of pressures on local water resources, it provided recommendations for water efficiency requirements in new developments – both residential and commercial. These are discussed in the context of the policy recommendations made, below, in this section.

Existing policy in Harborough Local Plan

2.234 Policy H5 Housing density, mix and standards within the existing Local Plan **[See reference 132]** states, among other requirements, that new housing development will be permitted where it:

> b. is designed to meet higher water efficiency standards of 110 litres per person per day as prescribed in Building Regulations, Part G.

Alternative policy approaches considered

2.235 The following alternative policy approaches for water efficiency in new developments have been considered:

- Maintain existing Policy H5
- Strengthen Policy H5 so that the 110 l/p/d requirement is clearly mandatory
- Introduce stricter requirement of 85 l/p/d
- Encourage water neutral developments

Maintain existing Policy

2.236 The existing Policy H5, requires new housing developments to 'be designed to meet' the 110 l/p/d, following the optional higher standard within Building Regulations Part G. The justification for this is due to the whole of Harborough District being within a seriously water stressed area.

Deliverability

2.237 The existing policy with the Harborough local plan, as well as other local plans, demonstrates the technical feasibility of this policy. However, HDC officers noted in the workshop that as currently worded, the requirement to meet 110 l/p/d is only able to be added as a condition to planning permissions once granted. It is difficult for Development Management officers to know if the development proposals are designed to meet the standard, as information about detailed fixtures and fittings within buildings are not required to be provided at either outline or reserved matters application stages. There is also uncertainty as to whether conditions are being consistently applied to all relevant planning permissions. There is also no current mechanism for monitoring whether the standard is being met in new developments once constructed.

Viability

2.238 Retaining the existing policy is unlikely to result in any additional costs for HDC or developers as it is not changing the status quo.

Summary

Benefits

- Maintaining the existing policy will help contribute to reducing water demand in some new developments.
- This policy is a road-tested policy, albeit with some uncertainty regarding its outcomes (due to inability to monitor whether the standard is being achieved in new developments).

Limitations

- Maintaining the existing policy may hinder innovation and responsiveness to evolving needs.
- The existing policy may not be fully optimised for effectiveness against future water supply needs and the changing climate.

Strengthen Policy H5 so that the 110 l/p/d requirement is clearly mandatory

2.239 The existing Local Plan requires new development to meet the optional higher water consumption target of the Building Regulations Part G, stating that new housing development will be permitted where it *"...is designed to meet higher water efficiency standards of 110 litres per person per day as prescribed in Building Regulations, Part G.*" The current requirement implies an obligation but allows some flexibility, whereas the target could be more explicitly described

as mandatory within the Local Plan update, requiring indicate strict adherence to the target, without exceptions.

2.240 The WCS for Leicestershire (see the introduction to 'Water efficiency in new developments, above) stated that there was sufficient evidence to recommend the 110 litres per person per day design standard as an obligation in Leicestershire authorities.

Examples of policy wording

2.241 Policy CC/4: Water Efficiency of the South Cambridgeshire Local Plan [See reference 133] places strict adherence to the optional higher water consumption target in the Building Regulations for all developments, stating that:

> All new residential developments must achieve as a minimum water efficiency equivalent to 110 litres per person per day.
>
> Proposals for non-residential development must be accompanied by a water conservation strategy, which demonstrates a minimum water efficiency standard equivalent to the BREEAM standard for 2 credits for water use levels unless demonstrated not practicable.

Deliverability

2.242 This standard of water efficiency has the benefit of being achievable with cost-effective water efficient fixtures and fittings, without having to resort to rainwater harvesting (which could still be encouraged) and grey water recycling, which is more complex (e.g. requires energy use and maintenance).

2.243 The implementation of this option will require changes in wording within the local plan update, to show that HDC requires strict adherence to the 110 l/p/d target. This policy option would require consistent and uniform compliance with the higher standard and may require some training for HDC officers to understand what to look for in planning application information, ensuring that this can be properly verified at approval stage.

2.244 It would also need additional resources to ensure that monitoring of new developments is able to be carried out. Alternatively, this could be achieved through reference to BREEAM water efficiency standards (as in the South Cambridgeshire example above) which would place the responsibility for assessing compliance with third party assessors. Non-residential development could be required to achieve 2 credits in the WAT01 category.

Viability

2.245 By reducing the per capita consumption of water and reducing water usage, it should lead to cost savings for residents from water bills.

2.246 However, there may be additional costs to developers for implementing water-efficient fittings and appliances needed to achieve the standard. Yet a 2014 study into the cost of implementing sustainability measures in housing found that meeting a standard of 110 litres per person per day would cost just £12 (at 2023 prices) for a four-bedroom house **[See reference** 134**]**. The Committee on Climate Change's report, 'UK Housing: Fit for the Future' even stated that the cost of requiring all homes in England to be built to 110 l/p/d is already compatible under Part G of regulations and would be of no additional cost to developers.

Summary

Benefits

- Making the 110 l/p/d standard mandatory would help more in conserving water by reducing the per capita consumption.
- Water conservation has the potential to lower emissions from water usage.
- There is a potential for cost savings from building residents from water bills.

Limitations

- There will be additional costs to developers for implementing water-efficient fittings and appliances needed to achieve the optional standard.
- There will be additional resources needed within HDC for training to help determine whether planning applications will meet this requirement and also for monitoring whether completed developments do indeed meet the standard.

Introduce stricter requirements on water consumption

2.247 HDC could introduce even stricter policy requirements for new developments that set a maximum water consumption standard of 95-85 litres per person per day, including external water use.

2.248 New developments need to achieve a significant degree of water efficiency to limit new pressures on an already stressed local water system. This can often be achieved relatively cost effectively by specifying water efficient fixtures and fittings (e.g. low flow showers and taps, dual flush toilets) and using simple rainwater harvesting (e.g. water butts) to capture rainwater for non-potable uses such as irrigating gardens.

2.249 HDC already acknowledge the need for water efficiency through the existing plan requiring limits to water use relative to the Building Regulations.

However, some LPAs, are proposing higher targets (e.g. 85 litres/person/day by Mid Sussex, further details below).

2.250 While setting a higher target (e.g. 85 litres per person per day) might be beneficial, this might run the risk of being challenged at examination unless the council has a strong supporting evidence base.

2.251 However, the recent Leicestershire WCS recommended that as a minimum the proposed new Building Regulations target of 100l/p/d outlined in Defra's Plan for Water **[See reference** 135**]** be adopted across the county. This would help achieve the target for the overall average per capita consumption in the UK to lower to 11 l/p/d by 2050. This target is already part of the national Environment Improvement Plan and part of water company WRMPs (Water Resource Management Plans).

2.252 The WCS further pointed to The Future Homes Hub, who are supporting Defra, and their proposed roadmap to greater water efficiency. This proposes a staged-reduction in consumption targets, with a target of 100l/p/d in water stressed areas (such as Harborough) in place from 2025, and a reduced target of 90l/p/d in place by 2030 (depending on favourable market conditions). As such, it recommended that upcoming Leicestershire local plans should allow for a future reduction in the Building Regulations target to 90l/p/d in 2030 within their local plans. For non-residential properties, it stated that there should be a requirement to achieve three credits in the assessment category WAT01 of the BREEAM standard.

Examples of policy wording

2.253 There are not many examples of adopted Local Plans that include the stricter requirement, although in some areas of serious water stress and/or where water neutrality is required to avoid adverse effects on nature conservation sites, the stricter water consumption target may be imposed by the Environment Agency or Natural England (see Water Neutral Developments section below).

2.254 The **Central Lincolnshire Local Plan** (Reg. 19) **[See reference** 136**]** contains the 110 l/p/d standard as a requirement, but encourages use of the stricter 85 l/p/d target in **its Policy S12 Water Efficiency and Sustainable Water Management**:

> To minimise impact on the water environment all new dwellings should achieve the Optional Technical Housing Standard of 110 litres per day per person for water efficiency as described by Building Regulation G2. Proposals which go further than this (to, for example, 85 litres per day per person) would be particularly supported.

2.255 The **Mid-Sussex District Plan** 2021-2039 (Reg. 18) contains a requirement for new developments to 'meet a maximum water consumption standard of 85 litres per person per day (including external water use)' within its '**General Development Principles for Housing Allocations**'.

Deliverability

2.256 There is precedent for local authorities to set the higher targets beyond 110 l/p/d. A recent study by JBA Consulting on behalf of Crawley Borough Council, Chichester District Council, and Horsham District Council **[See reference** 137**]** was undertaken due to Natural England concerns regarding abstraction. They had advised the relevant LPAs that development in the Sussex North WRZ region must not add to this potential adverse effect. The report outlined a strategy to achieve water neutrality within the Sussex North WRZ, throughout the timeframe covered by the Local Plans up to 2038/39. The Strategy recommends a water efficiency target of 85 litres per person per day is adopted for all new build housing in the WRZ. Non-household development was recommended to be required to achieve a score of three credits within the water (Wat 01 Water Consumption) issue category for the BREEAM New Construction Standard, achieving 40% reduction compared to baseline standards.

2.257 The JBA Study concluded that achieving 85 l/p/d is possible with a 'fittings-based' approach (i.e. specifying water efficient fixtures and fittings in the building design such as low flow showers and taps, dual flush toilets). However, feedback from housebuilders identified a risk that the consumer experience may lead to those fittings being replaced early with less water efficient goods, and the benefit being lost. More certainty in achieving 85l/p/d could be gained by requiring greywater recycling on all housing. However, this would increase the cost significantly.

2.258 Compliance could be demonstrated through use of the Building Regulations Part G calculator tool. For developments that are undertaking an HQM assessment this would also result in credits being awarded in the water efficiency category.

Viability

2.259 The JBA Study referred to above notes that building to a standard of 85 l/p/d will cost more than building to a standard of 110 l/p/d, but that available cost information is limited, and in some cases quite dated. The study looked at sources of information published by the UK Government, Waterwise, the Energy Saving Trust and Defra, as well as their own developer engagement exercise undertaken in spring 2022 and concluded that there are two broad approaches to achieving the 85 l/p/d standard:

- A fittings-based approach that would involve selecting water efficient taps, showers, baths, toilets, etc. which can be achieved at minimal additional cost, c. £350-430/dwelling; or
- Use of rainwater harvesting and/or greywater recycling systems, which cost between £1,500- £4,000 per property, whereas greywater recycling systems cost closer to £4,000 per dwelling.

2.260 Research published by BRE study reports that the cost of achieving 3 credits in WAT01 (a 40% reduction in water consumption for baseline) would be £13,361 and payback (reduced water bills for the building user) could be

achieved between 1 and 2.5 years depending on the price of water **[See reference** 138**]**.

Summary

Benefits

- This is a comprehensive measure to prevent new developments from having an impact on water resources.
- Water efficiency measures will produce savings for householders.
- This approach can minimise the risk of enforced consumption bans that might arise.

Limitations

- More ambitious water targets would likely be challenged by developers, requiring a strong evidence base to support.
- Although higher targets can be met via a fittings-based approach, there is a risk that in the longer term the benefits are reduced as homeowners replace the fittings with conventional ones.

Encourage water neutral developments

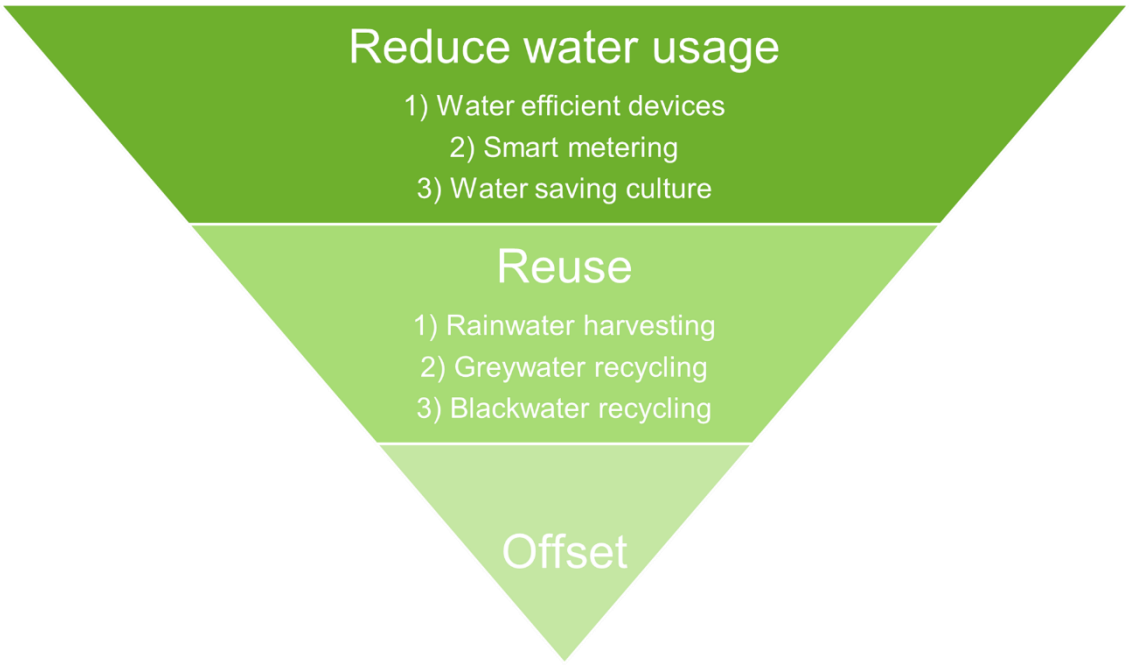
2.261 HDC could encourage water neutral developments where possible. 'Water neutrality' is a concept for managing the demand for water where a development does not increase the rate of water abstraction for drinking water supplies above existing levels.

2.262 The Environment Agency states that achieving 100% water neutrality is an aspiration, and that it may not be possible to set such a stretch target for all new development. Setting a locally specific target that seeks to at least reduce

the overall level of demand for water abstraction from new developments should be dictated by local drivers and constraints surrounding water neutrality **[See reference 139]**. The Environment Agency states the key drivers include environmental factors, political or social will, climate change mitigation and adaptation and cost effectiveness. Constraints include the size of development, consumption rates in existing surrounding developments and predicted consumption in new developments. Recently, Natural England has required some local authorities to introduce a requirement for water neutrality in all new developments due to the adverse effects of water pollution on particular nature conservation sites, associated with increased wastewater discharges arising from new development. This has been driven by the need for Local Plans to meet the Habitats Regulations **[See reference** 140**]**.

2.263 Requiring new developments to achieve 100% water neutrality is therefore unlikely to be a realistic policy option, unless requirements are imposed by Natural England. However, HDC could require developers to provide a water neutrality or efficiency statement with applications. Any statement should display how the principles of the sustainable water hierarchy, shown in **Figure 2.3** below have been adhered to and ensure that developers consider water efficiency from an early stage of project development.

Figure 2.8: The water hierarchy



Examples of policy wording

2.264 Mid-Sussex's District Plan 2021-2039 (Reg 18) **[See reference 141]** contains within its 'General Development Principles for Housing Allocations' an ambitious requirement for new developments which includes context for water neutral developments, stating that new developments:

> "Meet a maximum water consumption standard of 85 litres per person per day (including external water use) to minimise the impact of the development on water resources and water quality. Rainwater harvesting and greywater recycling measures should be incorporated into the development as well as using water efficient fittings and appliances. Water neutral developments will be encouraged where this is possible."

Deliverability

2.265 The study by JBA Consulting on behalf of Crawley Borough Council, Chichester District Council, and Horsham District Council **[See reference 142]** referred to above, concluded that water neutrality could be achieved within the Southern Water North Sussex WRZ through first reducing demand for water from the new development as far as practicable, and then offsetting the remaining demand elsewhere within the same region. New developments in the relevant local authorities would need to meet the 85 l/p/d target, and there will also need to be an LPA-led Offsetting Scheme to provide water offsetting.

2.266 An LPA-led Offsetting Scheme will require an operating body that will administer it, collect funding, pay offset providers and monitor results. When a developer submits a planning application, a water neutrality statement will need to be provided. This will identify the type of development, how much new water demand will be generated, the water efficient fittings and technologies to be applied, and details of any offsetting to be delivered by the developer or a third-party. The developer will then pay a fee per litre of offsetting required (where offsets are provided via the LPAs' approved partners). This would be collected by the Offsetting Scheme and used to deliver the appropriate level of offsetting within the WRZ. Potential offsetting measures that were considered and assessed in the JBA Study included the use of flow restrictors retrofitted to existing properties, water efficiency in schools, non-household rainwater harvesting, alternative sources of water for irrigation of golf courses or supply of other recreational facilities such as sports grounds, swimming pools and leisure centres.

Viability

2.267 Water neutrality is a stretching requirement which would likely add significant costs to development, albeit it would provide significant carbon and financial savings for householders. A recent study from Waterwise in 2021 estimated that around 112,000 litres of water could be saved every year for every water neutral home built **[See reference** 143**]**. This would also equate to

around 43.8kgCO_2e per year per household in carbon savings. Water neutrality is also estimated to provide annual savings on water and energy bills of £44 per home per year by reducing water demand to 85 litres per person per day. The additional benefits include reducing the environmental impact of new developments, improving resilience to future climate change and reducing the amount of water entering the sewage network, all of which are key considerations in an area of water stress.

Summary

Benefits

- Water efficiency measures will produce savings for householders and minimise the risk of enforced consumption bans.
- Achieving water neutrality in new development would significantly reduce water demand with benefits for certain habitats and species, particularly in sensitive areas.

Limitations

- Water neutrality may be hard to justify and get through Local Plan Examination unless requirements are imposed by Natural England.

Recommended policy approach

2.268 Based on the discussion above, in particular, the challenges for delivery of more stringent water consumption targets, which may not be as necessary in Harborough as in other regions of the UK, we recommend HDC strengthens the existing Policy H5 as follows.

Recommended policy approach for water efficiency in new developments:

We recommend that HDC strengthen Policy H5 so that the 110 l/p/d requirement is described as a mandatory minimum standard, using wording similar to the South Cambridgeshire example provided (above).

The local plan update could indicate to developers the likely revisions to the Building Regulations that will see a target of 100 l/p/d introduced, followed by 90 l/p/d in 2030. This may prompt early efforts to achieve such targets in advance of further communication efforts from central government on these targets. This should also indicate the coming requirement for commercial buildings to achieve comparable expectations, displayed through securing three credits in the assessment category WAT01 of the BREEAM standard.

A further requirement for proposals for residential and non-residential development could be introduced, specifying that they must be accompanied by a water efficiency statement. This information would need to be produced as part of the BREEAM/HQM accreditation process anyway (which requires evidence of water efficiency measures included in designs) anyway so could easily be provided to HDC to show how the policy target is to be achieved.

Any statement should display how the principles of the sustainable water hierarchy have been adhered to and ensure that developers consider water efficiency from an early stage of project development. It would be necessary for HDC to provide training or other resources so that planning officers are able to interpret such statements. They will, though, be supported in the knowledge that BREEAM/HQM assessors will also be viewing such statements.

Greywater recycling/rainwater harvesting

Policy background

2.269 The Water UK's 'Water resources long-term planning framework (2015-2065)' states that a 'twin-track' approach of increasing supply and reducing demand is required in order to secure the resilience of water supplies over the next 50 years **[See reference** 144**]**.

2.270 Both rainwater harvesting and greywater recycling systems offer potential decentralised solutions in reducing water demand and increasing available water supply. There are also additional benefits from rainwater harvesting such as potential cost saving from water supply and a reduction of flood risk in urban areas.

2.271 Approved Document G (Part G: Sanitation, hot water safety and water efficiency) of the Building Regulations sets out the minimum standards for water consumption in new dwellings. In England, this is 125 l/p/day with an optional target of 110 l/p/day where specified. Approved Document H: Drainage and waste disposal) provides guidance on the storage of greywater and rainwater. Further guidance on systems for greywater and rainwater re-use can be found in the Water Regulations Scheme leaflet No. 09-02-04 Reclaimed Water System.

2.272 The NPPF also supports sustainable drainage systems which can include grey water harvesting.

2.273 According to the Environment Agency, harvested rainwater will not be regulated provided its use does not harm the environment - either alone or combined with other abstractions or transfers **[See reference** 145**]**. Rainwater harvesting within a catchment must not affect the normal watercourse flow.

2.274 An abstraction licence is not needed to use water that only consists of harvested rainwater. However, a water abstraction licence may be needed if harvested rainwater is combined with ground or surface water.

Existing policy in Harborough Local Plan

2.275 Policy IN4: Water resources and services presents the council's current approach to water efficiency, stating, that major developments, and high or intense water use developments, should include a grey water and rainwater harvesting system, unless demonstrated to the Council's satisfaction that such a system is not viable or practical.

Alternative policy approaches considered

2.276 The only alternative policy approach considered is to:

- Require all developments to use greywater and rainwater harvesting system.

Require all developments to use greywater and rainwater harvesting system

2.277 It is expected that rainwater harvesting and greywater recycling measures alongside water efficient fittings and appliances, is necessary to achieve targets for water consumption at 85 litres per person per dwelling, as described in the Water Efficiency section above.

2.278 Rainwater harvesting is an efficient way to use water where harvested rainwater is:

- collected from roofs and other above ground surfaces
- collected via a system of above ground pipes and tanks

- isolated from inland waters or groundwater

2.279 On the other hand, greywater recycling involves reusing wastewater from sources like showers, baths, and sinks for reuse in non-potable purposes.

Examples of policy wording

2.280 Policy DM30a of the Lancaster Sustainable Design, Energy Efficiency and Renewable Energy Generation SPD (still awaiting decision) **[See reference** 146**]** states that:

> All major non-residential development should incorporate water conservation measures so that predicted per capita consumption does not exceed the appropriate levels set out in the applicable BREEAM 'Excellent' standard. Where the 'Excellent' Standard cannot be achieved, evidence must be submitted with an application to the satisfaction of the City Council. The BREEAM 'Very Good' standard must be met as a minimum. The design of new developments should optimise the inclusion of water efficiency and consumption measures, such as rainwater/ or greywater recycling, low flow taps and showers, low flush toilets, rain gardens and water butts in the construction of new buildings.

2.281 To achieve better water efficiency and satisfy such targets, HDC would have to complement any water efficiency target with requirements for rainwater harvesting and/or greywater recycling which can dramatically improve water consumption and each are sufficient, on their own, for achieving high targets.

Deliverability

2.282 To date, both rainwater harvesting and grey water recycling systems have been implemented with mixed experience in the UK. Technical concerns regarding water quality, potential cross connections and issues around the social acceptability of using recycled water have all been barriers to uptake. Further to this, a 2011 Environment Agency report on the carbon implications of these systems suggested that due to pumping and treatment, greywater systems in particular are often more carbon intensive than the public water supply **[See reference** 147**]**.

2.283 However, an independent review of the costs and benefits of rainwater harvesting and grey water recycling options in the UK concluded that carbon emissions vary depending on the type of system installed and that recent innovations have led to lower energy demands relative to mains water **[See reference** 148**]**. Additionally, the payback periods and return on investments can be obtrusive for some systems but may benefit from economies of scale if they are introduced at a development scale or centralised within an existing community.

2.284 As stated above, the study by JBA Consulting indicates that for a target of 85 l/p/d is practicable through a combination of water efficient fixtures and fittings as well as rainwater harvesting systems and greywater recycling systems. Anglian Water, in their response to North Northamptonshire's Habitats Regulations Assessment, affirmed their desire for North Northamptonshire Council to demand rainwater and greywater collection in policy wording in the Local Plan to reduce stress on their network **[See reference** 149**]**.

Viability

2.285 Although expensive, the impact rainwater and greywater harvesting systems would have on addressing developments' impact on local water stress would be significant. Rainwater harvesting systems cost around £1,500-£4,000 per property, whereas greywater recycling systems cost closer to £4,000 per

dwelling (as stated in the JBA Study referred to in the Water Efficiency section above).

2.286 However, on top of their higher installation cost, greywater systems are associated with greater maintenance obligations and have proved challenging to maintain over the longer term. High levels of water efficiency are achievable without the use of greywater systems (and the associated carbon impact of these systems).

Summary

Benefits

- Water efficiency measures such as rainwater and greywater harvesting will produce savings for householders and minimise the risk of enforced consumption bans.

Limitations

- More ambitious water targets achieved through rainwater and greywater harvesting would likely be challenged by developers, requiring a strong evidence base to support

Recommended policy approach

2.287 The deliverability and viability sections above presented some of the challenges of requiring applicants to install rainwater and greywater harvesting to support water efficiency in new developments.

2.288 As explored in the water efficiency section above, it is possible to achieve very high rates of water efficiency without relying on such mechanisms. A fittings-based approach (such as the use of low flow showers and taps and dual

flush toilets) can achieve daily maximums lower than currently specified in Harborough (see above).

2.289 The recommendation in the water efficiency section is that applicants should be expected to submit short water efficiency statements at application stage. This would give the council certainty about their likely water efficiency achievements but, moreover, would place the onus on the developer to flexibly decide how they will achieve water efficiency in the least costly and most efficient manner. This is preferable to specifying mechanisms for developers to use more specific mechanisms, like greywater and rainwater mechanical systems, which may be inappropriate or even excessive for certain developments.

Designing for a changing climate

Policy background

2.290 The Harborough Climate Change Risk Assessment identifies the potential risks to health and well-being from overheating as higher temperatures and heatwaves become more frequent and intense as a result of changing temperatures. The climate change projections also indicate risks to people, communities and buildings from flooding as a result of projected increases in winter precipitation and the evidence of more intense storms events. The NPPF states that plans should take a proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for the risk of overheating from rising temperatures.

2.291 The key options for this policy theme relate to different approaches to ensuring that buildings do not overheat in summer, taking into account increasing temperatures due to climate change. This could include a requirement to undertake an overheating assessment and/or requirements regarding maximising passive design measures such as orientation, solar shading and careful design of fenestration. As discussed above in the Climate

Mitigation section, HDC should also consider the role of tree planting and green infrastructure which will help to mitigate and adapt to the 'urban heat island' effect, cooling air temperatures and providing shade – as well as wider benefits for physical and mental wellbeing.

2.292 The Government recently introduced Approved Document O: Overheating of the Building Regulations to prevent homes overheating in the summer. This applies to both residential dwellings and dwellings, such as care homes and student accommodation.

2.293 Through Part O, designers have two routes to demonstrate compliance.

1. A simplified method, limiting solar gains and maximising natural ventilation potential through window sizing or window design, and

2. A dynamic thermal modelling route, based on CIBSE's TM59 Design methodology for the assessment of over-heating document **[See reference 150]**.

2.294 The simplified method sets limits on the amount of glazing on different aspects. There are two main parameters that must be met in this method.

- That the total glazed area within the dwelling does not exceed a limit based on the floor area and orientation of the most glazed facade.
- And that the total area in the most glazed room does not exceed a percentage limit, based on the floor area of that room.

2.295 The dynamic thermal modelling route is based on the methodology developed by CIBSE in TM59. Based on data inputs from TM59 and using climate modelling from CIBSE 2020s Design Summer Year (representative of 2010-2040), the model can be used to show whether a scheme is compliant.

Existing policy in Harborough Local Plan

2.296 Policies within the existing plan do not significantly focus on the topic of climate adaptation, however, Policy CC1 ‘Mitigating Climate Change’ partly addresses this, requiring major development proposals to demonstrate:

> a. how carbon emissions would be minimised through passive design measures;
>
> b. the extent to which it meets relevant best practice accreditation schemes to promote the improvement in environmental and energy efficiency performance;
>
> d. whether the building(s) would require cooling, and if so how this would be delivered without increasing carbon emissions;
>
> e. how existing buildings to be retained as part of the development are to be made more energy efficient;

2.297 The Harborough Development Management SPD provides optional checklist developers can go through to query their own proposals on sustainable design and a suggestion to consider the energy hierarchy.

Alternative policy approaches considered

2.298 The following alternative policy approaches for designing for a changing climate have been considered:

- Maintain existing Policy CC1

- Introduce new policy requiring residential developments to achieve HQM and commercial developments to achieve BREEAM accreditations
- Introduce new policy requiring trees and GI in new developments
- Publication of guidance on designing for
- Production of new design code providing guidance and codes on overheating and flooding issues

Maintain Policy CC1

2.299 HDC can maintain Policy CC1's content which does not 'require' commitments and is focused mainly on climate mitigation and not adaptation requiring major developments to demonstrate efforts (rather than achieve targets) in low carbon practice areas of construction and materials, passive design, renewable energy, cooling, retrofit only for loose alignment of 'best practice accreditation schemes on energy efficiency performance

2.300 It may be advisable within supporting text to flag national policy requirement of all developments (residential and commercial) to follow Part L of the Building Regulations and to align with any future changes in government policy (the Future Homes Standard and beyond).

Deliverability

2.301 The existing policy with the Harborough Local Plan, demonstrates the technical feasibility of this policy.

Viability

2.302 It is not expected that there will be any additional cost associated with this policy.

Summary

Benefits

- While not requiring commitments and focusing on mitigation rather adaptation, the existing policy is tested in Harborough, backed by evidence and successful outcomes.

Limitations

- Maintaining the existing policy may hinder innovation and responsiveness to evolving needs.
- Existing policies may not be fully optimised for climate change adaptation

Introduce new policy requiring residential developments to achieve HQM and commercial developments to achieve BREEAM accreditations

2.303 HDC could introduce new policy that requires applicants for residential developments to achieve HQM and applicants for non-residential or commercial developments to achieve BREEAM accreditation.

2.304 The BREEAM accreditation scheme assessment considers a wide range of sustainability themes in buildings including thermal comfort such as overheating risk, and flood risk the relevant categories include HEA 04 – Thermal comfort and Pol 03 – Flood and surface water management.

2.305 Similarly, the Home Quality Mark (HQM) assessment covers a wide range of categories that reflect key aspects of a home's performance including 'Comfort' which includes assessing the risk of overheating in buildings. In full, this category evaluates the home's indoor environmental quality, including

factors such as daylight, noise, air quality, and thermal comfort. It considers how these factors contribute to a comfortable and healthy living environment. In addition, the Safety and Resilience category assesses the home's resilience to future climate risks, such as flooding and overheating, and its provisions for home security. It considers factors such as flood risk management, thermal comfort, and security measures.

2.306 As such, HDC can align design requirements for climate change adaptation for flooding and overheating, alongside policies aligned with HQM and BREEAM for net zero carbon emissions by specifying the relevant categories that must be achieved where necessary.

2.307 HDC would then seek proof of certification/performance from those accreditation organisations rather than having to review detailed assessments and have confidence in the ratings as they are completed by independent assessors.

Examples of policy wording

2.308 Policy CC2.6 Sustainable Design Standards of the Merton Local Plan under examination **[See reference 151]**, seeks high standards of sustainable design and construction from new development, achieved by:

> "Requiring all new build non-residential development of 1,000sqm GIA and above to achieve a minimum of BREEAM Non-residential New Construction 'Excellent' standard or equivalent"

2.309 The **Islington Local Plan Policy S3**, adopted in September 2023 **[See reference** 152**]** specifies BREEAM requirements, including among others:

All non-residential and mixed-use developments proposing 500sqm+ net additional floorspace must achieve a final (post-construction stage) certified rating of Excellent as part of a fully fitted assessment within BREEAM New Construction 2018 (or equivalent scheme) and must make reasonable endeavours to achieve an Outstanding rating. A 'verification stage' certification at post occupancy stage must also be achieved, unless it can be demonstrated that this is not feasible.

Deliverability

2.310 As stated in the Climate Mitigation section above, these third party schemes are familiar with developers and commonplace in Local Plans.

2.311 This approach will reduce the burden on the Council, not requiring staff resource to assess compliance against design considerations for climate adaptation in buildings as HDC can rely on the assessment from these schemes. However, this approach could be considered to be removing control over quality assurance from HDC.

Viability

2.312 Most costs for BREEAM and HQM compliance are expected to arise from meeting the energy and GHG performance requirements set in policy (rather than the cost of completing compliance processes for each of these schemes). The scale of uplift in build costs depends on the energy/GHG performance requirements set.

2.313 Published research specific to the BREEAM certification suggests that the uplift in costs, compared with the Building Regulations Part L 2013 could be between 0.2-5% for residential buildings and between 0.2-7.6% on average for non-residential buildings **[See reference 153]**. However, the cost of uplift is

expected be smaller against the 2021 Building Regulations. There are no specific estimates for uplift costs associated with achieving a HQM certification, however, it is similarly not expected to have any significant additional capital cost impact for developers.

2.314 It should be noted that highly energy efficient, zero carbon buildings offer a range of other benefits, including much lower energy bills for occupants (up to 50% savings) and higher rental/sale prices (up to a 10% increase), which may help to offset some of the additional build costs for developers.

Summary

Advantages

This approach has similar benefits to the benefits of using third party accreditation schemes to achieve net zero carbon buildings such as:

- A limited need for in-house technical expertise/capacity within the council to interrogate energy statements.
- Familiarity with developers and other local authorities.
- Integration and cohesion with other sustainability considerations in the built environment for the Local Plan, thereby, reducing burdens on developers when demonstrating compliance across a broad spectrum.
- Cost savings in energy bills from cooling systems as a result of the higher temperatures.

Disadvantages

- There will be added uplift costs to developers to achieves third party accreditation ratings.
- HDC will not have control of quality assurance.
- HDC will rely on BRE to update their methodologies to account for changes in climate as time goes on.

Introduce new policy requiring trees and GI in new developments

2.315 HDC could introduce new policy requiring trees and GI in new developments. This may be partly addressed by a new Biodiversity Net Gain (BNG) policy, which will be required now that this requirement is mandatory for all developments. The benefits of planting trees and increasing canopy cover in new developments across the district has also been discussed above under the Carbon Sequestration policy theme in the Climate Mitigation section above.

2.316 Green infrastructure can be designed to support ecological resilience to climate change. In local plans, well developed GI policies go as far as planning to contribute to the wider GI network as well as identifying, mapping and providing safeguarding measures to key habitats, ecological networks and priority species. GI should be considered at the earliest stages of design to identify opportunities to expand and improve the GI network.

2.317 Paragraph 174 of the NPPF states that planning policies and decisions should contribute to and enhance the natural and local environment by: "*minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures"*

2.318 BNG has the potential to significantly contribute to HDC's climate change policies if habitat creation is strategically planned. For example, by planting trees, thus helping wildlife adapt to climate change; or investing in GI in locations where it can also contribute to reduce flood risk and provide wider benefits for society (e.g. water filtration, recreation opportunities, carbon sequestration).

Examples of policy wording

2.319 Policy GI1 of Salford City Council's adopted Local Plan (2023) **[See reference** 154**]** sets out how development will protect and enhance the GI network in Salford to maximise its extent, interconnectedness, multi-functionality and quality. HDC could improve its current policy by introducing requirements for green roofs and walls where possible, which can play an important role in flood reduction and urban cooling when supported through planning policy

2.320 Cornwall Council's Local Plan (2016) **[See reference** 155**]** refers to the need for development to 'enable net gains by designing in landscape and biodiversity features and enhancements' – in line with wording from the NPPF. However, there was a desire within the LPA to bring in mandatory BNG ahead of the mandatory instigation in 2023. This was integrated into the Council's **Climate Emergency DPD [See reference** 156**]**. The DPD states that:

> "All development proposals will be required to provide a measurable increase in biodiversity' including minor developments which will use a 'simplified net gain process based on a Cornwall Council approved Small Sites Biodiversity Metric"

2.321 Following an independent examination in November 2021 and publication of the inspector's report, the DPD was adopted in February 2023.

2.322 Canterbury District Tree and Woodland Strategy [See reference 157**]** outlines how Canterbury District Council intends to protect and enhance woodlands across the district. The ambition for the strategy is for the long term – until 2045 – with reviews every five years to update the strategy based on the latest scientific knowledge and learnings. The strategy will be delivered by five core principles:

- Protecting existing trees and woodland
- Expanding trees and woodlands

- Capturing more carbon
- Enabling nature recovery
- Involving and benefitting everyone

2.323 This strategy also includes a wide range of advice on how expanding and protecting trees can bolster climate change adaptation in the area, including by:

- Supporting biodiversity
- Cleaning the air, soil and water
- Provide cooling and shading
- Prevent and mitigate flooding

Deliverability

2.324 These requirements relate to the masterplanning and urban design of new streets and communities, and are straight forward to deliver where considered from the outset of the site design process.

Viability

2.325 The implementation of GI may involve more infrastructure, leading to costs. These include supply, delivery, installation, and management. The costs of installing green infrastructure interventions will vary substantially by scale and type. As already stated, prices can vary from £50/m^2 for a sedum roof to £200/m^2 for a fully planted intensive roof **[See reference** 158**]**.

Summary

Benefits

- Expansion of green infrastructure is a well proven way to reduce ambient temperatures in urban areas and can be integrated with measures to achieve biodiversity net gain and wider goals (e.g. increase access to greenspace and carbon sequestration).
- Ensures that developers take a logical approach to mitigating overheating risk by working through a hierarchy of measures.
- Ensures that overheating in buildings is considered at the earliest stage possible. Once policy is established it is easy to maintain and implement. If implemented with a monitoring scheme, the impacts of overheating will almost certainly be mitigated in new developments.

Limitations

- Policies already well developed in this area.
- Green infrastructure requirements can add costs for developers, both in terms of capital cost and ongoing maintenance costs; though this may be overset by higher resulting sales values.
- Requires planning officers to have sufficient knowledge to interrogate/challenge the reasons provided by developers not to apply any measures earlier in the hierarchy.
- Requires upfront resources and costs to set up; and sufficient skills to assess/interrogate information provided.

Publication of guidance on designing for adaptation

2.326 We recommend HDC publish guidance on building design that helps adapt to the threats of overheating, soil erosion, and flooding, without increasing emissions.

2.327 Nature-based solutions (NBS), including trees, vegetation, water bodies, green roofs and green surfaces, can drastically reduce ambient temperatures in towns and cities, mitigate the Urban Heat Island (UHI) effect, improve thermal comfort in and around buildings, reducing the need for mechanical cooling, while bringing countless quality of life and health benefits to urban communities.

2.328 Buildings should be consciously designed to mitigate the risk of overheating, avoiding the need for energy/carbon intensive air conditioning as far as possible. This can be achieved by maximising passive design measures such as orientation, solar shading and careful design of fenestration to minimise heat entering a building and then using thermal mass and passive ventilation to manage heat within a building. A good example that can be incorporated into a guidance document can be from the London Plan, which sets out a cooling hierarchy.

2.329 HDC could also highlight or signpost existing guidance with a guidance document. Guidance on modelling real world performance at the design stage is being published with increased frequency. Examples of relevant guidance include:

- CIBSE TM54 (operational energy design)
- CIBSE TM52 (overheating design guidance)
- BREEAM GN32 (prediction & post occupancy)
- BSRIA Soft Landings (implementation framework)
- NABERS UK (best practice for offices)

2.330 With regards to erosion and flood risk management, HDC could publish design guidance providing advice on building design that helps adapt to the threats of flooding. A relevant example from a local authority of a good flood management guidance or design guide is the Sustainable Drainage: Cambridge Design and Adoption Guide which can be accessed at: https://www.cambridge.gov.uk/media/5457/suds-design-and-adoption-guide.pdf. Other examples include the Surrey County Council Sustainable Drainage

System Design Guidance **[See reference** 159**]**, and the Sustainable Drainage Systems Design Guide For Essex **[See reference** 160**]**.

2.331 HDC could also work with neighbouring LPAs, the Leicestershire LLFA and the EA to share the knowledge of individuals and partners and develop a collective understanding of flood risk and mitigation measures. A collaborative approach to project delivery is more successful in meeting the needs of everyone involved.

2.332 According to the Local Government Association, tackling flood risk issues should involve multiple partners and stakeholders working together to utilise a wide range of measures and to make the most of the opportunities available. This will result in a collaborative solution that combines local knowledge, data and technical expertise. It provides many positive aspects:

- A wider base of knowledge and experience of the locality, e.g. sources and experiences of flooding, knowledge of existing activities that may increase the risk of flooding, the specific issues of the area, what is feasible and what is needed.
- A local collaborative approach makes management fit for purpose and more likely to go ahead.
- Ensures potential issues are considered early and managed.
- Opens up opportunities for further actions to address flood risk or other societal or environmental issues.
- Widens the funding sources available.
- Raises the profile and understanding of flood risk management.

2.333 The surface water management plan technical guidance **[See reference** 161**]** provides a simplified overarching framework which allows different organisations to work together and develop a shared understanding of the most suitable solutions to surface water flooding problems. Principally, the surface water management plan guidance has been written for local authorities to assist them as they co-ordinate and lead local flood risk management activities.

Examples of policy wording

2.334 Lancaster City Council and Lancaster University have produced a guidance document on sustainable construction methods that seek to protect existing soil structure and reduce erosion **[See reference** 162**]**. HDC could consider adapting information from or linking to such guidance in any future guidance document advising on the risks.

2.335 The **East Riding of Yorkshire Council** has prepared a supplementary planning document **[See reference** 163**]**, to set out the process that will be followed when considering flood risk. The SPD, adopted in November 2021, provides a step-by-step guide for applicants, planning officers and developers on how to apply local and national planning policy using, among other evidence, the council's Strategic Flood Risk Assessment.

2.336 Camden Council Policy CC2: Adapting to climate change - states that all new developments must adopt measures such as: "incorporating bio-diverse roofs, combination green and blue roofs and green walls where appropriate" This policy is part of a wider high-level policy to promote climate change adaptation, including green and blue infrastructure, sustainable design and energy use efficiency.

2.337 London Plan Policy SI 4 Managing Heat Risk - of the London Plan **[See reference** 164**]** states that development should minimise adverse impacts of the urban heat island effect through design, layout, orientation, materials and the incorporation of green infrastructure. Additionally, major developments must prepare an energy strategy demonstrating how it will reduce internal overheating through the following cooling hierarchy:

- reduce the amount of heat entering a building through orientation, shading, high albedo materials, fenestration, insulation and the provision of green infrastructure
- minimise internal heat generation through energy efficient design

- manage the heat within the building through exposed internal thermal mass and high ceilings
- provide passive ventilation
- provide mechanical ventilation
- provide active cooling systems.

Deliverability

2.338 Where guidance is delivered in form of a Supplementary Guidance Document, a key consideration with developing any Climate Change SPD is that its guidance would be superseded by new requirements the Local Plan update, which will likely contain more ambitious policies regarding climate change, sustainable design and construction and energy. An SPD produced to supplement an existing Local Plan policies would therefore need to be updated fairly quickly after a revised Local Plan comes into effect.

Viability

2.339 For developers, the costs of compliance will relate to the costs associated with uplifts to address overheating and the costs associated with avoiding flood risk.

Summary

Benefits

- A guidance document could build on work already prepared by HDC (existing SPDs) and be relatively simply updated to reflect latest guidance documents available at a national level

- Guidance to help developers to help deliver high quality, climate resilient places will have benefits for residents and the natural environment.

Limitations

- Guidance can only complement existing policies, and will have more weight if contained within policies or supporting text of the Local Plan.

Production of new Design Code providing guidance and codes on overheating and flooding issues

2.340 HDC could produce an illustrative authority-wide Design Code. This would include simple, concise and illustrated parameters for physical development in the area; and could specify development principles and standards that relate to overheating and flooding.

2.341 The NPPF highlights that local planning authorities should prepare design codes that are consistent with the principles that are set out in the National Design Guide (NDG) and National Model Design Code (NMDC). Design codes should deliver a framework for high quality places that reflect local character and design preferences. Sustainability plays a large role in the formation of design codes, with The National Model Design Code setting a baseline standard of quality and practice which local planning authorities are expected to take into account when developing local design codes and guides and when determining planning applications, including:

- How new development should enhance the health and wellbeing of local communities and create safe, inclusive, accessible and active environments;
- How landscape, green infrastructure and biodiversity should be approached, including the importance of streets being tree-lined; and

- The environmental performance of place and buildings ensuring they contribute to net zero targets.

2.342 The main aim of a code is that it is clear and binary. It uses words like ‘must’ and ‘shall’ and include figures and parameters. Codes should set precise parameters within which there is large flexibility.

2.343 Codes are now to be adopted as ‘Supplementary Plans’ and must be linked to existing local planning policy. Therefore, if HDC were to develop a design code, to provide guidance on overheating and flooding issues, this should build upon and link to specific policies set out in the Local Plan.

2.344 As part of preparing local design codes or guides LPAs should provide clarity about design expectations at an early stage – as recommended by paragraph 128 of the NPPF and in accordance with the National Model Design Code – HDC should explicitly consider flood risk management. This would include providing guidance within these documents advising on the use and integration of SuDS into developments and key design considerations, linking to the strategic design advice in SCC’s Sustainable Drainage System Design Guidance and the National Model Design Code and to mandatory biodiversity net gain requirements (which SuDS can help to meet).

Examples of policy wording

2.345 The **Lake District Design Code** will help deliver more beautiful and sustainable places that function well in terms of accessibility, energy efficiency, biodiversity and carbon neutrality, and provide guidance to homeowners, developers and the local community on what constitutes good design.

2.346 The code contains information and prescriptions on multiple aspects of sustainable design, such as operational energy, sustainable design principles, embodied carbon, Green Infrastructure and active travel.

Deliverability

2.347 The UK Government's Design Code Pilot – monitoring and evaluation report found that "A steep learning curve is required to produce design codes and to use the new methodology in the NMDC, and with a few exceptions local authorities were not set up to deliver design coding in-house. Key skills gaps include urban design, graphic communication, viability assessment and digital engagement". Therefore, HDC might need to seek support from external specialists to develop an area wide design code or expand the skills of their in-house expertise.

2.348 Design codes rely on the balance being found between being positive and ambitious about design quality and considering local constraints. There is a lack of emphasis on the ecological emergency in the NMDC. For example, the NMDC does not provide sufficient guidance on how nature-based solutions and landscape-scale habitat restoration and creation can be facilitated through the development process.

Summary

Benefits

- A design code offers a means to help deliver high quality, climate resilient places by complementing the local plan policies.

Limitations

- HDC might need to seek support from external specialists to develop an area wide design code or expand the skills of their in-house expertise.

Recommended policy approach

2.349 Based on the discussion above, we recommend HDC does some or all of the following with respect to designing for a changing climate.

Recommended policy approach for designing for a changing climate:

We recommend that HDC, in introducing the requirement for applicants to achieve accreditation via HQM and BREEAM to satisfy emissions reductions (see recommendation for 'Net zero carbon emissions in new development' above) could reinforce the need for developments that also are adapted to a changing climate by requiring applicants for residential developments to achieve HQM and applicants for non-residential or commercial developments to achieve BREEAM accreditation in relevant categories.

Residential applicants should be urged within policy wording to focus their attention on the need for addressing climatic threats by achieving sufficient credits within HQM's 'Safety and Resilience' and 'Comfort' categories, whilst achieving a 3-4 Star rating, overall. Non-residential applicants should achieve maximum credits on BREEAM's 'thermal comfort' and 'flood and surface water management' categories, whilst achieving an Excellent rating, overall.

This policy option has the benefit of relying on third-party assessors to verify applicants' plans for tackling overheating and flooding threats. HDC would not have the internal resource to properly assess applicants' submitted plans for design measures to tackle these climate threats should policy require it.

Such a policy would ideally be complemented by improved local guidance on designing for a changing climate. Harborough's current DM SPD asks applicants to 'research' various design principles for adaptation and suggests the energy hierarchy is applied (though this is a climate mitigation approach, not one primarily supporting adaptation). It does not provide guidance to applicants on what such positive design features might be and what the Council is keen to ensure in all developments, residential and non-residential. It also only applies its guidance to major applications, in line with the existing Local Plan.

HDC could therefore consider the creation of a new 'Local Guidance' document where further guidance could be given. It would not be appropriate to produce a Supplementary Plan-Design Code to provide such guidance as this would overlap with the requirements made via HQM/BREEAM, may reduce the options by which applicants can design for adaptation and would require in-house expertise to ensure applicants are satisfying new codes. Any new Local Guidance could be produced in collaboration with other neighbouring LPAs and/or rely on signposting available existing guidance (in a more in-depth fashion than currently delivered by the DM SPD). Please see the policy option 'Publication of guidance on designing for adaptation' for the means by which HDC could produce new guidance.

As stated above in the Carbon Sequestration section, we also recommend that HDC include a specific policy requiring retention and planting of trees in new developments. This could refer to the canopy mitigation hierarchy used in the Cornwall Climate Emergency DPD and require a certain percentage of development sites to have canopy coverage.

Appendix A

Glossary

- **Building Regulations**: National standards for health and safety, energy conservation and access to and about buildings. The latest changes to the Building Regulations and the Approved Documents for England were published in December 2021. They set out significant changes to the regulations around ventilation, energy efficiency and overheating, electric vehicle charging and a number of supporting elements of the regulations. Under the new Part L, new buildings correctly built to the new standards are expected to produce lower regulated carbon dioxide emissions compared to current standards, and buildings will also be assessed using primary energy metrics. They are expected to be replaced by the 'Future Homes Standard', due to be released in 2025.
- **Biodiversity**: Biodiversity is the variety of life in all its forms. This includes the plant and animal species that make up our wildlife and the habitats in which they live.
- **BREEAM Building Research Establishments Environmental Assessment Method**: BREEAM is a set of standards for measuring the environmental performance of a range of new and existing building types. It covers energy and water performance, construction materials, waste, ecology, pollution and health.
- **Carbon sequestration**: This is the process of capturing and storing atmospheric carbon dioxide. It is one method of reducing the amount of carbon dioxide in the atmosphere with the goal of reducing the impact of climate change. It may be carried out through the planting of carbon-storing plants and woodlands (biologic) and via earth and rock-layer storage (geologic).
- **Circular Economy:** This is an increasingly popular model of resource production and consumption that involves sharing, leasing, reusing, repairing, refurbishing, and recycling existing materials and products for as long as possible. The concept aims to tackle global challenges such as climate change, biodiversity loss, waste, and pollution by emphasising the

implementation of circular economy principles within the early design of systems of production and consumption. The main three principles required are: designing out waste and pollution, keeping products and materials in use, and regenerating natural systems. Within land-use planning this can refer to the way in which we construct buildings – the resources used or re-used and the disposal (or reduction of the need for disposal) of waste and the way planning policy affects our broader local, national and international production and consumption habits.

- **Climate Change Adaptation**: Adjustments to natural or human systems in response to actual or expected climatic factors or their effects, including from changes in rainfall and rising temperatures, which moderate harm or exploit beneficial opportunities.
- **Climate Change Mitigation**: Action to reduce the impact of human activity on the climate system, primarily through reducing greenhouse gas emissions.
- **Design Code**: A set of illustrated design rules and requirements which instruct and may advise on the physical development of a site or area. Builds on a design vision created by a masterplan.
- **Energy types:**
  - **Embodied energy:** The total primary energy consumed from direct and indirect processes associated with the production of a product or system.
  - **Renewable and low carbon energy:** Includes energy for heating and cooling as well as generating electricity. Renewable energy covers those energy flows that occur naturally and repeatedly in the environment – from the wind, the fall of water, the movement of the oceans, from the sun and also from biomass and deep geothermal heat. Low carbon technologies are those that can help reduce emissions.
  - **Regulated energy:** Energy consumed by a building, associated with fixed installations for heating, hot water, cooling, ventilation, and lighting systems.

  - **Unregulated energy:** Energy consumed by a building that is outside of the scope of Building Regulations, e.g. energy associated with equipment such as fridges, washing machines, TVs, computers, lifts, and cooking.

- **Fabric:** Fabric refers to structural materials, surfaces, insulation, and fixtures, separating a building's interior from its exterior, also known as building fabric.
- **Green Infrastructure:** Consists of multi-functional networks of protected open space woodlands, wildlife habitat, parks, registered commons and villages and town greens, nature reserves, waterways and bodies of water, historic parks and gardens and historic landscapes.
- **Greenhouse Gases (GHGs):** Greenhouse gas emissions are the collective name for a range of gases that trap some of the sun's warmth within the earth's atmosphere, and the most prevalent greenhouse gas is carbon dioxide.
- **Greywater Recycling:** System for re-using the mildly polluted wastewater from shower / bath, washbasin or washing machine, for example to flush toilets.
- **Home Quality Mark (HQM):** A standard of performance and sustainability for new homes in the UK developed by the Building Research Establishment (BRE), the organisation behind BREEAM. HQM provides independent verification, via third party certification, that a property has met the expected level of performance for sustainability and quality, thus reducing risk. It can help provide assurance of quality to the homeowner/buyer as well as the local authority or other authorities approving designs and construction.
- **Infrastructure:** Infrastructure is a term used to describe new facilities, such as roads, community centres, schools, IT provision and cycle paths, with a development. It means anything that is required, other than houses, to make a new development work.
- **Local plan**: A Local Plan is a legal document that we are required to prepare, which sets out the future land use and planning policies for the area over a set time period.

- **Local Planning Authority (LPA):** The public authority whose duty it is to carry out specific planning functions for a particular area, i.e. Harborough District Council.
- **Masterplan:** A masterplan describes how proposals for a site will be implemented. The level of detail required in a masterplan will vary according to the scale at which the masterplan is produced.
- **Planning Inspectorate:** This executive agency under the Ministry of Housing, Communities and Local Government, deals with planning appeals, national infrastructure planning applications, examinations of local plans and other planning-related and specialist casework in England. All local plans must be submitted to the inspectorate for rigorous examination before being adopted by the local authority.
- **Whole-Life Carbon (WLC):** Greenhouse gases are emitted throughout a building's lifecycle, from the raw materials used in construction, through to the electricity used to run the building, right up until the demolition and end of life treatment of the building's materials. WLC Assessments are a comprehensive multi-step methodology to quantify total carbon emissions (embodied and operational) and other environmental impacts (such as acidification and eutrophication) through the life stages of a building.
- **SuDS**: Sustainable Drainage Systems are designed to both manage the flood and pollution risks resulting from urban runoff and to contribute wherever possible to environmental enhancement and place making.
- **UK Green Building Council (UKGBC):** This is a membership-led industry network seeking to improve the sustainability of the built environment.
- **Whole-Life Carbon (WLC):** Greenhouse gases are emitted throughout a building's lifecycle, from the raw materials used in construction, through to the electricity used to run the building, right up until the demolition and end of life treatment of the building's materials. WLC Assessments are a comprehensive multi-step methodology to quantify total carbon emissions (embodied and operational) and other environmental impacts (such as acidification and eutrophication) through the life stages of a building.

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