Hertfordshire Green Infrastructure Strategy

Part 1: Setting the Scene – A Strategic Review of Green Infrastructure in Hertfordshire

Hertfordshire Infrastructure and Planning Partnership in partnership with Hertfordshire County Council

Final report
Prepared by LUC
August 2022

Version	Status	Prepared	Checked	Approved	Date
1	Draft	S Crewe M Cooke V Roberts R Hammonds A Peet	K Ahern	K Ahern	August 2021
2	Final	S Crewe	K Ahern	K Ahern	August 2022

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.

Hertfordshire Green Infrastructure Strategy

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Chapter 1
Introduction

This document will build on the existing Hertfordshire Green Infrastructure Strategy of 2011 to present a picture of both the strengths and weaknesses of the county's current GI network. It will also identify priorities, mechanisms and an overarching vision to provide green infrastructure enhancements, with the aim of delivering a more resilient and healthier Hertfordshire.

1.1 'Green Infrastructure' (or GI) is an essential component of healthy, thriving communities and ecosystems. Working on behalf of the Hertfordshire Infrastructure and Planning Partnership (HIPP) in partnership with Hertfordshire County Council (HCC), and in consultation with key stakeholders, LUC was commissioned to prepare a GI Strategy for the county. The document will provide an update and refresh of the 2011 Hertfordshire GI Strategy (herein referred to as the '2011 Plan') **[See reference 1]**.

1.2 This document (herein referred to as the 'Strategy') provides an update on the concept of GI and identifies opportunities across the county to protect and enhance the GI network. Importantly, the Strategy reflects on the successes and the shortcomings of the 2011 Plan in order to help guide and inform the investment and future delivery of GI in the context of the county's future growth agenda. The Strategy is divided into two parts:

- Part 1 'sets the scene' by providing an overview of context since 2011; and

- Part 2 outlines baseline analysis, an action plan of priority opportunities and delivery mechanisms.

What is GI?

1.3 Since the publication of the 2011 Plan, the definition of GI has evolved to incorporate wider environmental and societal assets and benefits. The concept has also become increasingly prevalent in national policy and among a variety of other actors, including developers and transport authorities. In addition, GI has been promoted through the 2018 publication of the 25 Year Environment Plan (25YEP) **[See reference** 2**]**. The Landscape Institute, the chartered body for the landscape profession, has also urged that It has 'never been more necessary to invest in GI…the role of GI in addressing the challenges of the 21st century cannot be underestimated **[See reference** 3**]**.

1.4 GI is now more broadly used to describe the network of natural and semi-natural features (including the water environment) within and between our urban and rural areas. GI is not limited to traditional green spaces such as parks and can involve various interventions to thread nature into streetscapes or to increase connectivity between GI assets at various landscape scales.

1.5 The National Planning Policy Framework (NPPF) 2021 defines GI as:

> "A network of multi-functional green and blue spaces and other natural features, urban and rural, which is capable of delivering a wide range of environmental, economic, health and wellbeing benefits for nature, climate, local and wider communities and prosperity." **[See reference** 4**]**

1.6 GI as a term of reference, encompasses open spaces such as parks and public gardens, but also allotments, woodlands, hedgerows, fields, river corridors and catchments, lakes, ponds, playing fields, footpaths and cycle routes. At the street level, this might include green walls, green roofs, soft verges, trees/canopies and Sustainable Drainage Systems (SuDS).

1.7 The 'multi-functionality' of GI refers to the range of benefits it provides to people (both physical and mental wellbeing) and the natural environment. GI can help to create high quality and attractive places, providing a setting for healthy, active day-to-day living. It can also promote habitat creation, enhancement and connectivity (on site as part of development or through biodiversity off-setting) and plays an important role in climate change adaptation and mitigation and alleviating flood risk and soil erosion.

1.8 For GI to serve multiple functions recognises the need, at some locations, for a difference in the importance or weighting of each, particularly where differing functions conflict with each other. For example, the delivery of biodiversity enhancements (favourable status of statutorily designated sites or species) at select locations should be balanced with the need for active transport or recreation.

Components of GI

Elements of the built environment

- Verges;
- Street trees;
- Private gardens;
- Amenity space and pocket parks;
- Green/brown roofs and green walls; and
- Bird/bat boxes.

Managed and natural green spaces

- Public parks;
- Formal and informal open space;

- Allotments;

- Publicly accessible nature conservation site; and

- Undisturbed areas (to accommodate successful breeding, shelter and foraging of wildlife).

Linear linkages

- Footpaths, greenways and bridleways;

- Cycle paths and cycle lanes within roads;

- Disused railway lines;

- Towing paths; and

- Waterways and river corridors.

Aspects of the wider landscape and countryside

- Farmland;

- Wetlands/floodplains; and

- Wildlife habitat.

The benefits of good quality GI

1.9 Owing to its multifunctionality, the benefits of high-quality GI are numerous and far reaching, including:

- Improving residents' and visitors' physical and mental health;

- Aesthetic value and reinforcing sense of place;

- Play, education and interaction with nature;

- Improving air quality and noise regulation;

- Increased economic activity and attractiveness for inward investment;

- Opportunities for community growing;

- Reducing the risk of flooding and improving water quality;

- Active transport opportunities, such as walking and cycling;

- Space for biodiversity and improved ecological resilience;

- Opportunities for social interactions and community cohesion;

- Carbon sequestration and mitigating climate change; and

- Urban cooling, natural air condition and shading.

Hertfordshire's strategic GI context

1.10 Hertfordshire is home to an expansive and multifunctional network of GI at all scales. However, Hertfordshire's location in between a number of strategic GI assets or initiatives helps to strengthen the county's GI provisions, particularly in relation to recreation and movement corridors for wildlife. These include:

- Chiltern Hills Area of Outstanding Natural Beauty (AONB): With over ten million people living within one hour of the Chilterns, this landscape of chalk downlands and escarpments is one of the most accessible protected landscapes in Europe.

- Colne Valley Regional Park: A mosaic of farmland, woodland and wetlands, with over 200km of rivers and canals, providing access to the countryside to the immediate west of London.

- Lee Valley Regional Park: A 26 mile long linear park which brings green and blue open space into the heart of London whilst providing considerable biodiversity and recreation value.

- Epping Forest: A significant stretch of ancient woodland and a Special Area of Conservation (SAC) which was initially designated for recreation access, but is now experiencing significant pressures.

- Chalk Arc: A partnership which focuses on securing green space in and around housing growth within Luton, Dunstable, Houghton Regis and Leighton-Linslade.

- Green Arc: A partnership which encourages the bringing of the 'big outdoors' closer to people through conserving the Green Belt, protecting biodiversity and expanding open space.

The Green Recovery: How the Strategy can help

1.11 Investment in infrastructure, including GI, will be essential to the post COVID-19 economic recovery process as it can play a direct role in stimulating economies and maintaining employment. During the pandemic and periods of lockdown, access to open space and nature were increasingly seen as vital for mental and physical well-being and rose up the list of priorities within people's lives **[See reference** 5**]**. Investment in nature based solutions and natural capital – as supported by the UK's 25 Year Environment Plan (YEP) – will help to ensure that nature's value is included in recovery packages and taken forward as a vital component to a more sustainable future.

1.12 The policy context for GI has changed significantly since 2011. The Strategy will be informed by this rapidly evolving environment to identify new 'policy hooks' which the document and its future delivery can take advantage of. As well as helping to reinvigorate the economy and improve people's wellbeing, GI will simultaneously help to address the ongoing climate/biodiversity emergencies and health challenges.

1.13 In order to achieve this type of recovery, a strategic approach is crucial to help direct funds to priorities which address identified needs and to link up isolated GI assets to form a resilient and multi-functional network. The approach should also inform the planning and delivery of GI at smaller scale within the county, such as within individual towns and settlements.

How should the Strategy be used?

1.14 Initial consultation feedback from HIPP/Hertfordshire County Council (HCC) and other key stakeholders during June 2021 demonstrated that, whilst comprehensive and well received when originally published, delivery of the projects identified within the 2011 Plan has been limited. This has been largely due to a lack of understanding as to what GI is and what it can offer, but also on how to best interpret and use the existing 2011 Plan in a planning context – both in the writing of planning policies and in the assessment of planning applications. The need for a clear delivery plan for the county was identified as being a key component for any future GI Strategy to consider.

1.15 Consequently, a user guide has been developed as part of the Strategy to demonstrate how the document should be used by various recipients and where it sits in the wider planning policy framework. This will provide a basis to assist in the effective delivery of GI. The Strategy will be developed to support the wider planning process and to address previous challenges of successful implementation and long-term management of GI.

1.16 The Strategy will provide a 'how-to' guide to help ensure that GI is successfully delivered across the county by HIPP/HCC, Local Planning Authorities (LPAs), infrastructure providers, developers, charities and other interested parties.

1.17 Close cooperation with partners, including a consultation event and virtual stakeholder workshop in Autumn 2021 will be a vital process to inform the development and raise the profile of the Strategy. This will also secure buy-in from those most likely to use it and deliver its stated vision.

User guide

County Council level

1.18 Use the GI Strategy to:

- Respond to district or borough level strategies or plans and planning applications; and

- Ensure the HCC reflects the need to retain and enhance GI as part of its planning functions.

1.19 Maintain the GI Strategy as a live resource that can be updated with new evidence and opportunities as they emerge.

District Council level – LPAs

1.20 Use the GI Strategy to:

- Protect and enhance existing GI;

- Incorporate its planning 'hooks' and policy context into district or borough strategies and plans (including Local Plans and district or borough level GI Strategies);

- Appraise development proposals to ensure a 'GI-led' design approach, with early engagement; and

- Identify mechanisms to fund and implement GI through developer contributions.

Developers

1.21 Use the GI Strategy to:

- Understand the role they can play in the delivery of GI across Hertfordshire;

- Identify existing GI to protect and enhance through development proposals;

- Integrate GI from the beginning of design work;

- Consult the GI checklist for deliverable enhancement opportunities on site;

- Develop sites design with input from stakeholders; and

- Demonstrate how proposals provide enhancements to GI.

External strategic partners/charities

1.22 Use the GI Strategy to:

- Identify existing GI for protection and enhancement;

- Share the priority actions with partnership agencies who have interest in delivering improvements across the GI network; and

- Communicate the deliverable enhancement opportunities to ensure all stakeholders are working towards the shared vision.

Strategic and local planning

- District level GI Strategies and Local Plan policies;

- Neighbourhood Plans; and

- Local Community Action Groups.

Development planning

- Using policy and GI checklists to assess submitted details in planning applications; and

■ Inform the creation of Masterplans and design codes.

Structure of the Strategy

1.23 As shown in Figure 1.1, the process of developing this Strategy follows a series of stages, structured around two separate tasks as outlined below:

■ Part 1: Setting the Scene – A Strategic Review of Green Infrastructure (GI) in Hertfordshire;

■ Part 2a: GI Baseline, Analysis and Priorities; and

■ Part 2b: GI Priority Actions and Delivery.

1.24 The remainder of this Part 1 report is structured as follows:

■ Chapter 1 provides an introduction;

■ Chapter 2 provides a policy update – considering the key GI planning policy position and drivers at the international, national, county and local level;

■ Chapter 3 examines why the concept of GI is important to Hertfordshire, reflecting on the post-2011 context;

■ Chapter 4 explores some recent best practice examples of GI strategies to assess how the approach to GI has evolved since 2011; and

■ Chapter 5 sets out the development of the overarching vision for GI within Hertfordshire, informed by analysis of the post-2011 context and the results of stakeholder consultation.

1.25 Part 2a of the Strategy is structured as follows:

■ Chapter 1 provides a summary of the functional analysis of the Green Infrastructure (GI) network;

■ Chapters 2-7 examine the GI themes; and

■ Chapter 8 identifies the suite of GI Priority Actions.

Chapter 1   Introduction

1.26 Part 2b of the Strategy is structured as follows:

- Chapter 1 provides an overview of delivery of the GI Priority Actions; and

- Chapter 2 discusses the mechanisms for GI delivery and funding.

Figure 1.1: Structure of the Strategy
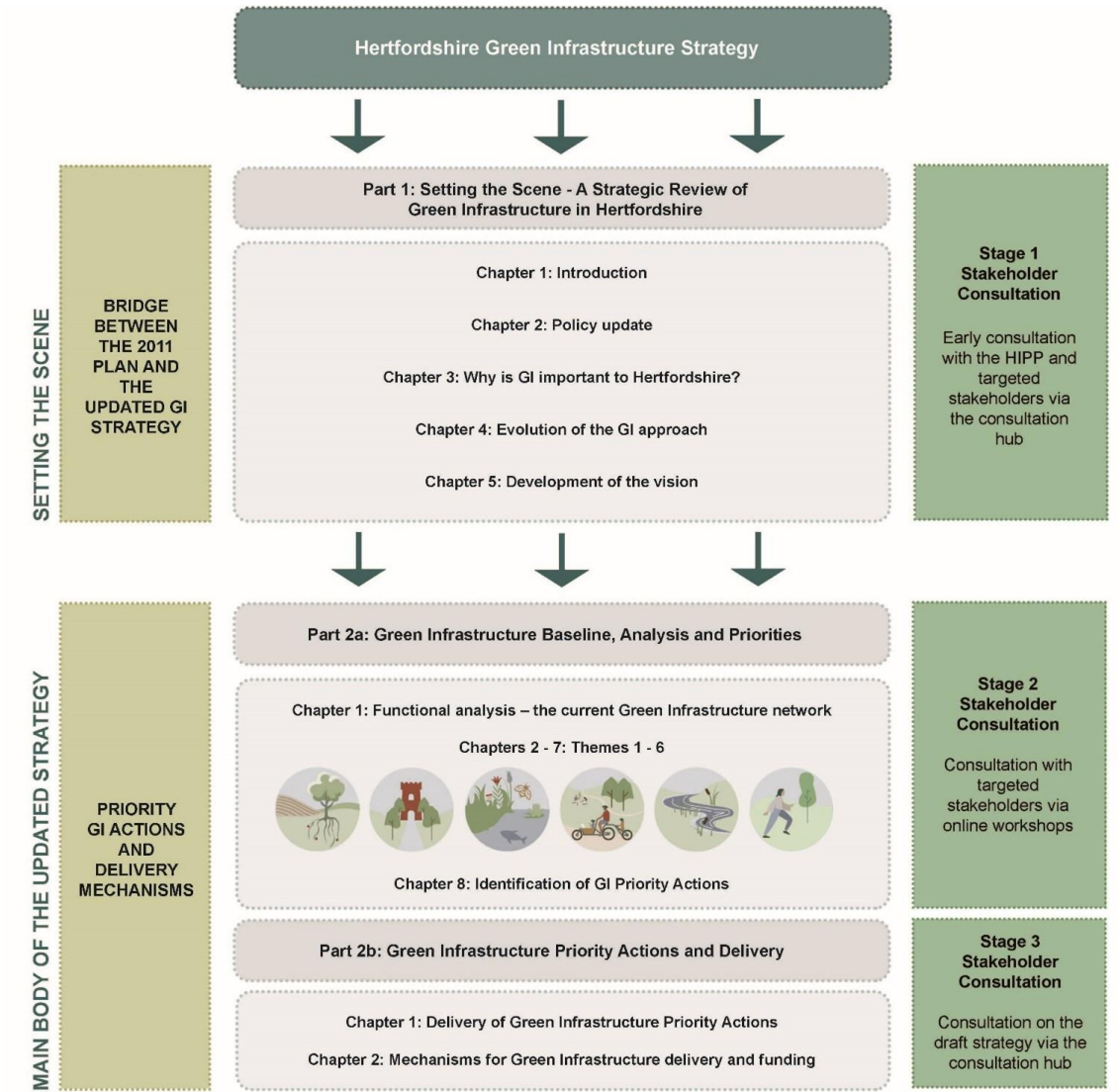
Chapter 2
Policy Update

This chapter provides an overview of the changes in national and local policy affecting GI since 2011.

2.1 Many of the policies and strategies that informed the 2011 Plan have been subsequently updated. It is therefore important that this Strategy corresponds to the most pertinent updates in policy on an international, national, county and local scale. This full policy context is detailed below.

Policy context

International

- International Convention on Biological Diversity;
- UN Paris Climate Agreement; and
- Bern Convention.

National

- Environment Bill (currently in passage);
- National Planning Policy Framework; and
- 25 Year Environment Plan.

County

- Hertfordshire Biodiversity Action Plan;

- Hertfordshire Infrastructure and Funding Prospectus;

- Hertfordshire Joint Strategic Needs Assessment;

- Hertfordshire Rights of Way Improvement Plan;

- Hertfordshire Local Transport Plan 4;

- Hertfordshire Pollinator Strategy;

- Hertfordshire Public Health Service Strategy;

- Hertfordshire Health and Wellbeing Strategy;

- Hertfordshire Equality Strategy;

- Hertfordshire's Ecological Networks Report;

- Hertfordshire Air Quality Strategy;

- Hertfordshire Active Travel Strategy;

- The Chilterns AONB Management Plan; and

- Hertfordshire Energy Strategy.

Local

2.2 Hertfordshire Green Infrastructure Strategy will act as an evidence base for Local Planning Authorities, including:

- Welwyn Hatfield;

- Walford;

- Three Rivers;

- Stevenage;

- St Albans;

- North Hertfordshire;

- Hertsmere;

- East Hertfordshire;

- Dacorum; and

- Broxbourne.

International policy context

2.3 A number of international policies set out the high-level strategic objectives for enhancing the natural environment, addressing climate change and ensuring sustainable development. This Strategy is committed to our international obligations; building significantly from the International Convention on Biological Diversity **[See reference** 6**]** and European Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) **[See reference** 7**]**.

2.4 Since 2011, the UN Paris Climate Change Agreement **[See reference** 8**]** has become a legally binding international treaty on climate change, which aims to ensure that global temperatures stay below 2 degrees Celsius compared to pre-industrial levels. The latest Intergovernmental Panel on Climate Change (IPCC) report **[See reference** 9**]** published in August 2021 states that:

> "it is unequivocal that human influence has warmed the atmosphere, ocean and land. Widespread rapid changes in the atmosphere, ocean, cryosphere and biosphere have occurred."

2.5 This highlights the urgency for nations and governments to take action and ensure resilience across society, including through nature-based and sustainable solutions such as GI. The UK hosts the COP26 summit in late 2021 which will bring parties together to further accelerate action towards the goals of

the Paris Agreement and UNITED Nations Framework Convention on Climate Change (UNFCCC).

2.6 At the European Union (EU) level, there are several important directives that focus on protecting and conserving the natural environment. Although the UK is no longer in the EU, the objectives of policy such as the EU Water Framework Directive, the Habitats Directive and the Birds Directive are still relevant as their primary goals are translated into UK legislation, for example, through the Environment Bill.

National policy context

2.7 The 25 Year Environment Plan (25YEP) **[See reference** 10**]**, published in 2018, outlines the Government's support for habitat creation and connection, for multi-functional SuDS and for natural spaces close to where people live and work. It represents an important shift in thinking towards long term positive action to improve people's lives and the environment. It views the planning system as a key mechanism for delivering upon these ambitions. The first action of the 25YEP seeks to embed an 'environmental net gains' principle into development:

> "We want to establish strategic, flexible and locally tailored approaches that recognise the relationship between the quality of the environment and development. That will enable us to achieve measurable improvements for the environment – 'environmental net gains' – while ensuring economic growth and reducing costs, complexity and delays for developers."

2.8 The 25YEP goes on to state that in future the Government should aim to:

Chapter 2   Policy Update

> "expand the net gain approaches used for biodiversity to include wider
> natural capital benefits, such as flood protection, recreation and improved
> water and air quality. They will enable local planning authorities to target
> environmental enhancements that are needed most in their areas and give
> flexibility to developers in providing them."

2.9 The emerging Environment Bill **[See reference** 11**]** places the ambitions of
the 25YEP on a statutory footing, by creating a new governance framework for
the environment, to ensure a 'cleaner, greener and more resilient country for the
next generation' as the UK leaves the EU. The bill is nearing the final stages of
consideration, with the House of Lords scheduled to be considered further in
September, with the aim of being given royal assent by the end of 2021.
Requirements of the bill will then become mandatory after a two year transition
period.

2.10 The NPPF emphasises the need for GI networks, stating that strategic
policies in plans should set out an overall strategy that makes sufficient
provision for the conservation and enhancement of GI (Paragraph 20). It also
requires that planning policies should aim to achieve healthy, inclusive and safe
places, including through the provision of 'safe and accessible GI' (Paragraph
92) and should plan positively for the provision of shared spaces and
community facilities, including open space (Paragraph 93).

2.11 Regarding new development, the NPPF requires that it be planned in a
way that avoids increased vulnerability to the range of impacts arising from
climate change, particularly in vulnerable areas, and states that risks can be
managed through the planning of GI (Paragraph 154).

2.12 Paragraph 175 of the NPPF also requires that a strategic approach is used
to ensure that, within a plan area, networks of habitats and GI are maintained,
and that planning is undertaken for the enhancement of natural capital at a
catchment or landscape scale across LPA boundaries.

County policy context

2.13 Hertfordshire County Council has produced a number of strategy and policy documents which are relevant to the need for an updated GI Strategy. The Hertfordshire Corporate Plan 2019-2025 **[See reference** 12**]** outlines the vision and aspiration of the region and is underpinned by four ambitions. One of these ambitions, which is a key aspiration for the Strategy to help deliver, is to enable thriving places by creating:

> "sustainable places where people can enjoy a good quality life, growth is sensitively managed, and the value of Hertfordshire's clean and green environment is respected."

2.14 In response to the climate emergency declared by HCC in 2019, an outcome of the Corporate Plan was to produce the 2020 Sustainable Hertfordshire Strategy and Action Plan **[See reference** 13**]**, which acts to limit the impact of climate change by taking a county-wide approach to sustainable solutions. This, and the supporting Action Plan **[See reference** 14**]**, recognise the 2011 Plan and its role in identifying a network of natural spaces and corridors across the county which provide valuable biodiversity benefits in need of protection. Eight out of the ten LPAs comprising HCC have also declared climate emergencies to date.

2.15 Key actions in the Sustainable Hertfordshire Strategy which are of current and future relevance to the Strategy include adopting the upcoming National GI Standards, embedding climate change policy in strategy development, and establishing a Hertfordshire Biodiversity Strategy.

2.16 The Sustainable Hertfordshire Strategy uses existing strategy documentation in place as its baseline, including the Energy Strategy **[See reference** 15**]**, which sets a goal of reducing carbon dioxide emissions to 80% of those in 2012/13 by 2025, the Pollinator Strategy **[See reference** 16**]**, and

the Air Quality Strategy **[See reference** 17**]**, which were all published in 2019 and are considered within this GI Strategy.

2.17 The Hertfordshire Growth Board (HGB) forms a joint committee of all the LPAs in Hertfordshire; comprised of HCC, the 10 district or borough councils, the Integrated Care System, Homes England and the Hertfordshire Local Enterprise Partnership. The aim of the HGB is to manage future growth and support economic recovery within Hertfordshire, helping to deliver happy, healthy and diverse communities. In close collaboration with the Hertfordshire Climate Change and Sustainability Partnership, the HGB also promotes the delivery of climate change action with the objective of achieving lasting sustainable change.

2.18 The Local Transport Plan 4 (2018-2031) **[See reference** 18**]** identifies modal shift and encouraging active travel as one of its four key principles, with the plan making explicit reference to the production of this Strategy. It states that the emerging Strategy will highlight the key issues with managing GI in the county in the future, including its role in supporting and improving sustainable active travel, rights of way, health and wellbeing. This Strategy also recognises the priorities within the Active Travel Strategy **[See reference** 19**]** and Rights of Way Improvement Plan **[See reference** 20**]**.

2.19 Other policy and strategy documents have been considered and integrated into the update of the GI Strategy, including the Health and Wellbeing Strategy **[See reference** 21**]**, Equality Strategy **[See reference** 22**]**, Joint Strategic Needs Assessment (JSNA) **[See reference** 23**]** which each focus on the health, wellbeing and social care needs of the local population. In terms of managing flood risk, the regulatory context since the 2011 Plan has also been fundamentally updated through the establishment of legislation and creation of Lead Local Flood Authorities (LLFA), a function fulfilled by HCC.

Local planning context

2.20 HCC is the upper-tier authority of ten local authority districts/boroughs who each act as the LPA for their areas. County-level guidance is provided to districts/boroughs, such as Health and Wellbeing Guidance **[See reference** 24**]** which advises on the delivery of healthy developments and communities, including good quality open space and GI.

2.21 Guiding principles of planning for biodiversity and the natural environment **[See reference** 25**]** were developed by the Hertfordshire Local Nature Partnership (LNP) in 2014 to add local value to the protection and enhancement of biodiversity/habitat connectivity. This is considered in this Strategy, as is the Wildlife Trust's 2014 report detailing Hertfordshire's Ecological Networks **[See reference** 26**]** which produced a county-wide habitat inventory and potential habitat network maps.

2.22 Planning policy plays a key and critical role in the assessment and delivery of GI across Hertfordshire. The district or borough Local Plans are vital tools for conveying the priorities identified through the county level GI Strategy and delivering these through effective GI planning policy. However, the quality of GI policies and/or wider policies that deliver the key components of the GI network, varies throughout the county and is inconsistent due to the continuously evolving nature of district or borough-level Local Plans and updates that occur at different times.

2.23 Although this is to be expected, a cohesive and strategic vision and assessment at the county level would be of benefit to district or borough-level GI planning, eventually trickling down to sub-local GI for strategic allocations and smaller developments that responds to local character and need.

Hislop Review of District or Borough Plans

2.24 A high-level assessment of the effectiveness of district or borough level Local Planning policy in delivering GI has been undertaken as part of the formation of this Strategy – this was informed by the Hislop Review Tool **[See reference** 27**]**.

2.25 The Hislop Review Tool is a framework complete with guidance that critically assesses the policies, objectives and actions relating to GI when assessed against a number of core GI functions, such as mainstreaming, integration, multifunctionality and long term management. The framework identifies seven GI subject areas that effective plans and policies should cover. This framework process has been refined for the purposes of this Strategy and has been undertaken to identify broad trends in the strength and coverage of GI policies in the ten Hertfordshire district or borough Local Plans at the time of writing.

2.26 Key facts and findings from this assessment are presented in the following section and demonstrate the areas where local GI policies perform well or where they could be improved in the future. It will be the role of this GI Strategy to provide guidance in how to effectively 'mainstream' GI into wider policy and Local Plan aspirations.

Key results from the Hislop Review Tool

General

General:

- 90% of districts have strong policies relating to at least one important aspect of designing and delivering GI.

Policy plan mainstreaming

GI recognised in vision:

- Under a third of districts do not make any reference to GI in the vision, principles or objectives of their Local Plan; and

- Only a fifth of districts were found to strongly value GI in the vision of their Local Plan.

Policy integration:

- Half of the districts poorly integrate GI outside the environment policies in their Local Plans.

Development integration

Early design and engagement:

- The policies of half of the districts fail to sufficiently recognise the importance of early GI design and pre-application engagement.

Multi-functionality:

- Just under half of the districts strongly emphasise how GI can deliver multiple benefits on the same land parcel in Local Plan policies.

Development setting:

- There is poor policy coverage of the benefits of using site appraisals in relation to GI in over a third of districts.

Landscape scale:

- Over half of all districts have policies which recognise wider landscape scale GI networks.

Access networks

Active travel and recreation:

- Over half of districts have very strong coverage and policy wording strength of using GI to enhance opportunities for sustainable travel.

Biodiversity/habitats

Biodiversity gain:

- Less than a quarter of districts currently have strong policy wording on the requirements for Biodiversity Net Gain (BNG); and

- Although delivering net gains for biodiversity are referenced in all Local Plans, wording is currently assessed as being weak in over a third.

Habitat connectivity:

- Over two thirds of districts have adequate or strong policies relating to GI's contribution to retaining and enhancing habitat networks; and

- Over a quarter of districts do not have policies regarding the expansion of habitat networks through GI.

Physical environment

Water environment:

- Over half the districts have adequate or strong policies in relation to using SuDS as multifunctional GI assets; and

- Watercourses and blue infrastructure is poorly referenced or recognised as GI in the Local Plans of over a third of districts.

Air quality:

- GI's contribution to tackling local air quality is poorly recognised in over half of the district Local Plans assessed.

Greenspace

Open space standards:

- All districts in Hertfordshire have adequate or strong policy coverage in terms of using GI to meet open space standards.

User needs:

- Nearly three quarters of districts have strong policies that make provision for recreational facilities that meet local user and community needs; and

- The importance of multi-user design is not well realised in the policies of 20% of districts.

Stewardship

Management and Maintenance:

- Long term management and maintenance of GI is poorly documented or agreed in the Local Plans of just under half of the districts; and

- Over half of districts have policies which require GI proposals to be properly managed and maintained.

Resourcing:

- At least half of the districts identify GI as being a potential requirement for financial contributions from development; and

- Nearly a quarter of districts fail to explicitly identify mechanisms to fund the management and maintenance of GI in their Local Plan policies.

Taking forward the key findings from the Hislop Review

2.27 The findings of the Hislop Review of Hertfordshire's district or borough Local Plans demonstrates the varying nature and performance of GI in local planning policy. Whilst there are general areas of strength, such as referencing the use of GI to enhance opportunities for sustainable travel and meeting open space standards, there are other areas of weakness which will be of particular focus for this Strategy to consider. Key areas requiring further consideration include:

- Ensuring that GI is considered as a mandatory and strategic planning issue, more explicit reference to it should be made throughout Local Plans to recognise its multifunctional benefits for placemaking. It should be included in the long-term vision for a district or borough, through its Local Plan Objectives and should weave itself through various policies within the Local Plan, not just be referenced through a GI policy alone. This GI

Strategy will emphasise the importance of mainstreaming GI into Local Plans and the importance of developing GI policy hooks.

- Ensuring that GI is designed into developments from the early stages of the design process will be a key focus for this GI Strategy. A Developer Checklist will be developed to provide guidance for developers and council officers (when assessing applications) in order to bridge the gap between high-level strategic GI planning and its delivery through strategic and local scale development across Hertfordshire.

- Approaching the GI Strategy as a live document that is adaptable to future changes in international and national policy context. In particular, the GI Strategy should be alert to upcoming changes in the Environment Bill which will introduce requirements for developments to achieve biodiversity net gain and establish nature recovery networks. Being adaptable to future legislation will ensure that district or borough level Local Plans can use the GI Strategy to respond to these changes effectively.

- There are currently missed references in policy regarding the role that SuDS can play as multifunctional GI assets, as well as missed opportunities for GI to improve other important issues such as air quality. Incorporating 'blue' infrastructure in the design and planning of GI in Hertfordshire will be an important focal point of this GI Strategy. Likewise, other multifunctional nature-based solutions should be sought to improve local air quality.

- The GI Strategy will identify how the multifunctional nature of GI should be addressed throughout Local Plans. Improving stewardship of GI at a strategic scale. It is important for GI to not only be delivered, but to ensure that there are strong processes in place for its management and maintenance. This GI Strategy will help identify key stakeholders and partnerships already involved in protecting and enhancing GI assets in Hertfordshire, engaging partners at all scales from national bodies to local community groups to help deliver and maintain improvements to the GI network across Hertfordshire.

- Establishing sources of GI funding, which is increasingly essential. Whilst this has been considered in part through many district or borough level Local Plans, this Strategy will make recommendations on suitable sources

of funding and help generate a cohesive approach to resourcing GI throughout Hertfordshire.

Chapter 3
Why is GI important to Hertfordshire?

The updated Strategy is being undertaken against the backdrop of global emergencies, which form the 'backbone' of key drivers for GI opportunities. These challenges relate to climate, biodiversity, health and delivery of sustainable development.

3.1 The role of the Strategy is to acknowledge these significant challenges and address them at a local scale, transforming the issues into opportunities for positive change. The following section identifies the key drivers and 'needs' for GI within Hertfordshire, updated to reflect the post-2011 context. Positively addressing these challenges alongside the pressures of future housing growth will help to strengthen the GI network across the county and its ability to accommodate future change.

3.2 The drivers essentially frame why Hertfordshire would benefit from an updated strategic approach to the provision of GI in both urban and rural areas. Driven by an emerging growth agenda, the enhancement of the GI network will aim to address these multiple challenges whilst helping to accommodate sustainable growth, secure high quality of life for all and protect and enhance the natural environment.

3.3 The key drivers for the Strategy are listed below:

- 'Resilient spaces' – which play a role particularly in addressing the climate emergency;

- 'Wilder spaces' – which play a role particularly in addressing the biodiversity emergency;

- 'Healthier spaces' – which play a role particularly in addressing local and nationally recognised health challenges; and

- ‘Destination spaces’ – which play a role particularly in recreation and regeneration.

3.4 These drivers are generally ‘cross-cutting’ and often relate to the provision of all types of GI. This reflects the multifunctionality and range of benefits that may be derived from any given GI asset. Figure 3.1 presents typical GI network components in the context of the above ‘key drivers’.

Figure 3.1: Drivers for GI
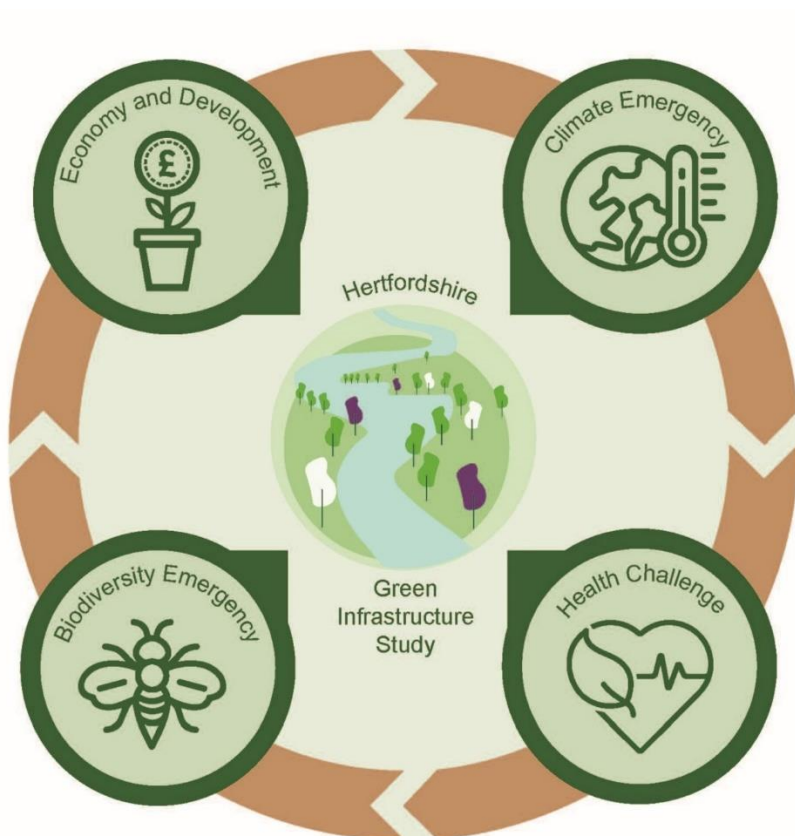
The climate emergency

3.5 Adopting a strategic approach to GI across the county will help to support HIPP/HCC and the individual LPAs in their response to the climate emergency. Climate change poses a significant risk to the landscapes and communities

within Hertfordshire. Future climatic trends indicate more severe and frequent weather events, an increasing annual global average temperature and rising sea levels. By the end of the 21st century, all areas of the UK are projected to be warmer, more so in summer than in winter, consistent with future warming globally.

3.6 The UK Climate Projections (UKCP) **[See reference** 28**]** uses probabilistic projections to provide low, central and high changes across the UK corresponding to 10%, 50% and 90%. These events are expected to intensify in the coming decades. Projections also suggest up to a 28% decrease in summer rainfall in 2030 and a 45% reduction by 2050 (see Figure 3.2). Winter rainfall is predicted to increase by up to 14% by the 2030s and up to 25% by the 2050s. The effects of a changing climate will be far reaching, extending to impacts on health, resources and biodiversity within the county. However, GI can help to both mitigate climate change (address the causes) and support adaptation (address the effects). Well designed and managed GI is therefore a key component in the provision of climate resilience.

3.7 Following the declaration of a Climate Emergency in July 2019, HCC prepared the Sustainable Hertfordshire Strategy **[See reference** 29**]**. The document establishes HCC's commitment to ensuring an effective response to the threat of climate change through the integration of sustainability principles across all operations throughout the county. A suite of ambitious environmental aspirations are presented; including proposals for carbon neutrality for all HCC operations and improvements to biodiversity on council land by 20% by 2030. The document also acknowledges the importance of working collaboratively across local government, ensuring HCC and the ten LPAs work together to inspire environmental action across Hertfordshire.

3.8 The Hertfordshire Climate Change and Sustainability Partnership (HCCSP) was subsequently formed in March 2020 and acts as the lead partnership organisation for the collaboration and identification of joint work programmes on environmental, climate changes and wider sustainability issues. The partnership works collaboratively to deliver climate change action, address carbon reduction targets for Hertfordshire and achieve lasting change.

Opportunity for GI?

The effective delivery of GI will aim to provide a positive response to the Climate Emergency. The GI network will play a vital role in climate change mitigation and adaptation through contributions such as surface water and flood management, storage of greenhouse gases, improvements to air quality and provision of habitats for wildlife. GI can also help mitigate against other predicted effects of climate change by sequestering carbon, promoting greenways for active travel and reductions to the urban heat island effect.

Figure 3.2: Projected rainfall variations with climate change in the UK
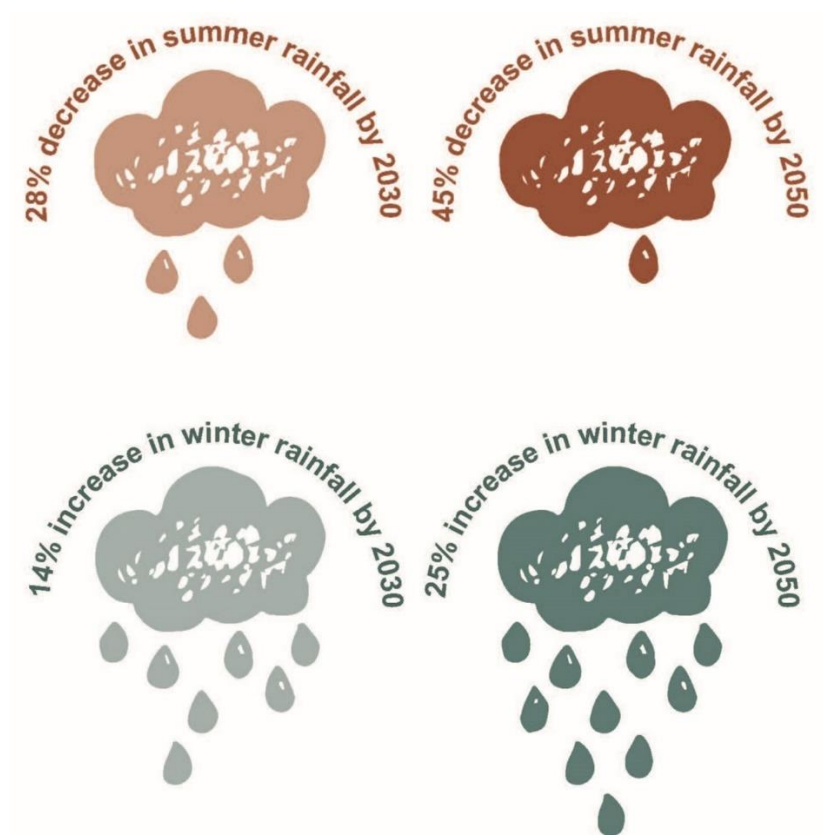
The biodiversity emergency

3.9 Adopting a strategic and coordinated approach to the provision of GI within the county provides an opportunity to apply best practice principles for the conservation and enhancement of biodiversity. Securing a well-connected nature network will complement a cross-boundary approach to establish a framework for nature recovery, whilst also delivering resilience to climate change and the wider functions of GI. The network will need to accommodate future population growth, balancing the need for protection of habitats and species most sensitive to disturbance and therein, accommodate the delivery of locally appropriate Biodiversity Net Gain (BNG).

3.10 Approximately 14% (22,080ha) of the county is protected under designation – including 1,174 hectares of international Special Areas of Conservation (SAC), Special Protection Areas (SPA) and/or Ramsar designated land **[See reference** 30**]**, 1,238 hectares of Sites of Special Scientific Interest (SSSI) and 13,729 hectares of Local Wildlife Sites (see Figure 3.3). Together with 5,941 hectares (partially overlapping the designations) of ancient woodland and Tree Preservation Order (TPO) trees, these form the foundation of the protected network. The mosaic of priority habitats and veteran trees that extend across and between these designations are critical to effective connection and buffering of the protected network. More widely, biodiverse habitats – grasslands, wetlands, hedgerows, scrub and green roofs and walls within urban areas – are essential to support abundant and thriving biodiversity, disperse through the landscape. The resilience of biodiversity to the pressures of agricultural intensification, climate change, increased urbanisation and transport infrastructure is not only dependent on sufficient space but the support of healthy soils, connected and functioning hydrology, etc.

3.11 The 2020 Hertfordshire State of Nature report **[See reference** 31**]** states that 20% (1,524 in number) of the species recorded are of conservation concern i.e. extinct **[See reference** 32**]** or threatened in a county context. Of these, approximately one third is associated with each woodland and grassland habitats and one quarter with wetland. The most dramatic decline – reminiscent of the national picture – is that of grassland and heathland habitats, both in

quality and total area. The 2020 report highlights "potential new threat is the recent ambition to plant trees to offset climate change impacts" in relation to these habitat types in particular.

Figure 3.3: Total coverage of designated sites for nature conservation within Hertforshire

| 1,174 ha SPA/ SAC/ Ramsar | 1,238 ha SSSI | 5,941ha Ancient woodland and TPO trees | 13,729ha Local Wildlife Sites |

↑ **14% of the county (22,080ha)** ↑
Total designated sites

Opportunity for GI?

To protect, enhance and expand the ecological resource in the coming years it will be necessary to ensure existing habitats are resilient to the effects of climate change and form a coherent nature network. Provision of GI in Hertfordshire should be informed by the need for natural spaces to become bigger, better and more joined up. It must also recognise variation in local character (including biodiversity imperatives and duties) and broaden the complexity and reach of biodiversity through the urban areas of the county.

Figure 3.4: Nature conservation designations across Hertfordshire and the surrounding area
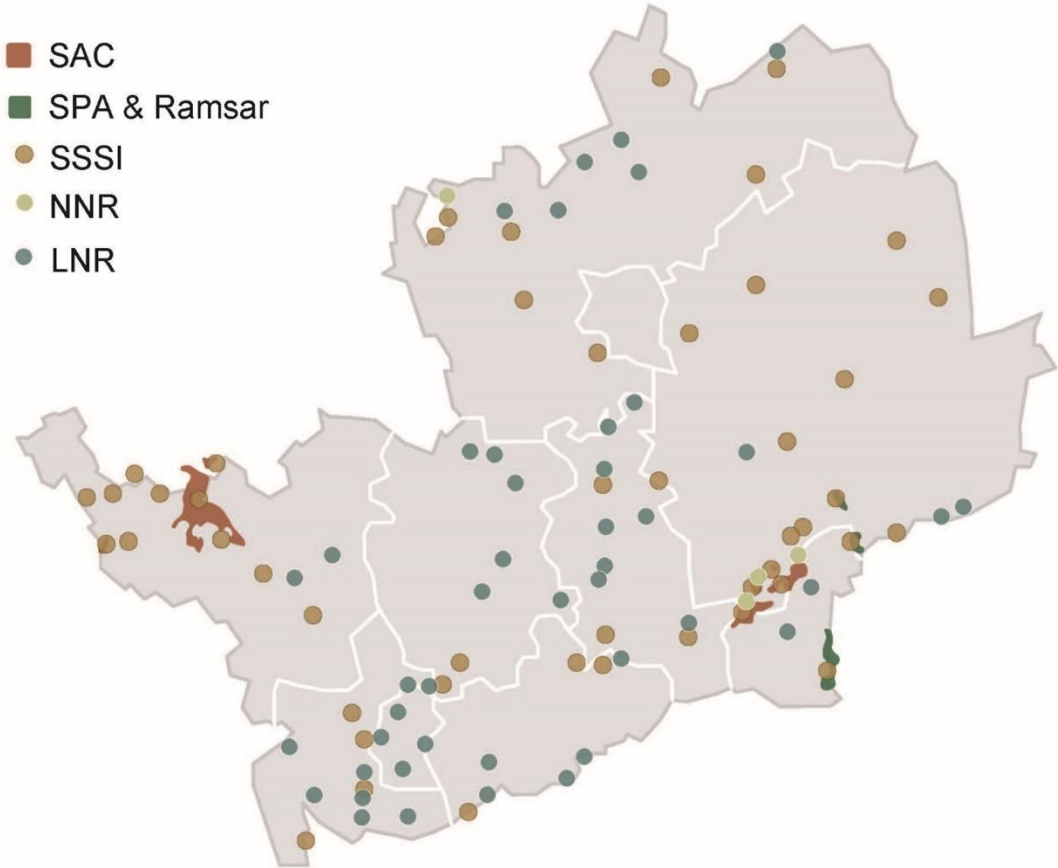
The health challenge

Physical health

3.12 The national government's 2020 Obesity Strategy **[See reference** 33**]** frames obesity as one of the greatest long-term health challenges faced by the country. Specific emphasis is placed on the need to address the problem of unhealthy lifestyles in childhood, which sow the seeds of adult diseases and health inequalities. The document was based on the recognised need to heed the 'wake up' call of COVID-19 in terms of health vulnerabilities. Evidence also increasingly recognises the role of green spaces and active travel networks –

both key components of a successful GI network – in tackling health challenges. Public Health England (PHE) highlights that people who have greater exposure to green space have a range of more favourable physiological outcomes, however competing demands for space are putting pressure on these resources **[See reference** 34**]**.

3.13 Health outcomes in Hertfordshire vary across the county. Overall, it is estimated that 63% of the population aged 16 years+ are obese or overweight, a statistic which is higher than the national average. However, significant disparities exist within individual districts/boroughs, with Stevenage exhibiting the highest proportion of excess weight (66.4%) compared with Welwyn Hatfield which has the smallest proportion (58%). Based on projection data from 2015, the estimated direct costs to the NHS of being overweight and obese equate to approximately £114 million. In addition, the cost of physical inactivity alone to the NHS within Hertfordshire has been estimated at £16.1 million. Pressure on the existing health and social care sector will also continue to grow as Hertfordshire sees increased population growth in those aged over 65.

3.14 Policy updates since 2011 have included the publication of Hertfordshire's Health and Wellbeing Planning Guidance **[See reference** 35**]** which aims to guide planning professionals, LPAs and developers in the delivery of healthy communities by increasing knowledge of health and wellbeing and its relationship to spatial issues. The document focuses on seven key areas, of which two are of particular relevance to GI in Hertfordshire:

- Movement and Access: Focussing on improving active travel and connectivity and urban permeability; and

- Quality Open Space, Play and Recreation: Focussing on the provision of open space and GI in design.

3.15 Evidence also increasingly recognises the role of green spaces and active travel networks – both key components of a successful GI network – in tackling health challenges. PHE highlights that people who have greater exposure to green space have a range of more favourable physiological outcomes, although competing demands for space are putting pressure on these resources **[See reference** 36**]**. This relationship is consistent with wider deprivation trends

acknowledged within Hertfordshire's JSNA. 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** 37**]**.

Opportunity for GI?

The potential benefits of GI are far reaching, including the development of priorities in relation to the health and wellbeing of Hertfordshire's residents. The expansion and improvement of GI projects offer the potential to support the delivery of health benefits within the county.

Air quality

3.16 Evidence of the impact of air pollution on health outcomes – particularly those of children, who are more vulnerable – is building, with evidence from Public Health England highlighting that poor air quality is the largest environmental risk to public health in the UK **[See reference** 38**]**. In 2011, Hertfordshire exhibited a higher mean concentration (µg/m-3) of fine particulate matter than England (10.7 compared to 9.5). The proportion of mortality attributable to particulate air pollution in the county was also higher than the England average in 2015,a trend dating back to 2010 **[See reference** 39**]**. In addition, poor air quality is likely to contribute to health inequalities because its impact is greater on deprived communities. There are two major ways in which a GI network can help to address the challenge of poor air quality:

- Providing a strong network of active travel routes (requiring physical exertion) between developments and key services, in an attempt to reduce transport related emissions, and to build a sustainable '15-minute' neighbourhood; and

- Using vegetation to capture pollution particles as part of multi-functional public realm improvements. This approach could be targeted at key locations such as schools or along particular busy transport corridors.

3.17 When utilising GI to improve air quality, it is important to use interventions which are suitable to the context and space. For instance, narrow urban canyons where the pollution source is at street level should not be characterised by dense avenues of trees.

Air quality context and green infrastructure interventions

Street canyon where air at street level is more polluted than the air above (see Figure 3.5)

3.18 In these locations, limiting the movement of air upwards and downwards should be avoided. For example, a dense avenue of trees can trap pollution from vehicles.

3.19 Instead, a vegetated barrier, such as a green screen or hedge, between the pollution source and receptors can reduce the level of pollution reaching people. Green walls and roofs can also play a significant role in reducing pollution at street level.

Figure 3.5: Street canyon where air at street level is more polluted than the air above

Street canyon where air above the buildings is more polluted than the air at street level (see Figure 3.6)

3.20 In these locations, a dense avenue of trees can act as a barrier to downward dispersion. Scots pine, common alder, larch, Norway maple, field maple, ash and silver birch are all very effective.

3.21 An additional taller barrier combined with open space can protect people who are further away from the pollution source, for example school playgrounds. Oaks, poplars and willows can have a detrimental effect on air quality downwind so should be planted carefully when in numbers.

Figure 3.6: Street canyon where air above the buildings is more polluted than the air at street level

Opportunity for GI?

GI can help reduce public exposure to air pollution produced by vehicles, particularly in the urban environment. However, the principal value of GI for urban air quality is not its ability to remove pollutants, but its capacity to control their flow/distribution. An integrated network of green and blue spaces can therefore play an important role in reducing future exposure as the transport system within the county develops.

The economy and delivering sustainable development

Housing demand

3.22 Significant new development is planned for the county in the coming years. This proposed growth has the potential to affect GI assets across Hertfordshire, exacerbating current deficiencies as well as creating new issues. As defined within the Infrastructure and Funding Prospectus, Hertfordshire LPAs have identified housing growth over the 13 year period to 2031 of on average 6,425 dwellings per annum. This compares to average annual completions of 3,189 dwellings per year across Hertfordshire from 2011/12 to 2016/17. These projections equate to a total housing supply of 83,530 dwellings that are expected between 2017/18 and 2031/32, equating to 30% growth. In addition, significant financial constraints on local authorities have seen savings of almost £315 million since 2010, and with further savings required of £90 million per annum by 2023 **[See reference 40]**.

3.23 This increased housing demand will place greater pressure on the existing GI network and will require a strategic approach to landscape planning to ensure new GI is successfully delivered as part of new development. For this growth to be sustainable, GI must be considered alongside other forms of infrastructure and built development. Planned housing and economic growth will therefore require mitigation through provision of new strategic GI and enhancements to retain the quality of existing provision and mitigate existing localised issues.

Objectively Assessed Housing Growth 2018-2031 (see Figure 3.7) [See reference 41]

- Stevenage: 5,700 new homes;

- Broxbourne: 7,015 new homes;

- Three Rivers: 7,710 new homes;

- Watford: 8,655 new homes;

- Hertsmere: 8,985 new homes;

- North Hertfordshire: 10,350 new homes;

- Dacorum: 11,340 new homes;

- Welwyn Hatfield: 12,000 new homes;

- East Hertfordshire: 12,585 new homes; and

- St Albans: 13,071 new homes.

Opportunity for GI?

Through the provision of ecosystem services, GI can help alleviate many of the challenges faced by a growing urban population. Responding to issues such as unprecedented urban growth, affords the opportunity to integrate the innovative development of GI to provide future resilience. Well planned GI can help to create cohesive neighbourhoods, which is a fundamental requirement to accompany the county's projected housing growth.

Figure 3.7: Objectively Assessed Housing Need 2018-2031 [See reference **42**]
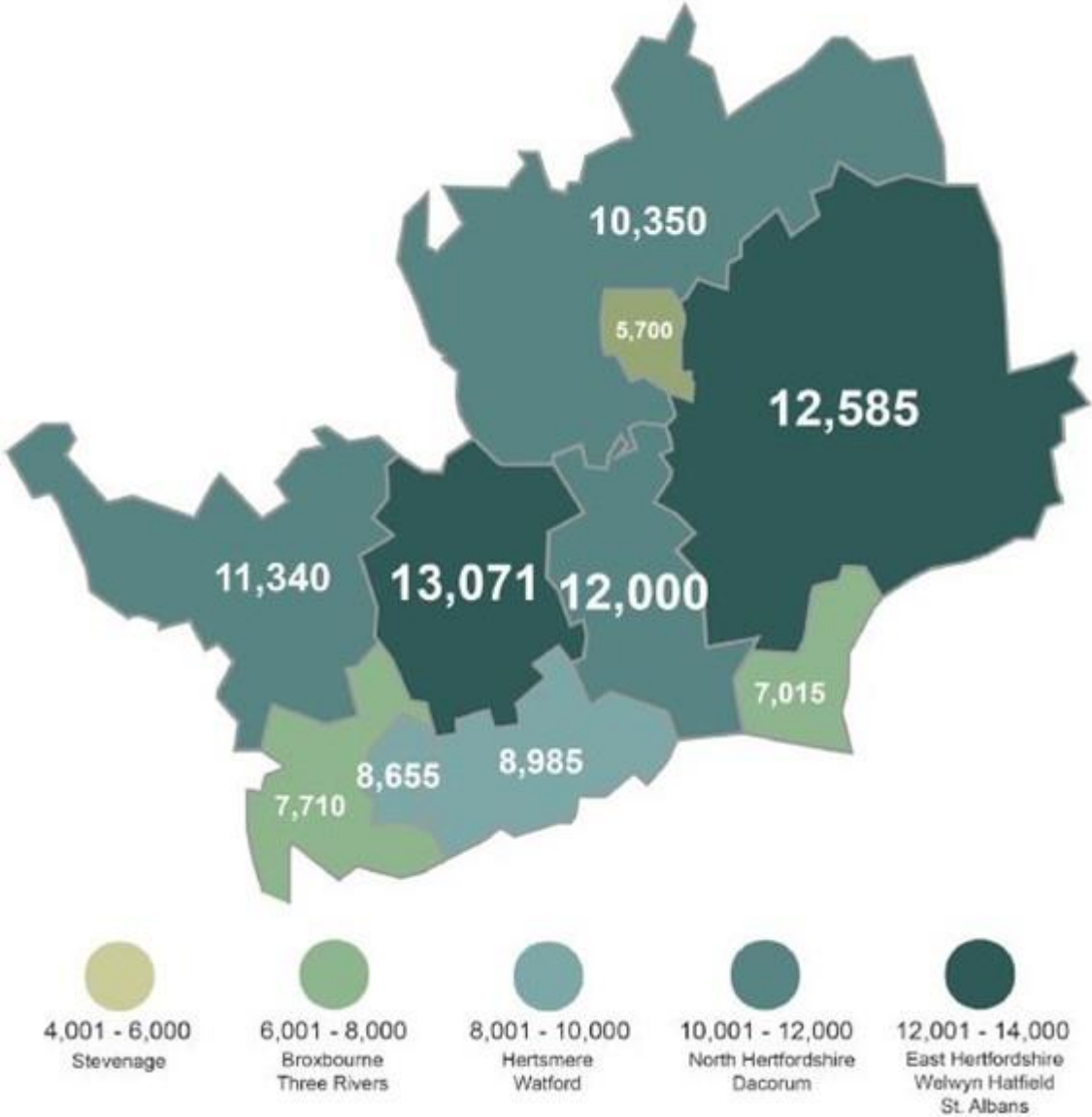
Projected population growth

3.24 Analysis of the 2016 based Office for National Statistics Subnational Population Projections for England **[See reference** 43**]** indicate a population forecast up to 2031 of 1,302,400 people, forming an 9% increase from 2018.

Measures are required to ensure this growth is accommodated in a balanced and sustainable way. In the context of a growing population, existing GI assets must be protected and enhanced so they are resilient to additional pressures, whilst providing a resource for a wide range of users.

3.25 Projected population growth in Hertfordshire is also distributed unevenly across the county. The greatest population growth is forecast in East Hertfordshire, Welwyn Hatfield and Dacorum. However, Stevenage, Hertsmere and Broxbourne are forecast to experience relatively low population growth, none exceeding 8,000. This variation in growth patterns across the county is also reflected in the projected age profile of the county, illustrated by the projected largest increase in age categories in absolute terms will be those within the 65-69 cohort. This future demographic shift requires consideration when planning future access and provision of GI.

Population change for LPAs within Hertfordshire between mid-2018 and mid-2028 (see Figure 3.8) [See reference 44]

- Stevenage: 1.8% increase in population;

- Broxbourne: 0.1% increase in population;

- Three Rivers: 0.4% increase in population;

- Watford: 0.4% increase in population;

- Hertsmere: 2.2% increase in population;

- North Hertfordshire: 2.5% increase in population;

- Dacorum: 4.0% increase in population;

- Welwyn Hatfield: 5.5% increase in population;

- East Hertfordshire: 5.1% increase in population; and

- St Albans: 0.7% increase in population.

Opportunity for GI?

Population growth, associated urbanisation and competing demands for land use result in increased threats to the provision of accessible green space. The expansion and improvement of GI assets across the county may offer the potential to reduce pressure on the quality and quantity of existing GI in the wake of projected population growth.

Figure 3.8: Population change for LPAs within Hertfordshire between mid-2018 and mid-2028 [See reference **45**]

0 - 1.0%	1.1- 2.0%	2.1 - 3.0%	3.1 - 4.0%	4.1 - 5.0%	5.1 - 6.0%
Broxbourne Watford Three Rivers St. Albans	Stevenage	North Hertfordshire Hertsmere	Dacorum		East Hertfordshire Welwyn Hatfield
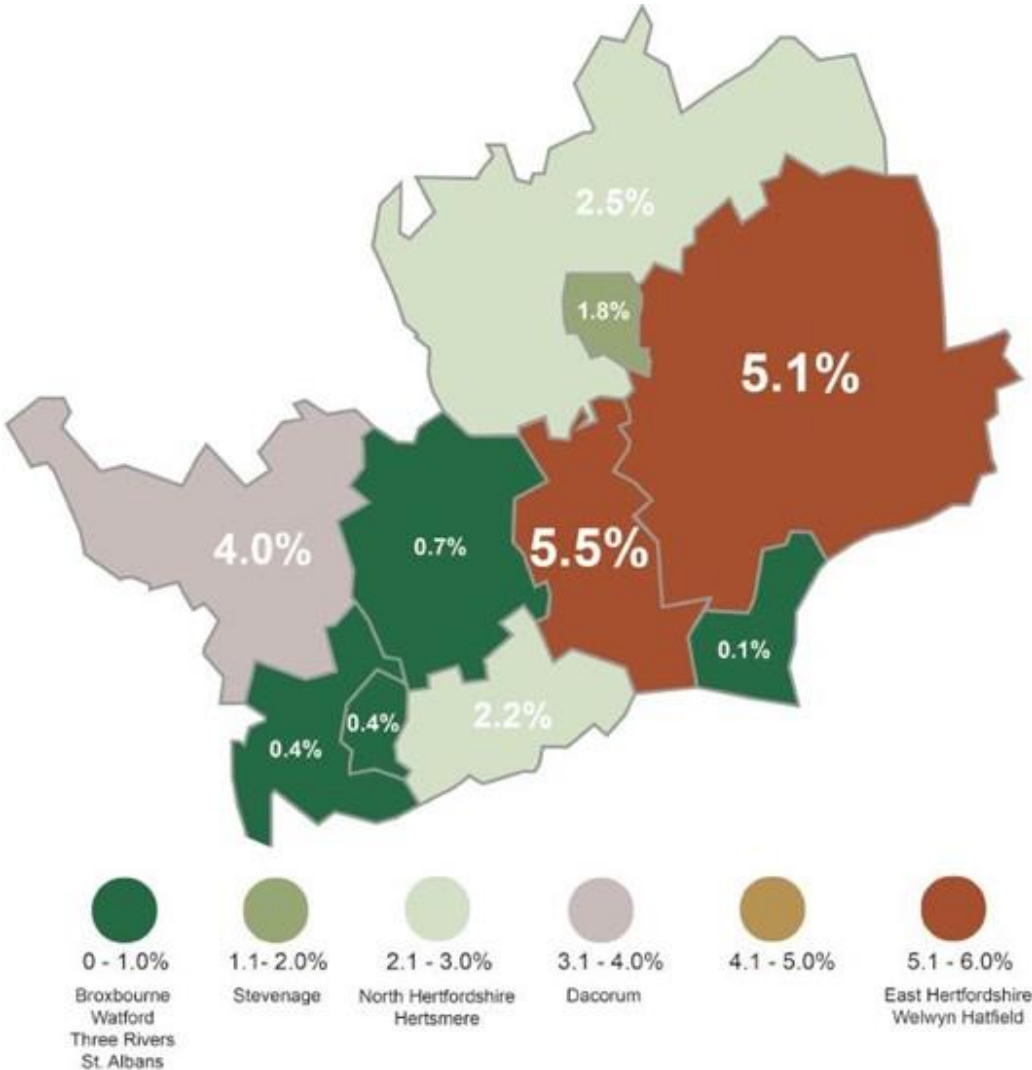
Infrastructure planning

3.26 Planned population growth across the county will increase pressure on existing transport infrastructure. Previous years of growth have created deficits in existing infrastructure across Hertfordshire, with significant congestion apparent on the road and rail network across the county. This trend is partially due to a 80% private vehicle mode share in travel patterns putting additional strain on the road network **[See reference** 46**]**.

3.27 To reduce future reliance on the private car as a mode of transportation, settlements are required to be well connected to the GI network through provision of safe, active travel routes. Existing cycle infrastructure in the county is variable in quality and coverage, with many areas incomplete or not well-connected. Provision of a strong network of walking and cycling routes between developments and key services can therefore help to reduce transport-related emissions and contribute towards sustainable neighbourhoods.

Options for enhancing active travel provisions and uptake within new development

- Flower-rich grassland/meadow verges provide space for pollinators and enhance the connectivity of the nature network. Features such as bug hotels and log piles should be included here;

- Raised table leading to tertiary roads, mews and courtyards to slow traffic;

- Resident parking using permeable paving and electric vehicle charging points;

- Private front gardens;

- Climate and pollution tolerant street trees which will provide shade, remove pollutants, sequester carbon and cool the urban environment;

- Direct and safe cycle route away from traffic; and

- Hedgerow and hedgerow trees to provide a pollution barrier between vehicles, cyclists and pedestrians.

Opportunity for GI?

GI provides opportunities to increase connectivity across Hertfordshire by encouraging the use of active travel as modes of sustainable transport. Increased active travel due to improved GI may also contribute towards reductions in noise pollution and improvements to air quality. The provision of GI offers the potential to link to planned transport infrastructure projects identified across the county.

Chapter 4
Evolution of GI Approach

This chapter explores some recent best practice examples of GI strategies to assess how the approach to GI has evolved since 2011. This includes determining their relevance to Hertfordshire, their positives and negatives, and the lessons that should be taken forward to inform the Strategy.

Following this review, six case studies of good practice GI, both within and outside Hertfordshire, have been identified and evaluated to establish a series of lessons and principles to take forward in the Strategy.

4.1 Six existing green infrastructure strategies have been reviewed, including:

- South Essex Strategic Green and Blue Infrastructure Strategy (2020);

- Essex Green Infrastructure Strategy (2020);

- Colne and Crane Valley's Green Infrastructure Strategy (2019);

- Enfield's Blue and Green Strategy (2020);

- Wirral Green and Blue Infrastructure Strategy (2020); and

- Cambridgeshire Green Infrastructure Strategy (2011).

4.2 Six examples of best practice case studies have been evaluated to give an idea of good mechanisms for delivery and multifunctional uses of space at a range of scales. These include:

- Balancing people and wildlife – Panshanger Park, Hertford;

- Re-wilding arable farmland – Heartwood Forest, St Albans;

- Growing community wellbeing – Community food hubs, Luton;

- Improving river corridors – Rediscovering the River Colne, Watford;

- Sustainable growth – Harlow and Gilston Garden Town; and

- Urban cycling and green retrofit – Mini-Holland, Waltham Forest.

South Essex Strategic Green and Blue Infrastructure Study (2020)

Relevance to Hertfordshire

- The document is strategic in scale, produced on behalf of a number of LPAs;

- Both counties experience development pressures which subsequently lead to recreation pressure on designated sites; and

- Both contexts see a need to enhance sustainable agricultural productivity.

Positives of the Strategy

- Graphical mapping was used extensively;

- There is a cohesive vision, which is to create the SEE Park, giving structure to the opportunities section and allowing the strategy to work as one unit;

- Themes are identified in line with challenges, objectives, opportunities and how these link to GI, giving a greater sense of meaning;

- The strategy uses a strong vision (South Essex Estuary Park) to guide the aims and act as an overall driver/catalyst for the delivery of the strategy's objectives through a series of 'key moves';

- The strategy has a very comprehensive baseline which directly feeds into the opportunities; and

■ The Strategy is well coordinated with the Local Plan process.

Negatives of the Strategy

■ Opportunity for the baseline analysis to be more concise and streamlined; and

■ The use of case studies is good but could be more usefully intertwined throughout the document.

Lessons to take forward

■ The well thought out delivery mechanisms which drive forward the next steps of the strategy;

■ The use of graphics which makes the report engaging to all;

■ The simplifying of the objectives and opportunities into an overall vision broken down into six key moves can help to streamline the strategy and enable HIPP/HCC to deliver aspects efficiently; and

■ The clear opportunity mapping, organised into sub-areas.

Figure 4.1: South Essex Green and Blue Infrastructure Study 2020

Essex Green Infrastructure Study (2020)

Relevance to Hertfordshire

- Both counties experience similar settlement patterns of nucleated towns with commuter routes which feed towards London, also causing severance;

- Both have significant expanses of agricultural land; and

- Both contain some significant landscape assets and designations, including AONB, SPA and SAC.

Positives of the Strategy

- The strategy is succinct and easy to follow, comprising of one well-structured document;

- The assessment of the current assets it set out in quantitative way, which increases the objectivity of the strategy;

- The opportunities presented have been clearly linked to the overall strategy objectives. These opportunities include key proposals which are laid out in a phased Action Plan;

- There is a strong and clear understanding of how the Strategy fits into the wider policy context;

- The mapping of functions to display the diverse benefits of GI across the county reinforces the need for the Strategy; and

- This is also helped by relating GI benefits directly back to people.

Negatives of the Strategy

- There is a lack of graphics, particularly mapping, and when coupled with a document which is quite text-heavy it can make it cumbersome to the reader;

- The description of current GI provision is brief and descriptive, offering little judgement on whether the provision is adequate, lacking or good, or where there is local variation; and

- Lacking focus on biodiversity benefits.

Lessons to take forward

- The method of setting out a vision and linking clear, pragmatic opportunities to the vision;

- The use of partners and stakeholders which were involved in its preparation;

- The function mapping which shows the areas of GI which are delivering the most multifunctional benefits at present; and

- The use of case studies to demonstrate principles and effective delivery mechanisms.

Figure 4.2: Essex Green Infrastructure Strategy (2020)

Colne and Crane Valleys Green Infrastructure Strategy (2019)

Relevance to Hertfordshire

- A much smaller area covered by this strategy (309km2), population of study area is not known, but 1.6 million people live within 2km (20 minute walk), so similar visitor/growth pressures to some areas of Hertfordshire;

- Development pressure is identified as a key issue;

- Both experience severance by existing and planned major infrastructure routes; and

- Both share some significant GI assets, for example the River Colne and the setting of the Chilterns AONB.

Positives of the Strategy

- The clear presentation which is easy to read in terms of graphics and mapping, as well as a lower density of text. It follows a clear and simple logical flow;

- The specific project examples which make it feel grounded in the real world, less aspirational yet more actionable; and

- The link to an interactive map where visitors can suggest projects and the map can be updated over time as projects come online, again keeping the strategy dynamic.

Negatives of the Strategy

- There is no real sense of prioritisation between objectives or thinking about both synergies and trade-offs; and

■ There is a focus on recreation and connections (because it has its roots in a regional park framework) and is largely an update of the previous All London Green Grid Framework for the Colne and Crane.

Lessons to take forward

■ The need for the prioritisation of projects;

■ The need for consideration of synergies and trade-offs;

■ The use of specific project examples to highlight viability; and

■ The possibility of creating an interactive map to keep the Strategy current.

Figure 4.3: Colne and Crane Valleys Green Infrastructure Strategy (2019)

Enfield's Blue and Green Strategy (2020)

Relevance to Hertfordshire

- Both counties are experiencing development pressure;

- Both see severance by major infrastructure routes;

- Both suffer from poor access to greenspace in areas of high deprivation; and

- Both counties share some significant strategic GI assets, including the Lee Valley.

Positives of the Strategy

- A concise, well presented GI Strategy with the majority of the underpinning detail contained in the appendices, including detailed project sheets (with detail around how each project meets the Vision and Objectives, timescales, partners, sources of funding, risks and challenges); and

- The strategy document has a clear, logical flow from vision to aims/objectives to setting out some key projects and programmes.

Negatives of the Strategy

- The vision could be stronger and is supported by objectives that are a mix of precise metrics and vague or generic statements of intent; and

- The document also feels like a justification and promotion of what the Council has already planned to do (this works for Enfield but other local authorities will have less influence over many of their key GI assets).

Lessons to take forward

- The concise nature of the Strategy with detail in the appendices;

- The flow of logical progression from vision to project delivery;

- The process of identifying realistic funding mechanisms and delivery partners as well as securing partner buy-in during the consultation phase to ensure momentum is upheld and projects are delivered; and

- The use of 'strategic programmes.'

Figure 4.4: Enfield's Blue and Green Strategy (2020)

Wirral Green and Blue Infrastructure Strategy (2020)

Relevance to Hertfordshire

- Both counties are experiencing pressure for development;

- Both see severance issues due to major roads and railways;

- Both have pockets of significant deprivation where people experience poor access too high-quality open space;

- Both contain SPA, SAC and SSSIs; and

- Both have poor accessibility to open space in some areas, particularly in relation to natural and semi-natural space, allotments and play spaces.

Positives of the Strategy

- Each of the priority projects are explained in detail, including a case study of a similar project which has worked well;

- The GI Strategy has a strong focus on place and is very specific to the Wirral;

- The Strategy is tied to planning policy, offering greater integration and therefore delivery of the opportunities;

- The overview of existing assets is very detailed and links to the objectives, giving the strategy a logical structure; and

- The extensive consultation which took place and which is weaved in throughout the strategy, particularly in Volume 1.

Negatives of the Strategy

- The brief required less focus on building community networks, engagement, promotion, policy and marketing; and

- The Strategy was commissioned before Natural England produced their evidence-base study on functionally linked land across the Liverpool City Region.

Lessons to take forward

- The process of including consultation within the GI strategy;

- The linking of the baseline/existing asset section to the themes, but with the possibility of putting some of the baseline detail in appendices;

- The setting out of priority projects as clear proformas; and

- The very clear and aesthetic GIS maps which a simplified base map, making it clearer for the reader'.

Figure 4.5: Wirral Green and Blue Infrastructure Strategy (2020)
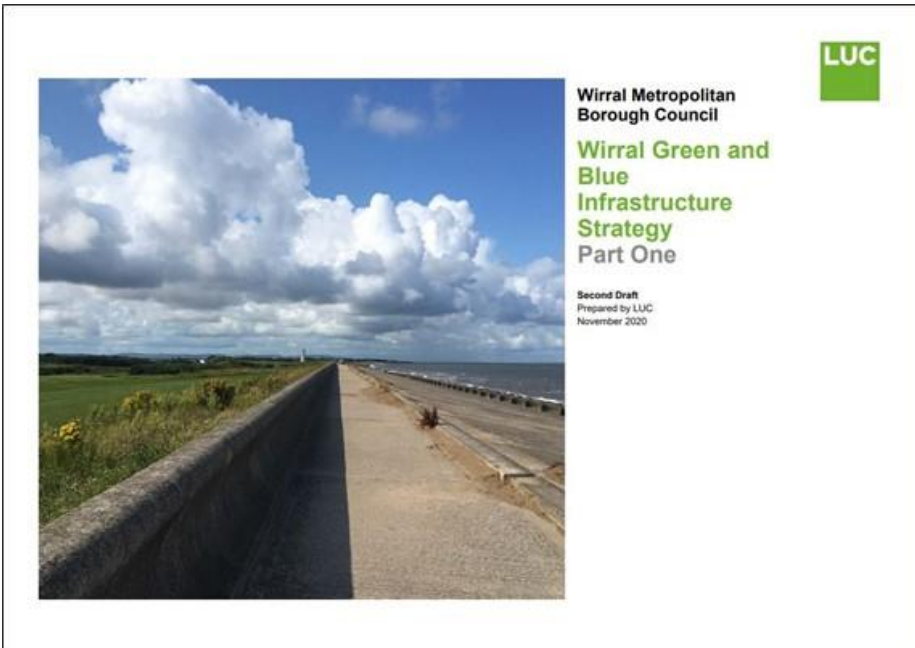
Cambridgeshire Green Infrastructure Strategy (2011)

Relevance to Hertfordshire

- Both are experiencing pressure from development and infrastructure links;

- Both suffer from poor access to greenspace in areas of high deprivation;

- Cambridgeshire is roughly twice the size of Hertfordshire (3,389km2), and less densely populated (population estimated in mid-2019 at 852,523); and

- The Cambridgeshire Strategy was written at the same time as Hertfordshire's previous Strategy.

Positives of the Strategy

- The Strategy is clear and logical, identifying key objectives and then setting out proposals for a strategic network, target areas and projects;

- The way it is broken down into regions, setting out the key issues in those areas and GI opportunities, making the scale of the county more manageable;

- The establishment of a diverse project group which involved representatives from ten bodies to review and manage the report. These then fed back to a Green Infrastructure Forum composed of 25 bodies; and

- The use of graphics to determine the level of influence each local area can have on achieving the strategy objectives.

Negatives of the Strategy

- The Strategy is very long, text heavy, and not as engaging in its presentation compared to other more recent strategies. The maps are difficult to read; and

- There are no clear projects defined – identifying GI projects is included at the end of the report under 'Further work and next steps', making this strategy feel more of a context document.

Lessons to take forward

- The clear logical progression throughout the document; and

- The analysis of the pressures facing each region/target area of the county, which is then taken forward into opportunities within the target areas, ensuring the strategy objectives are achieved.

Figure 4.6: Cambridgeshire Green Infrastructure Strategy (2011)

Balancing People and Wildlife

Panshanger Park, Hereford

4.3 Opened to the public in 2014, Panshanger Park is a 1,000 acre site which balances the need for wildlife and recreation.

4.4 Panshanger Park, which comprises both a nature reserve and country park, provides a valuable resource for both wildlife and people in unison. Before its opening in 2014, the site was quarried for sand and gravel, having previously been the site of the 17th century Panshanger Estate. The Humphrey and Capability Brown landscape is a Grade II* listed park and garden and elements of its heritage can be found dotted around the park, including the skeleton of the former orangery.

4.5 Following the park's extractive use, much of the site has now been restored to arable farming and a range of important county and national habitats, including a new section of chalk stream and lakes. The mosaic of habitats across the site, including woodlands, wetlands, grasslands and reedbeds, provide an important refuge for wildlife on the outskirts of Hertford. Furthermore, the scale of the country park and associated trails creates significant recreation opportunities and access to nature for people. Additional parcels of land will continue to open up and expand the site as extraction activities come to an end.

4.6 Panshanger Park relates back to Project 5: Mimram Valley greenspace within the 2011 Strategic Green Infrastructure Plan.

Considerations

- Only one relatively small car park serves the park, meaning informal parking on nearby roads can be an issue (note: there are currently plans for a new 173 space car park);

- Limited active travel routes to the park results in increased usage of private transport for access;

- Increased recreation pressures due to the new Panshanger Airfield development (around 900 homes); and

- Some heritage features, such as the orangery, continue to fall into disrepair.

Lessons to take forward

- Recognise the importance of former industrial and extraction sites in providing new green space for both humans and wildlife;

- Understand the careful balance between recreation and disturbance to create multifunctional spaces;

- Plan for access by active travel, particularly between new development and recreation sites;

- Explore opportunities to restore county-wide and national priority habitat where possible; and

- Utilise heritage features for commercial activity.

Figure 4.7: Panshanger Park, Hertford [See reference **47**]

Re-wilding Arable Farmland

Heartwood Forest, St Albans

4.7 Transforming arable farmland into a mosaic of connected biodiverse habitats and recreational assets for Hertfordshire's population and wildlife.

4.8 Located just 3 miles north of St Albans, Heartwood Forest comprises 347ha of newly planted woodland, ancient woodland, wildflower meadows and grassland. Although the site is still maturing, it provides important connections between new and existing habitats on an area which was previously commercially farmed for arable crops.

4.9 Now covered in over 600,000 native trees, the project was achieved through the help of thousands of volunteers and school children. When planting the trees, a variety of methods were trialled to assess their relative success for establishment. This included using both hay and traditional methods of protection, as well as unprotected planting.

4.10 Areas of open space intersperse the woodland planting and create opportunities for biodiversity-rich wildflower meadows and grassland. Furthermore, the creation of a community orchard and arboretum enhances local interaction with the space. Heartwood Forest has been sensitively planned in a way which allows the archaeological importance of the site to be revealed and therefore the time depth of the landscape to be perceived.

Considerations

- High levels of foot, bike and horse traffic, including informal access, can cause damage to sensitive habitats, particularly within areas of ancient woodland;

- Large deer population can pose a threat to the establishment of new trees;

- Irresponsible dog owners can cause disturbance to wildlife, particularly ground nesting birds; and

- Climate change and drought can play a considerable part within the successful establishment of trees as watering on this scale not feasible.

Lessons to take forward

- The methods of tree planting trials should be reviewed and assessed to inform successful largescale re-wilding projects in the future;

- Utilising a wide force of volunteers and school children to help deliver the project has seen high levels of engagement;

- volunteer experts as habitats establish is encouraged; and

- Planning for recreation should come at the start of any project to ensure sufficient space is given to both people and wildlife.

Figure 4.8: Heartwood Forest, St Albans [See reference **48**]

Growing Community Wellbeing

Community Food Hubs, Luton

4.11 Supporting Luton's residents to address issues of food poverty, as well as enhancing mental and physical wellbeing alongside community cohesion.

4.12 Groundwork have supported the establishment of a series of community food growing hubs across Luton which have an overarching aim of addressing wellbeing issues and food poverty. The hubs offer a variety of low-cost activities which bring members of the community together in a manner which supports nutritious eating. Furthermore, the food grown within the hubs is redistributed within the community and used to enrich local food banks with nutritious produce.

4.13 Hubs have been established at Memorial Park Hub, Strathmore Hub, Farley Food Growing Hub, Dunstable South Children's Centre and Marsh Farm Futures. All of these provide opportunities for residents to learn new skills and meet new people. Furthermore, family learning and wild play sessions have been introduced to connect children with the outdoors, as well as enhance literacy and education.

Considerations

- Many of Hertfordshire's towns suffer from similar social and economic issues that Luton experiences, for example food poverty, inequality and unhealthy lifestyles; and

- Both Luton and a number of Hertfordshire's towns experience high density interiors where residents do not have access to large expanses of private outdoor space.

Lessons to take forward

- Partnership working has been a key driver for the success of these projects, with each hub having a different funding and start-up depending on its context and surrounding community;

- External funding has been the main driver behind the delivery of these hubs, including British Red Cross, Big Lottery Awards for All and Bedfordshire and Luton Community Foundation Community Investment Fund (CIF); and

- Small, underused and incidental green spaces have the potential to serve the community.

Figure 4.9: Community Food Hubs, Luton [See reference **49**]

Sustainable Growth

Harlow and Gilston Garden Town

4.14 Delivering a new Garden Town which will create economically, environmentally and socially sustainable communities.

4.15 Harlow and Gilston was designated by the Government as a Garden Town in January 2017 and is proposed to supply an additional 23,000 homes to the region. Using Garden City principles, including beautifully designed neighbourhoods and homes, biodiverse landscapes, zero-carbon design, integrated active travel and sustainable transport, and long-term stewardship, the scheme will provide resilient communities of the future.

4.16 Green infrastructure plays an essential role from the outset of masterplanning within the Garden Town through its role in creating a framework for movement, delivering ecosystem services and integrating settlements with the wider countryside. Individual masterplans within the wider Garden Town will design new open space which expands on the existing Green Wedge network and connecting with strategic assets such as the Stort Valley. Furthermore, each individual settlement will require their own GI strategy which links with the overarching aims of the county. The existing settlement of Harlow will be a key focus for the retrofitting and regeneration of residential streets, public realm and employment space.

Considerations

- Much of the funding for green infrastructure projects within the Garden Town will come from developer contributions. The significant scale of new development means funding availability for large green infrastructure projects is viable, however this is not applicable to all projects across Hertfordshire; and

■ The need for additional infrastructure will be significant to serve new communities. This will require careful planning to ensure negative environmental impacts are mitigated, for example the Stort Crossing.

Lessons to take forward

■ A team of built environment and design professionals have been assembled to form a Quality Review Panel which will ensure the vision is delivered;

■ Early and continued work with key stakeholders, including the Environment Agency, Canal and River Trust and RSPB, will be essential in the successful delivery of multifunctional GI; and

■ The concept of Garden Towns requires holistic planning and multifunctional design, making GI work harder and to recognise theme imperatives.

Figure 4.10: Harlow and Gilston Garden Town [See reference **50**]

Urban Cycling and Green Retrofit

Mini-Holland, Waltham Forest

4.17 London Borough of Waltham Forest have implemented 29km of segregated cycle lanes and improved 62 pedestrian crossings.

4.18 In 2013, London Borough of Waltham Forest secured funding from Transport for London (TfL) to upgrade the Borough's network of streets to tackle issues surrounding safety, air quality and public health. The scheme saw the introduction of significant stretches of new segregated cycle routes interspersed with greening, including trees, planters, parklets and pocket parks. Through enhancing the aesthetic appeal of Waltham Forest's streets, as well as reducing vehicular access, uptake of walking and cycling has increased dramatically within the Borough, with residents, on average, walking and cycling for 41 minutes a week more than those living in comparable areas.

4.19 The Mini-Holland scheme, now re-branded 'liveable neighbourhoods' across London, has changed residents' attitudes towards walking and cycling in a positive manner. This is reinforced through free safe cycling training within schools.

4.20 To ensure the legacy of the liveable neighbourhoods is continued and reinforced through development, the Council have produced a Mini-Holland Design Guide.

Considerations

- A number of active travel proposals are coming forward within Hertfordshire through the Active Travel Fund (£6.4 million). It is important these schemes are well-designed and link with the wider network;

- Identified barriers to walking and cycling include lack of physical infrastructure, safety, lack of awareness or training, and social and cultural attitudes; and

- Restricting car use and enhancing active travel in town centres can help to achieve aspirations for 15-minute, liveable neighbourhoods.

Lessons to take forward

- Prioritise pedestrians and cyclists over vehicles;

- Offer direct walking and cycling routes;

- Install cycle hubs and hangars to make storing bikes more easily for residents;

- Design new outdoor space, including parklets and pocket parks, throughout the scheme;

- Upgrade bus stops to make them more attractive;

- Produce an active travel design guide; and

- Consider cross-boundary planning at an early stage within the design process.

Figure 4.11: Mini-Holland, Waltham Forest [See reference 51]

Chapter 5
Development of the Vision

This chapter explores the effectiveness of the 2011 Plan, outlines the updated vision and objectives, and introduces the 'themed' approach.

Summary of GI delivery and implementation since 2011

5.1 Early consultation with key stakeholders was undertaken to help identify key attitudes, expectations and aspirations for GI across Hertfordshire. A focussed website was used to gain an understanding of the strengths and weaknesses of the GI network, perceived GI deficits and opportunities across the county. The key findings are listed below.

Summary of key issues

- Delivery of strategic projects since 2011 has been minimal or non-existent. Where progress was noted, this was often not attributed to pre-existing projects or schemes driven by other key drivers;

- Requirement to re-visit the overarching drivers and vision for GI within Hertfordshire and update to reflect the 2021 context;

- Projects identified as priority projects within the 2011 Plan are now out of date and should be updated to reflect revised county-wide objectives and needs;

- Limited usage of the 2011 Plan as a working document by Policy Planners and Development Control;

- Requirement for a renewed emphasis on strategy, delivery and implementation; and

- Updates required to reflect the emerging importance of the growth agenda across Hertfordshire.

Development of the vision

5.2 The vision for GI within Hertfordshire aims to set the roadmap for delivering the county's future direction of travel in relation to delivering sustainable, healthy, biodiverse and prosperous communities. Figure 5.1 displays some of the most regularly used words by key stakeholders when they were asked the following questions:

- Are there any outcomes you would like to see in the upcoming review that would enable more effective local planning policies for GI in Hertfordshire?

- Are there any outcomes you would like to see in the upcoming review that would enable improved GI delivery mechanisms in Hertfordshire?

5.3 The prevalence of words such as 'projects' reinforces the need for deliverable and clear project opportunities to fall out of the Strategy which can easily be taken forward by the relevant authority. Furthermore, the use of words such as 'local,' 'strategic' and 'scale' highlights the importance of the Strategy in delivering opportunities across the spectrum. The frequency of the terms 'clear,' 'needs' and 'objectives' would point towards the creation of a strong set of objectives which are designed to achieve the vision and are informed by a thorough assessment of need.

5.4 Other key words which have been highlighted include 'development' and 'funding,' which could point towards developer contributions being an efficient mechanism for delivery, 'engagement' and 'authorities', which could reinforce the importance of engagement with stakeholders as well as between LPAs, and the use of 'linked' and 'network', which emphasises the importance of a cohesive and joined up green and blue network at both the county and local scale.

Figure 5.1: Themes and words which occurred regularly when stakeholders were asked how the Strategy could enable more effective GI delivery mechanisms and incorporation into local planning policy in Hertfordshire

The 'themed' approach

5.5 To provide a comprehensive baseline and evaluation of the GI network in Hertfordshire, a 'themed' approach to the assessment will be adopted. This desk-based analysis will be undertaken in order to understand the various

functions and ecosystem services, including the multifunctional benefits, provided by the GI network. The 11 'GI ecosystem functions' captured in the 2011 Plan will be rationalised and categorised into six 'GI themes' to provide a holistic view of the GI network (see Figure 5.2). Climate change will act as an overarching theme, signalling its importance as a driver of the Strategy.

- A Resilient Landscape: Identifying areas to protect, connect and enhance, through the creation of a framework for resilient GI networks.

- Heritage and Sense of Place: Recognising and considering Hertfordshire's rich historic, archaeological and cultural assets alongside its distinctive landscape heritage.

- The Water Environment: Realising the full potential of the county's network of rivers, ditches, wetlands and open water in providing habitats and nature-based solutions to strategic challenges.

- Access and Connectivity: Creating permeable landscapes for sustainable travel whilst sensitively enhancing access to nature and green space.

- Nature Recovery: Identifying connected and conserved networks of habitats across Hertfordshire.

- People, Health and Wellbeing: Consideration of the health and societal benefits of GI within Hertfordshire.

5.6 GI themes will be structures with 'key GI assets,' which provide a detailed overview of the assets in Hertfordshire, and 'key opportunities', which highlight where the network can be enhanced upon the issues identified.

Figure 5.2: Proposed GI themes and their relationship to the former GI functions from the 2011 Plan
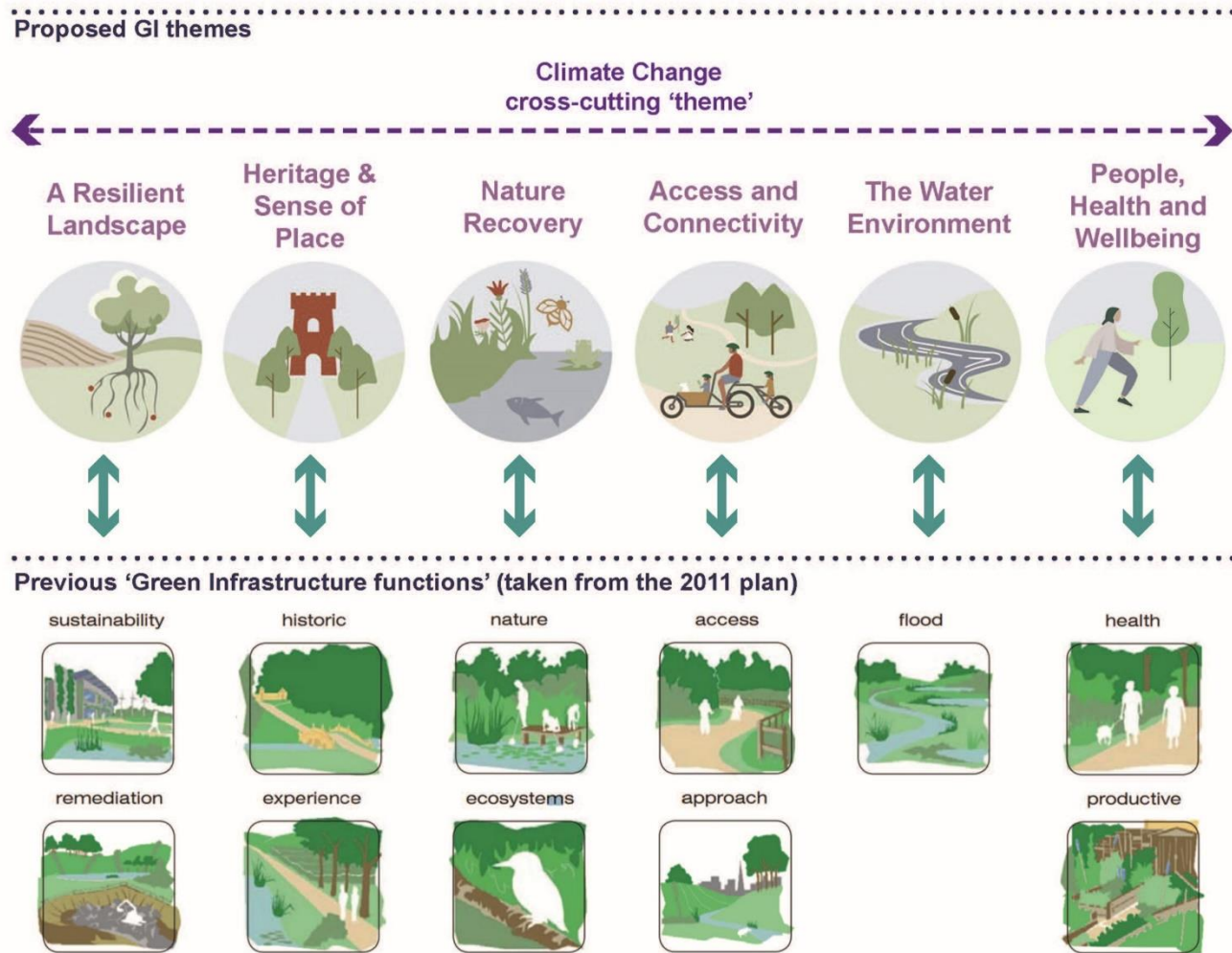
Next steps and recommendations to take forward as part of the Strategy

- Integrate GI project proposals into planning policy and place a greater emphasis on embedding GI in spatial planning;

- Incorporate guidance regarding delivery and viability of large strategic schemes;

- Provide cross-cutting strategic guidance, recommendations, and priority actions for GI in Hertfordshire;

- Deliver greater focus on securing GI project implementation through a combination of delivery and funding models as well as the adoption of GI standards and principles;

- Integrate maintenance and management requirements as key considerations when identifying potential projects;

- Outline a prioritised set of GI projects and investments for the county;

- Ensure overarching ownership of GI delivery by a central body or organisation;

- Address the competing demands of ecological enhancement and recreational demand;

- Identify delivery partners and outline project costings to ensure that realistic 'asks' can be incorporated into Infrastructure Delivery Plans associated with Local Plan delivery Promote collaboration between LPAs within Hertfordshire regarding GI delivery;

- Ensure a greater alignment with strategic objectives in relation to the ambitions of the county, e.g. for education, highways etc; and

- Deliver a user friendly document which can be implemented as part of everyday planning procedures in the county.

Figure 5.3: Mean value score (from 0-10) by stakeholders when determining the significance of barriers to GI delivery

Overall, how significant do you consider each of the following issues present barriers to GI delivery in Hertfordshire?
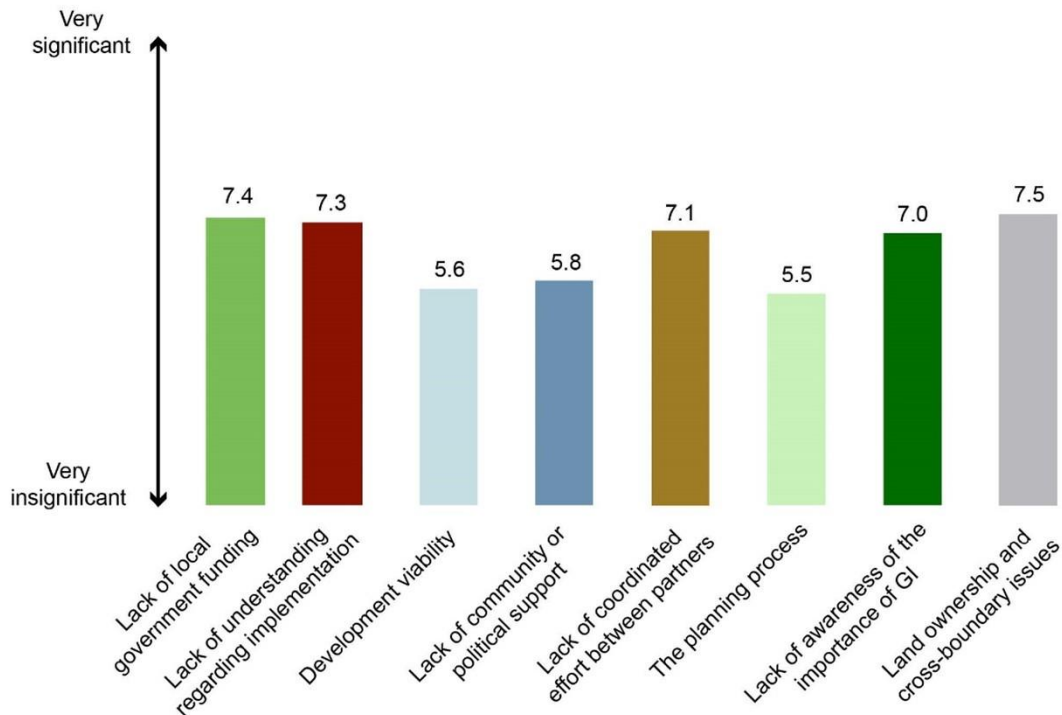
Barriers to GI delivery and their significance score

- Lack of local government funding: 7.4;

- Lack of understanding regarding implementation: 7.3;

- Development viability: 5.6;

- Lack of community or political support: 5.8;

- Lack of coordinated effort between partners: 7.1;

- The planning process: 5.5;

- Lack of awareness of the importance of GI: 7.0; and

- Land ownership and cross-boundary issues: 7.5.

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