



Hertfordshire Green Infrastructure Strategy

Part 2a: Green Infrastructure Baseline,
Analysis and Priorities

Hertfordshire Infrastructure and Planning Partnership in partnership with Hertfordshire County Council

Final report

Prepared by LUC

August 2022

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The Hertfordshire Infrastructure and Planning Partnership (HIPP) provides a forum to discuss and, where appropriate, develop a shared view and agree joint work programmes on infrastructure and planning issues of common concern. A key objective is to work co-operatively within Hertfordshire and across the county borders according to the principles of localism and the duty to co-operate. The Partnership works together with Hertfordshire Forward, Hertfordshire Local Enterprise Partnership, the Local Transport Body for Hertfordshire, the Local Nature Partnership and other appropriate organisations in areas of shared interest to develop and where possible and necessary agree joint approaches to common issues. The Chairman, or his or her deputy, represents the Partnership as appropriate on external bodies, including the Board of the Local Transport Body for Hertfordshire.



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Chapter 1

Functional analysis – the current Green Infrastructure network

This chapter identifies and summarises Hertfordshire's existing Green Infrastructure (GI) assets and builds on the findings of Part 1: Setting the Scene.

1.1 The analysis has been divided into several 'themes', which provide a useful framework to understand and plan for GI in the county. The review of existing GI functionality also aims to reflect the twin emergencies of climate and nature recovery as well as the role of GI in supporting the wellbeing of communities within Hertfordshire. The themes are listed below:

- Theme 1: A Resilient Landscape;
- Theme 2: Heritage and Sense of Place;
- Theme 3: Nature Recovery;
- Theme 4: Access and Connectivity;
- Theme 5: The Water Environment; and
- Theme 6: People, Health and Wellbeing.

1.2 The relevance of GI to each theme is examined as well as the key assets and factors influencing the need for GI. This analysis includes a review of socioeconomic indicators in order to help identify severance and areas for GI interventions. Each theme is concluded with a summary of 'GI Priorities'. The chapters have been derived through a combination of desk study (including GIS analysis) and targeted stakeholder consultation. This thematic approach is then carried forward within the Strategy to identify a series of 'GI Priority Actions' (see Figure 1.1) with the aim of delivering protection, enhancement and

Chapter 1 Functional analysis – the current Green Infrastructure network

additions to the county GI network. Key findings from the series of stakeholder workshops are included in Appendix A.

Figure 1.1: Process to identify GI Priorities and GI Priority Actions



Consultation with the Hertfordshire Infrastructure and Planning Partnership (HiPP)

Part 2a: Green Infrastructure Baseline, Analysis and Priorities	✓	✓	
Part 2b: Green Infrastructure Priority Actions and Delivery			✓
	Summary of GI assets and key factors influencing the need for GI	Establishment of priorities to repair, reconnect and restore GI	Identification of strategic scale GI Priority Actions and associated delivery mechanisms

Chapter 2

Theme 1: A Resilient Landscape

Why is the theme relevant to GI in Hertfordshire?

2.1 The twin crises of climate change and biodiversity loss, plus the effects of economic and technological changes are having (and will continue to have) a profound effect on Hertfordshire's landscape. Threats include species decline and habitat loss through recreation pressures and fragmentation due to urbanisation and agriculture. GI forms an essential component in the creation of resilient, healthy and sustainable communities. All habitats can play a role in climate change adaptation and mitigation, providing climate resilience at the 'frontline' of effects, as well as providing multiple GI benefits. Examples of this includes riparian woodland and wetlands improving drainage, therefore reducing flood risk and improving water quality, or shelter belts of vegetation enhancing air quality next to trunk roads or regulating urban temperatures. The county's stock of natural capital assets – geology, soil, air, water, land and biodiversity provide flows of 'ecosystem' services as benefits for people. These assets and how they are managed provide the foundation of a resilient landscape.

Key assets

Geology and soils

2.2 The geology of Hertfordshire is dominated by the solid formations of chalk, overlain in the south and east by London Clay, with small areas of Gault Clay located in the north and north-west (see Figure 2.1). The Chiltern Hills and Vale

of St. Albans provide the principal topographical features within the county. Superficial deposits overlay the areas of solid geology, including clay-with-flints across much of west Hertfordshire; the boulder clay of central and east Hertfordshire as well as the gravels of the river valleys and the Vale at St. Albans (see Figure 2.2). Sand and gravel are the major aggregate minerals worked in the county. These extraction sites are concentrated primarily to the south of a line between Bishop's Stortford in the east and Hemel Hempstead in the west. The protection of GI forms a key component of the minerals planning process. The restoration/after-use of mineral extraction sites provides wide-ranging opportunities for positive GI planning, delivering landscape character enhancements and the restoration of degraded sites. The spatial clustering of sites also offers the potential for strategically connected initiatives to address GI gaps and needs as part of this Strategy.

2.3 The distribution of soils within the county is characterised by alkaline or neutral chalky soil in the north and east with acid leached soils covering the central and western areas of Hertfordshire (see Figure 2.3). However, settlements within the county are primarily located on the rich gravel deposits of the river valleys. The Government's 25 Year Plan to Improve the Environment **[See reference 1]** highlights the importance of soil health in achieving resilient communities. It also highlights its commitment to protecting the best agricultural land, placing a value on soils as a part of natural capital and emphasising the need to manage soils in a sustainable way by 2030.

Woodland

2.4 The Forestry Commission National Forest Inventory (NFI) Map for England covers all forest and woodland area over 0.5 hectare. Woodlands occupy 10% of Hertfordshire, of which approximately 9% is broadleaved and 1% is coniferous (see Figure 2.4). However, this figure is considered to double when canopy cover including new planting, clearfell, windblow and restocked areas is included. Some 3,812 ha are also defined as ancient woodland, providing important habitats. Key opportunities for GI involve the potential enhancement and reconnection of woodland sites through the introduction of additional broadleaf woodland planting schemes. Woodland coverage contributes to

climate resilience and adaptation in a number of ways, including planning for changes in the ranges of species' range and assemblage, reducing habitat fragmentation and protecting species refugia. Trees and woodland also promote cooling, pollutant absorption and carbon sequestration. In addition, the woodlands of Hertfordshire influence landscape character and local distinctiveness. Examples include the oak/hornbeam dominated woodlands, the characteristic beech hangers of the Chiltern Hills and the network of traditional community orchards.

2.5 Hertfordshire's State of Nature [\[See reference 2\]](#) report highlights that whilst the area of woodland within the county has increased, species associated with this habitat continue to decline (refer to Theme 3: Nature Recovery). These changes are attributed to a range of issues including; variation in the structure and condition of established woodlands due to tree diseases, increased browsing pressure and changes to management practices. Human recreational disturbance is also noted as a contributory factor. Further issues for Hertfordshire's woodlands include habitat fragmentation, isolation and lack of beneficial management. The presence of tree pests, pathogens and disease are impacting on the county's characteristic trees including oak and ash, while the shallow rooted beech of the Chilterns Hills are vulnerable to increasing storms associated with climate change. The Strategy offers the potential to plan for new large scale woodland creation or community forests within Hertfordshire. Covering an area of approximately 186 km², the Watling Chase Community Forest forms one of 12 Community Forests located within England.

Farmland

2.6 Over half of Hertfordshire's landscape is characterised by arable farmland, which is greater than the national average. There is a distinct east-west division within the county with the clayland landscapes to the east being primarily arable, with a greater proportion of improved grazing land lying to the west. A mosaic of traditional orchards also stretch across the county, covering approximately 145 ha and providing a wide range of wildlife benefits [\[See reference 3\]](#). This assemblage of agricultural land uses contribute to the distinctive landscape character of the county.

2.7 Approximately 79% of Hertfordshire's agricultural land is classed as either Grade 1, Grade 2 or Grade 3 (see Figure 2.5). This denotes land which is either graded excellent, very good or good to moderate in quality, i.e. land that can produce high yields, has the widest versatility of use, produces the most consistent yield and therefore requires the least input [See reference 4]. On this land, food production will usually continue to be a priority. The county's highest quality agricultural land is generally found in the east of the county, located primarily within the administrative boundaries of North Hertfordshire and East Hertfordshire. Clusters of Grade 2 land are also found on the settlement edge of urban centres such as Hertford, Welwyn Garden City, Hatfield, St Albans and Hemel Hempstead.

2.8 While the primary agricultural product is crops, farmland within Hertfordshire provides many other ecosystem services and benefits if managed effectively. These include soil stabilisation, surface water storage and flood attenuation, sequestration of carbon, as well as provision of access to the countryside for recreation as part of the Public Rights of Way (PRoW) network (see Theme 4: Access and Connectivity). Farmland also forms the rural setting for Hertfordshire's towns and villages. However, agricultural management has been a significant driver of biodiversity loss in the UK, as management practices are often not geared to these wider environmental functions. The urge to maximise yields through intensification has often exacerbated issues such as soil erosion and hedgerow removal. Run-off of nutrients from intensive agriculture is also a key source of pollution of surface and ground waters.

2.9 Agri-environment schemes provide funding to farmers and land managers to farm in a way that supports biodiversity, enhances the landscape and improves the quality of water, air and soil. There is a high take up of Countryside Stewardship schemes in Hertfordshire, particularly within the highly agricultural districts of East Hertfordshire and North Hertfordshire, as shown in Figure 2.6. There are key opportunities to enhance multi functionality of farmland landscapes in Hertfordshire. The potential also exists to integrate GI by encouraging uptake of emerging initiatives such as the new Environmental Land Management scheme (ELMs) which will largely supersede the Countryside Stewardship scheme. This will provide a key opportunity for enhancement of agricultural land within the county.

Figure 2.1: Bedrock geology

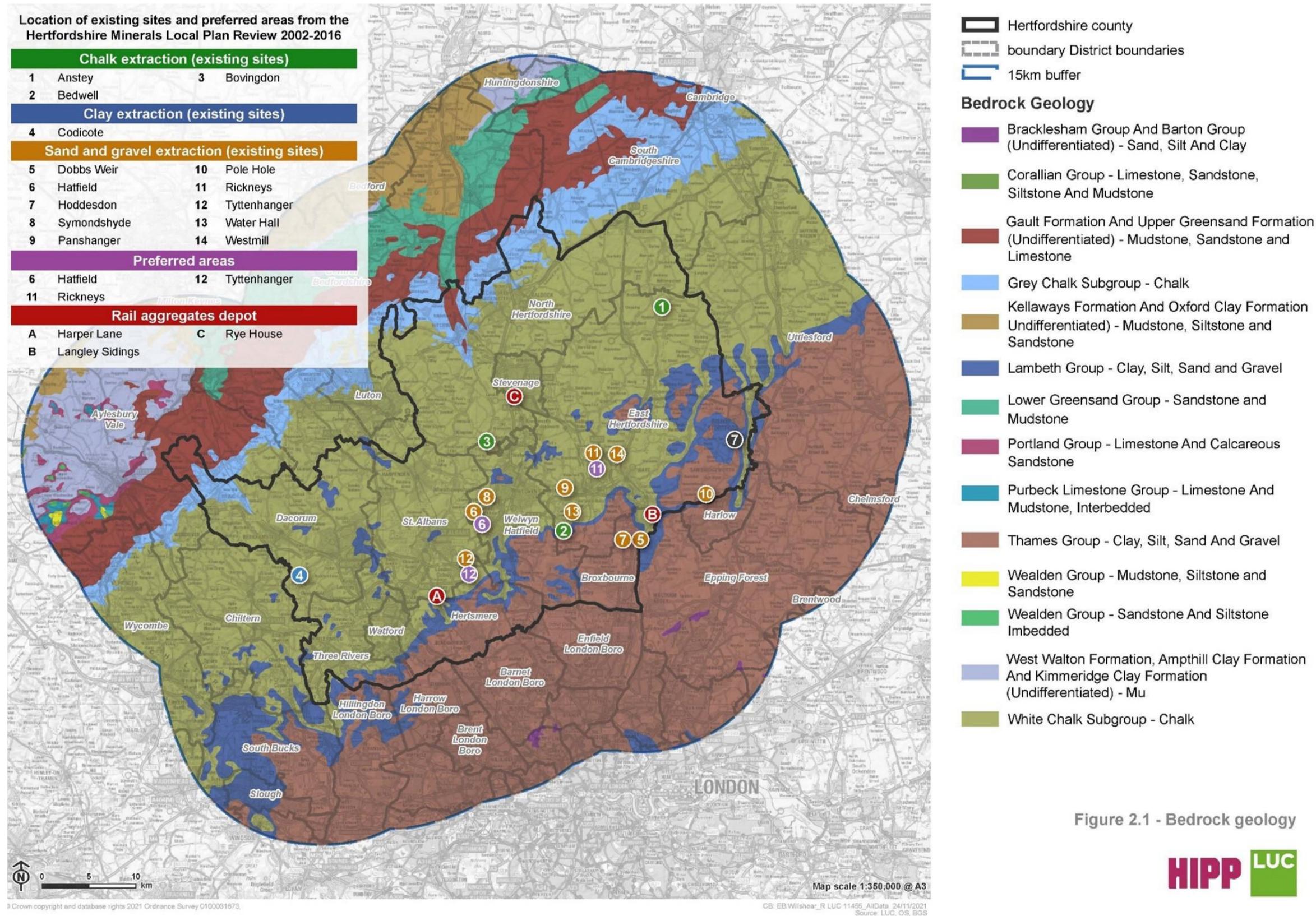


Figure 2.1 - Bedrock geology



Figure 2.2: Superficial geology

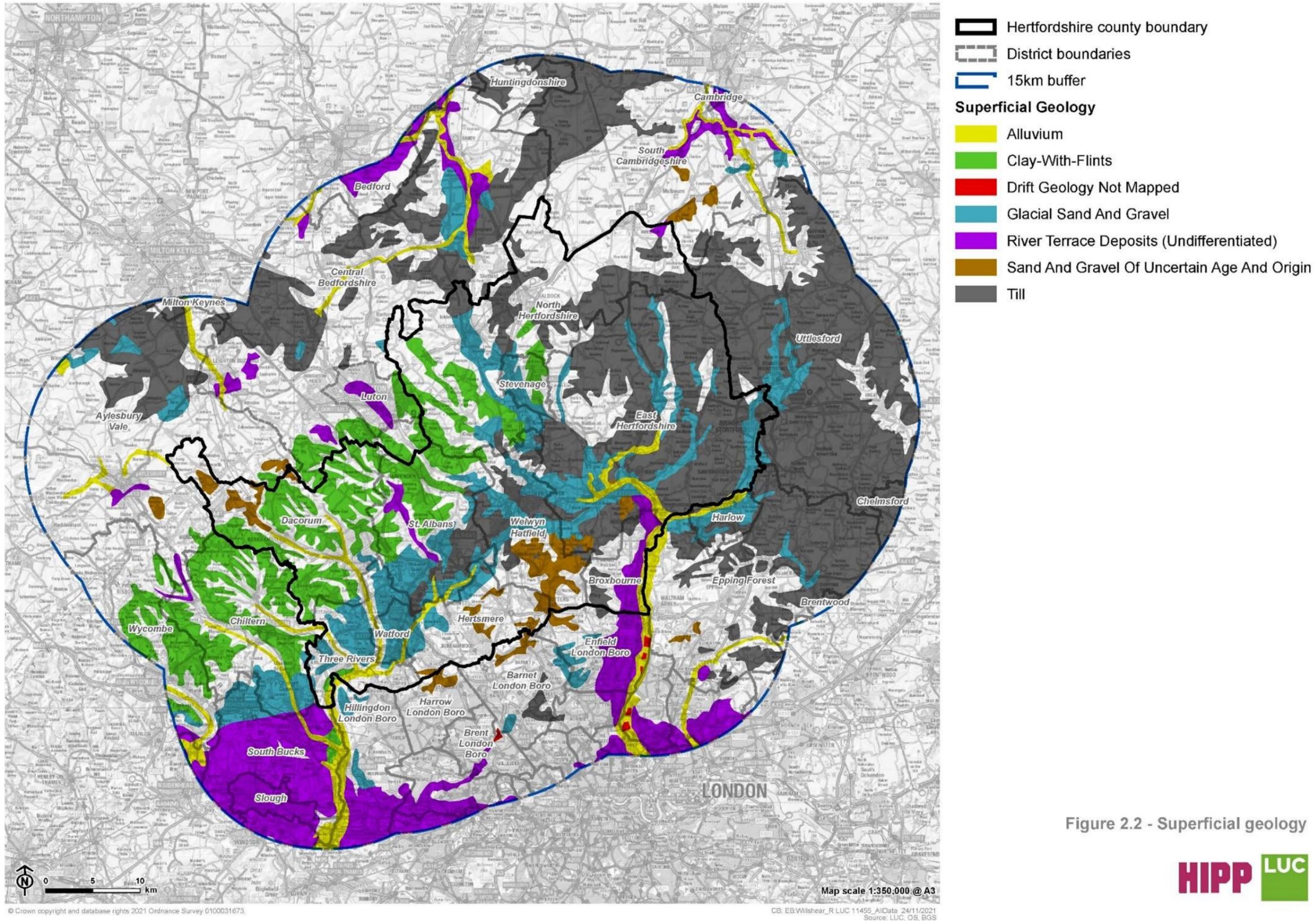


Figure 2.2 - Superficial geology



Figure 2.3: Soils

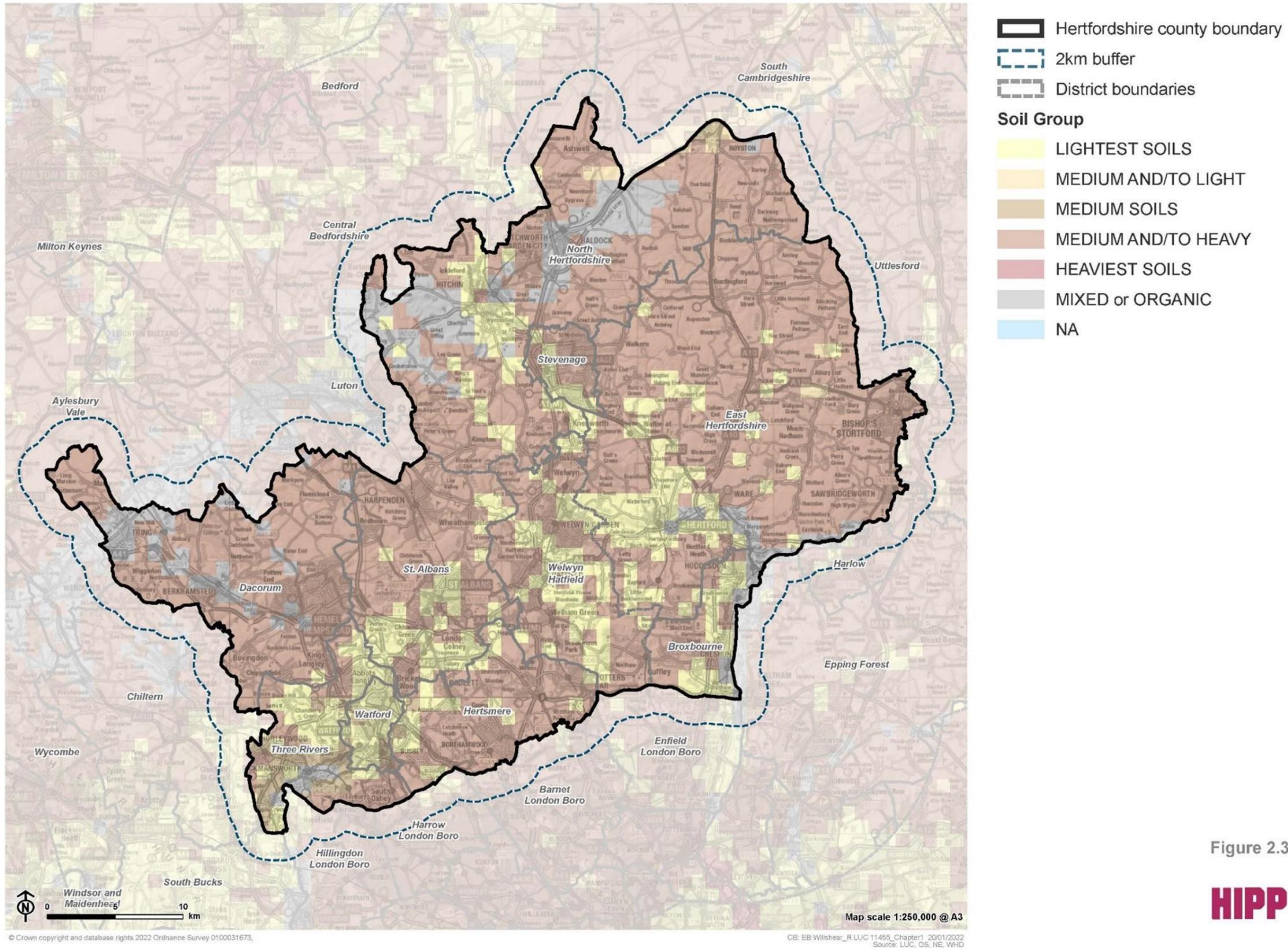


Figure 2.3 - Soils



Figure 2.4: Woodland cover

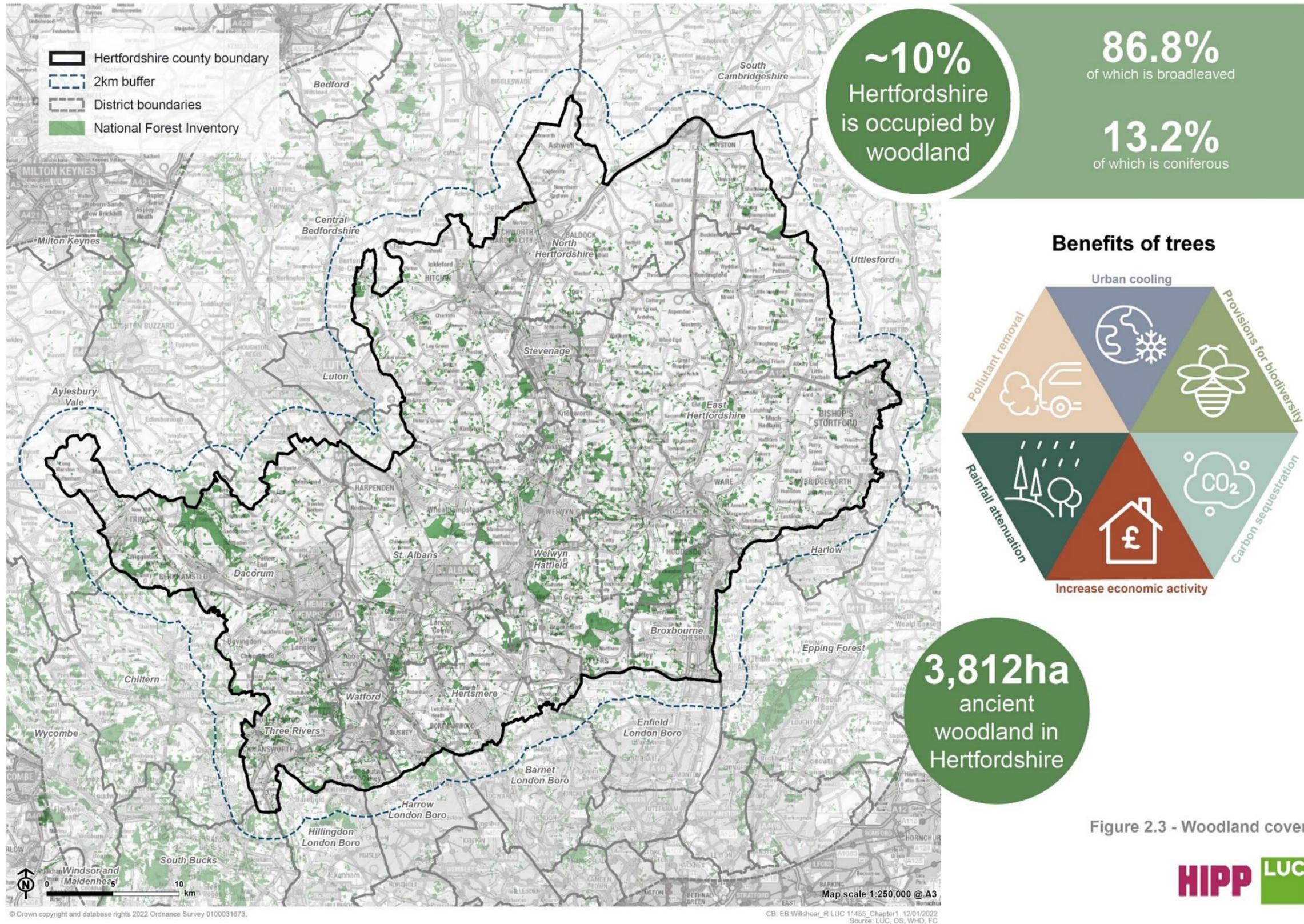


Figure 2.3 - Woodland cover



Figure 2.5: Agricultural Land Classifications

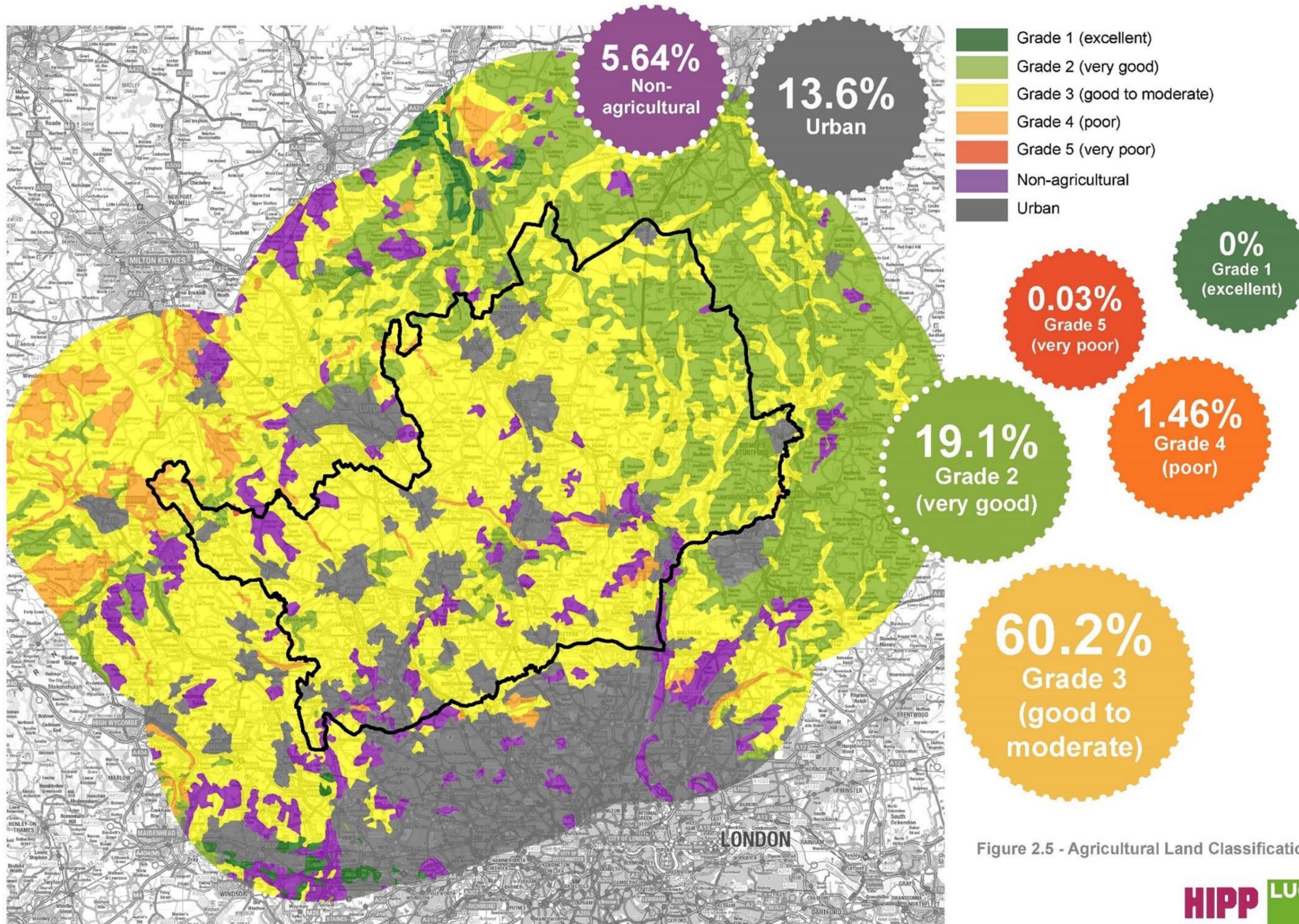


Figure 2.5 - Agricultural Land Classification



Figure 2.6: Agricultural context

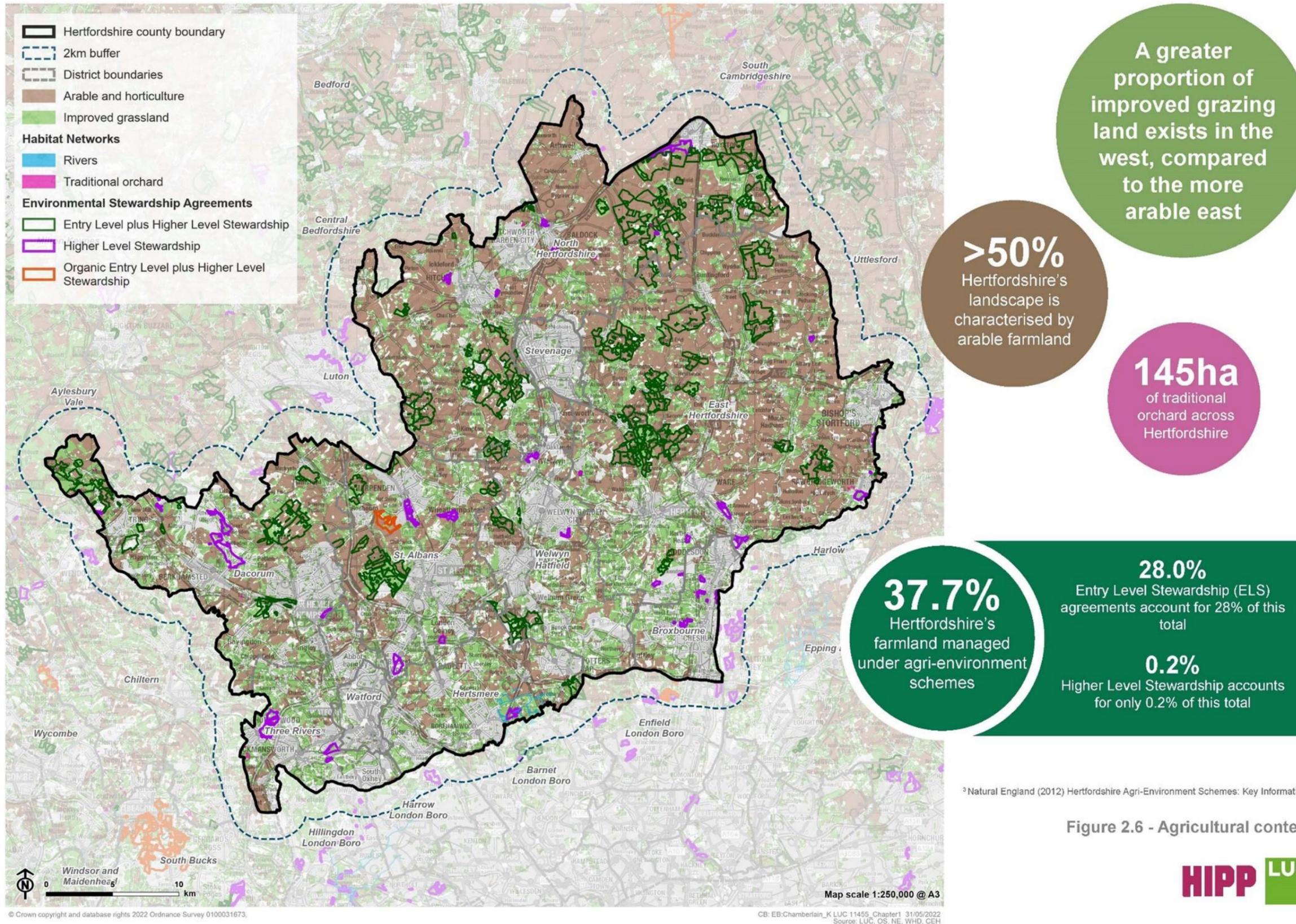


Figure 2.6 - Agricultural context

Key factors influencing the need for GI

The effects of a changing climate

2.10 In the case of farming, certain agricultural methods contribute to global warming, but a changing climate can have significant effects on the viability of agriculture and food production. Future effects on the agricultural sector at the county level will include greater pressure on water availability and competing demands for water. This trend is evidenced by noticeable reductions in ground water levels in recent years. Other effects include the likelihood of a decline in agricultural productivity as a result of extreme weather events. New and emerging pests and diseases also have the potential to cause severe impacts on animals and plants [See reference 5]. These effects are likely to be complex as systems adapt in different ways and impacts at the local level are not easy to predict. While initially the benefits of warmer temperatures and longer growing seasons may be experienced, in the longer term these will become outweighed by reductions in water availability [See reference 6].

2.11 Effects of climate change on woodland and forestry may be even more severe than effects on agriculture, due to the sector's long production cycle [See reference 7]. In addition to drought stress and mortality, natural regeneration could be adversely affected by rising temperatures as recently planted trees take longer to establish. Drier conditions will also increase the risk of wildfire damage, and forest pests and pathogens are likely to increase [See reference 8]. The recent rapid spread of 'ash dieback' (*Hymenoscyphus fraxineus*) disease across UK forests has highlighted the risk of such diseases to the country's tree cover and timber industry [See reference 9].

2.12 GI interventions in agricultural and woodland landscapes at the county level can help combat these challenges. For example, increasing the diversity of woodlands can make them less vulnerable to changes in temperature and pests. The introduction of greater diversity into agricultural systems (for example, incorporating trees and hedges into arable land) can also make farmland more resilient to the effects of climate change.

Woodland expansion and the need to shape the landscape as a carbon sink

2.13 GI can boost the capacity of a local environment to accommodate sustainable development and contribute to the delivery of sustainable land management. Woodland creation and expansion offers the potential to deliver benefits for carbon sequestration, the creation of wildlife corridors as well as a contribution to natural flood management, therefore helping to increase climate adaptation. Mitigation of climate change and carbon capture could provide an incentive for woodland creation across Hertfordshire. Potential locations for woodland creation include the M1 and A1 transport corridors, land within the Watling Chase Community Forest and the Lee/Stort river valleys to ensure the provision of strategic county linkages. The Emerging post-Brexit payment mechanisms for the agriculture sector suggests that agro-forestry is likely to play an important role in the expansion of tree cover. The opportunity therefore exists to maximise sequestration and carbon storage within the county through afforestation, agro-forestry, hedge creation, broadleaf management and habitat restoration.

Increased uptake of sustainable farming practices, including the move away from meat towards plant-based diets

2.14 The move towards sustainable, environmentally friendly farming practices which work with nature aim to deliver a range of environmental services beyond food production. There is growing evidence that conventional, intensive farming practises have led to environmental decline and in part contributed to the biodiversity and climate crises [See reference 10]. Farmland managed sustainably can help to address these issues whilst delivering a number of other ecosystem services (e.g. food production, access to nature, quality water, sufficient water).

2.15 Now is a time of great change in the agriculture sector, but one which provides huge opportunity to enhance the environment. The new ELMs is currently being rolled out in England and is based upon a system that rewards farmers for maximising the range of public goods delivered by farmland, including clean water, carbon sequestration and providing access for people to enjoy the countryside. The shift towards plant-based diets is also a trend with the potential to significantly impact agriculture in the UK. Approximately 25% of the population of the UK now a adopt a meat-free or meat-reduced diet. This trend is partly driven by increased consumer awareness of the negative environmental, health and animal welfare implications of meat and dairy consumption [See reference 11].

2.16 GI also offers a wide range of opportunities for local food growing, including community growing projects, traditional allotments, orchards and growing as an integral part of domestic, community, employment and education development. These initiatives offer the potential for a change in the diversity of food production with a move to much greater community involvement and a significant reduction in food miles for the food that is grown.

Theme 1: Summary of GI Priorities

2.17 1A: Expand tree coverage and enhance woodland connectivity within the county. Woodland creation and enhancement should include allowing natural regeneration to occur (for example through relaxing land management techniques, removing opportunities for grazing or reducing trampling) and the introduction of mixed, multi species and complex/diverse canopy plantations. This approach recognises the vulnerability of Hertfordshire oak, ash and beech. As a consequence, the creation of new woodland must be aligned with beneficial management of the existing woodland resource. Potential locations for woodland creation include the M1 and A1 transport corridors, land within the Watling Chase Community Forest and the Lee/Stort river valleys to ensure county linkages are provided. The potential for re-invention of a community forest and the provision of tree coverage to provide a vegetated buffer to settlements should also be explored.

2.18 1B: Integrate GI and sustainable farming practices to support biodiversity and encourage uptake of agri-environment schemes. Management of arable farmland should enhance soil health, carbon sequestration, manage soil erosion and address flood risk/water quality run off through regenerative farming and agro-forestry. These principles should involve the restoration and enhancement of the distinctive chalk scarp landscape. The restoration of hedgerow cover and pollinators within the county should also be explored. In order to achieve these aims, the opportunity exists for the introduction of farmland GI projects to encourage uptake of agri-environment schemes. This includes a framework to integrate into new and future land management schemes, including agri-environment payments (e.g. ELMs), Biodiversity Net Gain (BNG), biodiversity off-setting and payment for ecosystem services.

2.19 1C: Enhance and remediate the landscape condition of deteriorating landscapes within the county. GI delivery offers the opportunity to focus on remediating the deteriorating landscapes of Hertfordshire – e.g. lowland agricultural landscapes characterised by a loss of hedgerows and trees, urban fringe influences and linear infrastructure. The potential exists to increase the health and resilience of the landscape to create high quality and functioning landscapes close to where people live. This should also form a key consideration in areas where new development is proposed. Opportunities to focus on providing a network of connected restoration of sand and gravel extraction sites should be explored in order to achieve wider GI objectives.

2.20 1D: Anticipate and plan for future climate change by introducing enhancements to the diversity of woodland and wider agricultural systems. Climate change has significant potential to alter the pressures placed on Hertfordshire's landscape. GI and the introduction of Nature based Solutions (NbS) should therefore be utilised as mechanisms to adapt to and combat future climatic change. This should include enhancements to the diversity of agricultural systems and woodlands with the aim of making them less vulnerable and more resistant to future change. The restoration of ecosystems should address these challenges, including by utilising the role of the landscape as a carbon sink. Consideration should also be given to re-wilding opportunities - working with nature to create richer, dynamic, more resilient landscapes with wider connections which link landscape-scale interventions across

Chapter 2 Theme 1: A Resilient Landscape

Hertfordshire. This will help species and wildlife communities adapt to the pressures of changing microclimates and habitats.

Chapter 3

Theme 2: Heritage and Sense of Place

Why is this theme relevant to GI in Hertfordshire?

3.1 Hertfordshire has a unique and varied landscape which contains a range of historic assets, providing the county with a distinctive sense of time-depth. The diversity of this landscape plays an important role in the enjoyment and experience of the county's GI assets. The strategic management of this multi-functional network is essential in maintaining Hertfordshire's distinct landscape character and the setting and interpretation of heritage features.

Key assets

Landscape character

3.2 Hertfordshire has a diverse landscape character which is represented by six distinct National Character Areas (NCA) [See reference 12], as detailed below in Figure 3.1, and 173 local Landscape Character Areas (LCA) [See reference 13]. Although the local LCAs are not explored fully within this strategy, it is recommended that the relevant character information is consulted when developing proposals for GI to ensure design is context-led and appropriate to its setting. Stretching from the wooded chalk scarp of the Chilterns Area of Outstanding Natural Beauty (AONB) in the north-west, towards the floodplains of the River Lea and River Colne in the south-east and south-west, the landscape beyond the urban settlements is typified by an agricultural character. This mosaic of functional landscape; including chalk grasslands, rolling farmland, historic parkland and ancient woodland, is dissected by the

predominantly chalk river valleys which act as natural corridors for the movement of people and wildlife. Furthermore, Hertfordshire has a number of rare historic landscape types, including Co Axial Enclosure across Hertsmere, Dacorum and St Albans, as well as a small distribution of watercress beds within the county's river valleys.

Hertfordshire's National Character Areas (NCAs)

- NCA 86: South Suffolk and North Essex Clayland – A gently undulating, ancient landscape of arable farmland dissected by small river valleys with a distinct sense of wooded enclosure.
- NCA 87: East Anglia Chalk – A continuation of the Chilterns chalk ridge, comprised of a rolling landscape with large regular fields, few trees and expansive views to the north.
- NCA 88: Bedfordshire and Cambridgeshire Claylands – A predominantly arable and productive landscape with a patchwork of semi-natural habitats and ecological designations which provide opportunities for human interaction with nature.
- NCA 110: Chilterns – An attractive mosaic of agriculture, woodland and chalk grassland dissected by chalk streams. The NCA is highly influenced by the proximity of major settlements, their fringes and growth areas.
- NCA 111: Northern Thames Basin – An area rich in geodiversity, archaeology and ecology which is characterised by its open arable landscape. Interspersed between the wooded plateau and river valleys is significant urbanisation.
- NCA 115: Thames Valley – A low-lying landscape characterised by hydrological features, semi-natural habitats and the corridor of the River Thames. Human influence and infrastructure provide urbanising features.

Landscape designations and Green Belt

3.3 7% of Hertfordshire is designated as Area of Natural Beauty (AONB). The Chilterns AONB comprises the north-western extents of the county, as shown in Figure 3.2, forming a significant GI asset within Hertfordshire. Special qualities of the AONB include panoramic views, nationally important chalk grassland, expanses of farmland, relative tranquillity, high woodland coverage, nationally important chalk streams, a diverse archaeological landscape, national trails, distinctive buildings and industrial heritage [See reference 14]. The importance of the AONB in providing access to high-quality natural environments has been recognised through recent proposals by Natural England to expand the AONB in response to the findings of the Landscapes Review (“the Glover Review”) [See reference 15].

3.4 Hertfordshire does not have any local landscape designations; however, this is not an indication that there are no landscape worthy of this designation across the county (as the application of local landscape designations across England is inconsistent due to past changes in national planning guidance emphasis) [See reference 16]. Although not formally recognised, landscape of high local value occur across Hertfordshire. The outputs of the county’s Landscape Character Assessment, alongside stakeholder engagement, can be a starting point for identifying these areas of high value.

Green Belt

3.5 51% of Hertfordshire’s rural landscape, excluding the north-east of the county, is protected as Metropolitan Green Belt. Green Belt is a planning designation, not a landscape designation, and is designed to minimise the potential for unchecked sprawl and coalescence of settlements, whilst retaining a sense of place and openness, safeguarding green space and enhancing the urban setting. This is particularly important for the county’s numerous market towns, new towns and garden village communities, where GI formed an essential tool within their masterplanning and settlement configuration. The Green Belt designation also provides a nod to Hertfordshire’s role in the

development of modern town planning. Consequently, tighter conditions for the release of land for development is created, ensuring the delivery of well-designed built form and GI which is sensitive to its surrounding visual and landscape setting.

Town planning heritage

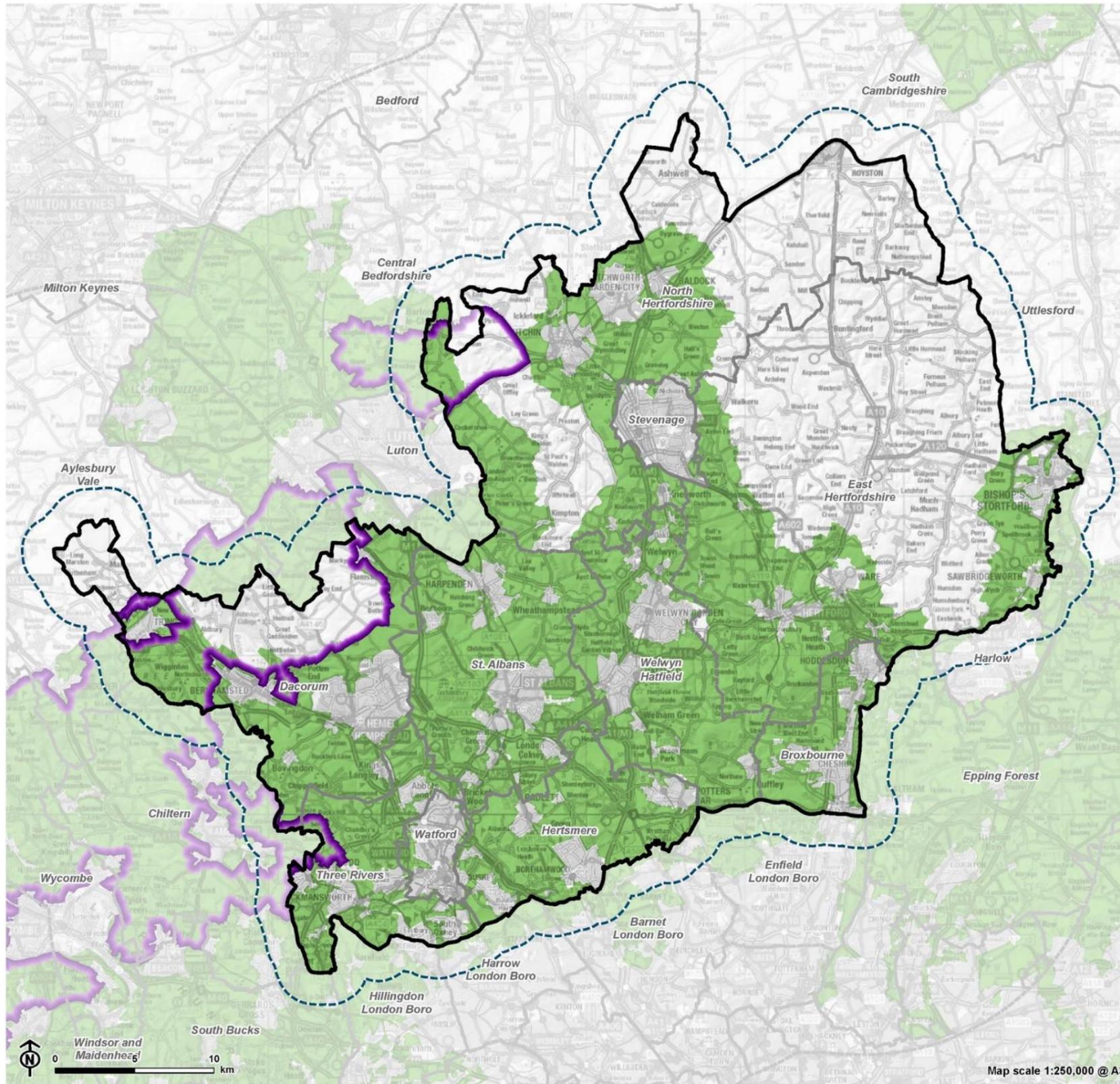
3.6 Hertfordshire has a particularly high concentration of planned and designed twentieth century urban greenspace assets which contributed a significant role in settlement masterplanning. Much of this heritage is highlighted by the Garden City movement and the presence of the world's first Garden City at Letchworth. Founded by Ebenezer Howard, the settlement is characterised by a mosaic of green spaces and GI which contribute to the character of the townscape. The Garden City at Welwyn also lies within Hertfordshire itself. The development of the New Town movement has also influenced the county, typified by the settlements at Hemel Hempstead, Stevenage and Hatfield. In addition, Hemel Hempstead features notable examples of formal landscape design which form part of the wider GI network e.g. the Jellicoe Water Gardens. Greenspace provision and the wider GI framework contributes to a strong sense of place within Hertfordshire, forming an integral component of settlement layouts.

Landscape condition

3.7 Landscape condition is determined from an evaluation of the relative state of elements within the landscape which are subject to change, such as survival of hedgerows, extent and impact of built development. Landscape condition is variable through the county with many local landscape character areas in moderate condition. Areas in poor condition include the Vale of St Albans, largely due to the presence of the M25 corridor, overhead pylons and associated urban fringe development. The historic character of the area is now somewhat degraded and characterised by an open and disjointed area with road and rail noise forming detracting features. Pirton Lowlands in North Hertfordshire is also in poor condition owing primarily to its character as a large

scale open, flat farming landscape with very little woodland cover and fragmented remnant hedges [\[See reference 17\]](#). Both Ashridge and Tring Scarp Slopes in Dacorum are recognised as exhibiting good landscape condition due to their historical continuity and cultural pattern, high proportion of woodland cover and panoramic views.

Figure 3.2: Landscape Designations and Green Belt



- Hertfordshire county boundary
- 2km buffer
- District boundaries
- Area of Outstanding Natural Beauty (AONB)
- Green Belt

Figure 3.2 - Landscape Designations and Green Belt



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Map scale 1:250,000 @ A3
 CB: EB:Willshear_R LUC 11455_Chapter2 10/12/2021
 Source: LUC, OS, NE, WHD

Heritage and cultural designations

3.8 As shown in Figure 3.3, Hertfordshire accommodates a significant number of heritage and cultural designations which are afforded various levels of statutory protection. These features play a central role in reinforcing the time-depth of the county's landscape, as well as forming an important asset within the GI network to be enjoyed by visitors and residents alike. A total of 46 registered parks and gardens can be found across the county, most of which are accessible by the general public. This legacy provides one of the highest concentrations of historic parks and gardens in the country. A number of these, including Moor Park, Cassiobury Park and Ashridge Park, display the intact designs of iconic designers, including Capability Brown and Charles Bridgeman, who had a significant influence on the development of designed landscapes across Hertfordshire in the 18th Century [\[See reference 18\]](#).

3.9 An impressive, 113 Grade I, 484 Grade II* and 7,535 Grade II Listed Buildings are located within Hertfordshire, alongside a further 202 scheduled monuments, 201 conservation areas and a registered battlefield [\[See reference 19\]](#). Hertfordshire also has a number of its designated features on Historic England's Heritage at Risk register, denoting sites which are at risk of being lost due to neglect, decay or inappropriate development (see Table 3.1 and Figure 3.4). The GI network has an essential role to play in creating the setting for these features, together with managing their associated recreation pressures.

Heritage at Risk Register

The Heritage at Risk Register is a programme maintained by Historic England and helps to keep track of the state of England's historic assets, identifying sites which are most at risk of being lost due to neglect, decay or inappropriate development. These assets play an important part in creating a sense of time depth in the landscape, as well as reinforcing character and delivering spaces for visitors and recreation.

Non-designated heritage

3.10 The county contains a significant number of non-designated, albeit locally important heritage assets. These are recognised through a number of Local Lists which are identified and managed by each Local Planning Authority (LPA) across Hertfordshire. Currently eight out of the ten LPAs across Hertfordshire have adopted a Local List of Heritage Assets. Non-designated assets also include a number of heritage trails, such as Hertford, Hatfield Aerodrome, Wheathampstead, Chiltern, de Havilland Airfield, Leavesden Country Park and the emerging St Albans Heritage Trail. Hertfordshire is also home to substantial areas of ancient woodland which although is recognised within UK planning policy, is not given statutory protection. This forms an important historic feature and valued landscape component (see Theme 1: A Resilient Landscape and Theme 3: Nature Recovery for additional information).

Table 3.1: Overview of Hertfordshire's assets on the Heritage at Risk Register [See reference 20]

Type of Asset at Risk	District/Borough	Number at Risk
Conservation Areas	Stevenage	3
	Broxbourne	2
Listed Building Grade I	Dacorum	1
	North Hertfordshire	3
Listed Building Grade II*	Three Rivers	1
	Watford	2
	Welwyn Hatfield	1
	East Hertfordshire	1
	Dacorum	1
	North Hertfordshire	3
Registered Park and Gardens II*	East Hertfordshire	1
Registered Park and Garden II	East Hertfordshire	1

Type of Asset at Risk	District/Borough	Number at Risk
Scheduled Monument	St Albans	1
	East Hertfordshire	4
	North Hertfordshire	6

Figure 3.3: Heritage and Cultural Designations

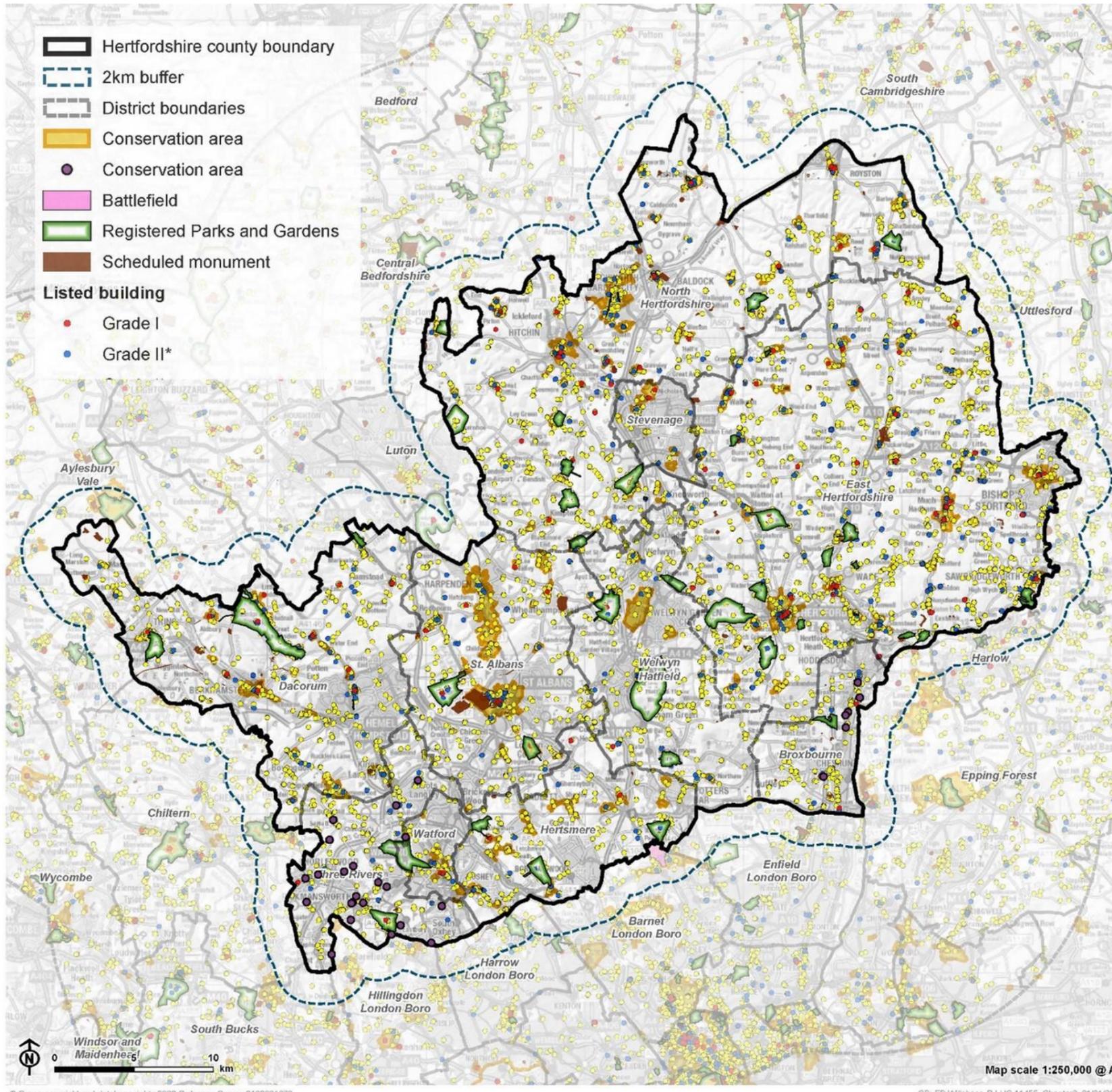
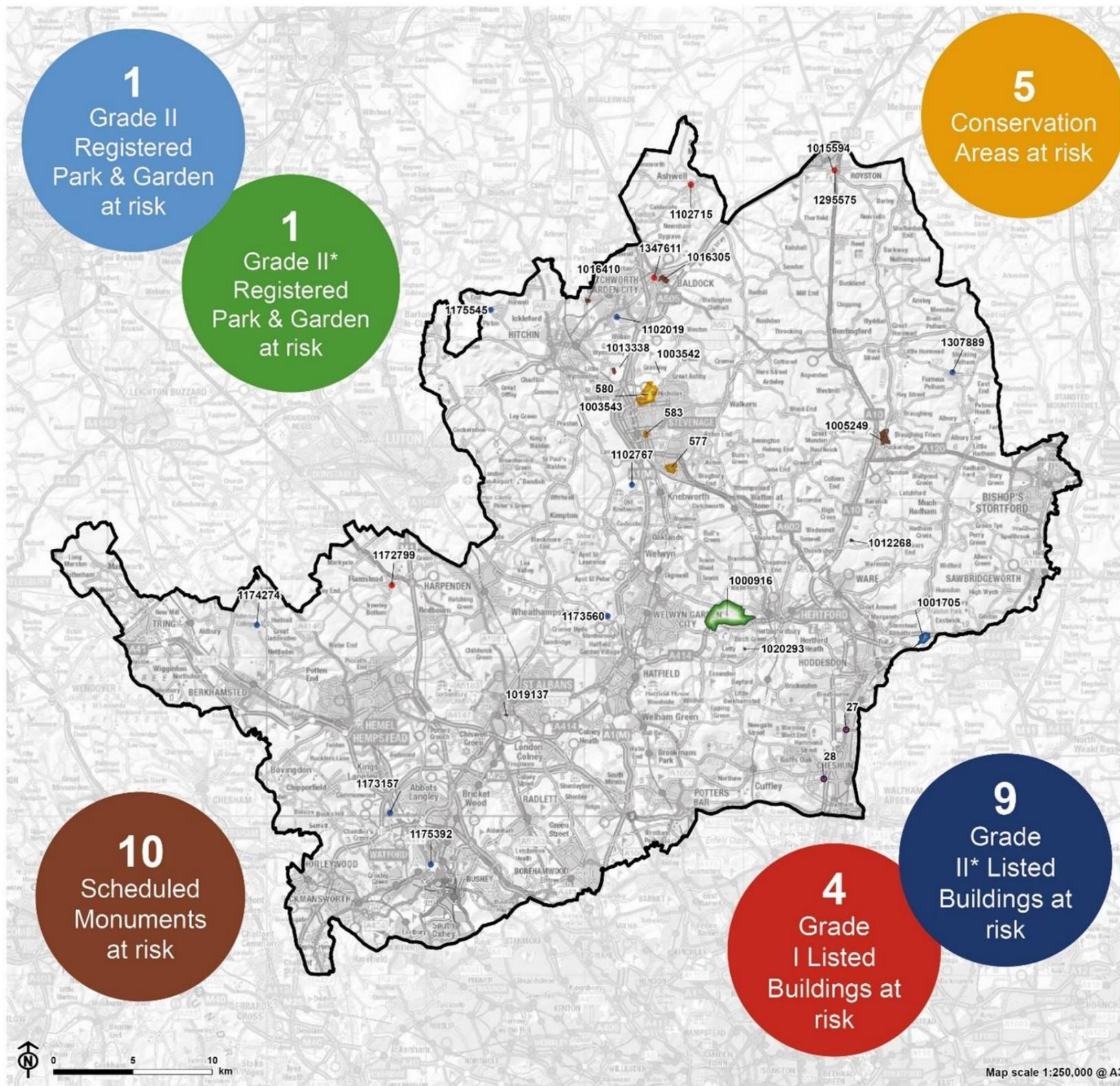


Figure 3.3 - Heritage and Cultural Designations



Figure 3.4: Heritage at Risk Assets



Hertfordshire county boundary

Listed building

- Grade I
- Grade II*

- 1102019 - North Hertfordshire Masonic Lodge (The Cloisters)
- 1102715 - Church Of St Mary
- 1102767 - Knebworth House
- 1172799 - Church Of St Leonard
- 1173157 - Langleybury House (The Mansion And Flats 1 To 6 Inclusive)
- 1173560 - Bridge Over The Lake At Brocket Hall
- 1174274 - Grotto, Tomb And Souterrein At Ashridge
- 1175392 - Little Cassiobury And Former Stable Block To Rear.
- 1175545 - West Barn At Rectory Farm
- 1295575 - Church Of St John The Baptist
- 1307889 - Church Of St Mary
- 1347611 - Church Of Saint Mary

Registered Parks and Gardens

- Grade II*
- Grade II

- 1000916 - Panshanger
- 1001705 - Briggens

Scheduled monument

- 1003542 - Chesfield Church
- 1003543 - Minsden Chapel
- 1005249 - Roman site near railway station
- 1012268 - Thundridgebury moated enclosure and associated remains of Thundridgebury House, St Mary and All Saints' Church and graveyard, Thundridge
- 1013338 - Wymondley Priory, barn, moat, associated earthworks, enclosures, platforms, hollow-way and conduit head
- 1015594 - Royston Cave
- 1016305 - Romano-British small town and Late Iron Age settlement at Baldock
- 1016410 - Slight univallate hillfort on Wilbury Hill
- 1019137 - The Benedictine Priory of St Mary (Sopwell Priory) and the post-medieval mansions known as Sopwell House or Lee Hall
- 1020293 - Baroque garden in Grotto Wood

Conservation area

- 577 - Broadwater (Marymead)
- 580 - St Nicholas's and Rectory Lane
- 583 - Town Square
- 27 - Wormley

Figure 3.4 - Heritage at Risk Assets



Key factors influencing the need for GI

Protecting Hertfordshire's heritage assets

3.11 GI provides a tool for preserving and enhancing heritage assets, including the setting of built features (such as listed buildings and conservation areas). The historic legacy of the county provides a rich resource for conservation and interpretation as part of a multi-functional GI network. Parks and greenspaces, amongst other historical assets, all play valuable roles in their contribution to GI. This also links to the potential for managing recreation pressure experienced by archaeological features, cultural attractions and designed landscapes (see Theme 6: People, Health and Wellbeing).

Promoting local landscape character

3.12 Many of Hertfordshire's landscapes facilitate high quality interactions with nature and a distinctive sense of place, achieving high relative tranquillity and remoteness (see Figure 3.5). GI interventions should be landscape-led, drawing on an understanding of local character. The distinctive character of Hertfordshire, typified by distinct opportunities provides a framework for generating area-specific GI interventions. The Chilterns AONB is a significant asset for the county in performing this function and the proposed extension of the designation is an important opportunity to provide enhanced access to high-quality natural environments for communities in and around Luton and Hemel Hempstead. The newly designated land would benefit from increased protection, safeguarding the landscape for future generations.

3.13 Nature recovery and landscape are also closely related concepts. Principle 1 of the Nature Networks Evidence Handbook [See reference 21] states to 'avoid inadvertent degradation to landscape character, or significant changes which have not been well planned and agreed and can both reduce landscape resilience and lose stakeholder and community support for the project'. A Local

Nature Recovery Strategy (LNRS) should be informed by an understanding of place and consider future landscape changes. However, it is unlikely to consider fully other important aspects of Hertfordshire's Landscape Character Assessment (LCA), including landscape patterns, settlements and built form, topography, and visual and sensory perception. This reinforces the importance of cross-team working and developing a united response to GI in tackling nature recovery, landscape recovery, climate change and other planning issues.

Integrating development

3.14 The current and future pressure for Green Belt release to make way for development is currently a prominent issue facing Hertfordshire due to forecasted population growth. This could have a significant impact on the landscape setting and openness experienced on the fringes of existing settlements. However, this also provides an opportunity for the improved integration of development using the GI network, alongside on and off-site compensatory improvements such as community orchards, new accessible greenspace and woodland planting. This requirement for good quality and sensitive design and planning could be achieved through the use of local GI strategies, design guides and design codes, such as the proposals at Harlow and Gilston Garden Town.

Figure 3.5: Tranquility, night blight, the AONB and recreational routes

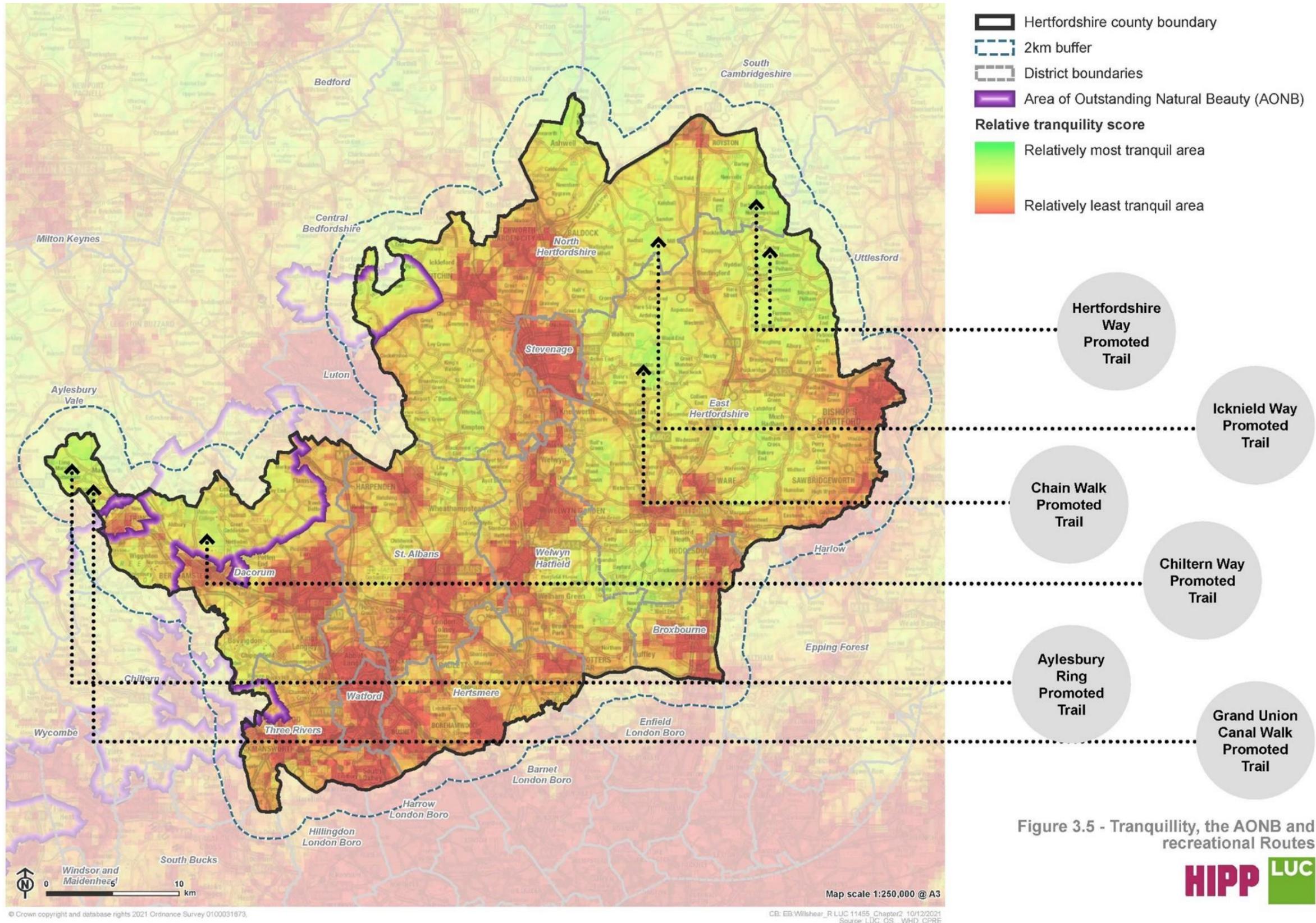


Figure 3.5 - Tranquillity, the AONB and recreational Routes



Theme 2: Summary of GI Priorities

3.15 2A: Utilise GI to promote access to high quality landscapes from urban areas as part of the extension to the Chilterns AONB. The Chilterns AONB is currently subject to proposals for a “boundary extension” in response to the findings of the Glover Review. This will form an important component of the GI network for communities around Luton and Hemel Hempstead. The designation would allow the area to benefit from greater protection, safeguarding the landscape for future generations.

3.16 2B: Expand and enhance the landscape framework which form an important feature of the character of Garden City communities. GI forms an essential component of the structure, use and character of Garden City communities. The retention and enhancement of greenspace provision and the wider GI framework within these settlements offers the potential to contribute to a strong sense of place within Hertfordshire. GI interventions should also reflect the existing and historic landscape character, and where possible enhance the setting of heritage assets.

3.17 2C: Utilise GI to enhance the beneficial use of Green Belt within the county. Appropriate GI interventions should be used to minimise the impacts of necessary Green Belt release on the wider landscape of Hertfordshire through both on-site and off-site compensation measures. This could be achieved through the delivery of strategic initiatives at the county scale, and/or through enhancements in close proximity to sites proposed for release or in land retained within the Green Belt itself.

3.18 2D: Undertake informed studies and assessments to understand the sensitivity of the landscape to accommodate future land use changes and any potential overlaps with the LNRS. A comprehensive understanding of landscape character and local distinctiveness at the county scale should be used to inform the siting of GI interventions. Proposals should respond to the distinctive landscape features and unique sense of place of the county, whilst seeking to improve landscape condition and tying in with the LNRS.

3.19 2E: Utilise GI as a tool for enhancing the interpretation, use and setting of heritage assets. This is particularly relevant within built-up areas where gradual urbanisation and development over the years can erode the townscape character and setting of heritage features. The sensitive enhancement or creation of open spaces and green features surrounding these assets should be explored to help revive them and integrate them back into the townscape.

Chapter 4

Theme 3: Nature Recovery

Why is this theme relevant to GI in Hertfordshire?

4.1 Biodiversity is declining faster than at any time in human history. However, the UK has committed to become Nature Positive by 2030 [See reference 22], with the aim of reversing the current declines in biodiversity to enable species and ecosystems to recover. Strengthening the condition and connectivity of ecologically protected sites, supported by wider habitat restoration, creation and enhancement is therefore a principal focus within the county. The creation of habitat corridors within the landscape provides the opportunity for permeability allowing the movement of species, nutrients, seeds and genes and the creation of greater resilience to climate change. These aspirations are reflected in the recently published Wilder Future Strategy by Herts and Middlesex Wildlife Trust [See reference 23] where the three top priorities include more land to be managed and protected for nature, more people standing up for wildlife, and nature playing a central role in helping to address climate issues and people's health and wellbeing.

Key assets

Designated sites

4.2 Protected sites provide the core of a resilient nature recovery network and form the areas where nature conservation efforts have traditionally been focussed. To be effective, these sites must be large enough to ensure functioning ecosystems. The county currently accommodates three

internationally significant sites (see Figure 4.1), as recognised by their designation as a Special Protection Area (SPA)/Ramsar and a Special Area of Conservation (SAC) as well as a network of 43 Sites of Special Scientific Interest (SSSI). Hertfordshire’s National Nature Reserve (NNR) (Broxbourne Woods) as well as the network of Local Nature Reserves (LNR) and Local Wildlife Sites (LWS) also provide vital stepping stones to link designated sites, particularly in St Albans, North Hertfordshire, Stevenage and Watford where they are more sparse. Table 4.1 sets out the total percentage of designated sites for each of Hertfordshire’s districts.

4.3 Hertfordshire’s southern border with London is highly designated. Stevenage, North Hertfordshire, Hertsmere and St Albans are less designated than the other Boroughs/Districts relative to their total area. Hertfordshire’s State of Nature Report notes that golf courses cover over 3,455 ha, some five times the land area of Hertfordshire and Middlesex Wildlife Trust nature reserves.

Table 4.1: Percentage of each of Hertfordshire's districts designated as RAMSAR, SPA, SAC, SSSI and Local Wildlife Sites

District	Percentage of District Designated as RAMSAR, SPA, SAC and SSSI	Percentage of District Designated as Local Wildlife Sites
Three Rivers District	1.26%	19.52%
Hertsmere District	0.41%	8.73%
Broxbourne District	13.43%	10.33%
Dacorum District	5.02%	10.11%
East Hertfordshire District	2.13%	7.54%
Welwyn Hatfield District	2.60%	15.43%
North Hertfordshire District	0.80%	5.60%

District	Percentage of District Designated as RAMSAR, SPA, SAC and SSSI	Percentage of District Designated as Local Wildlife Sites
Watford District	0.00%	13.78%
Stevenage District	0.00%	4.10%
St Albans District	0.45%	9.44%
Hertfordshire	2.2%	9.07%

Priority habitats

4.4 The composition and distribution of Hertfordshire’s habitats and species is greatly influenced by the county’s underlying geodiversity. The north of the county is dominated by surface chalk soils, making this an important area for chalk grassland. Acidic soils are found in the south of the county giving rise to the most wooded area of Hertfordshire as well as the majority of the county’s remaining heathland and acid grassland. The county includes a network of strategic assets such as Ashridge, the Whippendell and Broxbourne Woods which add to the network of locally significant tracts of ancient woodlands (see Figure 4.2). Only 1% of the total area of Hertfordshire is covered by wetland, compared to 3% wetland nationally [\[See reference 24\]](#).

4.5 Many local wildlife sites protect areas of ancient woodland. 36% of ancient woodland is ancient replanted woodland. Three main types of ancient woodland can be identified for Hertfordshire:

1. Ash/maple/hazel woodlands in the north and east;
2. Oak/hornbeam woodlands in the south, central and south-east; and
3. Beech woodlands in the west and chalk escarpment.

4.6 Hertfordshire is made up of the following:

- 3,812 ha Ancient woodland – One of the most biodiverse and irreplaceable habitats in the UK. Largely captured by Local Wildlife Site network.
- 12,989 hectares of Deciduous woodland – In southern and eastern England there is a high likelihood that there will be impacts on drought-sensitive tree species due to climate change.
- 211 hectares of Traditional orchard – Orchards can support a wide range of wildlife due to the mosaic of habitats they encompass including fruit trees, standing and fallen dead wood, scrub and hedgerows.
- 1,062 hectares Wood pasture parkland – Very high distinctiveness habitat.
- 209 hectares of Lowland calcareous grassland – Develop on nutrient-poor, base-rich substrates in the north of Hertfordshire.
- 2.15 hectares of Lowland acidic grassland – Only found at Knebworth Woods SSSI in Stevenage.
- 150 hectares of Lowland meadows – As the more productive deeper soils these grasslands have in more recent times been largely lost to agriculture.
- 826 hectares Coastal and floodplain grazing marsh – An increasingly rare habitat that is an important home for wading birds.
- 6.97 hectares purple moor grass and rush pasture – Found only at Lemford Springs Nature Reserve.
- 365 hectares of Lowland heathland – Since 1940 the area of heathland in Hertfordshire has declined by over 97%.
- 62 hectares of Lowland Fens – Can be found along the stretch of the River Lea, the River Gade and the River Chess.
- 6.55 hectares Reedbeds – Large-scale drainage schemes meant that extensive areas of reedbed were converted to agricultural land from the 17th century onwards.

4.7 The chalk rivers within the county are both internationally and nationally important and historically the lower stretches of many of these watercourses would have supported extensive wetlands. However, water abstraction, river canalisation, drainage and flood defence determine that only a few ancient fragments of wetlands currently remain intact, such as Thorley Wash. Figure 4.3 identifies the Key Biodiversity Areas within the county, as identified within the Biodiversity Action Plan [See reference 25]. The Biodiversity Action Plan for Hertfordshire aims to prioritise conservation efforts in areas where there is a concentration of important habitats, helping to make the most efficient use of resource. Analysis of the spatial distribution of these sites highlights the opportunity to enhance the connectivity between individual habitats as part of a landscape scale approach, specifically where sites border the major settlements and designated wildlife sites.

4.8 Much of Hertfordshire's priority and notable habitats are fragmented. This is in part attributed to the high proportion of intensively-managed agricultural land and urbanisation [See reference 26]. Table 4.2 indicates the number of habitat parcels per priority habitat and the average area of each parcel as a proxy measure for fragmentation. Traditional orchards are typically fragmented, as are deciduous woodland and lowland fens. Figure 4.4 illustrates the spatial distribution of Priority Habitats within the county.

- 14% of grassland/heathland species have gone extinct since 1970 and 48% have noticeably declined. This loss is primarily attributed to intensification of arable farming.
- 14% of woodland species have gone extinct and 35% have noticeably decline/The biggest threat to woodland biodiversity in Hertfordshire is a lack of beneficial woodland management.
- 7% of wetland species have gone extinct since 1970 and 47% have noticeably declined. Loss of wetlands is due to historical drainage, modification of floodplains and groundwater abstraction.
- 17% of the Hertfordshire Species of Conservation Concern associated with farmland are now extinct and 70% have noticeably declined since 1970. Farmland habitat is now unsuitable for most species due to changed management practices [See reference 27].

Table 4.2: Fragmentation of priority habitats

Habitat	Number of Habitat Parcels	Average Area (ha)
Coastal and floodplain grazing marsh	471	1.75
Deciduous woodland	14,300	0.91
Wood pasture and parkland	22	48.26
Good quality semi-improved grassland	855	1.44
Lowland calcareous grassland	74	2.82
Lowland dry acid grassland	5	0.43
Lowland fens	83	0.74
Lowland heathland	301	1.21
Lowland meadows	87	1.72
No main habitat but additional habitats present	756	1.05
Purple moor grass and rush pastures	7	0.97
Reedbeds	7	0.94
Traditional orchard	1,185	0.18

Figure 4.1: Designated Sites

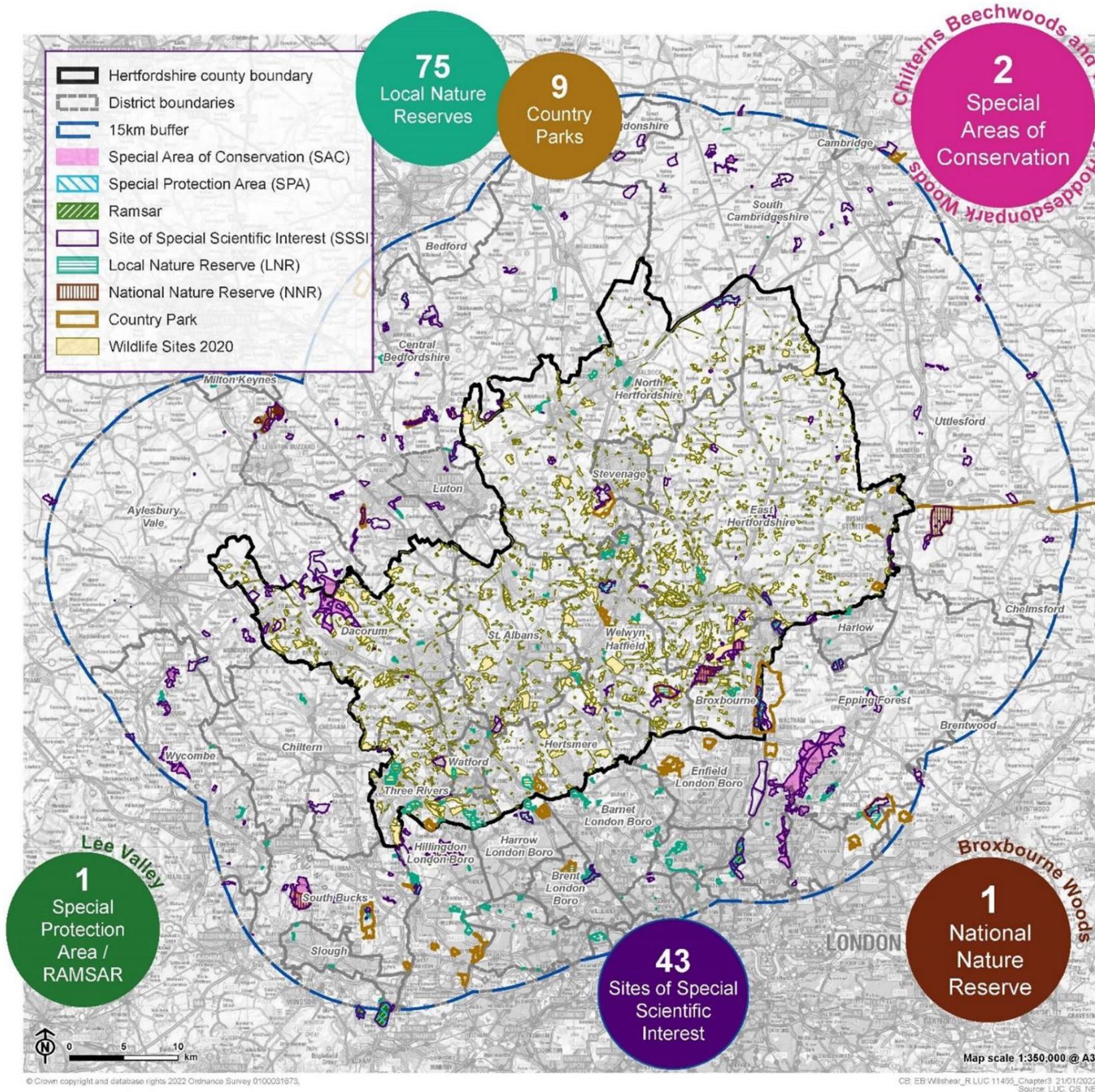


Figure 4.1 - Designated Sites



Figure 4.2: Ancient woodland

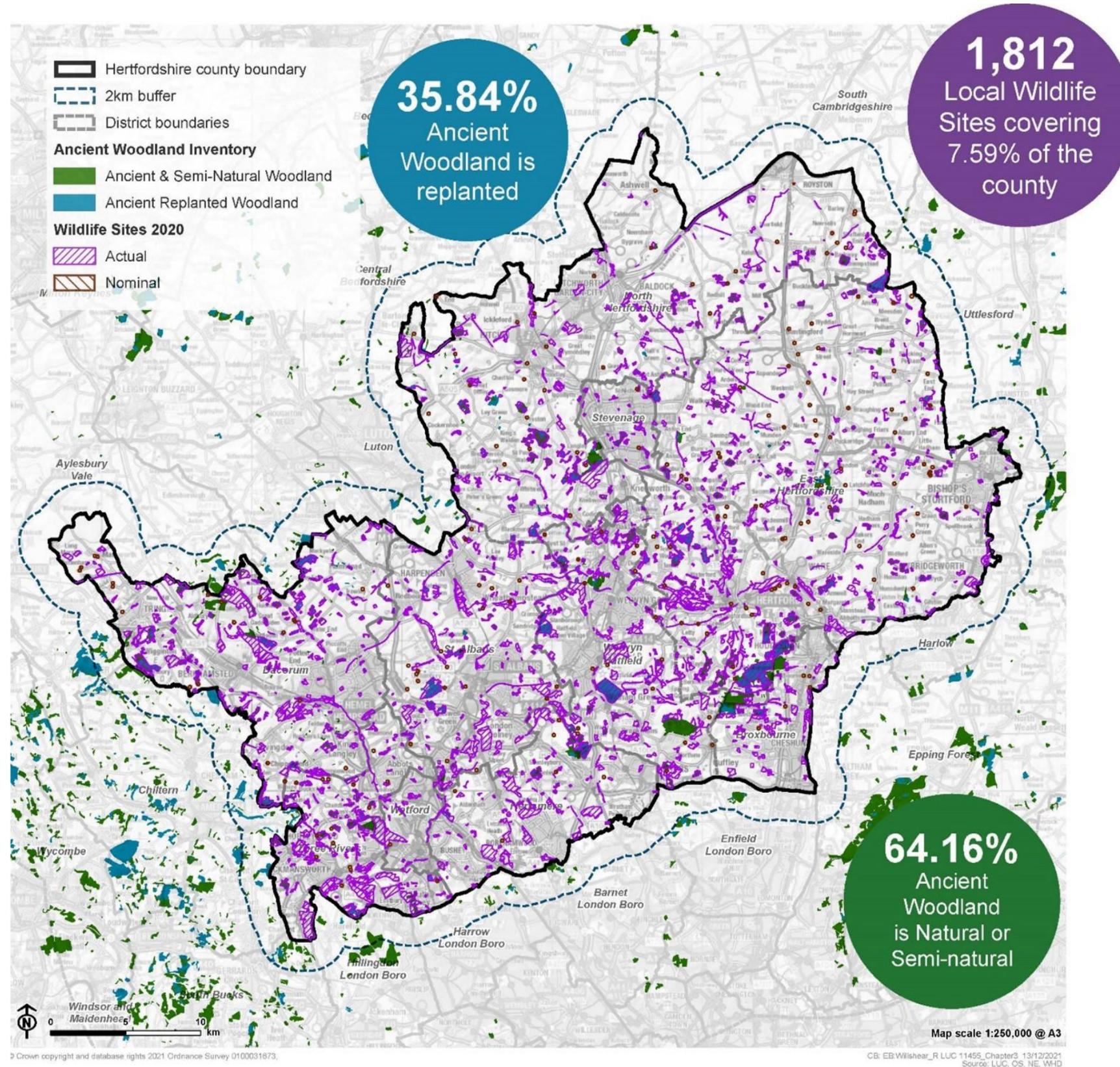
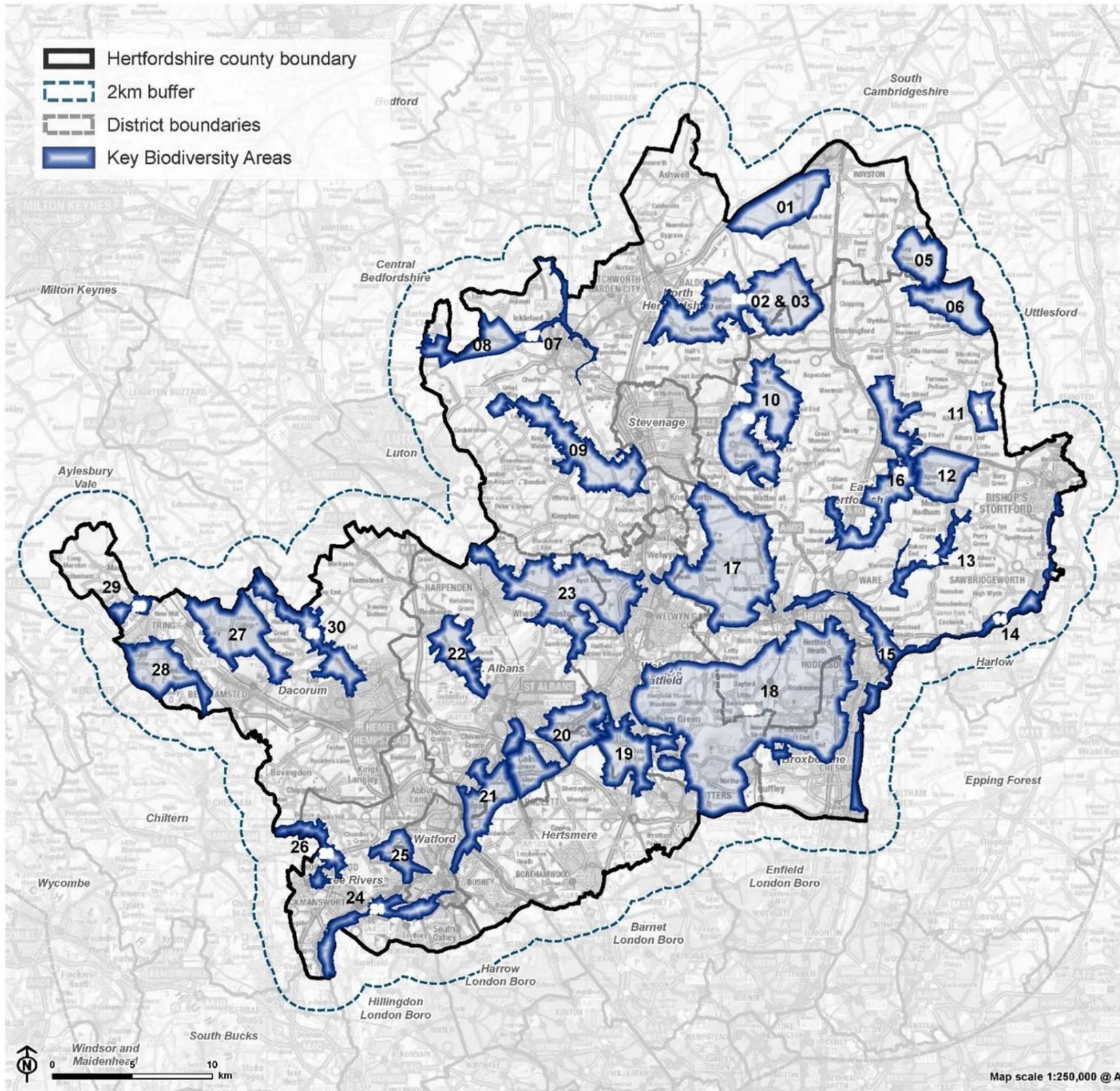


Figure 4.2 - Ancient Woodland



Figure 4.3: Key biodiversity areas



1. **Therfield Heath/ Coombe Bottom** – chalk grasslands
2. **Sandon/ Green End** – chalky boulder clay woodlands and meadows
3. **Clothall/ Wallington/ Weston** – chalky boulder clay woods and meadows
4. **Reed** - chalky boulder clay woodlands and meadows
5. **Cokenach Estate** – chalky boulder clay woodlands
6. **Scales Park/ Meesden/ Beeches Wood** – chalky boulder clay woodlands and meadows
7. **Hiz Valley Catchment (Ickleford/ Oughton Head/ Purwell)** - wet meadows and fens
8. **Hexton/ Pirton/ Great Offley** – chalk grasslands
9. **Great Offley/ Preston/ Knebworth** – oak-hornbeam woodlands
10. **Cottered/ Ardeley/ Benington** – oak-hornbeam and ash-maple woodlands and meadows
11. **Patmore Heath/ Upwick Green** – heath, grasslands and woodland
12. **Wellpond Green/ Westland Green**
13. **River Ash Valley** - woodlands and wetlands
14. **Stort Valley** – grasslands and wetlands
15. **Lea Valley** – wetlands
16. **Rib Valley** – wetlands and woodlands
17. **Lower Mimram/ Lower Beane/ Bramfield Plateau** – wetlands and woodlands
18. **Broxbourne Woods/ Hatfield Park** – oak-hornbeam woodlands, grasslands and heaths
19. **Mymmshall/ Water End** – woodlands
20. **Upper Colne Valley** – wetlands and heath
21. **Bricket Wood/ Moor Mill** – wetlands, woodlands and heath
22. **River Ver/ Gorehambury** – wetlands and woodlands
23. **Upper Lea Valley** – wetlands, woodlands and heath
24. **Mid-Colne Valley** – wetlands (gravel pits) and grasslands
25. **Whippendell Woods and surrounds** – woodlands, grasslands and wetlands
26. **River Chess Valley** - wetlands, grasslands, woodland and heath
27. **Ashridge/ Berkhamsted Common/ Aldbury** – beech woodland, heath, chalk grassland
28. **Tring Park/ High Scrubbs** – beech woodland, chalk grassland
29. **Tring Reservoirs** – wetlands
30. **Upper Gade Valley** – wetlands, grasslands and woodland

Figure 4.3 - Key Biodiversity Areas



Figure 4.4: Priority habitats

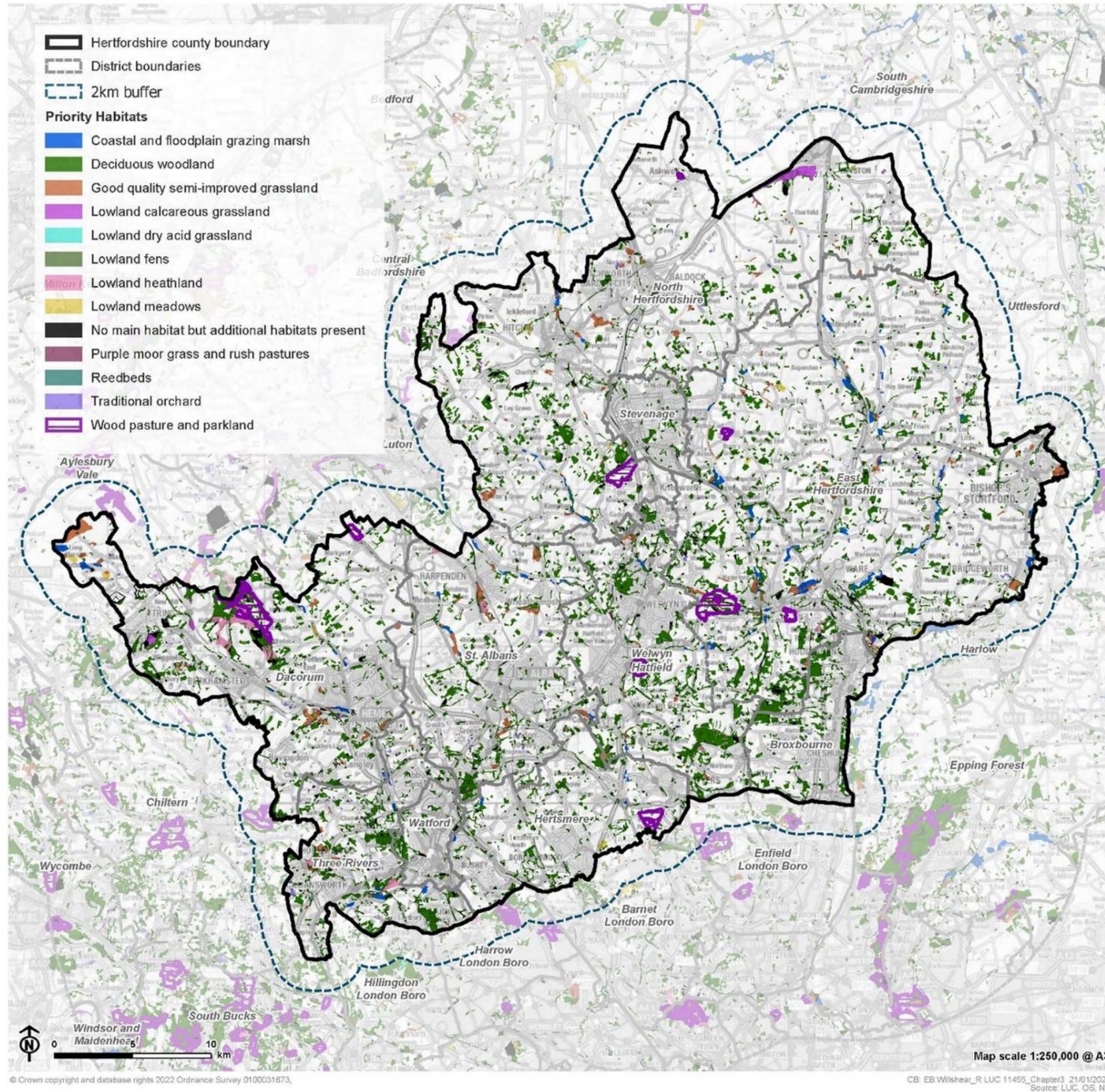


Figure 4.4 - Priority Habitats



Key factors influencing the need for GI

Urbanisation and intensive agriculture

4.9 Hertfordshire’s natural environment is currently under substantial pressure from extensive urbanisation and intensive agriculture. Hertfordshire’s State of Nature Report found that over the last 50 years, the county has lost on average three species every two years. Intensive agriculture often results in the loss of hedgerow extent as well as structural and species diversity. In addition, substantial housing pressures within Hertfordshire have the potential to affect wildlife directly through habitat loss and fragmentation, or indirectly through recreational pressure and disturbance as well as air and water quality impacts. Working with individual LPAs, the opportunity exists to adopt a number of mechanisms to future proof GI within the county. Biodiversity Net Gain (BNG), now a requirement through the Environment Act, is “an approach to development that leaves biodiversity in a better state than before”. In addition to minimising loss of biodiversity, BNG should support restoration of ecological networks.

Condition of protected sites

4.10 Hertfordshire’s network of protected sites is currently somewhat fragmented. Table 4.3 indicates that 45% of SSSIs units are in unfavourable condition (shown in Figure 4.5). This is largely due to poor management and recreation pressures, examples of which can be found below:

- Great Hormead Park;
- Tewinbury;
- Wormley Hoddesdonpark Woods North;
- Castle Lime Works Quarry;
- Aldbury Nowers; and

- Bricket Wood Common.

Table 4.3: SSSI Condition in Hertfordshire

SSSI Condition	Number of Sites	Percentage of Sites
Favourable	74	55.22%
Unfavourable recovering	49	36.57%
Unfavourable no change	7	5.22%
Unfavourable declining	4	2.99%

4.11 The most recent assessment by Hertfordshire and Middlesex Wildlife Trust found that only 30% of Hertfordshire’s LWS are in positive conservation management relevant to their features of interests [See reference 28]. Furthermore, Figure 4.6 shows that many urban areas lie within SSSI Impact Risk Zones. Impact Risk Zones are a tool which allows a rapid initial assessment of the potential risks new development poses to SSSIs. They are reflective of the individual features of each site, meaning they define zones relating to the particular sensitivities of the designation. They also indicate the type of development which could potentially have adverse impacts on the SSSI. The settlements within Impact Risk Zones are sensitive to all types of planning application. When considering application for these areas, thought should be given to the lasting impacts on these sites. Below are some of the settlements across Hertfordshire which are most constrained by SSSI Risk Zones:

- Royston;
- Tring;
- Berkhamstead;
- Watford;
- Welwyn Garden City;
- Hoddesdon;
- Potters Bar and Brookmans Park;

- Cheshunt and Goff's Oak;
- South Oxhey; and
- Rickmansworth.

Recreational access and pressure

4.12 Minimal disturbance is recognised as a key environmental condition in the site improvement plans of all three of Hertfordshire's internationally designated sites. The Lee Valley SPA and Ramsar sits within the 4,000ha Lee Valley Regional Park which receives approximately 4.4 million visits a year. Bittern, gadwall, and northern shoveler are all under threat from public access and associated disturbances in Lee Valley SPA and Ramsar. Dacorum Borough Council's (DBC) Local Plan has triggered the need for an Appropriate Assessment of recreational impacts on the Chiltern Beechwoods SAC. Ashridge Commons and Woods SSSI (Ashridge Estate), of which the National Trust is the majority landowner, is the principal pressure point. Disturbance by visitors and soil compaction are resulting in adverse effects on stag beetle habitat, as well as other qualifying features of the SAC (including beech forest and semi-natural grasslands and scrubland). DBC is currently in the process of undertaking visitor surveying, parking transects, carrying capacity studies and biological condition surveying to identify potential mitigation measures [\[See reference 29\]](#).

4.13 A strategic solution is currently being determined to mitigate recreational disturbance impacts on Hatfield Forest SSSI and NNR [\[See reference 30\]](#) [\[See reference 31\]](#). Heavy footfall, exceeding the sites carrying capacity, have caused the ancient woodland mosaic habitat to fall into unfavourable condition. Visitor surveys have identified a zone of influence of 14.6km, which includes East Hertfordshire district. It's expected that strategic housing sites within this radius provide Suitable Alternative Natural Greenspace (SANG) to absorb any further demand on this former royal hunting forest.

Nature recovery networks

4.14 The large proportion of both urban and agricultural land use in Hertfordshire compared to the UK average provides a challenge to nature conservation efforts which aim to prioritise habitat creation and the reconnection of fragmented landscape networks. The principles of the 2010 Lawton Review [See reference 32] of ‘more, bigger, better and more joined-up’ continue to underpin the emerging LNRS. In order to achieve resilient functioning ecosystems and allow wildlife to adapt to climate change, it will be necessary to increase the amount of existing habitat within Hertfordshire. An increase in the amount of existing habitat managed positively for conservation will also be required. It is noted that a lack of beneficial woodland management, rather than total woodland extent, forms the biggest threat to woodland biodiversity within the county. Further opportunities for enhancement of the ecological network are outlined below and shown in Figure 4.7.

Restorable Habitat

- Areas of land where the primary habitat is present in a degraded or fragmented form and which are likely to be suitable for restoration.
- There are restorable habitat opportunities in Welwyn Hatfield, Broxbourne Woods, north St Albans and north Berkhamstead.

Network Enhancement Zone 1

- Land connecting existing patches of primary and associated habitats which is likely to be suitable for creation of the primary habitat.
- There are network enhancement opportunities in to the south-west of Stevenage.

Network Enhancement Zone 2

- Land connecting existing patches of primary and associated habitats which is less likely to be suitable for creation of the primary habitat.

Fragmentation Action Zone

- Land within Enhancement Zone that connects existing patches of primary and associated habitats which are currently highly fragmented.

Network Expansion Zone

- Land beyond the Network Enhancement Zones with potential for expanding, linking/joining networks across the landscape.
- There are expansion opportunities to the east of Royston.

Figure 4.5: SSSIs in unfavourable condition

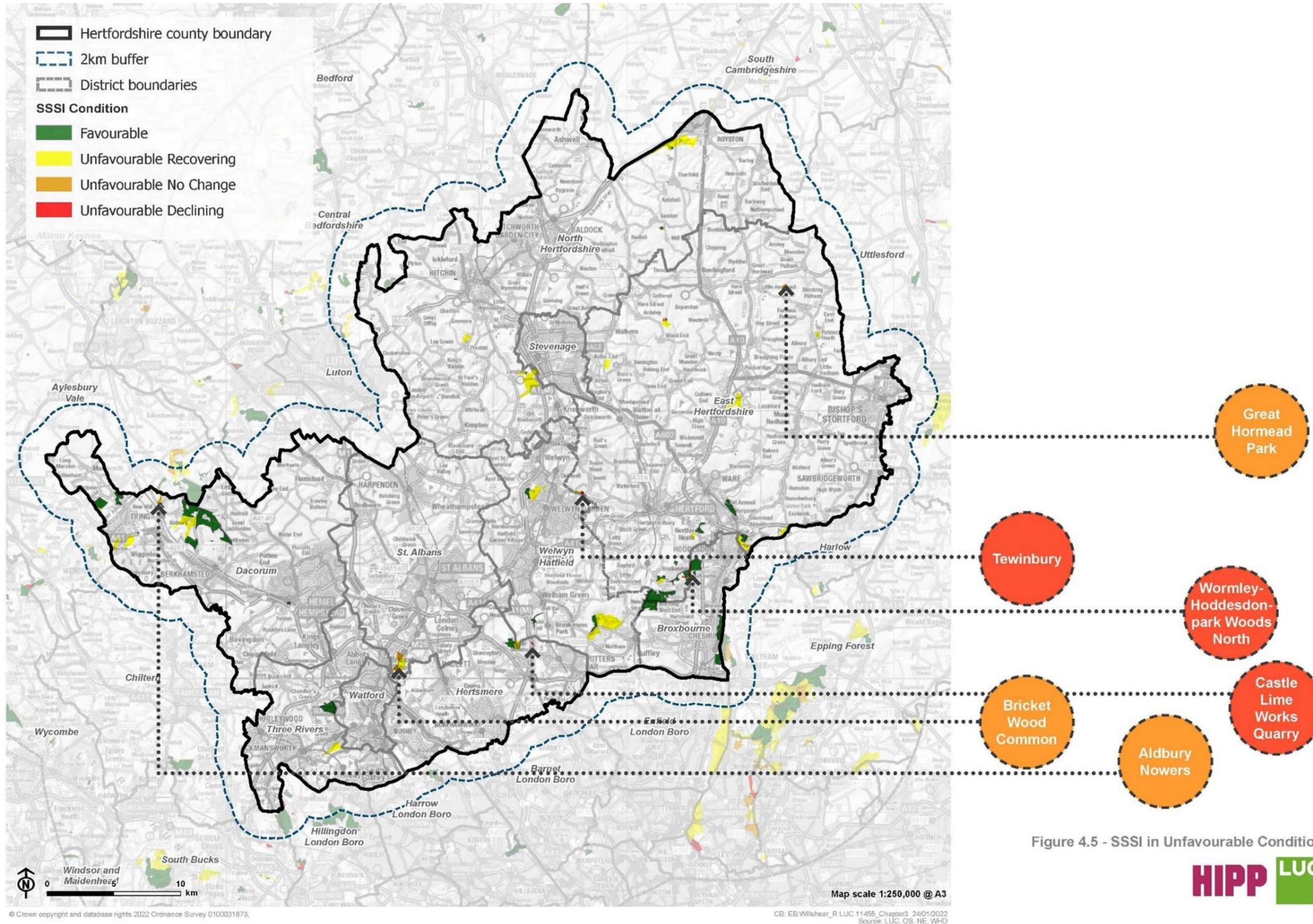


Figure 4.5 - SSSI in Unfavourable Condition



Figure 4.7: Opportunities for ecological enhancement

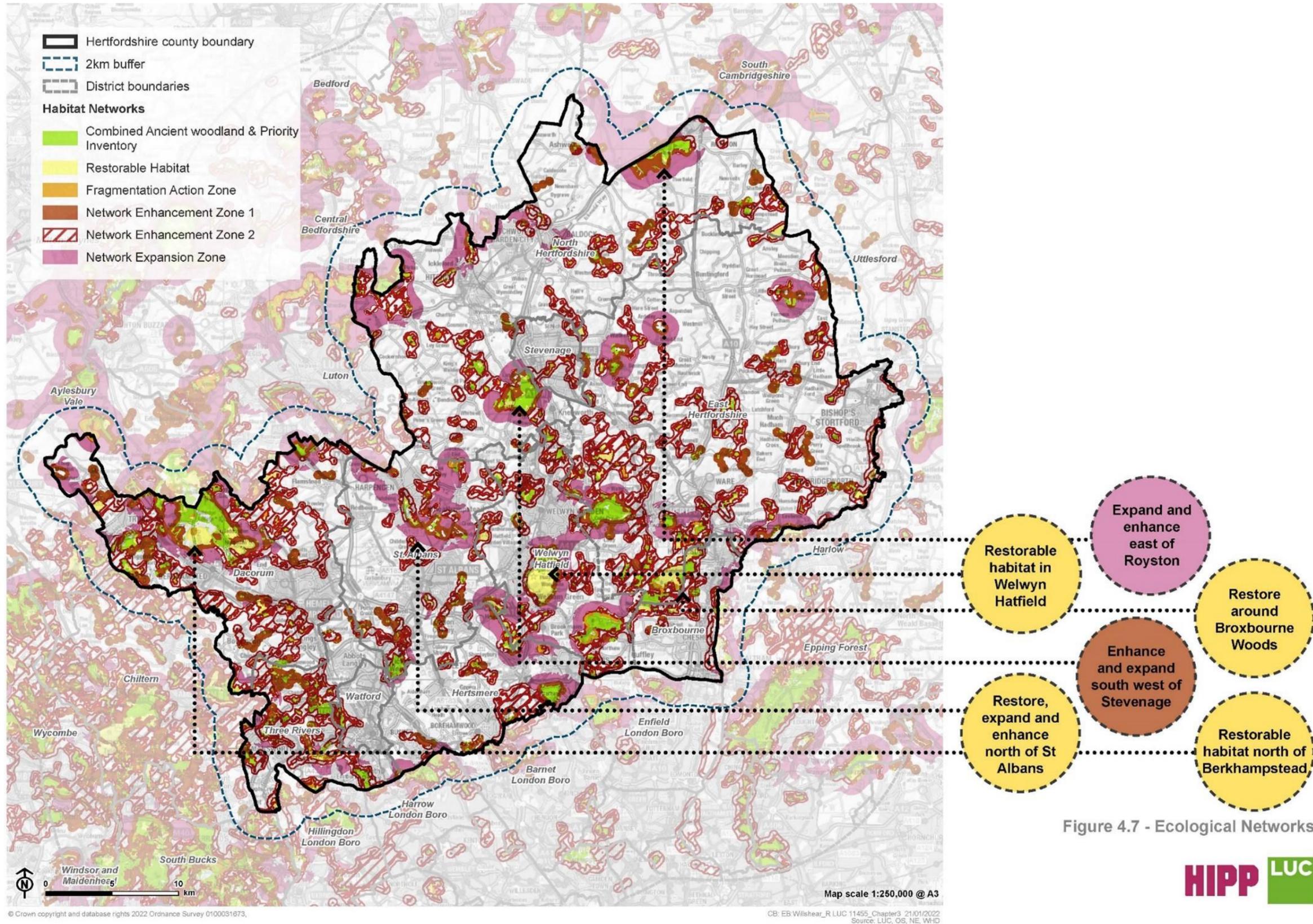


Figure 4.7 - Ecological Networks



Theme 3: Summary of GI Priorities

4.15 3A: Protect, enhance and connect habitats across the county to support species recovery and greater climate resilience. The Hertfordshire State of Nature Report found that in the last 50 years more than three species became extinct in the county every two years. Similarly, the average area of deciduous woodland in the County is 0.91ha - smaller than required to support viable populations of most woodland species. The potential also exists to enhance the connectivity along the chalk escarpment and restore fragmented sites. Action is required to become nature positive, whereby current declines in biodiversity are reversed, so that species and ecosystems begin to recover and are resilient to future climate change.

4.16 3B: Incorporate biodiversity into existing and future new developments in accordance with upcoming BNG requirements. Given the extent of growth and housing development planned for Hertfordshire over the coming years, BNG could provide a significant funding mechanism and driver for the creation and enhancement of habitats.

4.17 3C: Bring more of the county's LWS into positive management to support the wider network of statutory designated sites. Hertfordshire's network of LWS provide vital buffering and habitat connectivity between the statutory designated site network. Less than 12% of Hertfordshire's LWS are known to be under conservation management relevant to their features of interest. Monitoring is vital to gain a full picture of how well habitats and species are doing and target management interventions to ensure the coherence and resilience of ecological networks.

4.18 3D: Expand the ecological mapping resource to underpin the identification of future local nature recovery networks. Hertfordshire's future nature recovery strategy will have the advantage of being set within the wider context of the updated Strategy. The future LNRS will require that areas of particular importance for biodiversity, or those where the recovery or enhancement of biodiversity, could make a particular contribution to other environmental

Chapter 4 Theme 3: Nature Recovery

benefits, are mapped. Ecological mapping will ensure the LNRS remains current, relevant and forward-looking.

Chapter 5

Theme 4: Access and Connectivity

Why is this theme relevant to GI in Hertfordshire?

5.1 Sustainable transport connections are intrinsically linked with GI planning. Ensuring better access and connectivity in Hertfordshire is an important mechanism for improving residents' health and wellbeing. Use of the countryside as a 'Natural Health Service' through increased use of the wider PRoW network is highlighted as a specific aim within the Sustainable Hertfordshire Strategy. Improved opportunities for cycling and walking through the provision of well-connected travel corridors also have the potential to provide reductions in road traffic congestion and local air quality improvements by discouraging the use of private vehicles. In 2019 [See reference 33], 47.7% of CO2 emissions in the county were a product of the transport sector, which is a 10% increase from transport's share of emissions in 2009. Whilst this is reflective of nationwide trends, it highlights the important role of GI in providing access and connectivity for people.

Key assets

PRoW network and long distance footpaths

5.2 Hertfordshire has more than 3,100 km of PRoW, including over 200 promoted routes/long distance footpaths (see Figure 5.1) which stretch across a network of 5,220 individual routes. This connectivity is important as it provides access wider linkages to/from key destinations (see Theme 6: People, Health and Wellbeing) as well as other recreational benefits. The routes also promote

increased usage of sustainable transport by providing a safe network of routes for users. As recorded within the Definitive Map and Statement of Hertfordshire, public footpaths form the largest component of the PRow network (70%). Bridleways (21%), restricted byways (4%) and Byways open to all traffic (5%) comprise the remaining provision within the county. Rates of walking and cycling within Hertfordshire are highest within relatively small towns such as Baldock and Hertford [See reference 34]. However, these rates are generally low across the county, even in dense urban areas, such as Stevenage, Hemel Hempstead and Welwyn Garden City [See reference 35]. The spatial distribution of the PRow network also highlights that dense urban areas such as Stevenage and Broxbourne tend to contain fewer promoted routes than the districts of Hertsmere and St Albans.

5.3 National trail provision in Hertfordshire is limited to sections of The Ridgeway at the western extent of the county. Stretching from the World Heritage Site of Avebury to Ivinghoe Beacon lying to the north-west of London, the route crosses through the wooded landscape of the Chiltern Hills. The three settlements with the most direct off-road links to access the surrounding countryside are St Albans, Welwyn Garden City and Hemel Hempstead [See reference 36]. Stevenage has the greatest number of bridleways leading to rural areas. Overall, there are 23 settlements which do not offer links to the countryside via footpaths or bridleways.

Hertfordshire's promoted walking routes

- Hertfordshire Way;
- London Countryway;
- London Green Belt Way;
- Hertfordshire Border Walk;
- St Bernard's Way;
- Icknield Way Trail;
- Ashridge Estate Boundary Trail;

- North Chiltern Trail;
- Lea Valley Walk;
- Chiltern Way;
- John Bunyan Trail;
- Ivinghow Beacon Ridgeway Walk;
- Hertfordshire Chain Walk;
- Grand Union Canal;
- Welwyn Garden City Centenary Circular Walk;
- New River Path;
- Stort Valley Way;
- Abbey Line Trail;
- Chess Valley Walk; and
- Kingfisher Way.

Cycle provision

5.4 The Rights of Way Improvement Plan for Hertfordshire indicates that 30% of the available PRoW network within the county is accessible by cyclists. National Cycle Network (NCN) routes 1, 6, 12, 57 and 61 all pass through the county, with each district/borough containing at least one of these routes. In addition, off-road cycle tracks within the county stretch across approximately 38km. The county also accommodates sections of the Chilterns Cycleway, a 274 km circular route managed by the Chilterns Conservation Board. The districts with the greatest number of cycle routes are Dacorum and St Albans. However, Stevenage has particularly low rates of cycle usage in comparison to the extent of its cycle path network [\[See reference 37\]](#).

5.5 Data from the Department for Transport highlights that approximately 15.6% of adults (aged 16 or over) in Hertfordshire cycled (irrespective of length or

purpose) at least once per month in 2014/2015. This compares favourably to the national figure of 14.7% [See reference 38]. This trend is also supported by data suggesting that over 7,000 children and adults in the county completed formal cycle training in 2018 (up 16% on figures from 2017) [See reference 39]. The redevelopment of Watford High Street with increased pedestrian, cycling and bus provision provides an example of where initiatives have been implemented across Hertfordshire to improve local facilities for sustainable modes of travel.

Navigable waterways

5.6 The Grand Union Canal provides a navigable waterway in Hertfordshire, connecting Berkhamstead, Kings Langley, Watford and Rickmansworth in the west of the county. The Lea and Stort Rivers lie between London and both Hertford and Bishop's Stortford respectively. Management of access to the water along the towpaths of these assets is provided by the Canal and River Trust (Grand Union Canal).

Transport corridors in Hertfordshire

5.7 The county is well served by major north-south rail links radiating from London, but less well served with east-west links. Key north-south routes crossing the county include the M1 and A1(M); whilst the M25 runs east-west. The M11 lies to the east. It is estimated that there are four million road journeys daily in the county. In addition, there is a comprehensive A road network of 1,864 miles (3,818km). Every day 140,000 people commute out (nearly 100,000 to London) and 85,500 enter the county, mostly from London and Bedfordshire. An extensive commercial bus network also operates in the county, offering strong east-west connections.

5.8 Five railways pass through Hertfordshire, in addition to the London Underground. Over 11 million rail journeys are made per year in Hertfordshire (over 60,000 daily commuter journeys to London). There are also three major

airports adjacent to Hertfordshire: Luton, Stansted and Heathrow. A total of 11 train operating companies provide services in Hertfordshire and are responsible for the management of 50 stations. The stations range in footfall from 20,000 passengers per year at Park Street to over 8 million at Watford, and 23 stations each handle over 1 million passengers per year [\[See reference 40\]](#).

Figure 5.1: National walking and cycling routes

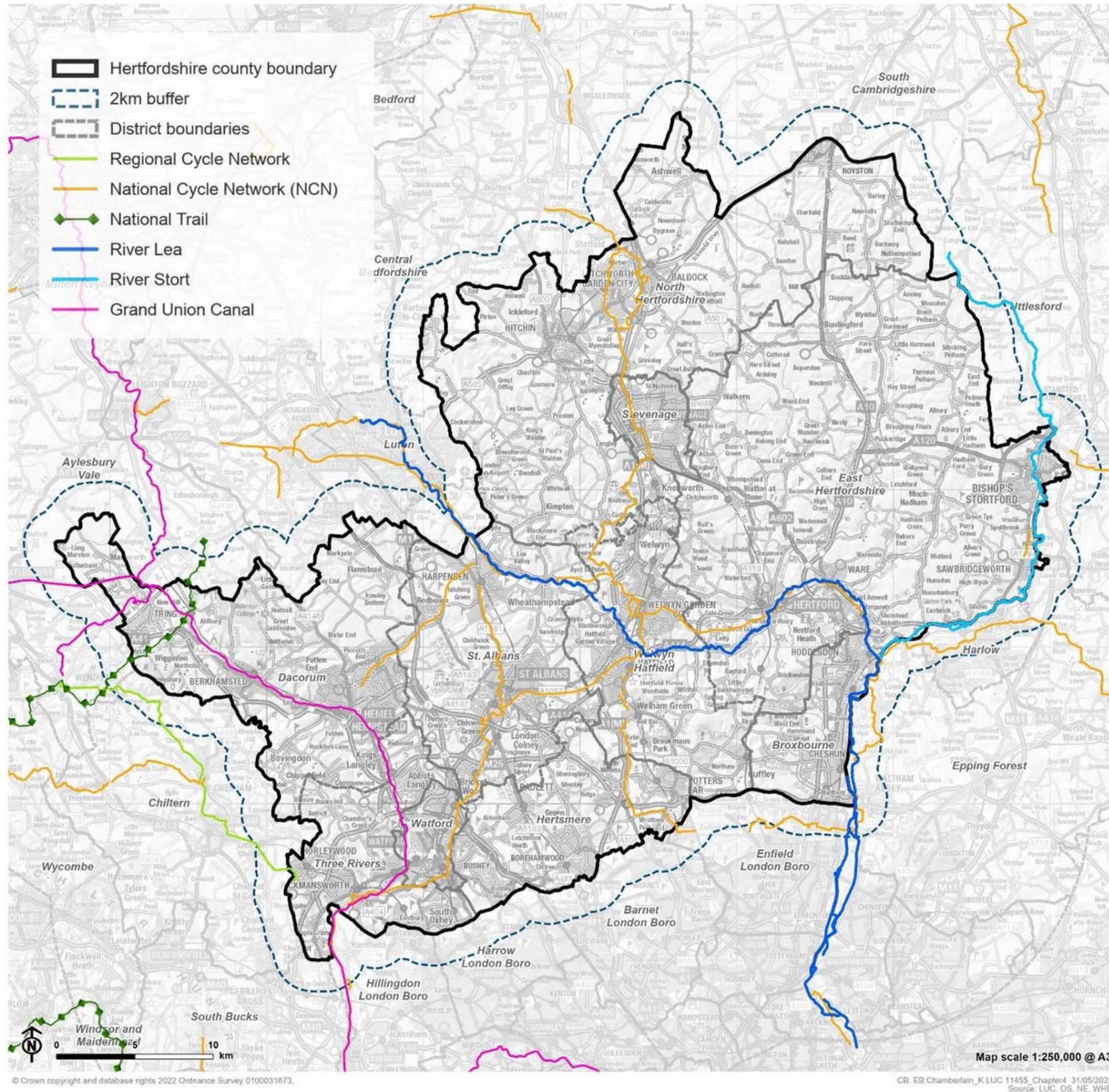


Figure 5.1 - National Walking and Cycling Routes



Key factors influencing the need for GI

Addressing future growth in transport infrastructure

5.9 There are significant problems attributed to the current road network within the county, including congestion on trunk roads, high modal share by private car and poor access to some major employment sites. These problems are expected to increase as the county experiences future population growth, which is expected to increase by 175,000 between 2018 and 2031²⁹. Higher demand for road travel across Hertfordshire will also exacerbate the already regular congestion and network disruption, resulting in unreliable journeys and limited resilience as well as harmful vehicle emissions and other environmental impacts.

5.10 Hertfordshire's Local Transport Plan 2018 – 2031 seeks to implement measures to increase the priority of pedestrians and cyclists relative to motor vehicles. This represents a shift away from the currently significant amount of journeys currently undertaken by private car. Providing increasingly sustainable connections for users and residents should alleviate the demand on the road network, whilst providing multifunctional benefits and greater linkages to the 15-minute neighbourhood concept.

Dominance of private transport

5.11 Hertfordshire's Local Transport Plan 2018 - 2031 outlines the 'Sustainable Travel Towns' scheme, which provides comprehensive packages and behaviour change initiatives within Hertfordshire. The project is aimed at achieving a significant modal shift to non-car modes and reduction in single occupancy car use. Approximately 60% of commuters within Hertfordshire drive to their place of employment. However, significant variations exist between districts. Commuters living in East Hertfordshire (62.7%) and Dacorum (66.2%) are most

likely to drive to work whereas this figure reduces to 50.9% and 53.5% in Watford and St. Albans respectively [See reference 41]. A number of Hertfordshire's rail lines are forecast to be over capacity by 2031 [See reference 42], albeit this figure does not consider the consequences of the COVID-19 pandemic. This includes the Midland Main Line with long distance services to St Pancras at 133% capacity, suburban West Coast Main Line services at 107%, Great Northern services to Moorgate at 104%, and Chiltern services to Marylebone at 100%.

Challenging severance and barriers to access

5.12 A number of PRowS are severed by busy roads which fragment sections of the network, forming barriers to wider connectivity within the county. Many PRowS terminate where they meet a primary road thereby forcing users either onto busy roads or to turn back. Road crossings are also not often provided and this demonstrates the poor connectivity of the network in some areas of the county. Whilst linear routes are beneficial for some, particularly for commuting routes, there is an identified deficiency in the number of circular routes for recreational use which support health and wellbeing³⁰. The opportunity exists to promote wider strategic linkages across the network. Hertfordshire's Rights of Way Improvement Plan identifies a number of suggestions of issues relating to all users of the network, including minimising the number of obstructions, making structures easier to use, increasing the number of circular routes, and improving information available about the network and how to access it.

5.13 A number of other barriers exist to wider use of the PRow network in Hertfordshire, especially by cyclists and other non-walking users. Hertfordshire's Rights of Way Improvement Plan identifies these main barriers with an action plan for strategic solutions. These barriers include obstructions that are found along paths for those with limited mobility (e.g. gates or vegetation), the poor condition of structures (e.g. gates or bridges), poor surface conditions, inconsistent signage on the network and road safety.

Linking active travel routes with key destinations

5.14 The PRoW network offers the potential to develop well-connected sustainable transport links between settlements and key destination sites. The establishment of promoted routes from regional transport connections provides the opportunity to address difficulties accessing key destinations and countryside sites without access to a private car³⁰. Sufficient bus and rail capacity and service levels are essential for strategic regional travel. However, consideration should also be given to enabling these services to better serve local inter-urban travel needs. Promoting travel options and facilitating accessible travel information provision, including open data initiatives, can increase the ease with which people, particularly disadvantaged groups, can access key services by using sustainable and green routes.

Use of sustainable transport to tackle socio-economic inequalities

5.15 The more densely populated wards within the county, such as Central Stevenage, Central and South Watford, South Oxhey and Central Cheshunt and Waltham Cross, exhibit the highest levels of socio-economic deprivation (see Figure 5.2). Safeguarding and improving the provision of local PRoWs in these areas may encourage sustainable forms of movement and help to tackle socio-economic inequalities. Although physical inactivity is one of a number of contributory causes to poor public health, particularly obesity, targeted active travel in more deprived wards could potentially help to address health inequalities.

Figure 5.2: PRow and IMD

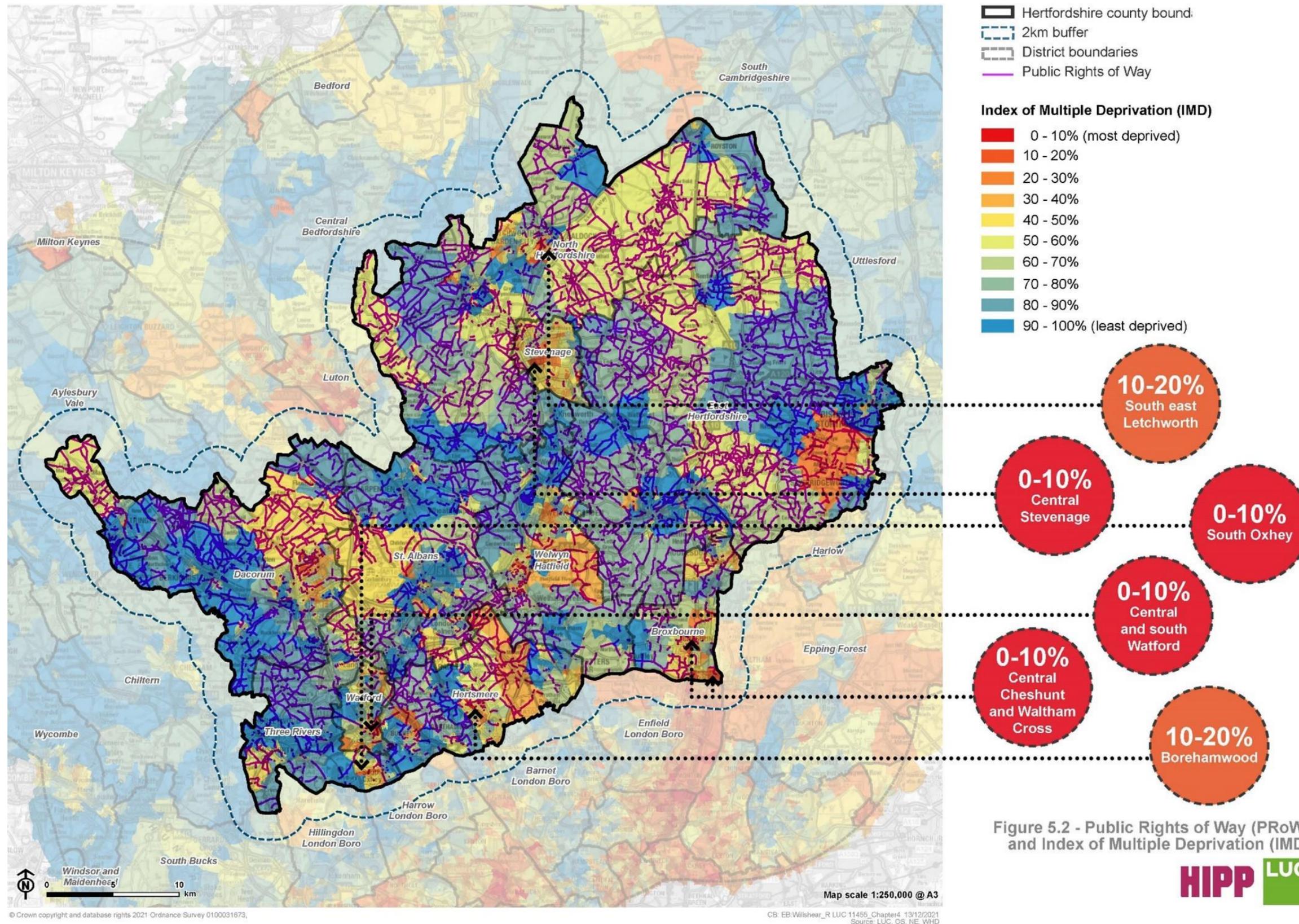


Figure 5.2 - Public Rights of Way (PRoW) and Index of Multiple Deprivation (IMD)



Theme 4: Summary of GI Priorities

5.16 4A: Reconnect and create multi-functional links by addressing issues of network severance within the county. Consideration should be given to ensuring PRow connections in Hertfordshire are sustainable, equitable and accessible. This should involve tackling the issue of severance to ensure that PRow do not terminate once they meet a primary road. This issue is pertinent to large areas of Hertfordshire. The opportunity also exists to promote wider strategic linkages across the network, whilst also exploring the potential introduction of circular recreational routes which complement the network of active travel routes within the county.

5.17 4B: Target improvements to the provision of active travel routes within areas currently exhibiting lower walking and cycling rates or containing fewer promoted routes. The opportunity exists to prioritise PRow and active travel improvements within denser urban areas such as Stevenage, Hemel Hempstead and Welwyn Garden City. Consideration should be given to the implementation of a range of scales of proposals, including the potential to develop linkages into the countryside from these settlements. These could include addressing local scale barriers to access through to wider strategic routes which encourage recreational access or active travel.

5.18 4C: Ensure the delivery of a strong network of active travel routes between developments and key services with the aim of delivering sustainable 15-minute neighbourhoods within the county. Promote a significant modal shift to non-car transport modes by targeting the removal of barriers to the use of the PRow network as part of development proposals within the county.

Chapter 6

Theme 5: The Water Environment

Why is this theme relevant to GI in Hertfordshire?

6.1 Rivers are a key GI asset as they create natural corridors through the landscape and provide vital habitat for a number of species. Hertfordshire is an area of significant water stress with some catchments classified as over-abstracted and failing to meet good chemical or ecological condition. Planning for and making space for water forms a key component of managing future landscapes in the face of climate change, particularly through catchment sensitive land management practices and flood risk management.

Key assets

6.2 Hertfordshire's blue infrastructure consists of priority chalk rivers, historic canal navigations and urban rivers, that weave amongst internationally important wetlands, flooded gravel pits and lakes, in both rural and urban settings. Figure 6.1 illustrates this network of watercourses across the county. These are set within two river basin catchments – the Thames (majority of the county) and Anglian (covering parts of North Hertfordshire) and comprises six operational catchment areas (see Figure 6.2).

Flooding in Hertfordshire

The Environment Agency records data of historic flooding events from rivers, the sea, groundwater and surface water. A number of Hertfordshire's rivers have flooded in the past, including:

- River Rib and River Quin;
- River Ash;
- River Stort;
- River Beane;
- River Mimram;
- Small sections of the River Ver;
- Long stretches of the River Colne; and
- Large portions of the River Lee and its floodplain through Hertford and Broxbourne.

6.3 The River Lea Catchment Partnership [See reference 43], River Colne Catchment Action Network [See reference 44] and the Upper and Bedford Ouse Catchment Partnership [See reference 45] all operate in Hertfordshire to boost the natural capital and value of Hertfordshire's river catchments for people and wildlife. The priority issues facing the catchment areas are outlined in the Thames and Anglian River Basin Management Plans as follows:

- Colne: Changes to natural level and flow of water, pollution from waste water, transport infrastructure and rural areas, and the extent of physical modifications such as weirs and concrete channels.
- Lee Upper: Low flows in rivers, pollution from waste water and from rural and urban areas, and modifications, structures and changes to the natural form of rivers.
- Lower Lee North: Poor water quality from waste water treatment, pollution incidents and misconnections, pollution and poor water quality from urban run-off and historic land use and physical modifications for urbanisation and flood protection.

- Upper Ouse and Bedford: Negative impacts on habitats and ecological diversity caused by the physical modification of watercourses, invasive non-native plant and animal species and pollution (diffuse and point source).
- The **River** Lea Catchment Partnership [See reference 46], and the Upper and Bedford Ouse Catchment Partnership [See reference 47] all operate in Hertfordshire to .

6.4 One of the most distinctive and important characteristics of Hertfordshire's landscapes are its chalk rivers. Across the entire world, there are less than 200 chalk streams. Almost all of these are found in the UK and 10% are located in Hertfordshire itself [See reference 48]. Their stable temperature, mineral rich, and neutral pH, create unique conditions that support a huge range of plants and animals, including some of the UK's most threatened wildlife, including water vole and lamprey.

6.5 Gravel pits are common in the county's lower river valleys and comprise the single largest proportion of Hertfordshire's remaining wetland. Whilst many of these areas are of low biodiversity value, some of these sites such as Amwell Nature Reserve, the Colne Valley SSSI and parts of the Lea Valley are now excellent habitat for wildfowl and other birds. In some locations, the newly created gravel pit wetlands have created suitable conditions for reedbeds, attracting nationally important species such as bitterns [See reference 49].

6.6 Hertfordshire's blue infrastructure is a multifunctional resource which attracts a range of recreational activities. Of particular importance are Hertfordshire's canals, which include the Grand Union Canal, the Lee Navigation and the Stort Navigation (refer to Theme 4: Access and Connectivity).

Figure 6.1: Catchments and watercourses

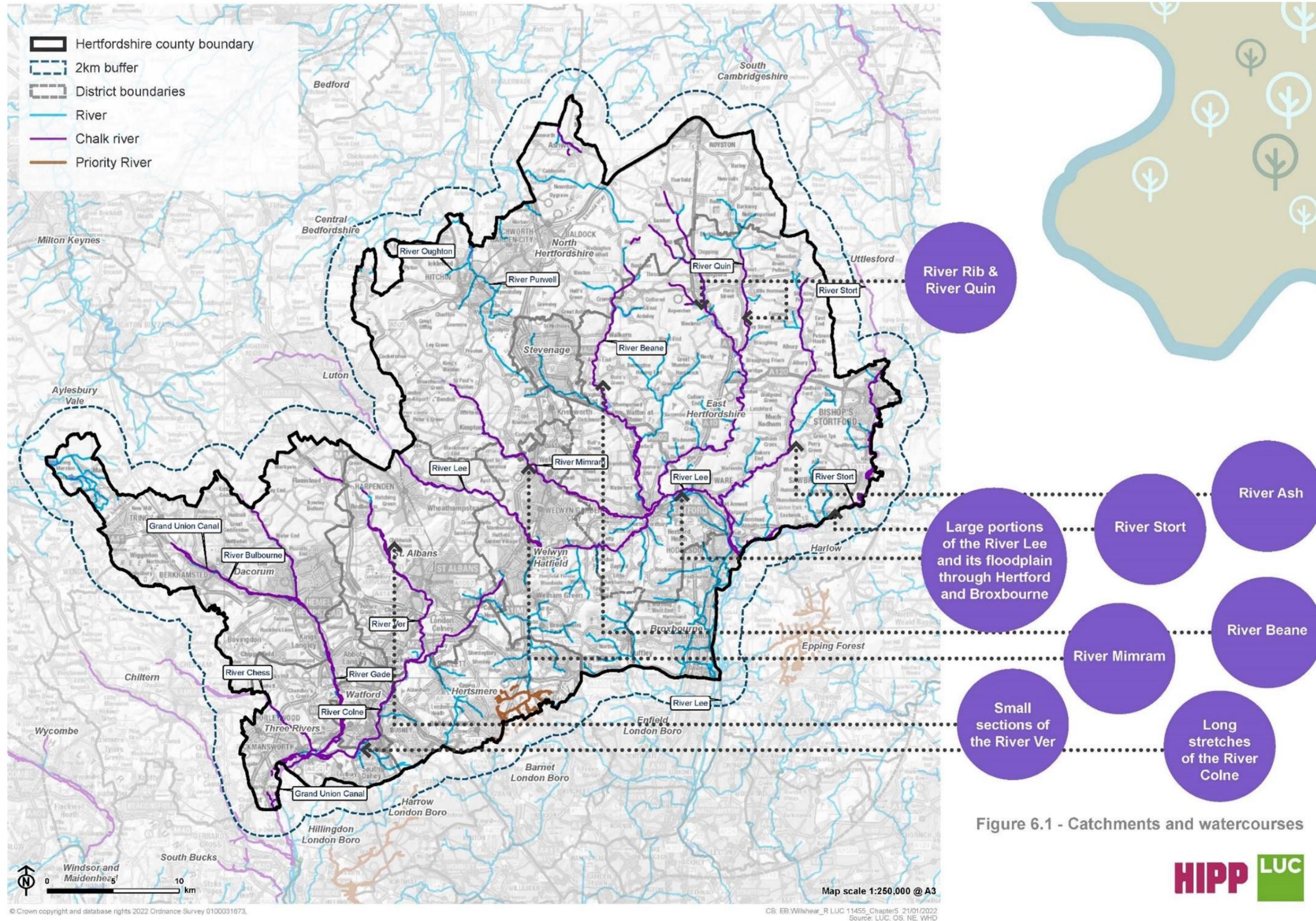


Figure 6.1 - Catchments and watercourses



Figure 6.2: Optional catchment areas

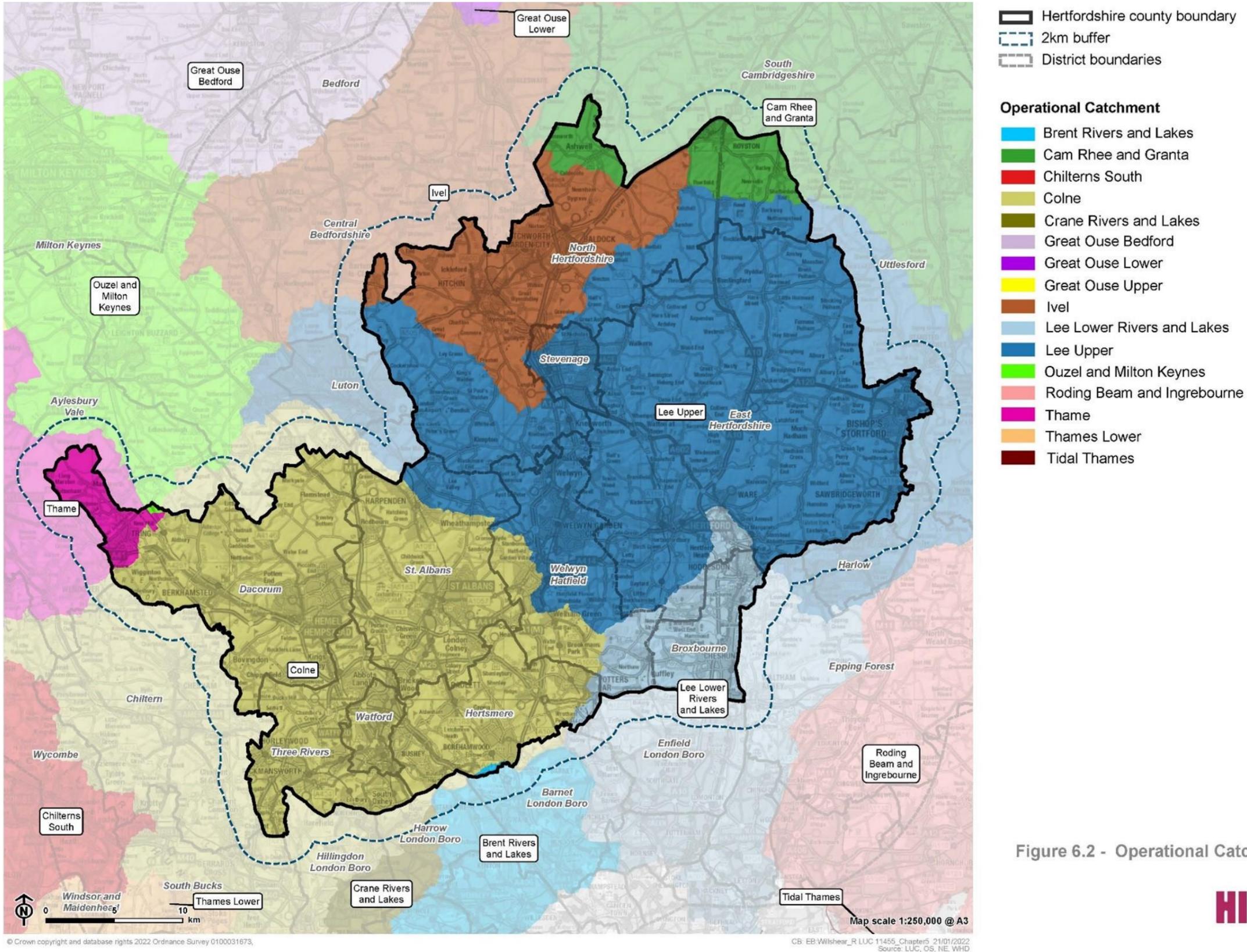


Figure 6.2 - Operational Catchment Areas



Key factors influencing the need for GI

Water quality

6.7 Many of Hertfordshire's rivers are not achieving good ecological status and failing chemical status under the Water Framework Directive, primarily due to over-abstraction and physical modifications (see Table 6.1 and Table 6.2). Chalk rivers and their aquifers have historically been chosen as sites for abstraction points as their water is mineral rich and requires much less filtration than other sources.

6.8 Due to a combination of land management practices, land vulnerability and climatic factors, losses of nutrients from agricultural land is a key contributor to the pollution of surface and ground waters. Agriculture, however, is not the only contributor, urban and point sources of pollution, including effluents from sewage treatment works, also contribute to the pollution of these water bodies with nitrogen and phosphate. Over 50% of Hertfordshire falls within a Nitrate Vulnerable Zone. Figure 6.3 illustrates areas where the land use is causing pollution of the water. Actions should be targeted in these zones to address pollution so that extra treatment of raw wastewater can be avoided.

Table 6.1: Water Framework Directive (WFD) assessment for ecological classification of surface waters 2019 Cycle 2

Catchment	Bad Ecological Status	Poor Ecological Status	Moderate Ecological Status	Good Ecological Status	High Ecological Status
Colne – includes the River Bulborne, Chess, Gade, Ver, Colne	1	5	20	0	0
Lee Upper – includes the River Ash, Beame, Miram, Lee, Stort	1	9	13	0	0
Lower Lee – includes the River Lee	1	9	16	1	0

Table 6.2: Water Framework Directive (WFD) assessment for chemical classification of surface waters 2019 Cycle 2

Catchment	Failed Chemical Status	Good Chemical Status
Colne – includes the River Bulborne, Chess, Gade, Ver, Colne	26	0
Lee Upper – includes the River Ash, Beame, Miram, Lee, Stort	23	0
Lower Lee – includes the River Lee	27	0

Main issues preventing waters reaching good status in river catchments

Colne Catchment

- Physical modifications and over-abstraction are the main issues preventing waters reaching good status.
- The water industry is the sector primarily responsible.

Lee Upper Catchment

- Physical modifications and over-abstraction are the main issues preventing waters reaching good status.
- Agriculture and rural land management are the sectors primarily responsible.

Lower Lee Catchment (Rivers and Lakes)

- Physical modifications, over-abstraction and pollution from towns, cities and transport are the main issues preventing waters reaching good status.
- The urban and transport sectors are primarily responsible.

Flood risk

6.9 In Hertfordshire, the main source of flood risk is derived from surface water, rivers and other watercourses (fluvial) and, less frequently, groundwater. The pattern of flood risk is dispersed across the county with an estimated 30 to 60 thousand properties located in or near areas where there is a predicted high or medium risk of flooding from surface water **[See reference 50]**. Flood management and the potential integration of GI therefore requires careful consideration, particularly where rivers pass through urban contexts and are

heavily modified. Hitchin, Bishop's Stortford, Hempel Hempstead and Watford are Surface Water Management Plan Hotspots [\[See reference 51\]](#).

6.10 The existing level of flood risk in Hertfordshire is predicted to increase over time. Wetter winters and more intense rainfall may increase river flooding in both rural and urban catchments. More intense rainfall causes greater surface runoff, increasing localised flooding and erosion. Increased probability of intense summer rainfall may lead to incidences of flash flooding. There's a need to ensure that new major development does not contribute to increased flood risk from surface water and that surface water arising from the development is managed in a sustainable way e.g. by prioritising the use of Sustainable Drainage Systems (SuDS).

Water availability

6.11 Hertfordshire is located in the driest region in the country. The east of England receives only two thirds of the average UK annual rainfall. Chalk rivers and streams are particularly vulnerable to drier weather as they are reliant on rainfall to recharge the groundwater aquifers [\[See reference 52\]](#) [\[See reference 53\]](#). Drinking Water Safeguard Zones are established around water supplies which require additional measures to control pollution. For both groundwater and surface water zones, actions to address water contamination are implemented to try and avoid extra treatment. The distribution of drinking water safeguard zones within the county are displayed on Figure 6.4. Following two successive very dry winters and hot summers in Hertfordshire, the summer of 2019 saw catastrophic drying out of approximately 50km of chalk rivers and many wetland features on important nature reserves, such as the wetlands at King's Meads and ponds at Hertford Heath [\[See reference 54\]](#). The climate risk is exacerbated by over abstraction, further decreasing the water volume and flow in Hertfordshire's streams.

6.12 Since 2015, Affinity Water and the Environment Agency have been working together in the Colne and Lee catchments under the 'Revitalising Chalk Rivers' project [\[See reference 55\]](#). The programme has reduced groundwater

abstraction by 63 million litres of water a day since 1993 and implemented river restoration works to help over 120 km of chalk streams. Affinity Water is committed to further reducing groundwater abstraction by 36 million litres of water a day by 2025.

Figure 6.4: Drinking water safeguard zones

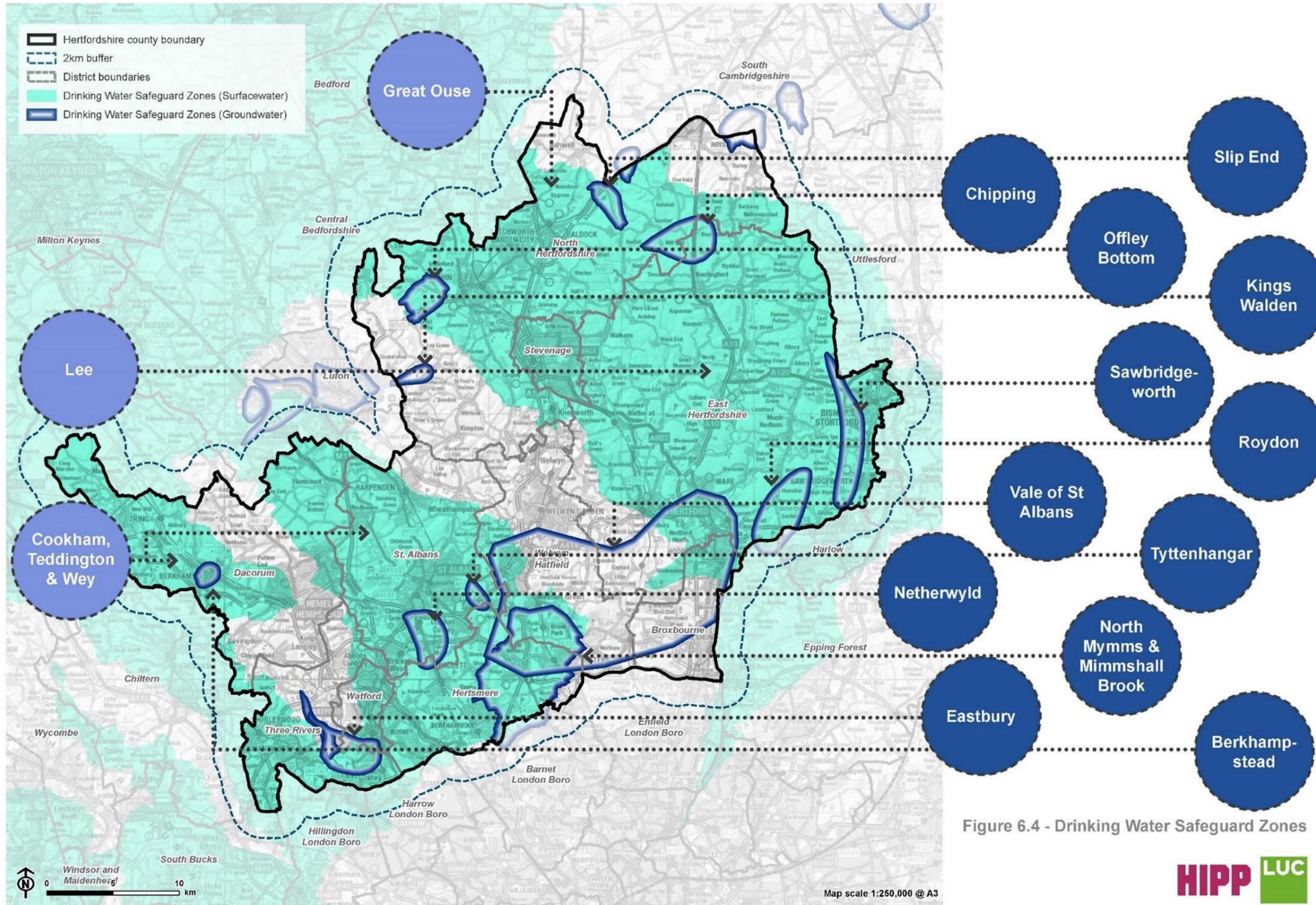


Figure 6.4 - Drinking Water Safeguard Zones

Theme 5: Summary of GI Priorities

6.13 5A: Deliver environmental enhancements to chalk streams within the county, ensuring improvements to ecological and chemical qualities. Hertfordshire's chalk streams form an internationally important asset, and their conservation should be considered at a landscape scale. Increasing connectivity and enhancing wetland habitat mosaics will help contribute to the objectives of the Thames River Basin Management Plan, River Catchment Management Plans and restore favourable SSSI and Water Framework Directive condition. Consideration should also be had for the importance of maintaining river levels within Hertfordshire's chalk streams. How the recommendations for water quantity, quality, as well as habitat quality, which are set out within the Chalk Stream Restoration Strategy [\[See reference 56\]](#), can be applied should be explored.

6.14 5B: Identify opportunities for increased recreational access to river corridors. Watercourses provide an effective corridor to reconnect communities with nature on their doorstep. New recreational routes should be opened up where there is capacity to do so without exceeding biodiversity sensitivity thresholds. Inspiration for multi-functional blue network can be taken from projects such as Rediscovering the River Colne.

6.15 5C: Integrate flood risk into the design of new developments. Future development in close proximity to the rivers within Hertfordshire could exacerbate existing pressures. For example, settlement growth is likely to increase pressures during periods of high river flows and could lead to flooding of developed land, particularly in already high-risk areas such as Hempel Hempstead and Watford. Proposals for additional natural flood storage should be coupled with biodiversity enhancement, for example wetland creation or SuDS.

6.16 5D: Incorporate and complement existing river partnerships and projects. The River Lea Catchment Partnership, River Colne Catchment Action Network and the Upper and Bedford Ouse Catchment Partnership are just some of the organisations already working to improve Hertfordshire's river catchments for

people and wildlife. The opportunity exists to provide linkages between the Strategy and these existing partnerships and projects, such as the Revitalising Chalk Rivers and the Chiltern Chalk Stream Project, in order to maximise knowledge sharing and efficient use of resources.

6.17 5E: Retrofit nature-based solutions for surface water run-off into urban areas. Although the use of SuDS and other nature-based solutions designed to reduce flood risk and water pollution are heavily scrutinised within new development proposals, existing urban areas, and their role in contributing to water-based pressures, should not be ignored. Adopting ‘grey to green’ schemes within urban areas, for example by reclaiming carriageway space from cars for greenery and people, should be explored across all of Hertfordshire’s urban areas. The potential for any greening opportunities should be considered alongside all routine highways upgrades, helping to enhance efficiency and value for money. Focus should also be had on how nature-based solutions can be used to tackle hotspots of water pollution, for example where run off from main roads enters watercourses, or where local surface water flooding is an issue.

Chapter 7

Theme 6: People, Health and Wellbeing

Why is this theme relevant to GI in Hertfordshire?

7.1 Good physical and mental health can have a major impact on quality of life and well-being for individuals, their families, communities and wider society. However, health inequities are mostly determined by social factors. There is a clear social gradient to life expectancy, with those living in deprived areas tending to not only live shorter lives but also experience more years in poor health [See reference 57]. Hertfordshire follows these trends, with 63% of the population aged 16 years+ either obese or overweight, with disparities between districts/boroughs. Physical inactivity in Hertfordshire has been estimated to cost the NHS an estimated £16.1 million. During 2013-2014, people in higher social grades within Hertfordshire were found to be more physically active (62%) than those in lower social grades (50.9%) [See reference 58]. These health challenges form key drivers for the Strategy and interlink with the emerging priorities of the Hertfordshire Health and Wellbeing Strategy 2022-26.

Key assets

Open space and deprivation

7.2 Hertfordshire is a prosperous county [See reference 59], however, there are still areas of deprivation, disadvantage and social exclusion. Table 7.1 sets out the Indices of Multiple Deprivation (IMD) ratings of Hertfordshire's publicly accessible open spaces [See reference 60] (also see Figure 7.1). Almost all boroughs/districts have areas of high deprivation where there appears to be a

deficit in open space which should be considered for a focus of resources. This deprivation could be attributed to severance from infrastructure corridors and the relative density of development in areas of the county.

Table 7.1: Indices of Multiple Deprivation (IMD) rating of Hertfordshire's open spaces

IMD Rating	Open Space
0-10% (most deprived)	Borehamwood (Aycliffe)
10-20%	Stevenage (Bedwell and Poplars) Watford (Central and South Oxhey) Hemel Hempstead (Highfield and Grovehill) Hatfield (Roe Green) Letchworth (Radburn Way) Cheshunt (Churchgate)
20-30%	Watford (Holywell) Patchetts Green Borehamwood Hemel Hempstead (Bennetts End) St Albans (Townsend) Welwyn (Peartree and Panshanger) Cheshunt Stevenage (Bedwell)
30-40%	Stevenage Welwyn (Woodhall) Hatfield (South and Birchwood) St Albans (Sopwell) Hemel Hempstead (Cupid Green) Watford (The Rookery) Borehamwood Hoddesdon (Rye Park)

IMD Rating	Open Space
40-50%	Hoddesdon Cheshunt (Bury Green) Potters Bar (South) Borehamwood (Rowley Green) Watford (South Oxhey and Central) Hemel Hampstead (Warners End) Stevenage
50-60%	Watford (West and North) Bushey Hemel Hampstead (Paradise) St Albans (The Camp) Hatfield Welwyn (Hatfield Hyde) Hoddesdon Stevenage (Fishers Green) Hitchin Letchworth
60-70%	Baldock Bishop's Stortford Bushey Borehamwood (Well End) London Colney Hemel Hampstead (Adeyfield) Hatfield (Oxlease) Welwyn (Digsfield Park) Potters Bar (South)
70-80%	Borehamwood (Central) Bushey Watford (Garston and Leavesden Green) Welwyn (Handside) Baldock

IMD Rating	Open Space
	Ware Cheshunt (Hammon Street)
80-90%	Hemel Hempstead (South) Hemel Hempstead (Felden) Watford (Central and Watford Heath) Potters Bar (Little Heath) St Albans (Central) Harpenden (Hatching Green) Hertford (Central) Hitchin
90-100% (least deprived)	Letchworth (South) Hitchin (Oakfield) Bishop’s Stortford Welwyn (Digswell) Hertford (Pine Hurst) Cuffley Radlett St Albans (Marshalswick) Berhamstead Tring Chorleywood Rickmansworth

7.3 Table 7.2 sets out the IMD health ratings in Hertfordshire provide a comparison of understanding (also see Figure 7.2). In more deprived parts of the county, people have poorer health and wellbeing, living on average 7.4 years less than elsewhere. Some vulnerable and minority groups have significantly worse health outcomes than the majority of the population, particularly people with mental health problems and learning disabilities [See reference 61]. 70% of districts/boroughs have pockets where communities are within the top 20% of the most deprived in the country. These should be a focus for investment in securing GI and equitable access to open space.

Table 7.2: Indices of Multiple Deprivation (IMD) health ratings in Hertfordshire

IMD Health Ratings	Area
10-20%	Watford (Central) Borehamwood (North) Stevenage (Central and Poplars) Letchworth (North)
20-30%	Stevenage (Central) Welwyn (Peartree) Hemel Hempstead (Highfield) Watford (Holywell) Borehamwood
30-40%	Watford Chesunt (Churchgate) Welwyn (Panshanger) Hatfield (South) Stevenage (Pin Green)
40-50%	Stevenage (Bedwell) Hemel Hempstead (Warners End) Waford (North, West and Meriden) Letchworth Borehamwood (North)

Greenspace and health

7.4 Evidence shows that GI has a positive influence on population and individual level health and wellbeing. All social groups are likely to benefit, although some groups, including more socio-economically deprived and disadvantaged populations appear to disproportionately benefit from greener living environments **[See reference 62]**. In 2011, monitoring of air quality in

Hertfordshire found the mean concentration of fine particulate matter was higher in Hertfordshire compared with the mean for England; this was still the case in 2015 (although levels had fallen). By March 2019, 31 Air Quality Management Areas (AQMAs) had been officially declared across Hertfordshire, with wider monitoring being undertaken outside of these areas [\[See reference 63\]](#).

Particular hotspots for poor air quality include the major roads that cross the county, including the M25, M1 and A1(M). Busy town centres also contribute to higher levels of air pollution. Hertfordshire is further impacted by Luton and Stansted Airports which lie close to the western and eastern borders of the county, which contribute to increased noise pollution for location populations.

7.5 Poor air quality can result in detrimental environmental health risks.

However, the contribution of GI to tackling air quality issues is poorly recognised in over half the district/borough Local Plans. One of the objectives in the Sustainable Hertfordshire Strategy 2020 is to have clean air for all by 2030. Key action plans will need to be developed and implemented to ensure these aims are met, albeit GI could help achieve this goal. Reducing the need for car use by improving infrastructure to support active travel and supporting vehicle-free zones in busy town centres will also help to meet these targets. In addition, ambitious projects such as re-establishing the historic Enfield Chase by creating 15 ha of woodland to buffer the M25 should be supported.

Recreational sites and visitor attractions

7.6 When the Countryside Management Services (CMS) at HCC was established in 1975, the approach was taken to manage the whole county as a country park connected by the wider PRoW network (refer to Theme 4: Access and Connectivity). Now part of the Countryside and Rights of Way (CRoW) team at HCC, CMS still exists as a conceptual brand but not as a separate entity. The strategic approach to management of the PRoW network was adopted as an alternative to focussing on the designation of individual sites. For this reason, Hertfordshire has relatively fewer country park assets. Those that are present include:

- Bishop's Wood Country Park – Three Rivers;

- Leavesden Country Park – Three Rivers;
- Aldenham Country Park – Hertsmere;
- Knebworth Country Park – North Hertfordshire;
- Stanborough Park – Welwyn Hatfield; and
- Southern Country Park – East Hertfordshire.

7.7 Hertfordshire includes sections of two regional parks, the Lee Valley Regional Park and Colne Valley Regional Park, which provide green buffers to the east and west of London respectively. Following the corridors of the River Lee and River Colne, both parks are regionally significant destinations for recreation and relaxation. These GI assets provide recreational resources combined with rich wildlife habitat. The county also accommodates a large network of common land and designated village greens which form locally valued areas of public open space. Hertfordshire's cultural assets also play an important role in attracting visitors into the county, including the Henry Moore Foundation, Knebworth House, Hatfield House, Warner Bros. Studios and Watford Palace Theatre [\[See reference 64\]](#).

7.8 Buffering the northern fringe of London, Watling Chase Community Forest lies predominantly within the boundary of Hertsmere Borough. The Watling Chase Community Forest Plan identifies a series of objectives for the site, including increasing opportunities for sport and recreation, improving access to the countryside and creating new opportunities for nature conservation. However, landownership issues have precluded the development of the site into a functional unit in comparison to some of England's other 12 Community Forests, such as the Thames Chase Community Forest.

7.9 Other major open spaces and commons within the county include Heartwood Forest, Therfield Heath, Chorleywood Common and numerous other parks and green spaces. Owned and managed by the National Trust, the Ashridge Estate forms a significant landscape scale recreational asset within the county. Located at Welwyn Garden City, Shaw's Corner is another example of a National Trust property within the county. The Green Flag Award, the benchmark standard for publicly accessible parks and green spaces in the UK,

was awarded to 49 sites across Hertfordshire in 2016. The majority of these sites are in the ownership of district/borough councils and have management plans produced by their owners or the Land Management team within the CRoW service which guide their use and development.

7.10 Developed with the aim of delivering accessible and good quality online information regarding the county's parks and open spaces, the ParksHerts Project provides a single web based point of access. The database facility provides details of over 140 parks and open spaces within Hertfordshire, from recreation grounds through to woodlands and award winning Green Flag sites. Parks Herts is supported by the Land Management Team within the CRoW service whose programmes include weekly groups for conservation volunteers who deliver practical conservation and access improvements.

Community initiatives and engagement with green space

7.11 The county currently accommodates a large number of community based initiatives, including growing projects and outdoor volunteering opportunities, which provide opportunities for individuals to remain active and encourage personal investment in their local space. These projects contribute to a vibrant community as well as enhanced health and wellbeing. Hertfordshire Health Walks is an example of a successful scheme, with over 65,000 walks held in 2018/2019 with a total of over 1,350 participants [\[See reference 65\]](#). Examples of other current initiatives are highlighted in below.

Current community growing and outdoor volunteering opportunities in Hertfordshire

Community gardens

- Countywide independent community garden initiatives: The Triangle Community Garden (Hitchin, North Hertfordshire), CDA Herts Community Garden (St Albans), Grow Cheshunt Community Project (Cheshunt, Broxbourne), Sunnyside Rural Trust Hemel Food Garden (Hemel Hempstead, Dacorum), Mudlarks (Hertford, East Hertfordshire), Digswell Community and Gardening Project (Digswell, Welwyn Hatfield).

Allotments

- Countywide private allotments available across the 10 districts/boroughs via local councils.

Community growing initiatives

- Incredible Edible St Albans offering monthly 'Come and Grow' sessions at two locations.

Practical conservation volunteering and green space management

- Countryside Management Service: Practical conservation volunteering, Friends of Greenspaces, Wood Wardens, Rights of Way volunteers.
- Hertfordshire and Middlesex Wildlife Trust: Practical Work Parties, Conservation volunteering, Community engagement and events.
- Groundwork: range of opportunities including community growing, practical conservation, greenspace management.
- Woodland Trust: practical conservation.

- The Conservation Volunteers: Green Gym (Watford).

Hertfordshire Health Walks

- 60 walks each week of between 30 – 90 minutes led by volunteers and coordinated by the Land Management team within the CRoW service. In 2018/19 over 65,000 walks were led across the County.

ParkRun

- 13x 5k and 8x junior events (2k) each week across Hertfordshire led by volunteers.

Figure 7.1: Indices of Multiple Deprivation

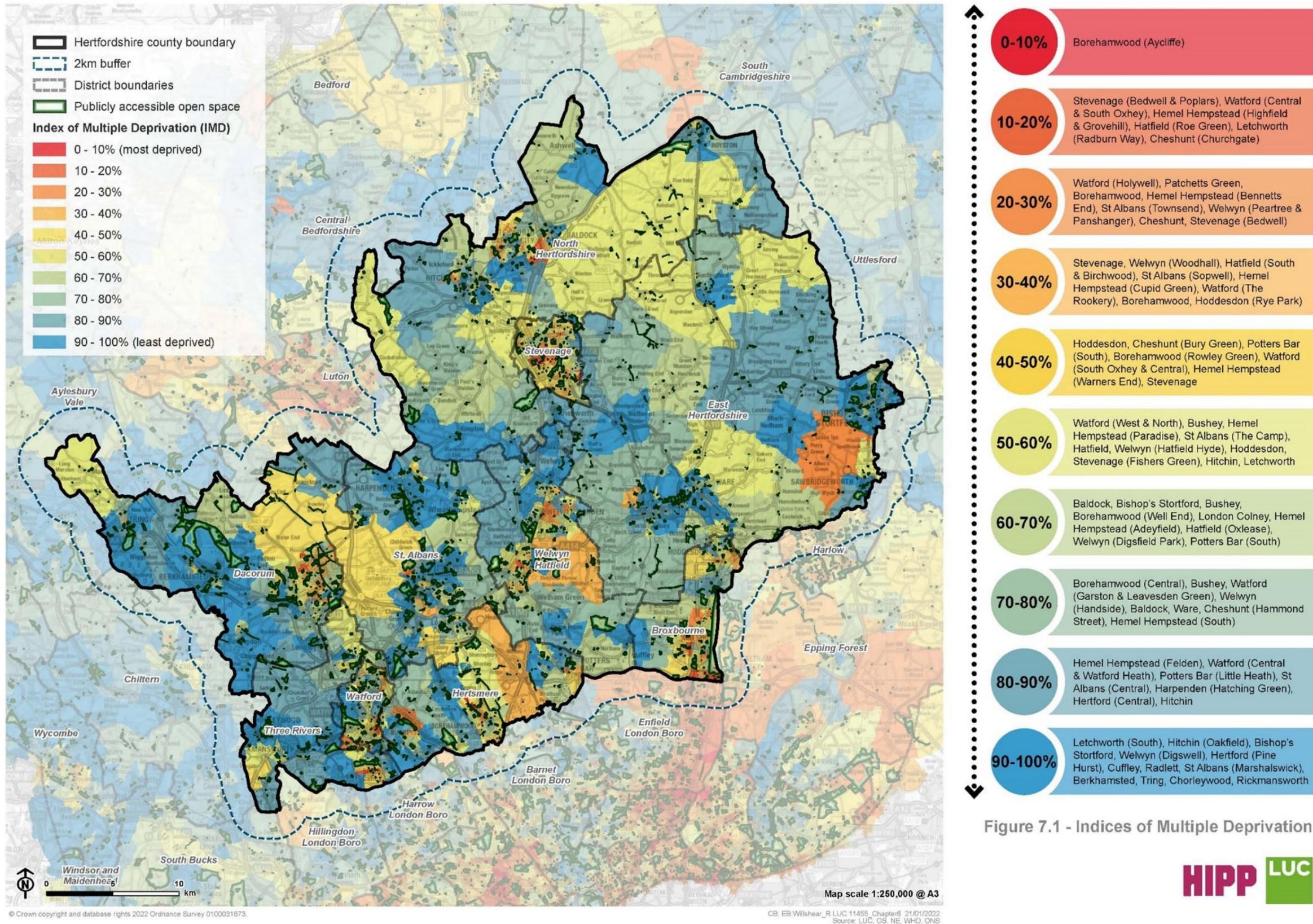


Figure 7.1 - Indices of Multiple Deprivation



Figure 7.2: Indices of Multiple Deprivation - Health

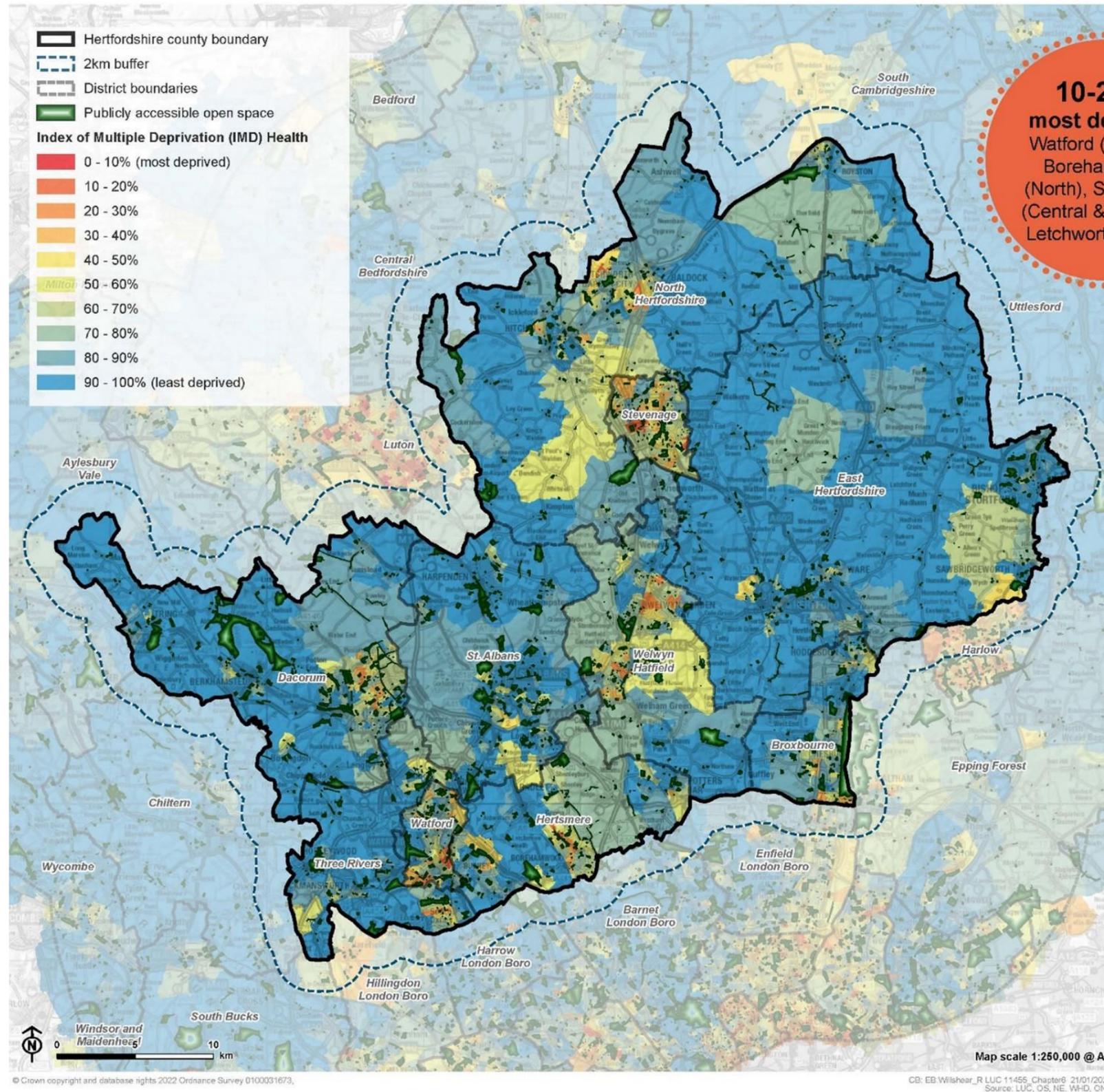


Figure 7.2 - Indices of Multiple Deprivation - Health



Key factors influencing the need for GI

Addressing open space accessibility and barriers

7.12 The need for equitable access to quality open space and nature has been highlighted during the COVID-19 pandemic. At a national scale, exercise levels were highest during lockdown in high income households, whilst low income households stayed the same. Use of parks and public green spaces increased in comparison to previous years; and although mental health declined overall, 9 out of 10 people felt the natural environment helped with their wellbeing [See reference 66].

7.13 The review of planning policies across the 10 LPAs found that whilst all have adequate or strong policy coverage in terms of using GI to meet open space standards, over 25% of districts/boroughs did not have strong policies that make provision for recreational facilities to meet local user and communities' needs. This presents an important opportunity to ensure that communities' needs are met with robust policies in place. This must be informed by a sound evidence base to ensure barriers to use are fully understood and addressed. Currently, adequate analysis of existing open space provision to meet present and future population growth is inconsistent across districts/boroughs. This varying evidence baseline will need to be addressed in order to ensure adequate strategic investment and provision for current and future needs are met across the county. An overview of benchmarking and standards within Hertfordshire, including the evolving work by Natural England regarding the Green Infrastructure Framework, is provided in Appendix B. Consideration should be given to adopting a Hertfordshire specific approach to be implemented by individual LPAs.

Recreational pressure

7.14 Where management objectives for people and wildlife co-exist, there is often the potential for conflict. This is particularly notable at two important biodiversity sites within the county, Ashridge Estate, a 2,000 hectare area of the Chiltern Beechwoods SAC, and Panshanger Park, a former quarry site managed by Tarmac in conjunction with several other organisations (including Hertfordshire and Middlesex Wildlife Trust) [See reference 67] [See reference 68]. Both sites have experienced intense recreational pressure as a consequence of COVID-19 lockdowns. Recreational usage of sites can result in significant negative effects on sensitive habitats and species but also lead to deliberate and accidental fires, litter, predation from people and pets, eutrophication, fly-tipping, trampling, traffic-induced air pollution and site management problems. One approach to manage these pressures are 'Suitable Alternative Natural Greenspaces' (SANGs). The aim is to redirect and encourage more visitors to enjoy SANGs in order to relieve pressure on protected sites for nature. The opportunity exists to create SANGs from the following scenarios:

- Existing open space of SANG quality with no existing public access or limited public access, which for the purposes of mitigation could be made fully accessible to the public;
- Existing open space, which is already accessible, but which could be changed in character so that it is more attractive to the specific group of visitors who might otherwise visit the SPA; or
- Land in other uses which could be converted into SANG.

A growing population

7.15 The population of Hertfordshire is expected to grow by 1.3 million people over the next 10 years, with the greatest increases forecast in Welwyn Hatfield (5.5%), East Hertfordshire (5.1%) and Dacorum (4%). To accommodate this growth, over 100,000 new homes and 100,000 jobs are planned by 2031, alongside the regeneration of Stevenage, Hatfield and Watford Riverwell town

centres [See reference 69]. Thirty major housing locations have also been identified across the county, each with over 550 new homes planned, including Gilston Garden Town in East Hertfordshire. Population growth, associated urbanisation and competing demands for land use may result in increased threats to the provision of accessible green space. However, this presents key opportunities to ensure that GI and equitable access to open space form primary considerations in development planning. Consideration should also be given to expanding the network of urban greening initiatives within the county as a key component of community focused GI. This is particularly relevant to higher density settlements within Hertfordshire.

Theme 6: Summary of GI Priorities

7.16 6A: Introduce improvements to the quality of greenspaces in the county, as well as urban greening more generally, to provide health improvements within areas of deprivation. Despite the relative affluence of Hertfordshire compared with the UK average, 70% of districts/boroughs within the county are characterised by communities within the top 20% of the most deprived in the country. These areas should provide a focus for future GI investment and the provision of health benefits through measurable improvements to air quality. Furthermore, GI should support the ambition to improve community cohesion and investment in local green spaces. Additional local analysis is needed to understand the relationship between deprivation and access to natural and semi-natural greenspace. The outputs of this will be a useful tool in considering how to improve areas for wildlife and people through forthcoming biodiversity net gain (BNG) contributions from developers.

7.17 6B: Embed GI and equitable access to open space policies in development planning in response to projected population growth and development pressures. It is crucial that the ambitious growth targets for the county are accommodated in a sustainable manner, harnessing opportunities for GI and offering a high quality of life for future residents. Improvements to urban greenspace should therefore be undertaken in a way that meets the needs of the local community and improves resilience to climate change. Areas of dense housing also offer the opportunity for the integration of urban greening

initiatives. A mandated requirement to use a GI-led design process would improve design quality, and result in better provision for green infrastructure at the strategic scale.

7.18 6C: Address visitor needs and recreational pressure on important wildlife sites through a strategic county-wide approach. Some of the county's most important recreational sites are exceeding their carrying capacity for people, damaging and degrading sensitive habitats and species. This is creating issues for LPAs such as Dacorum where they're required under the Habitat Regulations Assessment (HRA) process to avoid adverse effects on the integrity of designated sites. An opportunity exists to evaluate the impact of recreational pressure on semi-natural green spaces and identify solutions to address these issues. This should be achieved by meeting HRA and wider green space provision requirements through a strategic county-wide approach. GI interventions can provide a range of solutions for addressing recreational pressure such as new country parks, revitalising Watling Chase Community Forest, new green space through development, enhancement of amenity provisions at existing sites, enhancement or creation of SANGs. Approaches should be underpinned by borough/district level visitor surveys to understand the demographic of visitors and drivers for usage.

7.19 6D: Explore community-based and sustainable food growth as a tool for addressing issues surrounding health, wellbeing and biodiversity. Local food growth can take shape in a number of different forms, including small-scale private growing, allotments, community gardens and market gardens. Opportunities to identify and support the emergence of market gardens should be of particular priority, not only due to their health and biodiversity benefits, but also the positive impact they can have on local food security and small-scale economic growth. A further assessment to quantify need/desire and identify potential spaces to host market gardens should be explored.

Chapter 8

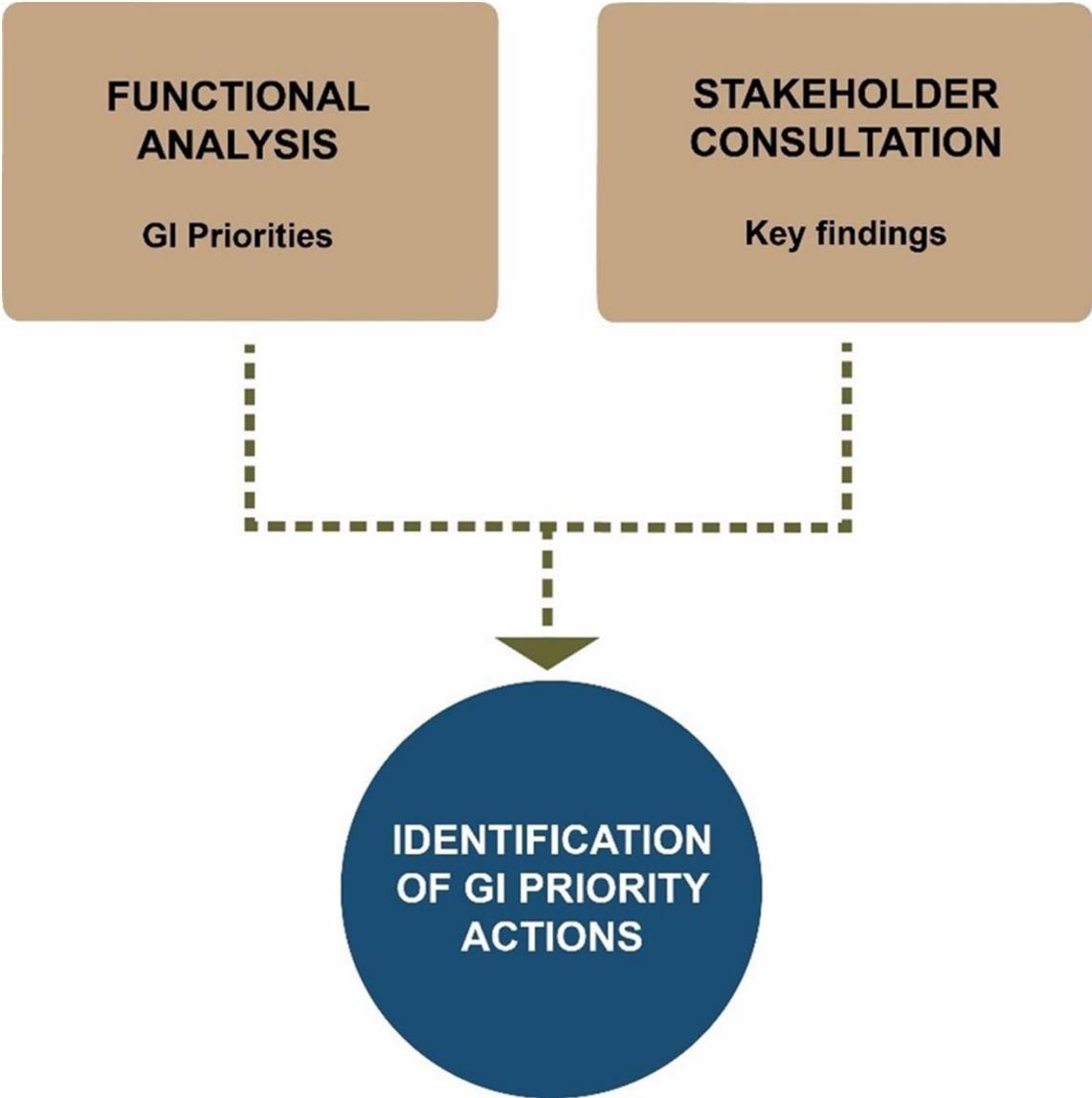
Identification of GI Priority Actions

In this chapter, GI Priorities identified by theme are brought together with the key findings of stakeholder consultation to understand commonalities. Utilising all information generated within the functional analysis and initial stakeholder consultation, a series of ten GI Priority Actions are identified.

8.1 Working in conjunction with the Hertfordshire Infrastructure and Planning Partnership (HiPP), GI Priority Actions have been defined with the aim of delivering a range of multifunctional benefits through improvements to the GI network. These provide a list of improvements to repair, reconnect and restore GI across the county. Informed by the GI Priorities within each theme and the findings of stakeholder consultation (see Figure 8.1), their aim is to guide the direction of Hertfordshire's GI and set a framework for sustainable growth and development within the county. A breakdown of the GI Priorities for each theme are listed below in the following section. In order to ensure robustness, linkages are provided to the evidence base to indicate how GI Priority Actions have been derived. The following section summarises the findings of stakeholder consultation and the specific GI priorities which have informed the identification of GI Priority Actions.

8.2 Further detail regarding delivery and implementation of individual GI Priority Actions is provided in Part 2b: Green Infrastructure Priority Actions and Delivery. Each GI Priority Action is guided by its own vision which will be realised through a set of project specific objectives. Additional information is provided regarding each GI Priority Action, as well as potential delivery partners.

Figure 8.1: Identification of GI Priority Areas



Summary of GI Priorities for Themes

Theme 1: A Resilient Landscape

- 1A: Expand tree coverage and enhance woodland connectivity within the county;
- 1B: Integrate GI and sustainable farming practices to support biodiversity and encourage uptake of agri-environment schemes;
- 1C: Enhance and remediate the landscape condition of deteriorating landscapes within the county; and
- 1D: Anticipate and plan for future climate change by introducing enhancements to the diversity of woodland and wider agricultural systems.

Theme 2: Heritage and Sense of Place

- 2A: Utilise GI to promote access to high quality landscapes from urban areas as part of the extension to the Chilterns AONB;
- 2B: Expand and enhance the landscape framework which form an important feature of the character of Garden City communities;
- 2C: Utilise GI to enhance the beneficial use of remaining Green Belt within the county;
- 2D: Undertake informed studies and assessments to understand the sensitivity of the landscape to accommodate future land use changes and any potential overlaps with the LNRS; and
- 2E: Utilise GI as a tool for enhancing the interpretation, use and setting of heritage assets.

Theme 3: Nature Recovery

- 3A: Protect, enhance and connect habitats across the county to support species recovery and greater climate resilience;
- 3B: Incorporate biodiversity into existing and future new developments in accordance with upcoming BNG requirements;
- 3C: Bring more of the county's LWS into positive management to support the wider network of statutory designated sites; and
- 3D: Expand the ecological mapping resource to underpin the identification of future local nature recover networks.

Theme 4: Access and Connectivity

- 4A: Reconnect and create multi-functional links by addressing issues of network severance within the county;
- 4B: Target improvements to the provision of active travel routes within areas currently exhibiting lower walking and cycling rates or containing fewer promoted routes; and
- 4C: Ensure the delivery of a strong network of active travel routes between developments and key services with the aim of delivering sustainable 15-minute neighbourhoods within the county.

Theme 5: The Water Environment

- 5A: Deliver environmental enhancements to chalk streams within the county, ensuring improvements to ecological and chemical qualities;
- 5B: Identify opportunities for increased recreational access to river corridors;
- 5C: Integrate flood risk into the design of new developments;
- 5D: Incorporate and complement existing river partnerships and projects; and

- 5E: Retrofit nature-based solutions for surface water run-off into urban areas.

Theme 6: People, Health and Wellbeing

- 6A: Introduce improvements to the quality of greenspaces in the county, as well as urban greening more generally, to provide health improvements within areas of deprivation;
- 6B: Embed GI and equitable access to open space policies in development planning in response to projected population growth and development pressures;
- 6C: Address visitor needs and recreational pressure on important wildlife sites through a strategic county-wide approach; and
- 6D: Explore community-based and sustainable food growth as a tool for addressing issues surrounding health, wellbeing and biodiversity.

GI Priority Actions

GI Priority Action 1: Create a GI Champion Programme and wider GI Delivery Board

8.3 GI Priority Action 1 is informed by findings of the stakeholder consultation. Stakeholders highlighted that the lack of an overarching body or organisation to lead the delivery of strategic GI projects formed a significant barrier to the delivery of GI in the county. The cross-boundary nature of landscape-scale GI reinforces the need for this role as a mechanism to drive the successful delivery of projects.

GI Priority Action 2: Ensure greenspaces is meeting local needs for people and wildlife

8.4 GI Priority Action 2 is informed by findings of the stakeholder consultation. The need for a strategic cross-district or borough approach to balancing needs for recreation and ecology were raised in light of Dacorum Borough Council's ongoing issues regarding Chiltern Beechwoods SAC and the Habitats Regulation Assessments process. It was recognised that other open green spaces across the county are underutilised which results in pressure on honeypot sites.

8.5 GI Priority Action 2 is also informed by the findings of the functional analysis and is relevant to the following themes and GI priorities:

- Theme 2: Heritage and Sense of Place
 - 2A: Utilise GI to promote access to high quality landscapes from urban areas as part of the extension to the Chilterns AONB.
- Theme 3: Nature Recovery
 - 3C: Bring more of the county's LWS into positive management to support the wider network of statutory designated sites.
- Theme 6: People, Health and Wellbeing
 - 6A: Introduce improvements to the quality of greenspaces in the county, as well as urban greening more generally, to provide health improvements within areas of deprivation.
 - 6B: Embed GI and equitable access to open space policies in development planning in response to projected population growth and development pressures.
 - 6C: Address visitor needs and recreational pressure on important wildlife sites through a strategic county-wide approach.

GI Priority Action 3: Increase health, connectivity and accessibility of Hertfordshire's water environment

8.6 GI Priority Action 3 is informed by findings of the stakeholder consultation. Chalk streams were highlighted as an internationally important asset. Rather than work to restore and protect them within administrative boundaries, the need for a landscape scale approach was stressed. Stakeholders signposted to previous projects illustrating how river corridors and catchments are an excellent way to reconnect communities with nature on their doorstep.

8.7 GI Priority Action 3 is also informed by the findings of the functional analysis and is relevant to the following themes and GI priorities:

- Theme 1: A Resilient Landscape
 - 1B: Integrate GI and sustainable farming practices to support biodiversity and encourage uptake of agri-environment schemes.
- Theme 5: The Water Environment
 - 5A: Deliver environmental enhancements to chalk streams within the county, ensuring improvements to ecological and chemical qualities.
 - 5B: Identify opportunities for increased recreational access to river corridors.
 - 5D: Incorporate and complement existing river partnerships and projects.

GI Priority Action 4: Deliver landscape scale recovery through woodland planting and the development of the Woodland Arc

8.8 GI Priority Action 4 is informed by findings of the stakeholder consultation. The Woodland Arc was noted as an existing sub-regional initiative which could help provide a context for tree planting priority areas.

8.9 GI Priority Action 4 is also informed by the findings of the functional analysis and is relevant to the following theme and GI priorities:

- Theme 1: A Resilient Landscape
 - 1A: Expand tree coverage and enhance woodland connectivity within the county.
 - 1D: Anticipate and plan for future climate change by introducing enhancements to the diversity of woodland and wider agricultural systems.

GI Priority Action 5: Restore and reconnect distinctive chalk landscapes

8.10 GI Priority Action 5 is informed by findings of the stakeholder consultation. Stakeholders stated the 'Chalk Arc' action from the 2011 Strategy was still worthwhile and needed. They drew attention to the need to resolve the issue of suitable grazing animals in order to achieve restoration and connectivity of chalk grassland.

8.11 GI Priority Action 5 is also informed by the findings of the functional analysis and is relevant to the following theme and GI priorities:

- Theme 1: A Resilient Landscape

- 1B: Integrate GI and sustainable farming practices to support biodiversity and encourage uptake of agri-environment schemes.
- 1C: Enhance and remediate the landscape condition of deteriorating landscapes within the county.

GI Priority Action 6: Promote community action for nature recovery

8.12 GI Priority Action 6 is informed by findings of the stakeholder consultation. The 'Wilder St Albans' project lead by Hertfordshire and Middlesex was raised as an example of supporting and enabling communities to take their own action for nature's recovery by meeting them where they are and working from there. The need to evaluate the success of this project and roll out similar initiatives more widely was highlighted.

8.13 GI Priority Action 6 is also informed by the findings of the functional analysis and is relevant to the following themes and GI priorities:

- Theme 3: Nature Recovery
 - 3A: Protect, enhance and connect habitats across the county to support species recovery and greater climate resilience.
 - 3C: Bring more of the county's LWS into positive management to support the wider network of statutory designated sites.
- Theme 6: People, Health and Wellbeing
 - 6D: Explore community-based and sustainable food growth as a tool for addressing issues surrounding health, wellbeing and biodiversity.

GI Priority Action 7: Produce an overarching county-wide GI Design Code for development

8.14 GI Priority Action 7 is informed by findings of the stakeholder consultation. The use of local GI strategies, design guides and design codes were highlighted as a mechanism to achieve good quality design and inform GI delivery. A county-level design guide was also suggested as a means to provide GI enhancements and ensure a coherent and consistent approach to design across districts/boroughs.

8.15 GI Priority Action 7 is also informed by the findings of the functional analysis and is relevant to the following themes and GI priorities:

- Theme 2: Heritage and Sense of Place
 - 2B: Expand and enhance the landscape framework which form an important feature of the character of Garden City communities.
 - 2C: Utilise GI to enhance the beneficial use of remaining Green Belt within the county.
 - 2E: Utilise GI as a tool for enhancing the interpretation, use and setting of heritage assets.
- Theme 3: Nature Recovery
 - 3B: Incorporate biodiversity into existing and future new developments in accordance with upcoming BNG requirements.
- Theme 4: Access and Connectivity
 - 4C: Ensure the delivery of a strong network of active travel routes between developments and key services with the aim of delivering sustainable 15-minute neighbourhoods within the county.
- Theme 5: The Water Environment
 - 5C: Integrate flood risk into the design of new developments.
- Theme 6: People, Health and Wellbeing

- 6C: Address visitor needs and recreational pressure on important wildlife sites through a strategic county-wide approach.

GI Priority Action 8: Deliver and manage GI as a mechanism to improve air quality and public health

8.16 GI Priority Action 8 is informed by findings of the stakeholder consultation. The findings from consultation emphasised the need to integrate GI into future design proposals as a mechanism to support the growing evidence for health and wellbeing benefits.

8.17 GI Priority Action 8 is also informed by the findings of the functional analysis and is relevant to the following themes and GI priorities:

- Theme 4: Access and Connectivity
 - 4B: Target improvements to the provision of active travel routes within more deprived wards within Hertfordshire.
- Theme 6: People, Health and Wellbeing
 - 6A: Introduce improvements to the quality of greenspaces in the county, as well as urban greening more generally, to provide health improvements within areas of deprivation.

GI Priority Action 9: Reconnect and create multi-functional links to facilitate the movement of people and wildlife

8.18 GI Priority Action 9 is informed by findings of the stakeholder consultation. Stakeholders gave support to the 'Reconnect' project from the 2011 Strategy

and then need to keep the issue of severance on the agenda. Local Transport Plan 4 was noted as seeking to deliver active travel and encouraging behaviour change.

8.19 GI Priority Action 9 is also informed by the findings of the functional analysis and is relevant to the following themes and GI priorities:

- Theme 3: Nature Recovery
 - 3A: Protect, enhance and connect habitats across the county to support species recovery and greater climate resilience.
- Theme 4: Access and Connectivity
 - 4A: Reconnect and create multi-functional links by addressing issues of network severance within the county.
- Theme 5: The Water Environment
 - 5B: Identify opportunities for increased recreational access to river corridors.

GI Priority Action 10: Improve understanding of existing GI baseline and projects

8.20 GI Priority Action 10 is informed by findings of the stakeholder consultation. Stakeholders noted a lack of interactive mapping to provide access to progress updates. The opportunity exists for mapping of assets and projects, including delivery.

8.21 GI Priority Action 10 is also informed by the findings of the functional analysis and is relevant to the following themes and GI priorities:

- Theme 2: Heritage and Sense of Place
 - 2A: Utilise GI to promote access to high quality landscapes from urban areas as part of the extension to the Chilterns AONB.

Chapter 8 Identification of GI Priority Actions

- 2D: Undertake informed studies and assessments to understand the capacity of the landscape to accommodate land use changes and future development.
- Theme 3: Nature Recovery
 - 3D: Expand the ecological mapping resource to underpin the identification of future local nature recovery networks.
- Theme 5: The Water Environment
 - 5D: Incorporate and complement existing river partnerships and projects.

Appendix A

Key findings from stakeholder consultation – thematic analysis

Theme 1: A Resilient Landscape

- Consideration should be given to landscape resilience at the sub-regional scale, including opportunities for strategic scale GI within urban environments. The Woodland Arc is a sub-regional proposal which could help provide the context for tree planting priority areas. The Lee Valley and Colne Valley corridors are other successful sub-regional scale GI initiatives within the county.
- Enhanced knowledge and understanding of Watling Chase Community Forest and its objectives is required across the county. Cross boundary interest exists from the London Borough of Barnet to take the idea forward with enhanced active transport links. This community forest asset is also referenced in the Hertsmere Local Plan. Previous barriers to implementation include the complexities of land ownership and lack of landowner buy-in.
- Consideration should be given to the appointment of a GI Delivery Officer to co-ordinate partnerships and collaboration across the County and ensure the recommendations of the updated Strategy are taken forward. Existing partnerships for delivery at a strategic scale include the Countryside and Rights of Way team at HCC.
- Targeted training and education is required to increase awareness and understanding of GI amongst communities and landowners.

Theme 2: Heritage and Sense of Place

- A county-level Design Guide for GI enhancements would be useful to inform GI delivery and ensure a coherent and consistent approach across districts/boroughs. The guidance should outline GI typologies, essential amenities and recreational needs of local communities whilst ensuring effective engagement with historic environment specialists and other professionals.
- Consideration should be given to both recorded and unrecorded heritage assets, to ensure that GI contributes positively to the setting of these features.

Theme 3: Nature Recovery

- The requirement for a county-wide strategic approach to addressing recreational pressure on semi-natural green spaces was highlighted. The opportunity exists to consider designated sites to inform and meet HRA requirements and address wider green space provision. This should be underpinned by district/borough level visitor surveys as well as Natural England's People and Nature Survey.
- Lee Valley, Ashridge Estate (part of Chiltern Beechwoods SAC) and Panshanger Park are sites where habitats and species are facing acute recreational pressure and disturbance.
- The Woodland Arc (identified in the 2011 Plan) still offers great potential for successful GI delivery. Opportunities exist to enhance and connect woodland between Watling Chase and Thames Chase Community Forest, working with Hertfordshire Wildlife Trust and Essex Wildlife Trust. The Woodland Arc closely relates to the Green Arc.
- The Chalk Arc (identified in the 2011 Plan) also has continued potential, but the challenge remains the availability of suitable grazing stock.
- The network of grassland and wetland habitat within Hertfordshire has been detrimentally affected over the last 50 years. Whilst woodland area

has increased, species richness has decreased due to a decline in appropriate woodland management.

- Importance of the chalk streams in Hertfordshire.

Theme 4: Access and Connectivity

- The requirement exists to balance recreation and access to ecologically sensitive sites. Some areas within the county are under-utilised (due to access issues and perception of safety) which results in increased pressure on honeypot sites. Recreational opportunities such as country parks offer the opportunity to reduce impacts on the Chilterns SAC.
- More sustainable transport links are required across the county. Welwyn Hatfield Borough Council continue to promote the Green Corridor project through the Local Plan process. The initiative will run east-west across the Borough linking and improving GI, including through major development sites where developer contributions will be used to facilitate delivery. Potential cycle connections from Stansted to Stortford, Harlow and on to the Lea Valley are under consideration through Hertfordshire's Local Transport Plan (LTP4).
- 'Reconnect' (identified in the 2011 Plan) has potential but needs significant investment. Major infrastructure, e.g. green bridges and underpasses, are required to address severance, particularly affecting south-north movement.
- Data suggests that the first COVID-19 lockdown saw a 400% increase in footfall on Hertfordshire's PRoWs. The National Farmers Union have reported issues of trespassing across private land.

Theme 5: The Water Environment

- Chalk streams form an internationally important asset for Hertfordshire and provide an opportunity to reconnect communities with nature on their doorstep. These assets should be considered at a landscape scale and not by administrative boundaries.

- The river valleys as a whole form important opportunity corridors. The River Colne Valley Regional Park is a huge success due to Heritage Lottery Funding, as is the Rediscovering the Colne project.
- Nature-based solutions are essential to address flooding and adapting to the impacts of climate change.
- SuDS can help to re-charge depleted groundwater bodies and sustain biodiversity.
- Issues regarding water pollution should consider all aspects, including urban, road, sewage, and agricultural sources.

Theme 6: People, Health and Wellbeing

- Increased evidence is needed to understand the economic benefits of GI to support the growing evidence for health and wellbeing benefits in order to encourage the integration of GI into future design proposals.
- Increased traffic along country lanes continues to increase air quality issues.
- The urban environment provides limited horizontal space on the ground for GI. Green roofs and green walls have great potential. We need to consider what type of GI is 'best' in urban areas, including consideration of all the benefits including cost of maintenance.
- Retrofitting GI into existing developments may be more of a challenge than into new developments, which will have GI built in through planning considerations. This may risk creating disparities in deprivation over time without intervention.

Appendix B

Overview of benchmarking and standards within Hertfordshire

B.1 The range of standards applicable to the county are summarised below. Standards will be applied at the strategic level within the Strategy in order to refine Priority Actions and provide recommendations on their application within the strategic context of Hertfordshire.

Local Nature Partnership Natural Standards

B.2 A Local Nature Partnership's (LNP) role is to ensure that the county's natural environment is fully considered in local decision making and that it delivers benefits for wildlife, people, landscapes and the local economy. The Hertfordshire LNP was set up in 2012 but has been inactive for a number of years.

Accessible Natural Greenspace Standards

B.3 Accessible Natural Greenspace Standards (ANGSt) aim to address the disparity in accessibility communities experience in relation to natural and semi-natural green space of various sizes. The concept was developed in the early 1990s to address recreational pressures around specific habitat types. The tool is a powerful mechanism in assessing current levels of accessible natural greenspace and planning for better provision. The standards recommend that provision should be made of at least 2ha of accessible natural greenspace per

Appendix B Overview of benchmarking and standards within Hertfordshire

1000 population according to a system of tiers into which sites of different sizes fit:

- No person should live more than 300m from their nearest area of natural greenspace;
- There should be at least one accessible 20ha site within 2km from home;
- There should be one accessible 100ha site within 5km; and
- There should be one accessible 500ha site within 10km.

B.4 These standards were updated in 2021 to include a Doorstep Green Space (0.5ha in size, 200m from home) and a Neighbourhood Space (10ha in size, 1km distance from home). Provision of this standard will be relevant across Hertfordshire.

SANGs

B.5 SANGs is the name given to a green space that is of a quality and type suitable to be used as mitigation in the context of a Special Protection Area. Its role is to provide alternative open space to divert visitors from visiting the SPA. SPAs within Hertfordshire include: the Lee Valley in Broxbourne and East Hertfordshire, and areas within a 400m buffer zone of the SPA.

BNG

B.6 BNG is an approach to development, and/or land management, that aims to leave the natural environment in a measurably better state than it was beforehand. The biodiversity metric is a habitat based approach used to assess an area's value to wildlife and measure change in biodiversity value following development. It is now a mandatory requirement for all new developments through the Environment Act and aims to provide "an approach to development that leaves biodiversity in a better state than before".

Urban Green Factor

B.7 The Urban Greening Factor (UGF) is a policy initiative from the London Plan. It aims to increase green cover and be considered at the beginning of the design and planning for new buildings and developments. It is a tool that evaluates and quantifies the amount and quality of urban greening that a development scheme provides to inform decisions about appropriate levels of greening in new developments. The aims of the UGF include:

- To accelerate greening of the built environment – making sure London is greener as it grows; and
- To ensure better planned, better quality greening interventions that contribute to a functioning GI network.

B.8 The UGF works by attributing a score to various landscaping elements such as trees, green roofs and permeable paving. It does not take into account the losses or gains in biodiversity or the value of individual habitats. Its focus is instead on the overall ratio of built to natural landscaping. Zero is the lowest score, given to impermeable surfaces such as asphalt concrete and 1, the highest, given to natural vegetation on deep soils. An overall score is calculated for the whole site and a target can be set (typically 0.4 or 0.5 depending on the setting and ambitions for greening).

Natural England's Green Infrastructure Framework

B.9 The GI Framework is a commitment in the Government's 25 Year Environment Plan. It supports the greening of our towns and cities and connections with the surrounding landscape [See reference 70]. Natural England has been developing the Framework which is still a work in progress. As of December 2021, two elements of this Framework have been published – the GI Principles and GI mapping tools. These are designed to help local planning authorities and developers meet requirements set out in the National

Appendix B Overview of benchmarking and standards within Hertfordshire

Planning Policy Framework to consider GI in local plans and new development, and for local parks and green space managers and communities to plan and improve GI in their local area.

B.10 The full GI Framework will be available in Autumn 2022. This will include the core GI standards from which local authorities can set out their own local standards, for example, on accessible natural green space or urban greening. The GI Framework will not replace existing standards such as the Green Flag Award or ANGSt, but rather work in tandem. The Framework will also include a GI Design Guide and case studies to aid implementation.

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