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# Green Infrastructure Study for the Stratford-on-Avon District

Volume 1: Main Report

August 2011





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**August 2011**

This document should be referred to as:

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All Appendices are published in: Stratford-on-Avon GI Study, Appendices Volume 2.

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- ▶ Paul Harris (Stratford-on-Avon DC); and
- ▶ Kate Aulman (UE Associates)

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# Abbreviations

AONB	Area of Outstanding Natural Beauty
BAP	Biodiversity Action Plan
CIL	Community Infrastructure Levy
CRoW	Countryside Rights of Way
DM	Defence Munitions
GI	Green Infrastructure
GIS	Geographical Information Systems
ha	Hectares
HAP	Habitat Action Plan
IMD	Index of Multiple Deprivation
LGS	Local Geological Site
LNR	Local Nature Reserve
LWS	Local Wildlife Site
MA	Millennium Assessment
NAG	Natural Accessible Greenspace
NCN	National Cycle Network
NNR	National Nature Reserve
PCT	Primary Care Trust
PPG	Planning Policy Guidance
PRoW	Public Rights of Way
s106	Section 106
SAP	Species Action Plan
SDC	Stratford-on-Avon District Council
SOA	Super Output Area
SPD	Supplementary Planning Document
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Drainage Systems

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# Executive Summary

## **E.1 Introduction**

- E.1.1 In order to aid in the development of a robust and effective Core Strategy, Stratford-on-Avon District Council instructed UE Associates to undertake a Green Infrastructure Study. The Study will form an evidence base for the Stratford-on-Avon Local Development Framework, and will inform the Stratford-on-Avon District Core Strategy.
- E.1.2 Green infrastructure planning is an important means of ensuring that the benefits that green spaces and habitats provide are recognised as key features, important in the daily lives of society. The long term planning and management of green spaces is crucial for a strong high quality green infrastructure network.
- E.1.3 Green infrastructure is the network of green and blue open spaces that are found within and between our cities, towns and villages. Green infrastructure assets include waterways, gardens, allotments, street trees, parks and natural heritage amongst others. Planning Policy Statement 12 recognises the importance of green infrastructure planning which continues to grow as a concept.
- E.1.4 The purpose of the Study is to identify the existing green infrastructure networks within Stratford-on-Avon district and seek to strengthen these networks through the principles of protection, enhancement, restoration and creation, to ensure they form high quality multifunctional and connected networks.
- E.1.5 Green infrastructure can provide a range of economic, social, and environmental benefits. These benefits include but are not restricted to: economic growth and investment, land regeneration, strong physical health, mental wellbeing, climate change adaptation and mitigation, sustainable water management and flood alleviation, and biodiversity gain. Benefits of green infrastructure are well documented, such as the Forest Research Paper "Benefits of Green Infrastructure" (Forest Research, 2010).

## **E.2 About the Study**

- E.2.1 The aim of the Study is to identify the opportunities available for strengthening the GI network across Stratford-on-Avon and to mitigate any adverse effects that may be affecting the way in which the various GI assets function individually and as part of a network. The GI Study has expressly sought to identify and review the GI network in and around of Stratford-on-Avon's large settlements and establish a framework for guiding and delivering actions that will strengthen and enhance the network. The study has specifically been designed to provide a robust and effective evidence base for the Stratford-on-Avon Core Strategy.

- E.2.2 In order to identify the current green infrastructure network found within Stratford-on-Avon a comprehensive review of the baseline environmental, social and economic data was undertaken. This was followed by an in depth review of relevant strategies, plans and programmes that will influence and affect green infrastructure planning across the district. In conjunction with these data analysis tasks, a stakeholder session with a diverse range of external partners was held to gather views about green infrastructure planning and delivery.
- E.2.3 Baseline data and policy review has been used to carefully develop a green infrastructure framework that will guide and steer future GI projects within the district. The GI Framework comprises of four overarching themes supported by fifteen green infrastructure objectives. The GI framework is designed to shape GI projects and delivery at a district and settlement scale.
- E.2.4 The Study has concentrated on the settlements of: Alcester, Bidford-on-Avon, Henley-in-Arden, Kineton, Shipston-on-Stour, Southam, Stratford-upon-Avon, Studley and Wellesbourne. Recommendations have been developed specifically for each settlement in order to strengthen their local GI networks. District wide recommendations have been prepared that will support the wider district network and sub-regional aspirations.
- E2.6 The Study is targeted at planning policy makers, development control planners, the community, developers, and land managers. The purpose of the Study is to enable engagement with local communities and help to facilitate sustainable development associated with the Core Strategy. Local communities have an important role to play in the next steps of the process. The suggestions and recommendations from this Study require careful consideration as to how they might be achieved locally. Indeed, the first challenge is to judge whether or not these are the right recommendations and how issues associated with data gaps or the quality of data might need to be overcome.
- E2.7 The Study's recommendations will need ratification, refinement and positive support at the local level for it to succeed. It should be recognised that the Study is therefore the first step towards comprehensive green infrastructure planning and creation of a robust network of green infrastructure across the district.

### **E.3 Local green infrastructure planning**

- E3.1 Besides providing evidence for the Core Strategy, the Study has recommended that local groups and Community Forums, and therefore by association the district's 113 Town and Parish Councils, be introduced to the process of preparing green infrastructure plans at the local level. There are presently six such Forums in the district. This Study suggests that Community Forums provide a means of verification and ratification for the Study's proposals. In this way, local views and distinctiveness can be further achieved; the Forums can establish their own vision for green infrastructure and embed the local green infrastructure network firmly in the minds of local people and plan for a sustainable future through the Town and Parish Councils. In the first instance the Council now have the opportunity to work with the Forums and Town and Parish Councils to begin the next steps of green infrastructure planning.

# 1 Introduction to Green Infrastructure

## 1.1 Requirements for a green infrastructure study in the Stratford-on-Avon district

- 1.1.1 As part of the information and evidence to support the soundness of its Local Development Framework, Stratford-on-Avon District Council appointed UE Associates to prepare a Green Infrastructure (GI) Study. The Study will contribute to an evidence base designed to inform Stratford-on-Avon's forthcoming Core Strategy. The Study will ensure that the upcoming Core Strategy allows for future land development that facilitates multifunctionality and connectivity of green space in line with the intentions and principles of sustainable development (HM Government, 2005). The Study has drawn upon Natural England's National GI Guidance (Natural England, 2009a), which presents one of the most advanced guidance documents available from a growing body of advice.
- 1.1.2 Research and review of green infrastructure policy and practice in the West Midlands has been undertaken by the Forestry Commission on behalf of the Regional Environment Partnership. Two publications in particular provide a general overview of green infrastructure, including an exhaustive review of the various national green infrastructure guidance documents and case studies. These are the West Midlands Green Infrastructure Prospectus (TEP and Allison Millward Associates, 2007) and the Technical Mapping Paper (TEP, 2007). The reports also include suggestions and aspirations to develop green infrastructure planning as an applied response to natural resource management and ecosystem service delivery. It is widely recognised that a carefully prepared localised approach engaging stakeholders and embracing relevant policy structures is essential.
- 1.1.3 Green infrastructure planning represents a way of increasing and enhancing semi-natural features and green space, including rivers and lakes, such that spatial planning can maximise cost effective service provision as opposed to using hard man-made "grey" infrastructure as a first choice to support development. These economic efficiencies can be used to support and enhance the quality of places (including residential and employment sites), access to open air recreation, biodiversity gain, landscape enhancements, sustainable drainage and flood management and health benefits. Effective GI is organised through a carefully planned spatial network of interconnected and integrated features. The extent to which a particular piece of green infrastructure can provide different services defines its multifunctionality.

## 1.2 Defining green infrastructure

- 1.2.1 Green Infrastructure refers to the network of greenspaces and natural/semi natural features that connect our towns, cities, urban and rural landscapes. Many GI definitions exist and all share common principles. This Study is based around the GI definition from PPS12:

***"Green infrastructure is a network of multi-functional green space, both new and existing, both rural and urban, which supports the natural and ecological processes and is integral to the health and quality of life of sustainable communities" (PPS12, DCLG 2008).***

1.2.2 Green infrastructure is a cornerstone of spatial planning that is essential to provide wide-ranging benefits to various sectors through the use of “green” and semi-natural features. Careful planning of GI delivers social, economic and environmental benefits that can be derived in a cost-effective and sustainable manner. Natural England’s Framework for GI for the South East (2009b) identifies seven key functions of GI:

1. Conservation and enhancement of biodiversity, including the need to mitigate the potential impacts of new development;
2. Creating a sense of place and opportunities for greater appreciation of valuable landscapes and cultural heritage;
3. Increasing recreational opportunities, including access to and enjoyment of the countryside and supporting healthy living;
4. Improved water resource and flood management and sustainable design;
5. Making a positive contribution to combating climate change through adaptation and mitigation of impacts;
6. Sustainable transport, education and crime reduction; and
7. Production of food, fibre and fuel.

1.2.3 Their functions are equally relevant and applicable to Stratford-on-Avon district.

### 1.3 Different types of green infrastructure

1.3.1 **Table 1.1** provides a listing of various typologies for the different types of GI which can be associated with Stratford-on-Avon. The typologies have been conveniently grouped into categories, which are derived from the PPG17 Open Space, Sport and Recreation Assessment (produced for the District Council by Arup, 2011). This in turn stems from Planning Policy Guidance for Open Spaces, Sport and Recreation, PPG17 (ODPM, 2002).

**Table 1.1: Different types of green infrastructure**

Functionality	Sub-type
<b>Parks and gardens</b>	Country Parks Registered parks and gardens Formal gardens
Encompasses large scale composite GI features such as country parks or smaller parcels of land which when clustered together provide a significant GI asset. Parks and gardens feature high levels of multifunctionality delivering a wide range of benefits. Large parks form the cornerstone of many sub-regional GI networks. Optimum location is near towns and other residential areas.	
<b>Natural and semi-natural urban greenspaces</b>	Woodlands and scrub

Functionality	Sub-type
<p>Nearly all habitats found in towns are semi-natural having been modified in some way by man and managed so that the ecosystem in question is under control. In highly urbanised circumstances semi-natural habitats are often at a premium. Accessible natural greenspace is a good multifunctional asset that adds to the diversity of a GI network. It is important that habitats are interconnected and maintained at a high and stable quality. GI can help protect, enhance, restore and create habitats which in turn provide benefits for people, business and nature. Land use designations relating to biodiversity include non-statutory and statutory sites such as SINCs, LNRs, SSSIs, NNRs and European sites of nature conservation interest.</p>	<p>Heathland</p> <p>Grasslands; downlands, commons and meadows</p> <p>Wetlands, open and running water</p> <p>Wastelands and derelict land</p> <p>Countryside in urban fringe areas.</p> <p>Cliffs, quarries and pits</p>
<p><b>Green and blue corridors</b></p> <p>Like most GI features, green corridors can be found at a range of scales and sizes. This affects the extent to which they deliver multifunctionality. They link the network and enable transfer of people and nature across and throughout settlements. Increased levels of isolation cause genetic limitations, and the ability for biodiversity to disperse and colonise can be limited by isolation. Well-connected access routes will encourage people to use active travel options. Blue corridors include rivers, streams, overland flow paths, surface water ponding areas, watercourse buffer areas and multi-use flood storage areas.</p>	<p>River and canal banks; towpaths</p> <p>Rivers and canals</p> <p>Cycleways and greenways</p> <p>Footpaths and bridleways</p> <p>White roads and byways open to all traffic</p> <p>Hedgerows and ditches</p> <p>Motorway and road verges</p> <p>Railway embankments and cuttings</p>
<p><b>Outdoor sports facilities</b></p> <p>This GI typology provides the important benefit of structured outdoor recreation and exercise. Natural playing surfaces offer greater multifunctionality of GI. Not all outdoor sports facilities provide open access to everybody. For example, school playing fields have the extra benefit of physical education but are usually only used by school children. The same is true of certain sports venues such as tennis and rugby clubs. Informal greenspace enables opportunities for outdoor activities focused on sport, play and general fitness. Smaller parcels of GI in this category include young children's play areas, skateparks, basketball courts and other openspace provision for teenagers. Access is an important consideration when reviewing this resource; formal and informal outdoor recreation opportunities should be balanced. Indirect benefits include water retention and natural drainage, landscape enhancements and opportunities for communities to socialise.</p>	<p>Golf courses</p> <p>Tennis courts</p> <p>Bowling greens</p> <p>Sports pitches</p> <p>Athletics tracks</p> <p>School playing fields</p> <p>Children's play areas</p> <p>Teenage open space provision</p> <p>Other outdoor areas: skateparks and basketball</p> <p>Fitness trails</p>

Functionality	Sub-type
<p><b>Amenity greenspace</b></p> <p>Amenity greenspace is found commonly, but not exclusively, in housing areas. It tends to be informal areas that enable communities to meet, enjoy the fresh air and for children to play in unstructured surroundings.</p>	<p>Informal recreation spaces</p> <p>Domestic gardens</p> <p>Village greens</p> <p>Doorstep greens</p> <p>Pocket parks</p>
<p><b>Community assets</b></p> <p>Community assets include those types of GI that have strong social and cultural significance. They all involve service provision to local communities and provide structured outdoor meeting places. Historic and cultural aspects as a place often provide the spatial context for several GI community assets.</p>	<p>Churchyards and cemeteries</p> <p>Allotments</p> <p>Community gardens</p> <p>Accessible countryside in urban fringe areas</p>
<p><b>GI design features</b></p> <p>The built environment can include a range of design features that draw on natural processes and aim to complement or mimic natural processes that would take place in semi-natural habitats. Benefits of these types of GI relate strongly to sustainable drainage and enhancing habitat connectivity across areas that are lacking in habitat diversity.</p>	<p>Green roofs and walls</p> <p>SuDS</p> <p>Swales</p> <p>Street trees</p>

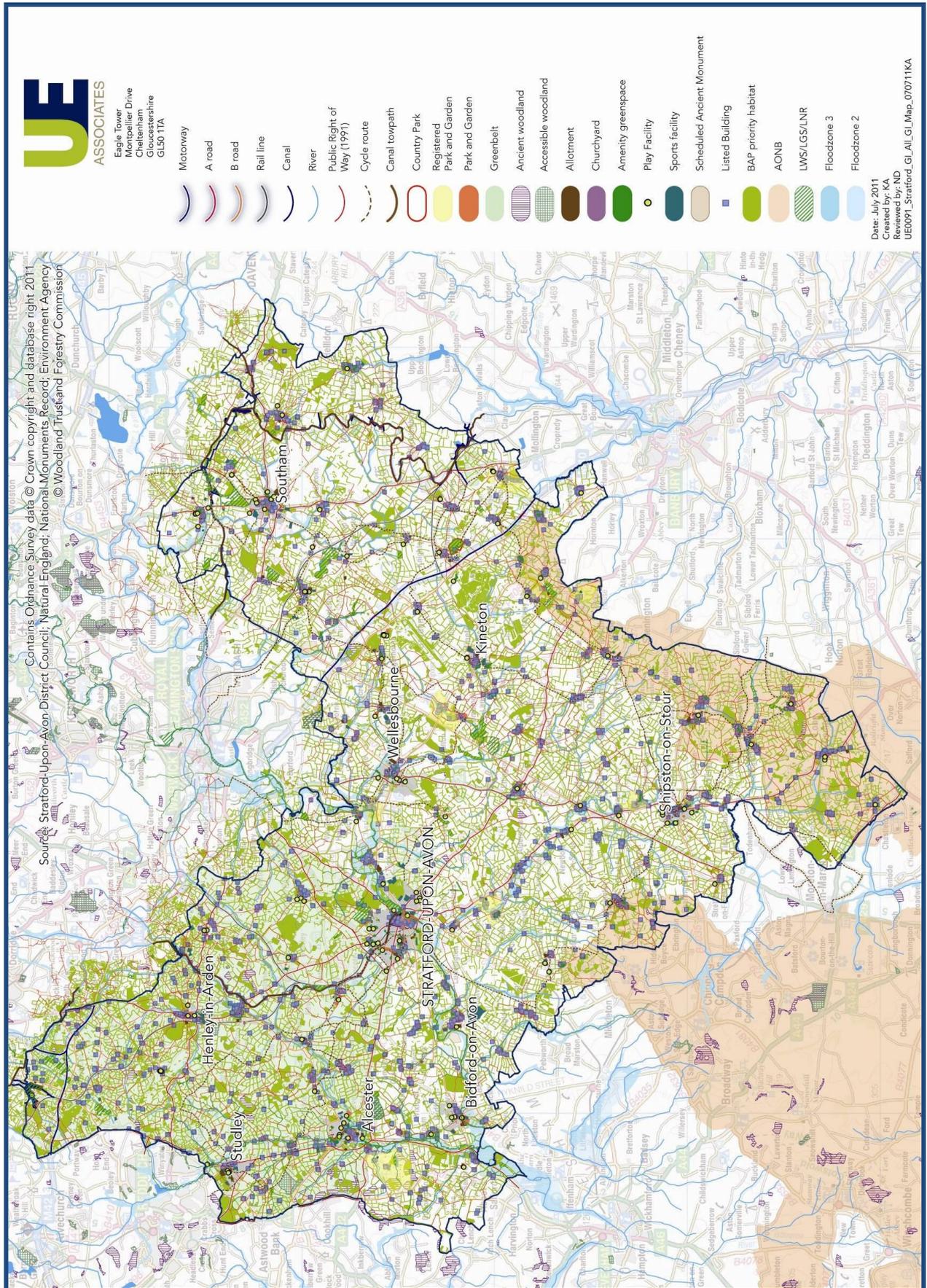


Figure 1.1: Current GI in Stratford-on-Avon

## 1.4 Stratford-on-Avon vision for green infrastructure

- 1.4.1 The Stratford-on-Avon Green Infrastructure Study identifies the core network of GI assets of various quality, form and distribution. Together these represent a network of green and blue corridors and spaces across the district that connect trees, gardens, open space and places where people live, visit and work. The Study focuses in particular on Stratford-upon-Avon and eight main rural centres.
- 1.4.2 The following vision is influenced by and draws on policies set out within the draft Core Strategy (Stratford-on-Avon District Council, 2010a), Stratford's Sustainable Community Strategy and aspirations of wider policy and strategic objectives of related subjects.

*“Stratford-on-Avon’s existing green infrastructure will be enhanced through the principles of protection, enhancement, restoration and creation whilst providing a coherent, multifunctional connected core network of green infrastructure that is resilient to climate change. The network will help to:*

- ▶ *Support the growth of a strong, competitive low carbon economy with a highly skilled and knowledgeable workforce;*
- ▶ *Promote a healthy, active community that is safe and involved;*
- ▶ *Protect and support historic and archaeological settings, sense of place and the distinctive landscape and character of Stratford-on-Avon;*
- ▶ *Form a place for biodiversity to survive and thrive in the face of climate change.*

*Overall, green infrastructure will form a core pillar that ensures Stratford-on-Avon is a district with a happy, healthy society where people want to live, visit and work.*

*The green infrastructure network will be delivered by partnerships between stakeholders and a strong, involved private and voluntary sector that will share skills, knowledge and management techniques under the guidance of strong political leadership.”*

## 1.5 Preparing the Study

- 1.5.1 Study preparation has followed clear sequential steps which have identified the suite of actions and projects proposed for Stratford-upon-Avon and the eight main rural centres (Alcester, Bidford-on-Avon, Henley-in-Arden, Kineton, Shipston-on-Stour, Southam, Studley, and Wellesbourne). These steps are summarised below.
1. **Baseline:** Baseline information has been collected, collated and analysed to understand the current resource and service provision through existing green infrastructure, as well as any deficiencies based on need. This is presented in map format as well as through text (See **Appendix B**). The baseline review also includes a consideration of prevailing policy factors that may affect the GI baseline. The baseline process has been

augmented by the use of an external Focus Group to discuss baseline issues, GI opportunities and challenges.

2. **GI Framework:** The baseline review has been used to inform and develop a GI Framework. The proposed Framework is intended to guide the way in which GI is to be protected, enhanced, restored or created to provide strong levels of multifunctionality and a well-connected network of green infrastructure features.
3. **Designing Local GI Networks:** Each of the nine settlements has been analysed in terms of GI asset types and a map of the existing network has been drawn up. The GI Framework has then been used as a guide to protect, enhance, restore and recreate the network to maximise benefits and address the needs of each settlement area.
4. **Planning Delivery:** The Study is the starting point for a long term initiative to plan for green infrastructure in Stratford-on-Avon and beyond, into neighbouring areas where appropriate. It has not included a detailed action plan; however it has sought to provide information and direction to support the next steps of its evolutionary path.

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## 2 Green Infrastructure Policy Context

### 2.1 Green infrastructure development

- 2.1.1 Since the term green infrastructure was first coined it has continued to spread and develop across the world, featuring increasingly throughout conservation and land development discussions (Benedict and McMahon, 2006). It is fast becoming recognised as an applied approach to land use planning, management and conservation. Support for green infrastructure has grown, transforming it into a discipline within the UK following policy guidance and drivers developed at international, national and local levels. The term green infrastructure has numerous meanings, depending on the background of practitioners, and continues to develop and evolve; taking on different meanings according to the context it is applied. At one level green infrastructure can represent engineered structures that provide environmentally friendly solutions to energy protection, supply and storm water management. However, at another level it refers to the matrix of semi-natural features that form the green fabric of our urban areas, including parks, gardens, rivers and woodland (Benedict and McMahon, 2006).
- 2.1.2 The green infrastructure concept recognises the benefits and goods provided by ecosystem services and moves away from the conservation versus development argument. A green infrastructure approach recognises the importance of actively managing and protecting green openspace which is planned into and alongside new and future developments.

### 2.2 International policy perspective

- 2.2.1 Support for green infrastructure on the international scene continues to grow with a number of significant driving forces being relevant to the subject. The multifunctional nature of green infrastructure means it has and will continue to feature and form links with a wide range of subjects and disciplines, helping to bridge the gap between subject areas that have often been viewed as separate and in isolation. Already a number of publications and research papers have been carried out highlighting the need and importance of recognising green infrastructure.
- 2.2.2 Between 2001 and 2005 the United Nations Millennium Ecosystem Assessment (MA, 2005) produced ground breaking research into the state of ecosystems and their role in human well being. The research sought to assess the consequences of ecosystem change on human well-being and provide a scientific basis for action needed to enhance the conservation and sustainable use of various ecosystems and increase their contribution to human wellbeing (MA, 2005). The research involved over 1,360 experts from around the world. Their findings provided a state of the art scientific appraisal of the condition and trends of the world's ecosystems and the services they provide, moving on to present options to restore and enhance the sustainable use of such ecosystems in order to maximise the benefits they provide (MA, 2005).

- 2.2.3 Another international policy consideration for green infrastructure draws on the work undertaken by The Economics of Ecosystems and Biodiversity (TEEB, 2011). TEEB research aims to draw attention to the economic benefits of biodiversity and the costs associated with biodiversity loss and ecosystem degradation. The TEEB study has resulted in a number of reports aimed at distinct end users such as ecologists and economists, international and national policy makers, businesses and citizens. The reports offer end users practical guidance on understanding the economic values of biodiversity and what actions and options are available for sustainable intervention (TEEB, 2011).
- 2.2.4 Green infrastructure is gaining significance within the EU. In November 2010 a conference on green infrastructure implementation was held, attended by over 80 delegates from around the EU, with the purpose of discussing and supporting continued green infrastructure work. Specifically the conference sought to discuss green infrastructure implementation across Europe, identifying any gaps and links to climate change and relevant policies (Karhu, 2011). A recent report "LIFE building up Europe's green infrastructure" (2010) highlights the importance of green infrastructure in reducing and reversing the degradation, loss and fragmentation of Europe's habitats. It recognises the role of green infrastructure in strengthening ecosystems and their services in addition to aiding the conservation and support of the Natura 2000 network. The EU Biodiversity Strategy (European Commission, 2011) saw green infrastructure feature more strongly, recognising its role in spatial planning and maintaining and restoring ecosystems. It also explains that the EU is currently seeking to develop a green infrastructure strategy and framework whilst continuing to raise awareness amongst the 27 member states.

## **2.3 National policy perspective**

- 2.3.1 Green infrastructure within the UK is featuring more strongly and is referenced more often in policy and planning, signifying the growing development and importance of the subject.
- 2.3.2 Although green infrastructure was not directly referenced in the UK Government's 2005 Sustainability Strategy, "Securing the Future" , there were three core principles that are relevant to green infrastructure: (i) Living within environmental limits, (ii) Ensuring a strong, healthy and just society, and (iii) achieving a sustainable economy. However, a number of recent studies have progressed the green infrastructure concept.
- 2.3.3 The National Ecosystem Assessment undertook research into how ecosystems can be valued in economic terms. The research was published in June 2011 and is the first analysis of the value of the UK natural environment by taking into account the economic, social and health benefits that are gained from the natural environment (UK NEA, 2011). This research developed as a response to the Millennium Ecosystem Assessment (2005) to help develop and direct effective policy responses to the degradation of ecosystems and the services they provide.

- 2.3.4 June 2011 saw the publication of the long anticipated Natural Environment White Paper “The Natural Choice: securing the value of nature” (HM Government, 2011). This sets out the Government’s vision for the natural environment over the next 50 years and the practical actions to achieve this ambition (HM Government, 2011). More importantly, it highlights the significance of ecosystems to society and economic growth and makes direct reference to green infrastructure. Moreover, it sets out the Government’s intention to establish a green infrastructure partnership to support the development of green infrastructure in England. This will consider how green infrastructure can be enhanced to strengthen ecological networks, improve the quality of life and health of communities, and improve resilience to climate change (HM Government, 2005).
- 2.3.5 In October 2010 Forest Research published a report into the benefits of green infrastructure. The report highlights the importance of urban green space in providing different benefits and solutions to a variety of issues and challenges. It looks at the potential of green infrastructure to provide multiple benefits for: climate change, health and well-being, economic growth and investment, land regeneration, wildlife and habitats, and stronger communities (Forest Research, 2010).
- 2.3.6 Green infrastructure planning gains its support and mandate from Planning Policy Statement 12, Local Spatial Planning. It is defined as a “network of multifunctional green space, both new and existing, both rural and urban, which supports the natural and ecological processes and is integral to the health and quality of life of sustainable communities” (DCLG, 2008). PPS 12 states that “the core strategy should be supported by evidence of what physical, social and green infrastructure is needed to enable the amount of development proposed for the area, taking account of its type and distribution. This evidence should cover who will provide the infrastructure and when it will be provided. The core strategy should draw on and in parallel influence any strategies and investment plans of the local authority and other organisations” (DCLG, 2008).

## **2.4 Regional and sub-regional policy perspective**

- 2.4.1 Stratford-on-Avon is part of Warwickshire which in turn is part of the West Midlands Region. In 2007 the West Midlands Green Infrastructure Prospectus (TEP and Allison Millward Associates, 2007) was published which sets direction and gives purpose to green infrastructure within the region. It lends itself to offer policy makers at the regional, sub-regional and local level, guidance on green infrastructure aims and aspirations for the West Midlands. The Prospectus has five key aims:
- ▶ To ensure politicians, policy developers and decision makers throughout the West Midlands are aware of the vital roles of green infrastructure;
  - ▶ To advocate greater investment in, and improve management of the region’s existing green infrastructure;
  - ▶ To ensure green infrastructure is appreciated as an essential element of delivering sustainable communities underpinning growth and regeneration;

- ▶ To promote a robust and systematic approach to green infrastructure assessment, planning and investment by local, sub-regional and regional planning authorities;
- ▶ To ensure green infrastructure is proactively planned from the earliest stages of strategic plan preparation through to concept and design stages of all future developments in the region.

2.4.2 More recently the Draft Warwickshire, Coventry and Solihull Sub-Regional Green Infrastructure Study has been published (Land Use Consultants, 2011). The purpose of the study was to gather and analyse existing green infrastructure to provide an evidence base which supports a consistent approach to GI planning across the sub-region. The study aims to inform the preparation of local authorities' planning policies and production of infrastructure delivery plans (Land Use Consultants, 2011). The study defines and identifies sub-regional GI assets, analyses deficiencies in sub-regional assets, prioritises provision of assets, and identifies the costs, delivery and funding opportunities for the creation of potential new sub-regional GI assets.

2.4.3 This Study i.e. the Stratford-on-Avon Study, has drawn on the strategic findings and context of the sub-regional report to present an approach to green infrastructure planning at the local level, known as district-scale. The two reports can work together and this Study, in particular, has carefully considered the implications of the sub-regional outputs.

## 2.5 Stratford-on-Avon local level context

2.5.1 Stratford-on-Avon District Council is in the process of preparing its Core Strategy, which is due to be adopted by the end of 2012. It is likely to contain a policy on green infrastructure similar to the policy contained in the Stratford-on-Avon Draft Consultation Core Strategy (2010a), reproduced in **Box 1**. Other relevant policies will support GI relating to, for example, landscape, biodiversity, and the historic environment.

### Box 1: Draft Core Strategy policy on Green Infrastructure (Consultation Draft, February 2010)

#### Policy CS.9 Improving Green Infrastructure, Sport and Recreation

##### **A. Protection of Open Space and Recreation Facilities**

Development proposals that would result in the loss of:

- (i) public or private open space, or
- (ii) outdoor or indoor sport or recreation facilities, without suitable replacement being made, will be resisted unless it can be demonstrated by the applicant that there is an over-provision of that particular facility in the local area.

##### **B. Enhancing Access to Natural Areas**

Open spaces, waterways and other green infrastructure features will be created, protected and enhanced for their contribution towards:

- (i) quality of life, healthy lifestyles and community cohesion
- (ii) biodiversity and provision of habitats

(iii) non-vehicular modes of movement

(iv) sustainable drainage, mitigation of flooding, carbon sinks and other climate change impacts.

Access to natural areas and the countryside through nature reserves, rights of way, green corridors, country parks and connections between built up areas and the countryside will be maintained and improved.

#### **C. New Recreation and Sport Facilities**

The provision of new or extended recreation and sport facilities (built or outdoor) will be supported if they are of a scale and nature which relate to the size and function of the individual settlement. Small-scale schemes which primarily serve the local community will be supported in all locations.

#### **D. Open Space and Recreation Facilities in New Development**

All new development is expected to provide increased or improved facilities for indoor and outdoor recreation, and open space, to meet the needs of its future occupiers having regard to local standards and existing deficiencies. The requirement includes provision of, and improved access to, green infrastructure features. Provision should be made on-site unless a financial contribution to meet identified needs in the local area is more appropriate.

- 2.5.2 This GI Study will provide a firm evidence base to support the formation of a robust and effective Core Strategy for Stratford-on-Avon.
- 2.5.3 There are a number of strategies that, although whilst not focusing specifically on green infrastructure, remain relevant to the subject. Stratford-on-Avon's Green Space Strategy 2007-2012 (Stratford-on-Avon District Council, 2006) recognises the importance of safe, clean and accessible green open space that supports the quality of life of communities. The vision for the strategy states, 'Stratford on Avon district will have accessible, attractive, clean, safe, varied and welcoming green environments, which meet community needs and contribute to the quality of life for people who live in, work in and visit the district'. Also relevant are the Sustainable Community Strategy (Stratford District Partnership, undated), adopted by Stratford-on-Avon District Council in April 2009, and the PPG17 Open Space, Sport and Recreation Assessment (Arup, 2011).
- 2.5.4 Due to the nature of green infrastructure there are a range of relevant policies and strategies that have been considered with this study. The complex nature of the green infrastructure means that it shares links with a wide range of disciplines and other subjects that seek the same or similar goals and aspirations. For a comprehensive list of relevant policies and strategies please refer to the Purpose Driver table in **Appendix A**.

## **2.6 Shaping the Draft Core Strategy Green Infrastructure Policy**

- 2.6.1 The draft policy presented in **Box 1** has been reviewed against the GI Framework presented in **Table 4.1** with a view to gauge the overall direction and content. At a strategic scale, in the context of the Core Strategy, the policy as a single standalone entity brings out the District's commitment to green infrastructure planning. It serves to unite the various topic specific policies that affect green infrastructure elsewhere in the Core Strategy. Importantly it complements these, providing an umbrella commitment to the principle of land use planning using natural and semi-natural resources such as rivers, woodlands and the landscape.
- 2.6.2 The policy focuses on open spaces and access, and in this respect relates strongly to Theme II: A healthy, active and involved community. Theme III, Flooding and a changing environment, is addressed in the policy's commitment to enhance access to natural areas since it refers to non-vehicular modes of movement and makes reference to climate change mitigation. It might similarly make reference to climate change adaptation if it were to be revised as new drafts of the Core Strategy are prepared. One component which features in the GI Framework for Theme III but is not mentioned in the policy is the importance of raising awareness amongst citizens about the significance of green infrastructure as a district asset for all to use.
- 2.6.3 Theme IV is similarly addressed positively in the policy. Gardens and allotments provide tangible green infrastructure components that are perhaps at the heart of many people's day to day life. On this basis, they could warrant a special mention; certainly in the context of settlements and the places where people live.
- 2.6.4 One aspect to the policy which is most obviously missing in relation to the GI Framework concerns Theme I: A sustainable, competitive and prosperous economy. The importance of green infrastructure in terms of the role it plays supporting tourism, which is a significant employment consideration in the district, should be recognised. Similarly, green infrastructure can play a role in the economy by providing jobs in the land use sector. This has a bearing on future land use configuration and forward planning in the district.
- 2.6.5 To help convey the core principles of green infrastructure planning the policy might helpfully refer to connectivity and multi-functionality. Similarly, it could be more explicit about the need to protect, enhance, restore and create green infrastructure assets. Perhaps most obviously of all, it should make reference to this Study and its findings.

## 3 Green Infrastructure in Stratford-on-Avon

### 3.1 Baseline characteristics affecting green infrastructure

3.1.1 The following sections provide a synoptic perspective on key issues reviewed as part of the baseline. These will subsequently be incorporated into the GI Framework (**See Chapter 4**). Each section includes an overview of green infrastructure and identifies any deficiencies, challenges and key issues associated with each topic. Maps relating to each of the following sections can be found at **Appendix B**.

### 3.2 Access and recreation

3.2.1 As one of the largest rural districts in England, Stratford-on-Avon has an extensive Public Rights of Way (PRoW) network, including footpaths, bridleways and byways, with 3,651 paths totalling 1,673.3km in length. The network includes 3,002 footpaths (1,342.35 km) and 642 bridleways (329 km). The canal network, including the Stratford-upon-Avon, Oxford and Grand Union Canals, also offer significant walking and cycling opportunities along their length.

3.2.2 Long distance paths which run through Stratford-on-Avon include: the Heart of England Way, which links Cannock Chase in Staffordshire with the Cotswolds and runs through the district from a north south direction via Henley-in-Arden, Alcester and Bidford-on-Avon; and the Monarch's Way, which passes through the district via Stratford-upon-Avon, Wootton Wawen and Alcester on its 989 km from the south coast to Shropshire and Worcester. Other key routes in the district include the Arden Way, the Harry Green Way, the Shakespeare's Avon Way, and the Centenary Way. These long distance paths are key linkages in the district wide green infrastructure network and provide significant cross boundary connections with neighbouring districts.

3.2.3 The district has a high quality and extensive cycle network which utilises off road routes along canals, former railways and other features. Notable routes in the district include the traffic free Stratford Greenway between Long Marston and Stratford-upon-Avon, the Stratford-upon-Avon to Redditch cycle route and the Stratford-upon-Avon to Ilmington route. Two completed National Cycle Network Routes run through the district, including National Cycle Network Route 5, which links Oxford and Birmingham via Stratford-upon-Avon, and National Cycle Network Route 41 the 'Lias Line', which links Stratford-upon-Avon with Warwick, Leamington Spa and Rugby. These are key components of Stratford-on-Avon's cycle networks, with linkages across the district. In total the district's cycle network extends to 332 km (Sustrans, 2011).

3.2.4 Weaknesses in the district's PRoW network include a lack of connectivity at some locations and many long term off-line and obstructed routes (Stratford-on-Avon District Council, 2009).

- 3.2.5 In 2011 Stratford-on-Avon District Council commissioned the 'PPG17 Open Space, Sport and Recreation Assessment' (Arup, 2011) to contribute to the evidence base of the Core Strategy. The work followed Natural England's 'Report No 526 – Providing Natural accessible greenspace in Towns and Cities: A Review and Toolkit for Implementation' to identify two groups of Natural Accessible Greenspace (NAG) – conditional and unrestricted (see **Appendix B**). The distribution of areas identified as unrestricted NAG in the district is concentrated in the north-west, with sites located in and around Stratford-upon-Avon, Henley-in-Arden, Studley and Alcester. There are three sites located in and around Southam and another three small sites in and around Kineton. The southern part of the district is severely lacking in sites identified as unrestricted NAG.
- 3.2.6 Distribution of conditional NAG is reasonably even across the district, although there is a denser pattern of identified sites again in the north-west around Henley-in-Arden, Studley and Alcester.
- 3.2.7 As highlighted in the Warwickshire Local Transport Plan 2011-26 (Warwickshire County Council, 2011), the rural nature of much of the district has a close influence on accessibility. The availability and access to services varies significantly between urban and rural areas, with most key services available in urban areas and fewer facilities available in villages and hamlets. The disparate nature of rural settlements and the difficulty of providing frequent and economical public transport networks also present challenges for accessibility in the district. These factors contribute to too many households being heavily reliant on private transport; almost half of the 53,678 households in Stratford-on-Avon have two or more cars (among the highest levels in the UK (Warwickshire County Council, 2011)).
- 3.2.8 Due to these factors the district's green infrastructure network has a key role in linking residential areas with services, facilities, amenities and key public transport modes, and helping to reduce car dependency.

### **3.3 Biodiversity**

- 3.3.1 Stratford-on-Avon contains a diverse mosaic of habitats, representing a microcosm of lowland England. The waterways of the district, including the River Avon and its tributaries, are important habitats for a range of protected species. The district has all of Warwickshire's calcareous grassland (68 ha) together with 20% of the county's neutral grassland. The district also holds 72% of the county's traditional orchards, a valuable and vulnerable habitat. However, 85% of the land outside settlements comprises arable land or improved grassland and only 5% comprises woodland (Stratford-on-Avon District Council, 2008). In this context ancient woodlands are largely concentrated in the north and centre of the district (the Feldon Parklands<sup>1</sup>), reflecting the historic extent of the Forest of Arden.

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<sup>1</sup> Warwickshire Landscape Guidelines: 3 volumes (1993) Warwickshire County Council

- 3.3.2 The district is home to a large number of nationally designated nature conservation sites. 39 SSSIs are located in the district, covering 661.8 ha; eleven are geological. 84.6% of the area covered by SSSIs in the district is in favourable condition; 15.4% is in unfavourable condition but in the process of recovery and no SSSIs fall into the 'unfavourable and unchanging' category (Stratford-on-Avon District Council, 2011a). This compares well with national, regional and Warwickshire averages.
- 3.3.3 There are a number of non-statutory nature conservation sites known as Local Wildlife Sites (LWS) (Stratford-on-Avon District, 2010b). LWS are designated according to local criteria. The register of sites is managed by Warwickshire Biological Records Centre on behalf of Stratford-on-Avon District Council. In addition to these LWSs, a number of Local Geological Sites (LGS) have also been identified and are on a par with Local Wildlife Sites in terms of planning status. A number of these sites are fragmented, with poor connectivity of habitats in certain parts of the district, particularly between urban and rural areas. Biodiversity is under pressure from, amongst other things, residential, employment and retail growth and the subsequent increase in population. There are 49 LWS and 32 LGS (Stratford-on-Avon District Council, 2010b). The Warwickshire Local Geodiversity Action Plan seeks to increase the number of these sites to create a comprehensive county-wide network (Warwickshire Conservation Group and Museum, 2009).
- 3.3.4 There are currently four Local Nature Reserves located in the district. These are managed by Stratford-on-Avon District Council or Warwickshire County Council: River Arrow; Stockton Railway Cutting, Ufton Fields and Welcombe Hills and Clopton Park.
- 3.3.5 At a local level the Warwickshire, Coventry and Solihull Biodiversity Action Plan sets the local priorities for biodiversity in the district. 24 Habitats Action Plans (HAPs) and 26 Species Action Plans (SAPs) have been prepared for the county. The HAPs and SAPs prepared locally should be key aspects for consideration for enhancements to Stratford-on-Avon's green infrastructure network.

### **3.4 Landscape, heritage and sense of place**

- 3.4.1 The landscape character of Stratford-on-Avon reflects both natural factors, including geology, landform and ecology, and human influences. The district has a varied landscape which is highly valued by both residents and visitors. In broad terms, the district can be divided into a number of landscape character areas. Historically the Forest of Arden covered the area north of the River Avon; it was heavily wooded and comparatively the north of Stratford-on-Avon still retains a higher level of tree cover compared to other areas of the district. The valleys of the Rivers Avon and Stour provide an attractive vale landscape comprising open fields and floodplains. Between the River Avon and the Cotswolds escarpment is the Feldon area, a lowland and more open agricultural landscape with less tree cover and larger enclosures. In the east of the district are the Ironstone Uplands which extend into Northamptonshire.

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- 3.4.2 The south of the district comprises the distinctive Cotswolds scarp. This area has been designated for its high quality landscape as part of the Cotswolds Area of Outstanding Natural Beauty (AONB; 104 square kilometres of the AONB lie within Stratford-on-Avon, comprising 5% of the district (Cotswolds Conservation Board, undated)). The AONB designation enables excellent protection and promotion of this landscape asset.
- 3.4.3 Landscape character in the district reflects the underlying geology of the district, which comprises five main groups. These include the Upper Triassic Mercia mudstones, siltstones and sandstones which cover much of the north and north-west of the district; the thin band of rocks from the Penarth Group which extend across the middle of the district; the Jurassic clays, limestone's and sands which lay across much of the south and east of the district; and the band of Middle Lias limestone located around Edge Hill in the south-east of the district. The landscape of Stratford-on-Avon is also strongly influenced by the glacial and interglacial interludes of the Quaternary which have taken place during the last 2 million years, including changes in the course of the River Avon and its tributaries. Whilst the underlying bedrock geology of Stratford-on-Avon is diverse, due to the topography of the district exposures of the underlying pre-Quaternary geology are rare and are largely restricted to those found in quarries.
- 3.4.4 Stratford-on-Avon has a rich and diverse historic environment resource, which is central to the character and distinctiveness of the district and providing a sense of place. It reflects the district's historic evolution, including Roman, Anglo Saxon, Medieval, Tudor, Civil War influences, and the growth of tourism in the district from late 19<sup>th</sup> Century, including links to the district's cultural association with William Shakespeare. This rich history is reflected by the district's diverse cultural heritage resource and, whilst this resource includes better known assets such as Anne Hathaway's Cottage, Charlecote Park, Ragley Hall, and Upton House, the historic environment in the district is broad ranging, incorporating a wide variety of features, sites and areas.
- 3.4.5 Many important features and areas for the historic environment in Stratford-on-Avon are recognised through national historic environment designations. These include 3,332 nationally listed buildings (incorporating 65 Grade I listed buildings, 166 Grade II\* listed and 3,101 Grade II listed (English Heritage, 2011)), 84 Scheduled Monuments and eleven Registered Parks and Gardens. 76 conservation areas have also been designated locally. A number of these features are however deemed 'at risk' by English Heritage, including two conservation areas, three Grade II\* listed buildings and 26 Scheduled Monuments.
- 3.4.6 The development of a high quality green infrastructure network in the district provides an excellent opportunity to improve the setting and enjoyment of many features and areas of historic environment interest, both designated and non-designated. GI can contribute significantly to local distinctiveness and a sense of place through incorporating and rejuvenating key features of historic environment interest.

### **3.5 Water resources, water quality and flood management**

- 3.5.1 Stratford-on-Avon's water environment is dominated by the River Avon and its tributaries, the Alne, Arrow, Dene and Stour. These river corridors are key green and blue infrastructure assets, with a range of multifunctional uses including contributing to recreational amenity, biodiversity conservation, landscape quality, flood attenuation and water provision. The three canals located in the district - the Stratford-upon-Avon Canal, the Grand Union Canal and the Oxford Canal are also key GI assets. These provide important functions, including linking water bodies across river catchment areas, performing flood alleviation functions and through facilitating opportunities for linking district-wide and sub-regional walking and cycling networks along canal towpaths.
- 3.5.2 As highlighted by the Water Cycle Study carried out for Warwickshire (Halcrow, 2010), most of the district's water is supplied by Severn Trent Water's Severn Resource Zone, with a small amount supplied by Severn Trent Water's Birmingham Resource Zone and South Staffordshire Water Plc. According to the Environment Agency, water resources are under 'moderate stress' in the area, with some areas under 'serious' stress. In this context there are current and predicted supply-demand deficits within the district.
- 3.5.3 Whilst the River Severn catchment (including the River Avon) is the major source of water in the area, a number of major aquifers exist locally, including the Triassic Sherwood Sandstone Group. These sandstones are capable of supporting large abstractions and form important aquifers for water supply in these areas. Another major aquifer is in the Jurassic Great & Inferior Oolitic Limestone, which is based along the Cotswold scarp covering part of the south of the district. This limestone aquifer provides an important water resource for the area and supports a number of abstractions, mainly from spring sources (Environment Agency, 2006). According to the Warwickshire Avon Catchment Area Management Strategy (Environment Agency, 2006), groundwater is largely over-licensed in the area.
- 3.5.4 In terms of the water quality of watercourses in Stratford-on-Avon, chemical water quality has seen overall improvements since the 1990s (Defra, 2010). With some fluctuations since 2000, chemical water quality has generally been favourable when compared to West Midlands and England averages. Biological water quality has however been less favourable and since 2002 the biological water quality of watercourses in the district has decreased, continuing to be below regional and England averages. Improvements to water quality in Stratford-on-Avon are therefore required to meet the target of all watercourses to reach 'good' biological and chemical water quality status by 2015, as required by the Water Framework Directive. The River Basin Management Plan for the River Severn (Environment Agency, 2009) indicates Stratford-on-Avon falls within the Warwickshire River Basin Catchment District and recommends actions required to improve chemical and ecological water quality within the Warwickshire Avon Catchment. Overall 11% of water bodies are in good ecological condition and this is expected to remain the same by 2015 (Environment Agency 2009).
- 3.5.5 Flood risk is a key issue for Stratford-on-Avon. The majority of the River Avon's catchment lies on impermeable rock. Due to the impermeability of the underlying geology, and the extensive distribution of shallow topography of much of the catchment area, fluvial flooding continues to be a significant issue for many areas of the district.

- 3.5.6 Many historic flood events have occurred in the district. The most recent major flood event was the July 2007 floods, which significantly affected many of the district's main settlements. The flood event led to the following number of properties being flooded: 110 in Alcester; 50 in Broom; 60 in Bidford-on-Avon; 100 in Shipston-on-Stour; 10 in Southam; 75 in Stratford-upon-Avon; 70 in Wellesbourne; and 100 in Henley-in-Arden (Environment Agency, 2007).
- 3.5.7 Other significant flood events which have taken place in the district since the 1980s include April 1998, December 1992, September 1992, January 1992, July 1986 and January 1985.
- 3.5.8 In addition to fluvial flooding, flood risk from surface water run off is also an issue for some built up areas in the district. Run off from fields and from canals overflowing is also an issue at some locations (Halcrow, 2008). In this context, the development of a high quality green infrastructure network in Stratford-on-Avon should seek to incorporate flood risk management at its heart, utilising flood attenuation measures, flood plain restoration, the naturalisation of river courses, and floodwater storage.

### **3.6 Health and well-being**

- 3.6.1 Stratford-on-Avon has low levels of deprivation, and is the least deprived district in Warwickshire. In terms of overall deprivation, according to the recently released Index of Multiple Deprivation (IMD) 2010 the district is ranked as the 278<sup>th</sup> least deprived local authority district in England out of 326 and has no SOAs<sup>2</sup> within the top 30% most deprived nationally (Warwickshire Observatory, 2010). The highest ranking SOAs are: Alcester North & Conway; Stratford Mount Pleasant East; and Maybird.
- 3.6.2 Stratford-on-Avon however features as deprived in a number of the categories within the IMD 2010. In particular, the district has 31 SOAs in the top 30% most deprived nationally in terms of barriers to housing and services and 39 SOAs in the top 30% most deprived in terms of geographical barriers. This reflects the rural nature of much of the district and the difficulties linked to providing services and facilities to a disparate population.
- 3.6.3 Overall, the health of residents in Stratford-on-Avon is generally very good. According to the Active Communities Strategy (Stratford-on-Avon District Council, 2007) Stratford-on-Avon is one of the healthiest areas in England, ranking 86<sup>th</sup> out of 408 councils (as measured by Local Futures, 2006).
- 3.6.4 Whilst health levels are generally high in Stratford-on-Avon, health inequalities exist between the most and least deprived areas of the district. For example, according to analysis by Warwickshire PCT the level of people with chronic heart disease in the ward with the highest level is 60% higher than that in the ward with the lowest level in the district (Stratford-on-Avon District Council, 2007). Likewise, life expectancy is lower in those parts of the district which exhibit forms of deprivation, and in the most deprived areas of Stratford-on-Avon, on average, the predicted life expectancy for men are four years and women three years less for those living in the least deprived areas of the district (Department of Health, 2010).

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<sup>2</sup> Super Output Areas (SOAs) are standardised geographical areas designed for the collection and publication of small area statistics. There are 71 SOAs in Stratford-on-Avon comprising approximately 1,500 people each.

- 3.6.5 Levels of physical activity are favourable in the district. According to Sport England's Active People Survey (Sport England, 2006) carried out for Stratford-on-Avon, 24.4% of the population participates in 3 x 30mins sport and active recreation per week. This is the third highest in the West Midlands and the same study suggested Stratford-on-Avon is the 47<sup>th</sup> most active district in the country. However, according to the Department of Health's Health Profile for the district, the level of physical activity amongst children (including in schools) is lower than the national average.
- 3.6.6 A significant factor for the health and wellbeing in the district is that Stratford-on-Avon is experiencing an ageing population. As highlighted by the Annual Monitoring Report 2010, the majority of expected population increase in the district is in 'older' age groups. Population trends indicate that the number of over 60s are projected to increase from 28% of the population to 38.4% by 2033 and that there will be 42,900 more people aged over 65 by 2031 (Warwickshire Observatory, 2009). In this context the existing high dependency ratio in the district is expected to increase further. This will have implications for healthcare provision and accessibility to services, facilities and amenities. These issues are reflected by the Sustainable Community Strategy, which puts forward the health and wellbeing of older people as a key theme for the district. In this context, the provision of recreational and leisure opportunities for older people should be a key consideration for the development of the district's green infrastructure network.

### **3.7 Tourism and the visitor economy**

- 3.7.1 Tourism is an important sector for the local economy, and the district has approximately 5.5 million visitors per year, with 3.5 million visiting the main town of Stratford-upon-Avon (Stratford-on-Avon District Council, Draft Core Strategy 2010a). Drawing on Stratford-on-Avon's cultural heritage resource, the district's association with William Shakespeare, the rivers and canals of the district and the high quality countryside and rural character of the area, the visitor economy is closely linked to the district's high quality built and natural environment.
- 3.7.2 The development of a high quality green infrastructure network in Stratford-on-Avon provides numerous opportunities to support the further development of the visitor economy in the district. This includes improving access to visitor attractions by enhancing walking and cycling links (including to the long distance footpaths and cycle routes already present in the district) and the further development of green infrastructure assets as high quality visitor attractions (such as parks and gardens, the district's canal network and river corridors and off road pedestrian and cycle routes). Improvements to the district's green infrastructure network also has a role in enhancing the setting and integrity of visitor attractions, through supporting improvements to landscape and townscape quality and contributing to local distinctiveness and a sense of place. Through these approaches, enhancements to Stratford-on-Avon's green infrastructure networks will support tourism in the district.

### **3.8 Climate change mitigation and adaptation**

- 3.8.1 Stratford-on-Avon has significantly higher per capita greenhouse gas emissions than regional (West Midlands) and national averages. Per capita emissions are however lower than the Warwickshire average, and between 2005 and 2008 per capita CO<sub>2</sub> emissions in the district fell by approximately 7%. This is broadly in line with national averages and more quickly than regional and Warwickshire averages (UE Associates, 2011).
- 3.8.2 In relation to CO<sub>2</sub> emissions by end user, between 2005 and 2008 the proportion of emissions from road transport (45%) was by far the highest of all sectors in Stratford-on-Avon and significantly higher than from industrial/commercial and domestic sources, the other two major sources of emissions in the district. This highlights the role of improvements to the district's green infrastructure network in helping to limit greenhouse gas emission from transport, including through supporting enhancements to pedestrian and cycle networks and improving connections between housing, employment and retail provision and public transport networks (UE Associates, 2011).
- 3.8.3 In June 2009 the outcome of research on the probable effects of climate change in the UK was released by the UK Climate Projections (UKCP09) team (Defra, 2009). The study suggested that a variety of risks exist for the wider West Midlands area. The risks relevant to Stratford-on-Avon resulting from climate change, and which can be limited by a high quality green infrastructure network, include as follows:
- ▶ Increased incidence of heat related illnesses and deaths during the summer;
  - ▶ Increase in health problems related to rise in local ozone levels during summer;
  - ▶ Increased risk of injuries and deaths due to increased number of storm events;
  - ▶ Effects on water resources from climate change;
  - ▶ Reduction in availability of surface water in reservoirs and rivers for abstraction in summer;
  - ▶ Adverse effect on water quality from watercourse levels and turbulent flow after heavy rain and a reduction of water flow;
  - ▶ Increased risk of flooding, including increased vulnerability to 1:100 year floods;
  - ▶ A need to upgrade flood defences;
  - ▶ Increased likelihood of summer droughts and soil and water deficits, leading to demand for increased irrigation;
  - ▶ Soil erosion due to flash flooding;
  - ▶ Loss of species that are at the edge of their southerly distribution;
  - ▶ Spread of species at the northern edge of their distribution;
  - ▶ Increased demand for air-conditioning;
  - ▶ Increased drought and flood related problems such as soil shrinkages and subsidence;

- ▶ Risk of rail tracks buckling due to increased temperature and road surfaces melting more frequently; and
- ▶ Flooding of roads and railways.

3.8.4 As suggested above enhancements to Stratford-on-Avon's green infrastructure network can help limit many of these potential effects of climate change. GI networks should seek to increase the resilience of the district to the predicted effects of climate change. Planting trees can provide various benefits when responding to predicted climate change as explained by the Forestry Commission Paper "The Case for Trees" (Forestry Commission, 2010).

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## 4 The GI Framework

### 4.1 Purpose of the Green Infrastructure Framework

4.1.1 In order to establish strategic design principles that will enhance and strengthen Stratford-on-Avon's green infrastructure network, the formation of a robust Green Infrastructure Framework is essential. **Table 4.1** illustrates the GI Framework that has been developed for the Stratford-on-Avon district. The Framework is designed to ensure that future requirements and need for green infrastructure across the district will be supported and met successfully. The Framework is centred on broad GI objectives set within overarching themes. The themes and objectives have been developed to guide and advise decision making; they inform a suite of GI actions and initiatives that are based on the most up to date available information.

4.1.2 The GI framework has been derived from the following drivers:

- ▶ **Stakeholder opinion:** Views and opinions of key stakeholders who are either involved with the planning, delivery or management of green infrastructure across the district (**Appendix C**);
- ▶ **Strategies, programmes and plans:** A review of strategies, programmes and policies that are operating or bear influence across the district (**Appendix A**);
- ▶ **Baseline information:** An in depth review of baseline data and comprehensive spatial information relating to different GI typologies (**Appendix B**);
- ▶ **Ecosystem services:** Although no comprehensive review of ecosystem services across the district has been undertaken, the concept bears relevance to green infrastructure and features as part of the policy context in **Chapter 2**. Therefore this study has begun the process of raising awareness about ecosystem services. In addition, the type of ecosystem service likely to be affected by a particular aspect of the GI framework is indicated in **Appendix A**.

4.1.3 The GI Framework is derived from the above analytical process, ensuring it remains robust and relevant. In addition the design process enables the framework to adapt and respond to new and updated future information relevant to green infrastructure. Drawing on an in depth interpretation of qualitative and quantitative information the reasons and justification behind the selection of themes and objectives can be found in the Purpose Driver presented in **Appendix A**.

## 4.2 Framework Themes

- 4.2.1 The overarching themes of the Framework are derived from the review of strategies, programmes and plans (see **Appendix A**). To ensure the themes remain relevant and targeted towards Stratford-on-Avon, they have drawn particular focus from the Sustainable Community Strategy (Stratford District Partnership, undated). Overall direction is provided by the Stratford-on-Avon Core Strategy (Consultation Draft, 2010a). Local action and future development will be shaped by these documents; this study also seeks to steer direction.
- 4.2.2 **Theme I - A sustainable, competitive and prosperous economy:** This theme seeks to conform to the national agenda (DTI, 2003) that supports the transition and growth of a sustainable low carbon economy. For this to be achieved a robust and co-ordinated approach must be taken to accommodate the diverse economies found within the district. Theme I will help guide GI planning that will support a sustained and diverse economy from the local to the district scale.
- 4.2.3 **Theme II - A healthy, active and involved community:** This theme seeks to engage with the health of the district's population. It aims to improve and maintain the health of all sections of society. To target issues related to health the theme takes a multi-pronged approach by working to increase the levels of physical activity and healthy eating whilst encouraging communities across the district to benefit from and be involved in the maintenance of their healthy and happy environment.
- 4.2.4 **Theme III - Flooding and climate change:** This theme focuses on proactively responding to the challenges of flooding and climate change. Fluvial and surface water flooding has and will continue to present a major challenge for the district and the challenge could become more significant with the extremes of weather predicted with climate change. This theme will help guide GI planning as a means to combat future threats from flooding and climate change. It has multiple objectives that seek to address the rural nature of the district whilst supporting the urban settlements.
- 4.2.5 **Theme IV - Biodiversity and natural resources:** This theme seeks to recognise the importance of biodiversity and the services that are freely provided by ecosystems which are often taken for granted. This theme is important as it is linked to and crucial for all the other themes and the wellbeing of society. It offers a guide to help reverse the fragmentation and loss of ecosystems, supporting their growth to maximise the multiple benefits they provide.

**Table 4.1: The GI Framework**

<b>Theme I: A sustainable, competitive and prosperous economy</b>
<b>Objectives</b>
<b>1.1:</b> Support the revitalisation of the Stratford-on-Avon economy by ensuring new and existing places of work are affordable and attractive. These should be characterised by green open space, street trees and smart green design that contribute to a healthy motivated workforce.

**1.2:** Support the growth of a sustainable tourism industry by utilising green infrastructure features to enhance the setting of key tourist destinations and the district's outstanding heritage resource such as canals, historic buildings, archaeological remains and town centres. Recognise and maximise the potential of green infrastructure assets, such as nature reserves, woodlands and rivers, as alternative visitor destinations.

**1.3:** Investigate and promote the commercial opportunities of green infrastructure that uphold the principles of sustainable development, for example wood fuel and food production.

**1.4:** Draw on green infrastructure theory and assets to help support and develop a strong knowledge based economy that facilitates the development of key skills concerning green technologies, green infrastructure asset management and design.

## Theme II: A healthy, active and involved community

### Objectives

**2.1:** Promote and maintain a strong network of linear and circular routes that encourages active travel and recreation, supporting the physical and mental health of the district's population.

**2.2:** Maintain a high quality network of playing fields, pitches and sporting venues that are easily accessible and safe, to encourage recreation and sporting activities amongst all aspects of society.

**2.3:** Promote and increase awareness of green infrastructure and its benefits. Encourage, support and facilitate neighbourhood involvement in maintaining and managing local green spaces through a sense of community ownership, pride and responsibility.

**2.4:** Expand and develop a strong PRow network that improves the connections between settlements and facilitates the use of non-motorised modes of transport. The development of off-road routes and greenways that benefit biodiversity and offer safe recreational opportunities should be encouraged.

## Theme III: Flooding and a changing climate

### Objectives

**3.1:** Respond to the effects of climate change by maximising the potential of green infrastructure to reduce CO<sub>2</sub> emissions, facilitate species migration and combat temperature rise by encouraging urban cooling.

**3.2:** Promote natural river corridor management by maintaining, restoring and increasing extent of floodplains where appropriate whilst maximising the multifunctional benefits of river corridors for recreation, biodiversity, landscape and flood defence.

**3.3:** Recognise the importance of, and encourage the use of, green infrastructure to increase natural storage capacity, reduce storm water run-off rates and increase water purification. Permeability of settlements should be maximised, utilising sustainable drainage systems and where possible maximising multifunctionality.

**3.4:** Investigate the role of green infrastructure in reducing Stratford-on-Avon's carbon footprint through wood fuelled renewable energy, non-motorised transport and other carbon offsetting initiatives.

## Theme IV: Biodiversity and natural resources

### Objectives

**4.1:** Ensure the protection, enhancement and expansion of existing biodiversity by supporting the priorities of the Local Biodiversity Action Plan. In addition, improve the connectivity of habitats and ecological networks at all levels of scale and designation.

**4.2:** Ensure that urban extensions and other new developments incorporate multifunctional green infrastructure features that meet need, contributing to and maintaining the character and sense of place of the district and settlements.

**4.3:** Recognise the multifunctional importance of gardens and allotments for recreation, biodiversity and water retention. Encourage and support individual and neighbourhood allotment uptake and community gardening.

4.2.6 The GI Framework, through its themes and objectives, will deliver a wide range of economic, social and environmental benefits. The benefits are well documented (CABE, 2009; Landscape Institute, 2009; Forest Research, 2010; and Natural England, 2009). The following list is a summary of key benefits identified by CABE:

- ▶ Reinforce local identity and civic pride;
- ▶ Enhance the physical character of an area, shaping existing and future development;
- ▶ Improve physical and social inclusion, including accessibility;
- ▶ Provide connected routes between places for wildlife, recreation, walking and cycling, and safer routes to schools;
- ▶ Protect and enhance biodiversity and ecological habitats;
- ▶ Provide green infrastructure and ecosystem services;
- ▶ Provide for children and young people's play and recreation;
- ▶ Raise property values and aid urban regeneration;
- ▶ Boost the economic potential of tourism, leisure and cultural activities;
- ▶ Provide cultural, social, recreational, sporting and community facilities;
- ▶ Protect and promote understanding of the historical, cultural and archaeological value of places;
- ▶ Contribute to the creation of healthy places, including quiet areas;

- ▶ Provide popular outdoor educational facilities;
- ▶ Promote the opportunities for local food production;
- ▶ Help mitigate and adapt to climate change; and
- ▶ Improve opportunities to enjoy contact with the natural world.

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## 5 Stratford-on-Avon's GI Network

### 5.1 Green infrastructure approach

5.1.1 The remit of this GI Study is the Stratford-on-Avon district but specific attention is paid to Stratford-upon-Avon and the eight main rural centres. In alphabetical order all settlements considered in this study are: (1) Alcester; (2) Bidford-on-Avon; (3) Henley-in-Arden; (4) Kineton; (5) Shipston-on-Stour; (6) Southam; (7) Stratford-upon-Avon; (8) Studley; (9) Wellesbourne. The following chapters (6-14) provide information on the current green infrastructure resource for each of the nine settlements and detail a suite of recommendations and actions for strengthening this network. For each settlement GIS based maps displaying current GI provision have been produced to aid in identifying the GI network.

### 5.2 GI network design

5.2.1 The green infrastructure baseline information for each of the nine settlements derives from the following:

- ▶ District wide baseline information detailed in **Chapter 3**, utilising green infrastructure typologies illustrated in **Table 1.1**;
- ▶ The use of aerial photography to aid in the identification and locating of GI assets and their relationship within the district;
- ▶ GIS data sets supplied by Stratford-on-Avon District Council, the Woodland Trust, Warwickshire County Council and Natural England; and
- ▶ Relevant publications and documents (See **Chapter 3** and **Appendix B**).

5.2.2 The baseline review for Stratford-on-Avon illustrates the baseline GI resource at a district and settlement scale. This Study reviews the GI resource and makes recommendations for interventions that uphold the principles of protection, enhancement, restoration and creation. These will ensure that the GI network across the district reflects strong connectivity and multifunctionality.

### 5.3 District scale

5.3.1 Although the focus of this study is around the nine key settlements, there is a need to look at the Stratford-on-Avon district as a whole. There are important GI opportunities that are strategic in nature and cover the wider district beyond the remit of settlement scale intervention. Therefore, a suite of strategic district wide recommendations have been developed that seek to act as overarching principles to ensure a strong, robust GI network is recognised and realised.

5.3.2 The suite of Strategic Recommendations, although general in nature, draw on the wider network of GI across the district. **Table 5.1** provides a summary of the **Strategic Recommendations** for the Stratford-on-Avon district which are then subsequently described in sections **5.4-5.12**

**Table 5.1** District wide strategic recommendations

Code	Description	Link to GI Framework
<b>SR1</b>	<b>Green workplace design</b>	<b>1.1, 3.3, 4.1, 4.2</b>
<b>SR2</b>	<b>Woodland management</b>	<b>1.2, 1.3, 3.1, 3.4, 4.1</b>
<b>SR3</b>	<b>Access and recreational network</b>	<b>2.1, 2.4</b>
<b>SR4</b>	<b>Allotments and orchards</b>	<b>1.4, 2.3, 4.1, 4.3</b>
<b>SR5</b>	<b>Awareness, education and involvement</b>	<b>1.4, 2.3</b>
<b>SR6</b>	<b>Water quality and river corridors</b>	<b>2.1, 2.4, 3.2, 3.3</b>
<b>SR7</b>	<b>Ponds and gardens</b>	<b>1.3, 3.1, 3.3, 4.1, 4.3</b>
<b>SR8</b>	<b>Tree planting</b>	<b>1.1, 1.2, 3.1, 3.3, 4.1</b>
<b>SR9</b>	<b>Standards</b>	<b>N/A</b>

#### **5.4 SR1: Green workplace design**

5.4.1 This project seeks to develop an approach to new and existing workspaces throughout the district to ensure they incorporate green infrastructure features into their design and operation to facilitate a healthy lifestyle, retain water, provide access to good networks of walking routes, facilitate walking/cycling to work and seek biodiversity gains. Workspaces should where appropriate feature the following:

- ▶ Green roofs and walls;
- ▶ Sustainable urban drainage systems;
- ▶ A focus on active travel options;
- ▶ Careful landscaping with native tree planting; and
- ▶ Reproduce and uphold the character and setting of the local surrounding area.

#### **5.5 SR2: Woodland management**

5.5.1 Many of the woodlands around the district are fragmented and isolated. In particular many of the ancient semi-natural woodlands have seen a decline in quality over the past century through a combination of neglect, illegal felling, non-native plantations and a decline in traditional management. Although areas of woodland have increased over the past decade through woodland creation there is still a need to co-ordinate efforts and conserve the district's woodlands. This project aims to protect and maximise the multifunctional potential of the district's woodlands as a high quality resource. Efforts should seek to explore the diverse range of uses for woodlands specifically:

- ▶ Investigate the viability of developing local markets and supply chains across the district to utilise woodfuel as part of the district's energy mix;
- ▶ Encourage the re-introduction of traditional woodland management techniques such as coppicing;
- ▶ Explore and promote the tourism and recreational potential of woodlands; and
- ▶ Reverse the fragmentation of woodlands to support recreation, biodiversity and species migration by raising awareness of woodland importance and opportunities to landowners and managers, regenerating derelict woodlands, and encouraging the use of woodland buffers to protect woodland fringes.

## **5.6 SR3: Access and recreational network**

5.6.1 Although Stratford-on-Avon contains a number of long distance and strategic routes, the rural nature of the district coupled with a lack of connectivity, safety and promotion means access to these routes and GI assets predominantly rely on private car use. This recommendation seeks to address some of the issues concerning accessibility by enhancing the quality of the existing network in addition to creating new ones where appropriate. Addressing these issues could aid in the reduction in reliance on motor transportation and help incorporate basic fitness activities into the lives of local residents. Efforts should be made to:

- ▶ Improve connectivity between footpaths and cycle routes between and within settlements and across the wider countryside, with appropriate signage which is fit for purpose. Signs should be made of local materials where possible and should not clutter the countryside;
- ▶ Where appropriate, relax the designations of routes to allow more bridleways to encourage use by multiple users;
- ▶ Develop a strong network of greenways that maximise multifunctional benefits for biodiversity and recreation; and
- ▶ Investigate the feasibility of creating a network of multifunctional recreational routes that utilise the network of disused railway lines and which do not adversely affect the biodiversity quality of those sites.

## **5.7 SR4: Allotments and orchards**

5.7.1 The Stratford-on-Avon district possesses the majority of the orchards found in Warwickshire. Allotments and orchards can provide a range of benefits for recreation, health and biodiversity. Orchards are under threat from a variety of issues such as neglect, isolation, destruction for agricultural purposes, development and intensive management. Allotments are important community areas that can contribute to biodiversity. This recommendation seeks to encourage the maximisation of the multifunctional benefits that Allotments and Orchards have to offer.

- ▶ Protect, restore and encourage the careful management of traditional orchards throughout Stratford-on-Avon to create a strong network that supports their heritage and ecological significance and genetic diversity. Where appropriate encourage the development of local markets and cultivation and consumption of local varieties;
- ▶ Encourage and support allotment uptake by ensuring the adequate provision of allotment facilities such as on site storage, fencing, water supply, toilets and access for different users; and
- ▶ Promote and encourage links and co-operation between different allotment and orchards groups to support the sharing and distribution of knowledge and best practice.

## **5.8 SR5: Awareness, education and involvement**

5.8.1 For residents and landowners to begin to enjoy and take pride in their surroundings it is important that they understand their environment. Initiatives should:

- ▶ Raise awareness of ecosystem services and benefits associated with green infrastructure;
- ▶ Encourage, facilitate and support community involvement in small scale initiatives such as hedgerow restoration and verge maintenance;
- ▶ Explore the possible links between green infrastructure and the educational aspects of schools and local organisations such as Guides and Scouts.

## **5.9 SR6: Water quality and river corridors**

5.9.1 Stratford-on-Avon District has a strong blue infrastructure network in the form of rivers such as the Avon, Arrow and Alne and canals such as the Stratford-on-Avon Canal and Oxford Union Canal. Many are important for recreation and biodiversity. Many rivers in the Warwickshire area have been modified in some way removing the in stream vegetation and preventing flooding of farmland. This has contributed to the destruction of the physical, biological and chemical mechanisms that regulate water quality and have had profound impacts on wildlife. Although water quality is improving the maximisation of the multifunctional potential of this network should be developed, specifically:

- ▶ Where appropriate, seek to develop high quality walking and cycling routes to facilitate active travel options and recreational opportunities within and between settlements;
- ▶ Protect and restore floodplains to enhance biodiversity whilst supporting local BAP habitat priorities and protecting areas along watercourses important for their ecological value;
- ▶ Work with and support farmers and landowners to improve water quality consistent with the aims of the Water Framework Directive by protecting riparian vegetation and appropriate field margins; and

- ▶ Recognise and investigate the value of derelict water meadows as high quality resources important for their ecological value for wetland biodiversity as well as their recreational aspects. Investigate future use of water meadows in reducing eutrophication and nutrient pollution in susceptible areas.

## **5.10 SR7: Ponds and gardens**

5.10.1 Ponds and standing open water represent a good green infrastructure resource for biodiversity, tranquil recreation and supporting the character of an area. Future focus should seek to:

- ▶ Increase the number of ponds throughout the district. SuDs could count towards this ambition, for example flood flow attenuation/surface water holding areas which are wildlife-rich permanent ponds. This target should be in line with the UK Pond HAP and EA BAP aspirations.

5.10.2 Gardens contribute a significant green infrastructure resource which presents opportunities for enhancements for water retention, biodiversity, and recreation and health benefits. There should be a focus on:

- ▶ Ensuring new residential developments contribute appropriate garden space either for individuals or community gardening;
- ▶ Recognising the role gardens can play in bridging gaps in connectivity of different habitats and facilitating species migration; and
- ▶ Encouraging initiatives that seek to utilise derelict or unused gardens or garden space for community gardening.

## **5.11 SR8: Tree planting**

5.11.1 The benefits associated with trees are wide ranging and well documented. There are around 50 tree wardens operating within the district to help identify areas for tree planting, raising funds and planting trees (Green Space Strategy, 2006). As such where appropriate native tree planting initiatives should be encouraged and supported across the district to:

- ▶ Respond to climate change by providing rural and urban cooling and shading in addition to CO<sub>2</sub> absorption;
- ▶ Support biodiversity by providing habitat and facilitate species migration;
- ▶ Support the setting of urban centres, workspaces, residential and visitor destinations;
- ▶ Mitigate air quality issues, especially along roads; and
- ▶ Aid in interception and flood alleviation.

## 5.12 SR9: Standards

5.12.1 To ensure a strong GI network throughout the district it is necessary to develop local standards. Recent work on Natural Accessible Greenspace (Arup, 2011) should provide the starting point to develop local specific standards based on needs, strength and deficiency. Local standards should be developed with local community involvement and reflect their requirements and aspirations. Standards need to be carefully considered and effective, and reflect the situation of the local area.

## 5.13 Settlement scale

5.13.1 A suite of recommendations have been made for each of the nine large settlements within the Stratford-on-Avon district. The recommendations are location specific and tailored to ensure the enhancement of the GI network for individual areas. Recommendations aim to inspire intervention on the ground based on the local context and situation. They indicate what sort of targeted action could and would be appropriate at the local level and offer a guide as to how to draw from and achieve GI aspirations via the GI Framework.

5.13.2 The approach and methodology used to draw up the specific recommendations, and indeed many of the recommendations themselves, are applicable to other settlements in the district and should be used to inform GI planning in all parts of the district.

## 5.14 Standards

5.14.1 Wherever possible established standards have been used to identify deficiency and opportunity. **Table 5.2** lists the recommended standards produced in the Stratford-on-Avon PPG17 Open Space, Sport and Recreation Assessment (Arup, 2011). It is important to note that there are no specific GI standards and that those cited in **Table 5.2** have been prepared to serve the Open Space Assessment (Arup, 2011). The recommended standards detailed within the Open Space Assessment (Arup, 2011) have been reproduced below (**Table 5.2**) as an illustrative guide to inform green infrastructure.

5.14.2 Other examples of standards can be found in Natural England's Accessible Natural Greenspace Standards (see below), the Fields in Trust guidelines (2008) and the Woodland Trust's Accessible Woodland Standard (2010). These standards are useful but adhere to their own agenda, thus local level standards should be developed in order to reflect the requirements and needs of GI for specific locations.

5.14.3 Natural England's Accessible Natural Greenspace Standard (ANGSt; Natural England, 2010) recommends that everyone should have access to a quality natural greenspace of:

- ▶ At least two hectares within 300 metres walking distance (five minutes walk) from their home;
- ▶ At least 20 hectares within two kilometres;
- ▶ At least 100 hectares within five kilometres;
- ▶ At least 500 hectares within ten kilometres;

- One hectare of Local Nature Reserve per 1,000 population.

5.14.4 This standard has informed the Stratford-on-Avon PPG17 Assessment undertaken by Arup (2011).

**Table 5.2: PPG17 Open Space, Sport and Recreation Assessment Standards (Arup, 2011)**

<b>Quantitative Provision Standards</b>	
<b>Parks, Gardens and Amenity Greenspaces</b>	
Accessibility Standard	10 minutes walking time / 480m effective catchment.
Quantity Standard	1.15ha per 1,000 population.
Quality Standard	All parks, gardens and amenity greenspaces to achieve a 'Fair' rating on the basis of the quality assessment criteria.
<b>Natural Accessible Greenspace</b>	
Accessibility Standard	15 minutes walking time / 720m effective catchment. Category 1, 2 and 3 Settlements only: 300m effective catchment.
Quantity Standard	District wide: 4.92ha per 1,000 population. Category 1 Settlements: 5.24ha per 1,000 population. Category 2&3 Settlements: 0.75ha per 1,000 population.
Quality Standard	All natural greenspaces to achieve a 'Fair' rating on the basis of quality assessment criteria.
<b>Children and Young People's Facilities</b>	
Accessibility Standard	Children: 5 minutes walking time / 240m effective catchment. Young people: 15 minute walking time/ 720m effective catchment.
Quantity Standard	0.25ha per 1,000 population (equipped play areas only).
Quality Standard	All children and young people's facilities to achieve a 'Fair' rating on the basis of quality assessment criteria.
<b>Outdoor Sport</b>	
Accessibility Standard	Grass pitches: 15 minutes travel time / 720m walking/ 7.2km driving effective catchment. Tennis & bowls: 20 minutes travel time / 980m walking / 9.8km driving effective catchment. Athletics: 45 minutes travel time/ 21.6km driving effective catchment.
Quantity Standard	Additional pitch/ facility requirements identified to meet existing and future requirements on the basis of Sport England's Playing Pitch Model.
Quality Standard	Stratford District Council, together with local clubs and Parish Councils, should seek to improve the quality of the poorest outdoor sports facilities in the district, taking into account the location of existing deficits in provision where improvements to pitch carrying capacity would be most beneficial.
<b>Allotments</b>	
Accessibility Standard	District wide: 10 minutes travel time / 4.8km driving (district wide) / 480m walking (urban only) effective catchment.

Quantity Standard	0.4ha per 1,000 population.
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## 5.15 Recommendations

- 5.15.1 The recommendations developed for each settlement seek to assist in the delivery of the GI Vision and provide focus for the forthcoming Core Strategy. The recommendations act as a guide to show how the GI Framework can facilitate action on the ground. They are not designed to dictate what action should take place at specific locations but instead offer a guide as to what possible targeted activity could take place to strengthen the GI Network. The recommendations can be taken forward, amended or rejected; they represent the sort of activities that should take place based on relevant policy and research. They should form the basis for discussion and consultation with local communities.
- 5.15.2 Recommendations and target activity have been made according to the principles of protection, enhancement, restoration or creation. These four principles for activity can be found throughout the GI Framework (see **Table 4.1**) which is the basis for making recommendations for each settlement. These are the mechanisms for delivering multifunctionality and connectivity of green infrastructure assets.
- 5.15.3 **Protection** is conferred by a number of different legislative and policy drivers. In the case of core green infrastructure that is not protected by such means, it is necessary to consider which elements of a local network should be upheld and protected as core components. This is important in the context of any new initiatives relating to biodiversity offsetting as discussed in the Environment White Paper (HM Government, 2011).
- 5.15.4 **Enhancement** relates to the quality of green infrastructure assets. In order to understand the quality of a particular type of green infrastructure, standards need to be in place and these need to be monitored so that any decision to implement actions relating to enhancement can be made. This activity relates to almost all types of green infrastructure.
- 5.15.5 **Restoration** differs from enhancement because it is used to restore a particular feature. This might include improved grassland that could be restored to semi-natural grassland. Restoration applies to parks and features that have since changed use but not so much that any intervention would prove impossible to achieve a positive change.
- 5.15.6 **Creation** refers to the establishment of new green infrastructure type and features. This has an important role to play in light of proposed changes that are associated in particular with new development. This activity relates to almost all types of green infrastructure although there will be issues of establishment and the length of time for a particular type of green infrastructure to become fully multifunctional needs to be considered. Creation of grass tennis courts will have an immediate impact whilst creation of chalk grassland will take decades to establish itself.
- 5.15.7 The Framework has been derived from existing planning and programme policies, baseline evidence and focus group comments (see **Appendix A** for complete details of the justifications behind the GI Framework).

- 5.15.8 The GI Framework represents the key themes and objectives for green infrastructure planning in the district. The target note recommendations facilitate these aspirations. Each target note identified includes reference to the respective GI Framework objective to which it relates.
- 5.15.9 First and foremost the recommendations should seek to deliver the GI Vision and support the aims of the Core Strategy. The idea behind the recommendations is to enable development proposals to incorporate GI and enhance the local GI network such that environmental resources are protected and their potential to deliver multiple benefits is maximised.
- 5.15.10 The recommendations should form the basis of consultation and discussion with local communities. They are not set in stone and may change as the study progresses. Recommendations have been prepared for settlements in each of the following sections.
- 5.15.11 **Appendix D** provides a justification for strategic and settlement recommendations set against the GI Framework.

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## 6 Alcester

### 6.1 Existing green infrastructure network in Alcester

- 6.1.1 Alcester is a town situated to the west of Stratford-upon-Avon, north of Bidford-on-Avon and south of Studley. Alcester is flanked to the west by the A435 and the A46 to the south, and has a population of approximately 7,350 (Stratford-on-Avon District Council, 2011 - based on mid 2008 estimates). The town experienced steep growth over the period 1981 to 2008, when the number of dwellings increased by 48%. Land surrounding Alcester is designated green belt.
- 6.1.2 Alcester is sited on an important Roman settlement on Icknield Street. It has a deep, rich history, being granted a Royal charter to hold a weekly market in 1274 and was at the centre of the needle industry in the 17<sup>th</sup> century (Stratford-on-Avon District, 2010). There are some 119 listed buildings, several ancient monuments associated with the Roman settlement, Alcester Abbey and an extensive conservation area in the town, which enjoys a distinct sense of place thanks to its medieval buildings.
- 6.1.3 There are three main watercourses that flow through Alcester: the River Alne to the east, Spittle Brook to the west, and running through the centre is the River Arrow. The Alne River and Spittle Brook are tributaries to the River Arrow and converge within the town of Alcester. According to the Environment Agency (2011), the ecological quality of these watercourses is moderate, leaving opportunity for improvement. In addition, there is significant flood risk in Alcester, especially south of the centre, near to the location where the rivers Alne and Arrow merge.
- 6.1.4 Located along the River Arrow within Alcester is the 2.9ha River Arrow Local Nature Reserve (LNR), (Natural England, 2011). The site is bordered by two sports pitches and a park with three play facilities. Habitats of note are wet woodland and floodplain grazing marsh.
- 6.1.5 Situated to the south and east are fragmented but significant pockets of ancient woodland and accessible woodland. Situated 1.6 km south of Alcester is Oversley Woods (93ha) which is owned by the Forestry Commission. The woodland features a circular walk that is accessible for a range of users. It also forms a priority BAP habitat (Alcester Nature, 2011). Additional ancient woodlands are located along the eastern side of the A441 and include Old Park Wood, Coughton Park, Three Oaks Hill Wood, and Cold Comfort Woods.
- 6.1.6 According to the Stratford-on-Avon PPG17 Open Space, Sport and Recreation Assessment (Arup, 2011), Alcester has five sites of amenity greenspace and six parks and gardens. Combined these total 11.39ha of green openspace, equating to 1.55ha per thousand population, representing a good provision according to the Open Spaces Assessment (Arup, 2011). In addition, Alcester possess two cemeteries and four allotments sites, Allimore Lane, School Road, and two sites along Bleachfield Street. Additional churchyards and cemeteries can be found in nearby settlements such as Great Alne, Coughton and Haselor.

- 6.1.7 Alcester is surrounded by a good PRow network with routes heading off in all directions. However, many of the routes are fragmented and are not well integrated within Alcester, making it difficult to connect to the wider network. Despite this there are three key long distance trails, the Monarch’s Way (980km), Arden Way (42km) and the Heart of England Way (163km). All three routes converge on Alcester, providing good access to long distance routes which in turn link up to the wider PRow network. In addition, located to the north of Alcester is the National Cycle Network Route 5, representing a long distance cycle route (Sustrans, 2011). Within Alcester is a minor internal cycle route which follows the course of the dismantled railway.
- 6.1.8 Although there are no registered parks and gardens within Alcester, two km south-west of the settlement is Ragley Hall. At 340ha, the site provides 12ha of gardens, four hectares of lakes and 324ha of parkland and woodland (English Heritage, 2011). According to the Accessible Natural Greenspace Standard, (Natural England, 2010), this represent a good provision as the standard recommends at least one 20ha site within two km.
- 6.1.9 Alcester has seven sports facilities and eight play facilities within the settlement. Football pitches can be found at St Benedict’s Roman Catholic High School and Stratford Road, with multi-games courts and athletics facilities at Alcester High School, and tennis courts and play facilities at Moorfield Road, to name a few.

**6.2 Recommendations and opportunities for Alcester’s green infrastructure network**

*Table 6.1: Recommendations and opportunities for Alcester’s green infrastructure network*

Target Note	Recommendations and opportunities in Alcester	Framework Objective
<b>AL1</b>	Protect and enhance the biodiversity and recreational value of the River Arrow LNR. Where possible seek to expand conservation efforts along the River Arrow whilst ensuring it does not become fragmented.	3.1, 4.1
<b>AL2</b>	Enhance the PRow network ensuring existing routes are well signposted and connected to networks within the wider countryside. Circular routes should be encouraged in addition to maximising links to wider GI assets such as Ragley Hall and Oversley Woods.	2.1
<b>AL3</b>	Protect and seek to reverse the fragmentation of woodland around Alcester to support biodiversity by utilising buffer zones and island stepping stones. Where possible maximise the multifunctional aspects of local woodlands and encourage recreational opportunities.	3.1, 4.1
<b>AL4</b>	Recognise the multifunctional potential of allotment sites and encourage individual or neighbourhood involvement and take up.	4.3
<b>AL5</b>	Investigate the feasibility of utilising the rivers Arrow and Alne as multifunctional linear features for walking and cycling and recreational opportunities.	2.1, 2.4
<b>AL6</b>	Create additional cycle routes connecting to nearby settlements and the NCN Route 5.	2.1

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<b>AL7</b>	Investigate the feasibility of enhancing the setting of the industrial estate by utilising small scale GI features to provide a more attractive environment for local businesses which also supports biodiversity.	<b>1.1, 4.1</b>
<b>AL8</b>	Maximise the tourism potential of natural and historic assets such as the River Arrow LNR and Coughton Court.	<b>1.2</b>
<b>AL9</b>	Maintain floodplain areas and seek to utilise GI assets to aid in flood alleviation.	<b>3.2</b>



## 7 Bidford-on-Avon

### 7.1 Existing green infrastructure network in Bidford-on-Avon

- 7.1.1 Bidford-on-Avon is situated on the banks of the River Avon, located to the west of Stratford-upon-Avon and south of Alcester. Bidford-on-Avon parish incorporates the villages of Bidford, Broom, Barton and Marlcliff (Stratford-on-Avon District Council, 2011). Bidford-on-Avon has a population of approximately 4,370 (Stratford-on-Avon District, 2011 - based on mid 2008 estimates) and between 1981 and 2008 witnessed an increase of 84% in the number of dwellings (Stratford-on-Avon District Council, 2010).
- 7.1.2 There are two main watercourses within the vicinity of Bidford-on-Avon: the rivers Arrow and Avon. The River Avon is located to the south of Bidford-on-Avon, meandering and flowing with an east to west trajectory. The River Arrow is located to the west of Bidford-on-Avon and flows from north to south following the direction of the A46 until it joins the River Avon flowing from the east. At this point it changes direction to flow to the south-west (Environment Agency, 2011). There are additional minor watercourses located to the north and east of Bidford-on-Avon. Flood risk mapping indicates there is significant risk of flooding along the river Avon and Arrow; vulnerable locations include the confluence of the two rivers.
- 7.1.3 Located to the east of Bidford-on-Avon is Bidford Grange Hotel and Golf Club. The Golf Club is home to a number of lakes and pools popular with anglers, and has been identified as a priority BAP habitat. The Club has recently seen investment to improve the course after being placed under new management.
- 7.1.4 There are two main long distance footpaths that pass through Bidford-on-Avon. The Shakespeare's Avon Way is a 141.6 km long distance footpath which follows the course of the River Avon. The Heart of England Way is a 160.9 km long distance footpath that passes through Broom and Bidford-on-Avon, connecting them to numerous other nearby settlements such as Alcester and Long Marston (Heart of England Way Association, 2010). There are additional PRoW routes in and around Bidford-on-Avon, especially to the south-east. However, many of the routes are fragmented and patchy leaving gaps between routes. There are no main cycle routes within Bidford-on-Avon.
- 7.1.5 There are pockets of ancient woodland and accessible woodland located to the north and north-west of Bidford-on-Avon. Directly north is Oversley Woods (see section 6.1.4). There are additional ancient woodland sites to the west of the A46, within the grounds and to the south of Ragley Hall.
- 7.1.6 Situated approximately five kilometres to the north-west of Bidford-on-Avon are the listed buildings and registered parks and gardens of Ragley Hall. The 340ha site comprises of 12ha of gardens, 4ha of lake and 324 ha of parkland, with gardens designed by Capability Brown (English Heritage, 2011). According to ANGSt (Natural England, 2010) this is a good provision as it is recommended that at least one accessible site of 100ha is within five kilometres.

- 7.1.7 There are three Local Geological Sites close to Bidford-on-Avon. Marsh Farm at Salford Priors is a site of exposed sand and gravels of the second terrace of the River Avon. The area is of Pleistocene age and has yielded fossils of molluscan shells and bones of *Mammuthus primigenius* and represents BAP priority habitat. There are additional geological sites at Marcliff and a disused quarry at Temple Grafton (Warwickshire Geological Conservation Group, 2011). In addition, there are several Local Wildlife Sites distributed within the Bidford-on-Avon area, with main sites encompassing stretches of the rivers Arrow and Avon. Located to the south-west of Bidford-on-Avon is Cleeve Prior Bank LNR (11.25ha) and Cleeve Prior Millennium Green (3.74ha).
- 7.1.8 There are two churchyard sites in the southern area of Bidford-on-Avon and an allotment site on the banks of the River Avon. Adjacent to the allotment site on the opposite bank of the River Avon is the 10.5ha Big Meadow, a park and garden which has recently been refurbished and had a programme of tree planting take place. There is additional amenity green space located north of Bidford-on-Avon centre at Marleigh Road. According to the recently completed PPG17 Assessment (Arup, 2011) there are 10.22 ha of parks, gardens and amenity greenspace in Bidford, with a relatively good provision of 2.15ha per 1,000 population.
- 7.1.9 There are five sports facilities within Bidford-on-Avon, such as cricket pitches at the Big Meadow, hockey and other facilities at Bidford-on-Avon Primary School and mini football pitches at Bramley Way. There are five play facilities distributed within the settlement. Additional play facilities and sports facilities can be found in the nearby villages of Welford-on-Avon to the east and Salford Priors to the west of Bidford-on-Avon.

## 7.2 Recommendations and opportunities for Bidford-on-Avon’s green infrastructure network

**Table 7.1: Recommendations and opportunities for Bidford-on-Avon’s green infrastructure network**

Target Note	Recommendations and opportunities in Bidford-on-Avon	Framework Objectives
<b>BD1</b>	Support and enhance biodiversity at Bidford Grange Hotel and Golf Course. Where possible increase tree planting and promote the recreational opportunities that the course has to offer.	3.1, 1.3, 4.1
<b>BD2</b>	Investigate the feasibility of creating a greenway that follows the length of the dismantled railway, which could form an important walking/cycling and biodiversity link between Broom, Bidford and Welford.	2.1, 2.4, 3.4, 4.1
<b>BD3</b>	Strengthen PRow networks. Seek to create cycle routes to nearby natural features such as Oversley Woods and Cleeve Prior LNR.	2.1, 2.4
<b>BD4</b>	Ensure the multifunctional use of land to the south of the village to support recreational opportunities in addition to aiding flood alleviation methods.	2.2, 2.3, 3.3
<b>BD5</b>	Support and enhance the biodiversity of the rivers Avon and Arrow by maintaining bankside vegetation and buffers, whilst recognising the multifunctional potential of these features as important linear access routes.	2.1, 2.4, 4.1

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<b>BD6</b>	Recognise the multifunctional potential of St Laurence Churchyard for biodiversity, such as pollination, and supporting the historical setting of the church.	<b>1.1, 4.1</b>
<b>BD7</b>	Investigate the feasibility of enhancing the setting of the industrial estate by utilising small scale GI features to provide a more attractive environment for local businesses.	<b>1.1</b>
<b>BD8</b>	Recognise the multifunctional benefits of allotments for biodiversity, health and reducing rainwater infiltration rates, and encourage individual and community allotments and gardening activities.	<b>2.3, 3.3, 4.3</b>

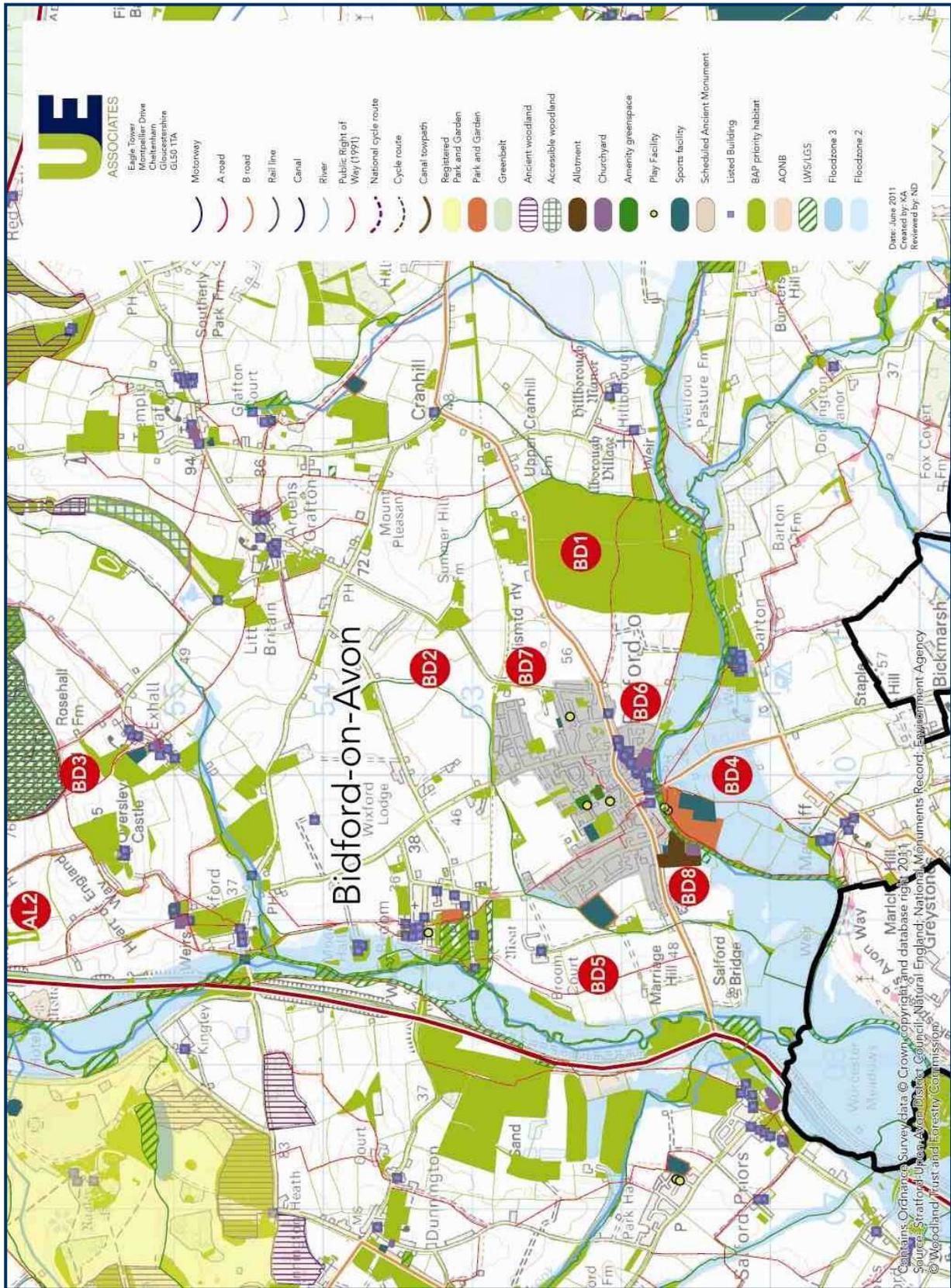


Figure 7.1: Green infrastructure in Bidford-on-Avon

## 8 Henley-in-Arden

### 8.1 Existing green infrastructure in Henley-in-Arden

- 8.1.1 The market town of Henley-in-Arden is located 12.8 km north of Stratford-upon-Avon and 9.6 km east of Redditch (Stratford-on-Avon District Council, 2010). The population of Henley-in-Arden is approximately 3,200 people (Stratford-on-Avon District Council, 2011 - based on mid 2008 estimates) and has seen an increase in the number of dwellings by 39% between 1981 and 2008 (Stratford-on-Avon District Council, 2010).
- 8.1.2 There are two allotment sites within the Henley-in-Arden area. A 0.81ha site is located to the south of Henley-in-Arden Golf Course at Station Road while another site resides south of Henley-in-Arden in Wootton Wawen. According to Stratford's Open Space and PPG17 Assessment there is a significant under provision of Allotments within Henley-in-Arden. There is currently a waiting list on allotments in Henley-in-Arden (Beaudesert & Henley-in-Arden Joint Parish Council, 2011). Two Churchyards can be found within Henley-in-Arden, with one located just off the high street with the other residing on Beaudesert Lane. Additional Churchyards can be found in Ullenhall, north-west of Henley-in-Arden and Wootton Wawen approximately 2.9 km south of Henley-in-Arden.
- 8.1.3 A number of fragmented and isolated woodlands are present near to Henley-in-Arden. The closest is May's Wood which is located to the south-west of Henley-in-Arden. Further afield, are well distributed areas of ancient woodland. To the north-west of Henley is Mockley Wood, north-east is Bush Wood, south-east are Eggwell Wood and Austy Wood, and south-west are Bannam's Wood and Spernall Park Woods.
- 8.1.4 Although not within Henley-in-Arden itself there are four SSSI sites in close proximity. To the east lies Oak Tree Farm Meadow (3.12ha), south-west is Bannam's Wood (30ha), to the north-west is Ullenhall Meadows (2.64ha) and Merriman's Hill Farm Meadow (3ha) (Natural England, 2011).
- 8.1.5 Located immediately to the north-west of Henley-in-Arden is Henley Golf and Country Club. The Golf Course is approximately 72ha and is open to members and paying visitors. An additional Golf Course, Haven Pastures, is located adjacent to Liveridge Hill approximately 2.2 km north-east of Henley-in-Arden.
- 8.1.6 Running through Henley-in-Arden is the River Alne. The river flows on a north to south direction where it is then joined by the Kingsway Brook to the east. In addition, the Stratford-on-Avon Canal runs north to south approximately 2.4 km to the east of Henley-in-Arden. There is also an additional minor stream which runs west to east until it merges with the River Alne. Environment Agency Flood Risk Maps (Environment Agency, 2011) indicate the north and north-east of Henley-in-Arden are most at risk from flooding associated with the River Alne.

- 8.1.7 Located immediately to the north-east of Henley-in-Arden are the earthwork remains of Beaudesert Castle. The site is a Scheduled Ancient Monument and important area for archaeology (English Heritage, 2011). The area surrounding Beaudesert is open space comprising of undetermined grassland and non-coniferous trees.
- 8.1.8 Henley-in-Arden has a good PRoW Network with well distributed routes that allow access to the wider countryside. Three existing long distance trails link Henley-in-Arden to green infrastructure assets including woodlands further afield. The Heart of England Way, Arden Way and Millennium Way pass through Henley-in-Arden. Henley-in-Arden and the wider countryside are designated green belt. Located to the south-west is the Stratford-upon-Avon to Redditch route (Sustrans, 2011).
- 8.1.9 There are numerous sports facilities located within Henley-in-Arden. The greatest concentration is to be found to the south of the main settlement located within Warwickshire College. The facilities include football, tennis, and athletics pitches, amongst other sports pitches. Additional facilities can be found to the east of the main settlement, located within school grounds. Two parks and gardens can be found in Henley-in-Arden, both to the east of the A3400. According to Stratford’s Open Space and PPG 17 Assessment, Henley-in-Arden has a total of 2.51ha of parks, gardens and amenity greenspace with 0.84ha per 1000 population. This is a relative under provision (Arup, 2011).

**8.2 Recommendations and opportunities for Henley-in-Arden’s green infrastructure network**

*Table 8.1: Recommendations and opportunities for Henley-in-Arden’s green infrastructure network*

Target Note	Recommendations and opportunities in Henley-in-Arden	Framework Objective
<b>HE1</b>	Recognise the multifunctional importance of allotments, increase provision and encourage individual and neighbourhood uptake.	2.3, 3.3, 4.3
<b>HE2</b>	Improve access by creating a cycle route and improve PRoW to May’s Wood. Seek to enhance the recreational opportunities and expand May’s Wood.	2.4, 3.4
<b>HE3</b>	Enhance biodiversity along the disused railway line and increase tree planting to connect fragmented woodland to connect to Bush Wood.	3.1, 3.3, 4.1
<b>HE4</b>	Enhance the multifunctionality of the area around Beaudesert Castle, without degrading the archaeological significance of the area, to create a popular and high quality recreational resource.	1.2
<b>HE5</b>	Where possible investigate opportunities to create additional parks, gardens or amenity green space to address deficiencies detailed within the Open Space and PPG17 assessment.	3.3, 4.1
<b>HE6</b>	Protect existing woodland and seek to reverse the fragmentation by new planting, using buffer zones and enhancing or restoring woodland connections.	3.3, 3.1, 4.1
<b>HE7</b>	Support the aspirations and goals of the biodiversity action plan at Henley Golf and Country Club.	4.1

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<b>HE8</b>	Recognise the central importance of Riverside Park and where possible seek to open up a multifunctional linear access route along the River Alne.	<b>2.1, 2.4</b>
<b>HE9</b>	Promote and encourage strong connections to nearby green infrastructure assets such as the Stratford-on-Avon Canal, Austy Wood, Bannam's Wood.	<b>1.2, 2.1, 2.4</b>

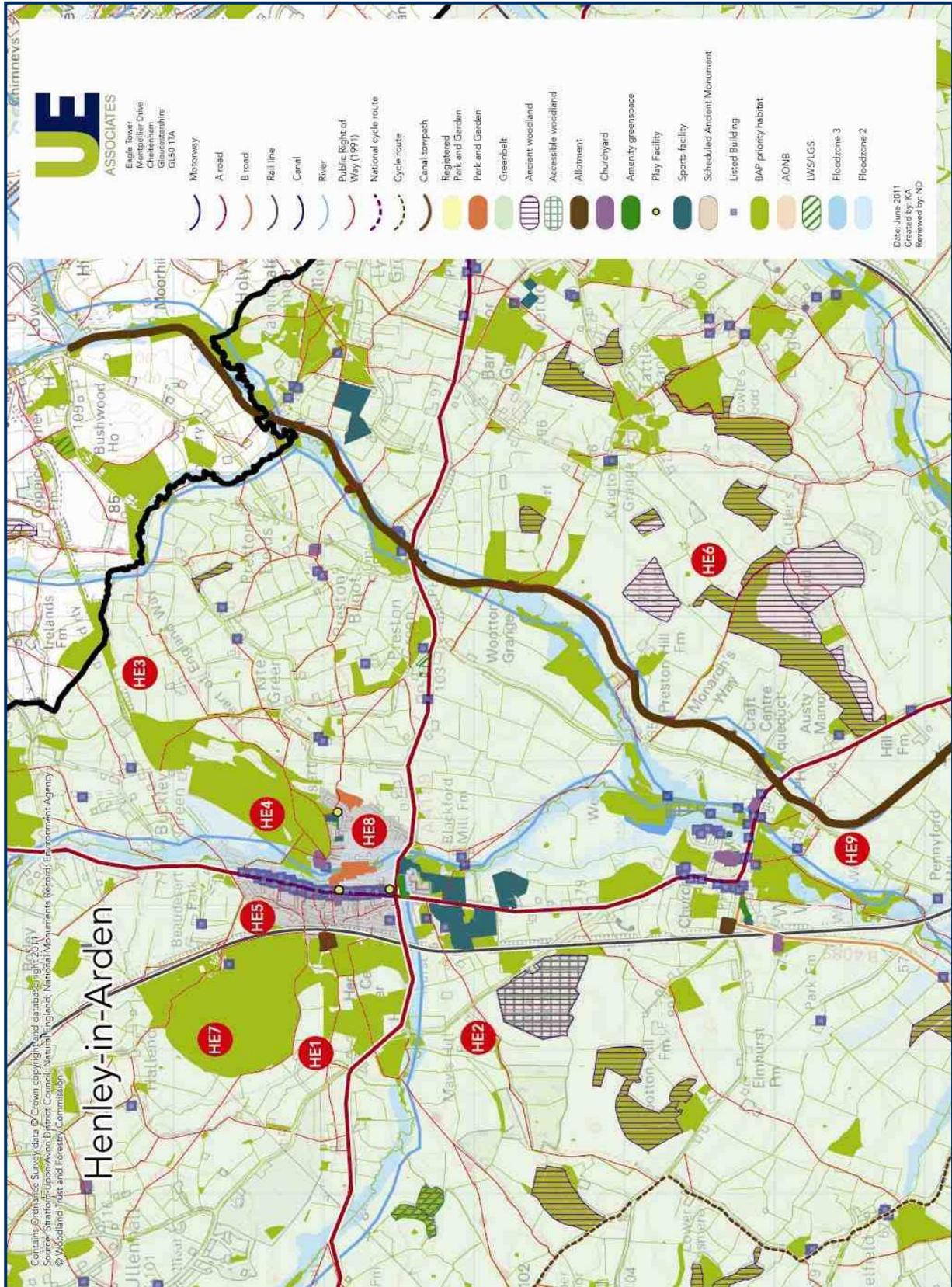


Figure 8.1: Green infrastructure in Henley-in-Arden

## 9 Kineton

### 9.1 Existing green infrastructure in Kineton

- 9.1.1 Kineton is located approximately eight km south-east of Wellesbourne and 16 km north-east of Shipston-on-Stour. The population of Kineton is approximately 2,185 (Stratford-on-Avon District Council, 2011 - based on mid 2008 estimates). Kineton saw an increase of approximately 37% in the number of dwellings between 1981 and 2008.
- 9.1.2 Located approximately 3.2 km east and south-east is the restricted area of Defence Munitions at Kineton (owned by the Ministry of Defence), and 2.4 km north is former RAF Gaydon, now a vehicle testing ground for Jaguar Landrover and motor vehicle research and development centre. Beyond DM Kineton, approximately eight km from Kineton village is Burton Dassett Hills Country Park. The 39.79 ha site (Natural England, 2011), comprises of rugged hill tops with spectacular views and Fox Covert a small woodland with a surfaced footpath (Warwickshire County Council, 2010).
- 9.1.3 The River Dene is the main water course in the area although there are other un-named tributaries. According to the Environment Agency's flood risk maps (Environment Agency, 2011), there is greater flood risk associated upstream rather than around Kineton. In addition the ecological quality of the River Dene within the Kineton area has been categorised as poor.
- 9.1.4 Located approximately 3.2 km north-west of Kineton is Compton Verney. The 210ha site is a Registered Park and Garden, designed by Capability Brown, and comprises 15ha of pleasure grounds and kitchen gardens with 195ha of parkland and associated woodland and lakes (English Heritage, 2011). This meets ANGSt recommendations for one accessible 100 ha site within five kilometres. Three kilometres to the south-east of Kineton is Radway Grange Registered Park and Garden, at 45ha it comprises 3ha of gardens, 19ha of parkland and 23ha of woodlands with walks (English Heritage, 2011). Further on and 5.5km south-east of Kineton is Upton House Registered Park and Garden. At 92ha it comprises of 12ha of formal and informal gardens, and 80ha of parkland, lakes, and woodland (English Heritage, 2011).
- 9.1.5 Situated on the south bank of the River Dene is the site of the scheduled ancient monument of King John's Castle. The site features the earthwork remains of a Motte and Bailey Castle, which until recently was an allotment site, but now is open to the public and forms important amenity open space (English Heritage, 2011). Additional amenity green space can be found within Little Kineton.
- 9.1.6 There are currently no cycle routes that run through Kineton. However, the extension of National Cycle Network Route 48 is proposed to run through Kineton. Existing cycle routes within close proximity of Kineton are the Warwick-Wellesbourne-Leamington route that is located to the north-west of Kineton, south of Compton Verney, and the Tysoe-Kineton-Gaydon cycle route located to the south-east (Sustrans, 2011). There is a good PRoW network around Kineton, especially in the south and west of the settlement. There is PRoW located in the east but to a lesser extent.

- 9.1.7 There is only one allotment site within Kineton, off the Banbury Road which according to the Open Space and PPG17 Assessment (Arup, 2011) represents a good provision. There are three sites with dedicated sports facilities within Kineton. Football pitches can be found at Bridge Street, Kineton Social Club, and at Kineton High School. A Football and a Rugby pitch can be found off King John’s Road at Kineton Primary School. All but one site is educational sports facilities.
- 9.1.8 According to the recently completed PPG17 Assessment (Arup, 2011) there are 8.57 ha of parks, gardens and amenity greenspace in the village, with a provision to 3.60ha per 1,000 population. The PPG17 assessment suggests that this is a relatively good provision.
- 9.1.9 Kineton is home to two churchyards, St Peter’s Church on Warwick Road and a cemetery to the east of the Southam Road. Adjacent to the cemetery is a recreation ground with two play facilities. There is additional minor pocket of amenity green space located at Park Piece Road. In addition, there is a 3.4ha area of accessible woodland at Kingstree Wood located just off the B4086, opposite Cow Common Farm and Brick Kiln Coppice (Woodland Trust, 2011).

## 9.2 Recommendations and opportunities for Kineton’s green infrastructure network

*Table 9.1: Recommendations and opportunities for Kineton’s green infrastructure network*

Target Note	Recommendations and opportunities in Kineton	Framework Objective
<b>KN1</b>	Enhance biodiversity at DM Kineton by supporting the aspirations of the Warwickshire biodiversity action plan.	4.1
<b>KN2</b>	Recognise and protect the importance of the King John’s Castle site as an important multifunctional area for biodiversity, recreation and archaeological significance.	1.2, 4.1
<b>KN3</b>	Seek to create additional play facilities within Kineton, especially within the south of the settlement.	2.2
<b>KN4</b>	Seek to create circular walking routes to the north of Kineton leading from within the settlement out into the wider countryside. These circular routes should avoid conflict with restricted areas around DM Kineton.	2.1, 2.4
<b>KN5</b>	Protect and enhance biodiversity along the River Dene, whilst investigating the feasibility of a multiple all user access route that links Kineton to Oxhouse Farm and the 4.74ha SSSI. Seek LNR designation.	1.2, 2.1, 2.4, 4.1
<b>KN6</b>	Create additional cycle routes that connect to established routes. The proposed extension to the NCN Route 48 will provide a good north-east south-west route, but efforts should seek to also connect routes found to the north-west and south-east.	2.1, 2.4, 3.1, 3.4
<b>KN7</b>	Maximise the multifunctional potential of existing amenity green space to support recreation and BAP aspirations.	2.2, 4.1

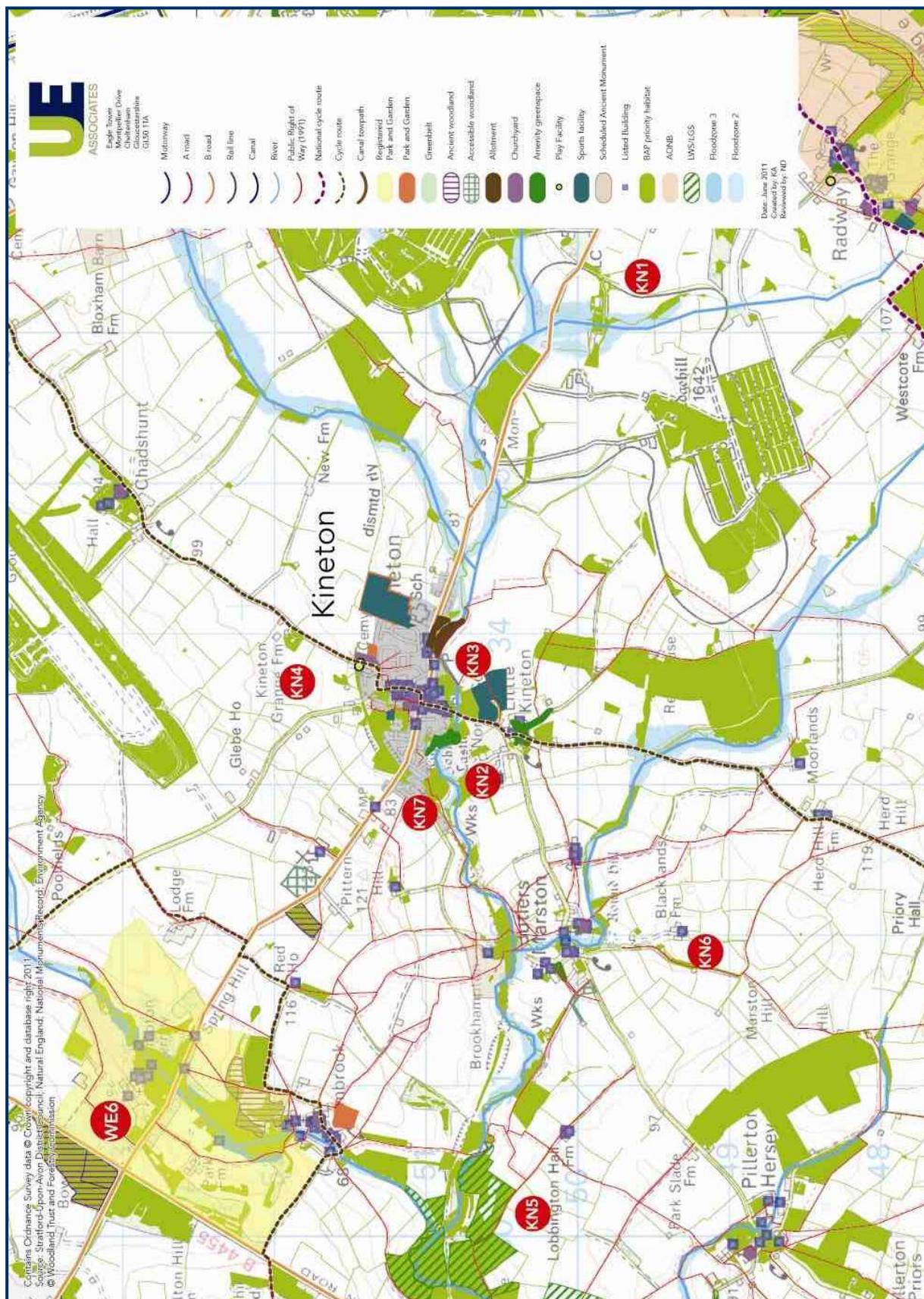


Figure 9.1: Green infrastructure in Kineton

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## 10 Shipston-on-Stour

### 10.1 Existing green infrastructure network in Shipston-on-Stour

- 10.1.1 Shipston-on-Stour is located in the south of the district, close to the borders of Oxfordshire and Gloucestershire at the northern tip of the Cotswolds AONB. With a population of approximately 5,050 (Stratford-on-Avon District Council, 2011 - based on mid 2008 estimates), and 2,255 households, the market town is the main service centre for the adjoining rural area. Between 1981 and 2008, the number of dwellings grew by 95%, the largest increase of any settlement in the district (Stratford-on-Avon, 2010).
- 10.1.2 Shipston-on-Stour's distinctiveness and townscape is a key asset, and provides the town with a unique sense of place and character. The town is home to a rich historic environment, including a wealth of Medieval and Georgian buildings, which mirrors the settlement's historic importance as a regionally important sheep and wool market town. The cultural heritage resource of the town is reflected by the designation of much of the town and adjoining riverside area as a Conservation Area, and the presence of numerous listed buildings from a range of periods, including notable features such as the Church of St. Edmund, the river bridge, the George Hotel and the Cauldwell Brewery. These historic assets are key townscape and landscape features.
- 10.1.3 The town's hinterland lies within the two main character areas of the Stour valley and Cotswold fringe, where the land rises from the river valley to the limestone escarpments of the Cotswolds edge. The town is close to the boundary of the Cotswolds AONB.
- 10.1.4 The River Stour, which runs through the town on its course north to the River Avon near Stratford-upon-Avon, is a key green infrastructure asset for the town. In addition to providing areas of recreational open space, a number of paths and rights of way run alongside or close to the river (including the Shakespeare's Way long distance path). These link the town with settlements to the north and south, including Willington, Tredington and Honington. The river valley and floodplain present significant opportunities for GI enhancements. In this context, according to the latest town plan (Shipston-on-Stour Town Plan 2008–2013), the development of the riverside area of the town for recreation and leisure is a major opportunity highlighted by local residents.
- 10.1.5 There are two National Cycle Network Routes that run through Shipston-on-Stour, routes 55 and 48, which connect Shipston to Stratford-on-Avon and Southam (Sustrans, 2011). In addition there are two long distance footpaths within Shipston-on-Stour, the Shakespeare's Way and the Centenary Way. The Shakespeare's Way connects Shipston-on-Stour to Stratford-on-Avon whilst the Centenary Way provides a link to Edgehill and Burton Dassett. Generally there is a good PRoW network linking Shipston-on-Stour to the wider countryside, especially to the north and south-east. However, the PRoW network to the west is less developed, and existing routes are fragmented.

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- 10.1.6 The River Stour presents a number of challenges for flood risk management. The need to limit flood risk in the area has been highlighted by numerous historic flood events which have taken place in the town, including most recently when 100 properties were flooded in Shipston-on-Stour during the floods of July 2007.
- 10.1.7 Although not within Shipston-on-Stour itself there are two SSSIs within close proximity. Located approximately two kilometres to the west is Midsummer Meadow, a 2.9ha site of unimproved grassland. Approximately four kilometres to the south-east is Dry Bank Meadow which is a traditionally managed 5.45ha herb rich meadow. According to the surveys undertaken as part of the Ecological and Geological Assessment carried out through the LDF process (Habitat Biodiversity Audit and Warwickshire County Council, 2010), key biodiversity features in or close to the town include: the River Stour, the Shipston-Moreton disused railway line, the Roundham and Longham Spinneys, hedgerows, broad leaved plantations, semi-improved grassland, orchards, the River Mead and old trackways. BAP Priority Habitats (including floodplain grazing marsh) are located around Shipston-on-Stour especially along the river Stour corridor to the south of the town.
- 10.1.8 Located approximately two kilometres to the north of Shipston-on-Stour is Honington Hall, which is designated a registered park and garden. The 72ha site comprises of 8ha of gardens and 64ha of parkland (English Heritage, 2011). This would achieve the ANGSt recommendation of at least one accessible 20ha site within two kilometres however the site remains private, with access only available via a pre booking.
- 10.1.9 According to the PPG17 Open Space Sport and Recreation Assessment completed in April 2011 (Arup, 2011) there are 3.44 ha of parks, gardens and amenity greenspace in the town, with a provision to 0.71ha per 1,000 population. This represents a significant underprovision. Public open space in the town includes Hornblower Piece and amenity greenspace at Ash Grove, Hawthorn Way, Queens Avenue at Signal Road. There are no areas of Accessible Natural Greenspace. Children's facilities in the town include those at Furze Hill/Hawthorn Way, Mayo Road, Queens Avenue, and Signal Road.
- 10.1.10 In terms of sports pitches in Shipston-on-Stour, there are seven football pitches, two cricket pitches, three rugby fields and two hockey pitches in the town. These are located at the High School and Cricket and Rugby Clubs, at Shipston-on-Stour Sports Club, through Norgren Social Club and at publicly accessible playing fields adjacent to the River Stour. There are tennis and netball courts at the High School, tennis courts at Shipston Tennis Club and Norgren Social Club, and bowling greens at Shipston Bowls Club and Norgren Social Club.
- 10.1.11 There are two allotment areas in Shipston-on-Stour, at New Street and Shoulderway Lane. At 1.15ha they represent a relative under provision according to the Open Space Assessment (Arup, 2011). There is one cemetery, located at Shoulderway Lane.

## 10.2 Recommendations and opportunities for Shipston-on-Stour's green infrastructure network

**Table 10.1: Recommendations and opportunities for Shipston-on-Stour's green infrastructure network**

Target Note	Recommendations and opportunities in Shipston-on-Stour	Framework Objective
<b>SH1</b>	Improve access between Shipston-on-Stour and Honington village via the River Stour whilst maintaining Honington Hall as an important visitor destination.	1.2, 2.4, 3.1, 3.4
<b>SH2</b>	Maximise the opportunities to develop the riverside area as a multifunctional area for recreation and leisure.	2.1, 3.2
<b>SH3</b>	Improve the provision of playing fields in the town, protecting existing playing fields and where possible creating new ones.	2.2, 3.3
<b>SH4</b>	Support biodiversity along the River Stour whilst investigating opportunities to create a multifunctional corridor for recreation.	4.1
<b>SH5</b>	Recognise the multifunctional benefits of allotments for biodiversity, health and water retention, and encourage individual and community allotments and gardening activities.	1.3, 3.3, 4.3
<b>SH6</b>	Address deficiencies stipulated in the PPG 17 Assessment by creating additional parks, and/or amenity green space within Shipston, especially to the west of the settlement.	3.3
<b>SH7</b>	Improve the PRoW network, in particular to link Shipston-on-Stour with open countryside to the west.	2.1, 2.4
<b>SH8</b>	Investigate and identify a suitable area that could be designated a Local Nature Reserve to support biodiversity and address deficiency based on ANGSt recommendations (see 5.5.3).	4.1
<b>SH9</b>	Investigate the feasibility of creating accessible woodland of at least 20ha within two kilometres of Shipston-on-Stour or 2ha within 500 metres. This would address deficiency according to the Accessible Woodland Standard (Woodland Trust, 2010).	2.1, 3.1, 4.1



# 11 Southam

## 11.1 Existing green infrastructure network in Southam

- 11.1.1 Southam is a small market town situated in the north-east of the district. With a current population of approximately 5,750 (Stratford-on-Avon District Council, 2011 - based on mid 2008 estimates), the town experienced a 55% growth in the number of dwellings between 1981 and 2008 (Stratford-on-Avon District Council, 2010). Southam is located 11km east of Leamington Spa, 18km south-west of Rugby and approximately 25 km north-east of Stratford-upon-Avon.
- 11.1.2 As highlighted by the recently completed PPG17 Assessment (Arup, 2011) there are 6.82 ha of parks, gardens and amenity greenspace in Southam, with a provision of 1.09ha per 1,000 population. The PPG17 assessment suggests that this is a slight under provision. Areas of public open space in the village include Old School Field, Southam Recreation Ground, Merestone Close and Tollgate Road, with further areas of amenity open space at the High Street, Welsh Road East and Priors Meadow. Children's play areas located in Southam include at Priors Meadow, Ascote Way, Southam Recreation Ground and at Tollgate Road. There is also a skate circuit at Mayfield Road.
- 11.1.3 The residents of Southam have good access to a wide range of sports pitches and facilities. This includes: 15 football pitches at Southam Football Club, Ploughman's Holt, Southam Primary School and Southam College; cricket pitches at Southam Cricket Club and Southam College; rugby pitches at Southam College and Southam Rugby Football Club; hockey pitches and netball and tennis courts at Southam College; and bowls greens at Southam United Bowls Club. Natural Accessible Greenspace is situated in the town at two locations: to the west of Southam and at Welsh Road East.
- 11.1.4 In terms of PRoW in Southam, a significant number of footpaths and bridleways radiate from the town, linking the town to the River Itchen, Ufton, Stockton, the Grand Union and Oxford Canals, Napton on the Hill, Ladbroke and Harbury. An off-road section of National Cycle Network Route 41 is also situated along the Grand Union Canal, 3km to the north of the town. A key green infrastructure corridor in the town is the River Stowe, known locally as "The Brook", which runs through Southam before joining the River Itchen close to the west of the town. The presence of the river has however led to flood risk management issues in the area; during the widespread July 2007 floods, ten properties were flooded in the town.

- 11.1.5 The town has a rich historic environment linked to the 'Holy Well' situated in the town, its location as a historic staging post on the drovers' route between Wales and London and later the Oxford to Coventry Road. Important features include St James' Church, the town's Holy Well, the Old Mint Inn and the Lilley-Smith Memorial. The historic environment value of the town is reflected by the designation of the Southam Conservation Area which covers the area around Coventry Street and Warwick Street and encompasses a large area of open space to the west of St James's Church (which includes the churchyard and orchard). The town has 38 listed buildings. Overall, the historic environment is an important aspect of Southam's local distinctiveness and identity.
- 11.1.6 Two SSSIs are located 4km to the west of the town, at Ufton Fields and Long Itchington and Ufton Woods. Ufton Fields is also a Local Nature Reserve. According to the surveys undertaken as part of the Ecological and Geological Assessment carried out through the LDF process (Habitat Biodiversity Audit and Warwickshire County Council, 2010), biodiversity habitats in the town include the River Stowe, hedgerows, semi-improved grassland, mixed plantations, road side verges, standing water and ponds and species rich road verges. BAP priority habitats are prominent to the north and west of Southam and include wet woodland and lowland calcareous grassland (Natural England, 2011).
- 11.1.7 The area around the town has a number of interesting geodiversity features. RIGS have been designated at Southam Cement Quarries/Long Itchington Quarry and Southam By-pass Cutting due to their exposures of the Blue Lias Formation. Long Itchington Quarry, located to the west of the town, was designated as a SINCE in December 2009. Stockton Railway Cutting and Quarry Geological SSSI is also located 4km to the north-east of Southam.

## 11.2 Recommendations and opportunities for Southam's green infrastructure network

*Table 11.1: Recommendations and opportunities for Southam's green infrastructure network*

Target Note	Recommendations and opportunities in Southam	Framework Objective
<b>SO1</b>	The development of a traffic free cycle link to National Cycle Route 41 and the Grand Union Canal to the north of the town should be progressed.	1.2, 2.1, 2.4, 3.1
<b>SO2</b>	Enhancements to green infrastructure should support the function and use of the River Stowe and River Itchen as natural river corridors which provide multifunctional benefits for flood defence, biodiversity, recreation and historic landscape quality.	2.1, 2.4, 2.1
<b>SO3</b>	Support the restoration of the disused quarry alongside the A426 to provide a high quality area for leisure and recreation whilst supporting biodiversity and nature conservation interests.	1.2, 4.1
<b>SO4</b>	The historic environment function of the open space located within and adjacent to the Southam Conservation Area should be promoted in the context of enhancements to historic landscape and townscape character.	1.2

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<b>SO5</b>	Improvements to Southam's green infrastructure network should seek to enhance linkages to and between important biodiversity and geodiversity features present in the town's hinterland. This includes to Ufton Fields SSSI and Long Itchington and Ufton Woods SSSI, and Stockton Railway Cutting and Quarry Geological SSSI.	<b>1.2, 4.1</b>
<b>SO6</b>	Recognise the multifunctional benefits of allotments for biodiversity, health and reducing rainwater infiltration rates, and encourage individual and community allotments and gardening activities.	<b>4.1, 4.3</b>



## 12 Stratford-upon-Avon

### 12.1 Existing green infrastructure network in Stratford-upon-Avon

- 12.1.1 Stratford-upon-Avon has a population of approximately 26,150 (Stratford-upon-Avon District Council, 2011 - based on mid 2008 estimates) and is located 14km south-west of Warwick, 30km north-west of Banbury and 26km south-east of Redditch. The town is the main settlement in Stratford-upon-Avon district and is an internationally renowned visitor and tourist destination.
- 12.1.2 The rich and distinctive historic environment of Stratford-upon-Avon is linked to its development as a medieval market town, its position on cross-country trade routes and the later growth of tourism from the late 19th Century linked to the town's association with William Shakespeare. Stratford-upon-Avon's historic character is a vital asset for the town, providing it with a unique sense of place and distinctiveness, and much of the town centre and waterside of Stratford-upon-Avon has been designated as a conservation area. The town also contains over 250 nationally listed buildings.
- 12.1.3 A key green infrastructure asset for Stratford-upon-Avon is the River Avon, which provides a link from the town centre to open countryside to the north and south. The Riverside area provides significant areas of open space including Bancroft Gardens on the west bank of the river and a large area of open space on the eastern side of the river, where Stratford Recreation Ground is situated. Stratford Recreation Ground is a district-wide green infrastructure resource, including football pitches, local cafes and refreshment stands, an extensive children's playground, mini golf and a paddling pool. The Stratford-upon-Avon canal also joins the River Avon at Bancroft Gardens. The canal, which links the River Avon with the Worcester and Birmingham Canal at Kings Norton in Birmingham, is an important green infrastructure link to the north of the town.
- 12.1.4 Stratford-upon-Avon enjoys an excellent cycle network, which is utilised extensively by residents and visitors. National Cycle Network Route 5 passes through the town, linking the town to Studley, Redditch and Birmingham in the north-west and Shipston-on-Stour, Banbury and Oxford to the south-east. To the north of the town, from Masons Road, it is a traffic free route, following the canal towpath as far as Wilmcote. Subsequent to some on-road sections near the railway station, it then follows the route of the old rail line southwards, linking the town to Welford-on-Avon and Long Marston. This section, the Stratford Greenway, is an 8km traffic free section and is a well known and valuable link. National Cycle Network Route 41, which links Stratford-upon-Avon to Charlecote Park, Leamington Spa, Warwick and Rugby, is traffic free for part of its route in the town, between Bancroft Gardens and Bridgetown Road. Other traffic free links in the town include a link between the Stratford Greenway and Mill Lane, and along Shipston Road. Sustrans has also proposed a cycle link to be developed from the rail station to Bancroft Gardens.

- 12.1.5 The River Avon however, presents a number of challenges for flood risk management. The need to limit flood risk in the area has been highlighted by numerous historic flood events which have taken place in the town, including most recently when 75 properties were flooded in Stratford-upon-Avon during the floods of July 2007. Green infrastructure planning in the town should seek to integrate the multi-functional use of public open space with flood risk management in green space, parks and sports facilities.
- 12.1.6 Walking networks in Stratford-upon-Avon are also good, and include numerous paths in the riverside area and heritage routes associated with the town's rich historic environment resource. The town is also well linked to the wider PRoW network. The Monarch's Way links the town along the river to the Stratford Greenway to the south-west and to Welcombe Hills Local Nature Reserve, a key sub-regional green infrastructure asset, to the north. The Avon Valley footpath starts at Swan's Nest Lane and follows the left bank of the River Avon for 16km to Bidford-on-Avon and Marcliff. There are also a number of other footpaths linking the west and east of the town to open countryside.
- 12.1.7 In terms of open space provision in the town, according to the PPG17 Open Space Sport and Recreation Assessment completed in April 2011 (Arup, 2011) there is a marginal under provision of parks, gardens and amenity greenspace in Stratford-upon-Avon. In this context the study suggests that there are 27.51ha of such provision in the town, with a provision of 1.14ha per 1,000 population. In addition to those already mentioned at Stratford Recreation Ground and Bancroft Gardens, parks and gardens in the town include those at Cottage Lane, Firs Garden, Foxtail Close, Memorial Gardens, Shottery Brook, Shottery Fields and Theatre Gardens. There are also over 20 further areas of amenity greenspace in the town. The town also has good access to Accessible Natural Greenspace, including at the Lench Meadows, Seven Meadows Road, Maidenhead Road, Arden Paddocks, Trinity Mead, Blue Cap Road and north of the town at Welcombe Hills Local Nature Reserve.
- 12.1.8 There are a range of sports and recreational facilities in Stratford-upon-Avon, including: 23 senior, junior and mini football pitches; six cricket pitches; twelve rugby pitches; 23 tennis courts; one bowls green; five hockey pitches; and 13 netball courts. Allotments are available at Bordon Place, Manor Cottage and Redlands Crescent and at 3.03ha represent a relative under provision according to the Open Space Assessment (Arup, 2011). There are also 14 children's play areas in the town.
- 12.1.9 In terms of biodiversity designations there is one SSSI in the town, the Racecourse Meadow, which according to Natural England's assessment, is in 'favourable' condition. A number of locally designated LWSs are also present in the town. These include the River Avon, Steeplechase Meadow, the Greenway/Dismantled Railway, Bordon Hill Old Rifle Range and the Lench Meadows. BAP priority habitat is most prominent to the north and north-east and includes lowland mixed deciduous woodland and wet woodland. The River Avon in particular is an important biodiversity corridor locally, supporting grassland and wetland habitats and a range of wildlife, including a number of protected species.
- 12.1.10 The Welcombe Hills and Clopton Park Local Nature Reserve is situated to the north of Stratford-upon-Avon and includes a range of habitats including grassland, woodland and ponds. It is well connected to the town by the PRoW network.

## 12.2 Recommendations and opportunities for Stratford-upon-Avon's green infrastructure network

**Table 12.1: Recommendations and opportunities for Stratford-upon-Avon's green infrastructure network**

Target Note	Recommendations and opportunities in Stratford-upon-Avon	Framework Objective
<b>ST1</b>	Enhance multifunctional green infrastructure networks (including walking and cycling links) along the river corridor to the north-east of the town.	2.1, 2.4, 3.2
<b>ST2</b>	Improve links to Stratford Recreation Ground from the western side of the river.	2.1
<b>ST3</b>	Recognise the multifunctional benefits of allotments for biodiversity, health and reducing rainwater infiltration rates, and encourage individual and community allotments and gardening activities.	3.3, 4.1, 4.3
<b>ST4</b>	Extend and improve cycle routes in the town, including between the rail station and the town centre.	2.4, 3.1, 3.4
<b>ST5</b>	Seek to enhance the attractiveness of Stratford Enterprise Park and Avon Industrial Estate with small scale GI features that will help reduce surface water run off and improve the wellbeing of the local workforce.	1.1, 3.3
<b>ST6</b>	Support and enhance the biodiversity value of the River Avon corridor while recognising the importance of river meadows in flood management and increasing public access.	4.1
<b>ST7</b>	Improve linkages between key biodiversity sites and corridors, including the river, the racecourse, Welcombe Hills LNR and the LWS located in the area, in addition to supporting the aspirations of the BAP priorities.	2.1, 2.4, 4.1
<b>ST8</b>	Support and enhance the setting and context of the town's rich and diverse historic environment.	2.1, 4.2

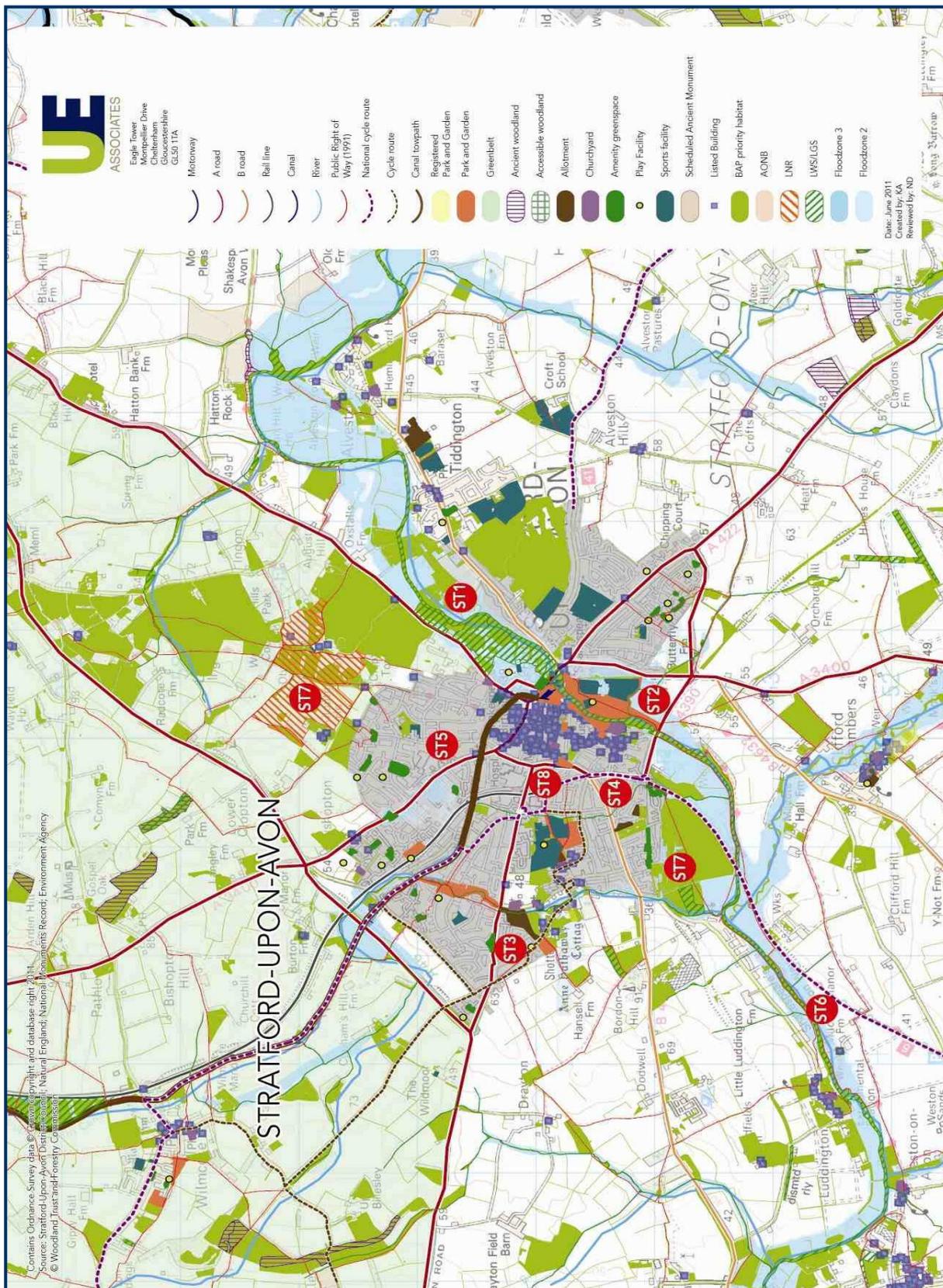


Figure 12.1: Green infrastructure in Stratford-on-Avon

## 13 Studley

### 13.1 Existing green infrastructure in Studley

- 13.1.1 Studley is a large village situated in the north-west of the district, located close to Redditch and 13km north-west of Stratford-upon-Avon. With a population of approximately 5,750 (Stratford-on-Avon District Council, 2011 - based on mid 2008 estimates) and 2,700 households, the village is situated within the West Midlands Green Belt.
- 13.1.2 The village has a distinctive character, and its cultural heritage resource is linked to its historic evolution as a centre of the needle industry. The town and its immediate vicinity has a number of important historic environment features including the Church of St Mary, Priory Farmhouse, Studley Castle and the Old Castle and Moat. Overall there are 19 listed buildings, which are largely situated close to Alcester Road and the High Street, and to the east of the River Arrow. Due to the presence of the A435 which runs through the village, the quality of the public realm and townscape of Studley is compromised by high traffic flows. This has led to local issues relating to road safety and poor air quality (part of Alcester Road has been designated as an Air Quality Management Area). In this context there are opportunities for green infrastructure networks to help improve the quality of the built environment in the town, support safety for pedestrians and cyclists and improve the setting of heritage features.
- 13.1.3 According to the recently completed PPG17 Assessment (Arup, 2011) there are 5.53 ha of parks, gardens and amenity greenspace in Studley, with a provision of 0.9ha per 1,000 population. The PPG17 assessment suggests that this is a slight underprovision. Areas of public open space in the village include Studley Common, at Studley Sports Club and at Crooks Lane, with further areas of amenity open space at Abbeyfields Drive, Addison Drive, Corbizum Avenue and St Judes Avenue (which has recently been opened as a Local Nature Reserve, as discussed below). There is one children's play area located in the village, situated at Crooks Lane. The survey carried out as part of the latest Studley Parish Plan (2007-2011) suggest that there is a strong local demand for the play area and equipment to be upgraded.
- 13.1.4 Studley is very well served by sports and recreational facilities. In addition to the swimming pool and the recently completed Studley Skatepark, the village has a range of sports pitches. This includes: seven football pitches at Studley Common, Studley Football Club, Studley High School and St Mary's Primary School; cricket pitches at Studley Cricket Club, Studley High School; a rugby pitch at Studley High School and a number of tennis courts.
- 13.1.5 From its source in the Lickey Hills in the north of Worcestershire, the River Arrow flows past the east of the village before being joined by the River Alne at Alcester. The river corridor is an important landscape feature which contributes and influences the historic setting of the village, provides a context to local features including the Old Castle and Priory and provides a link to the surrounding countryside. The river corridor also features as an important link to sub-regional PRoW networks.

- 13.1.6 Linked from the north, centre and south of the village by a number of connecting paths, the riverside footpath links Studley to Coughton and Alcester in the south and the Arrow Valley Park, which is a key sub-regional green infrastructure asset, to the north. The value of the riverside path is recognised by the designation of part of the route as the Arden Way long distance footpath. Studley is also located on National Cycle Network Route 5, which links the town to the West Midlands conurbation to the north and Stratford-upon-Avon to the south-east, and to the alternative Stratford-upon-Avon to Redditch cycle route. Whilst the River Arrow runs past the village, flood risk in Studley is less of an issue than other settlements in Stratford-on-Avon, and the village was less affected by the floods of July 2007 than elsewhere.
- 13.1.7 The River Arrow is also a significant biodiversity corridor, and much of the floodplain consists of the BAP Priority Habitat of floodplain grazing marsh. Recognising this biodiversity value, the corridor has been designated as a LWS. The River Arrow at Studley is also recognised for its geodiversity value through its designation as a Regionally Important Geological Site, linked to fluvial depositional and erosional features present locally.
- 13.1.8 Whilst no other biodiversity and geodiversity designations exist in or adjacent to the village, it should be noted that the Rough Wood SSSI is located 2km to the west of Studley.
- 13.1.9 Studley Common Local Nature Reserve opened in September 2008 and covers 4.3ha of land on the north side of St Judes Avenue. Comprising a number of mature oak trees and hedgerows, there are short and medium term plans to develop a wildflower meadow and a pond in the reserve.

## 13.2 Recommendations and opportunities for Studley's green infrastructure network

**Table 13.1: Recommendations and opportunities for Studley's green infrastructure network**

Target Note	Recommendations and opportunities in Studley	Framework Objective
<b>SU1</b>	Improve PRow links from within Studley to the west of the A435 and south of the A448, to encourage and facilitate access into the wider countryside.	<b>2.4, 3.4</b>
<b>SU2</b>	There is significant potential for the children's play area located in the village to be enhanced and additional ones to be created especially to the south.	<b>2.2</b>
<b>SU3</b>	There are additional opportunities to improve traffic free cycle links to National Cycle Network Route 5 and to the Stratford-upon-Avon to Redditch cycle route.	<b>2.1, 2.4</b>
<b>SU4</b>	Enhancements to the village's green infrastructure network should seek to improve linkages to and between important biodiversity features present locally such as Rough Wood SSSI and the River Arrow.	<b>1.2, 2.4</b>
<b>SU5</b>	The River Arrow corridor should be promoted as a key multifunctional green infrastructure corridor.	<b>2.1, 3.2, 3.4, 4.1</b>
<b>SU6</b>	Recognise the multifunctional benefits of allotments for biodiversity, health and reducing rainwater infiltration rates, and encourage	<b>2.3, 4.3</b>

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	individual and community allotments and gardening activities.	
<b>SU7</b>	Increase awareness of settlement coalition between Redditch and Studley whilst protecting the area of land separating the settlements; ensuring urban development does not encroach and undermine the character of the area as a separate entity.	<b>1.2, 4.2</b>
<b>SU8</b>	Encourage tree planting along the road corridors such the A435 to alleviate issues associated with air quality in Studley village centre.	<b>3.1, 3.4 4.1</b>

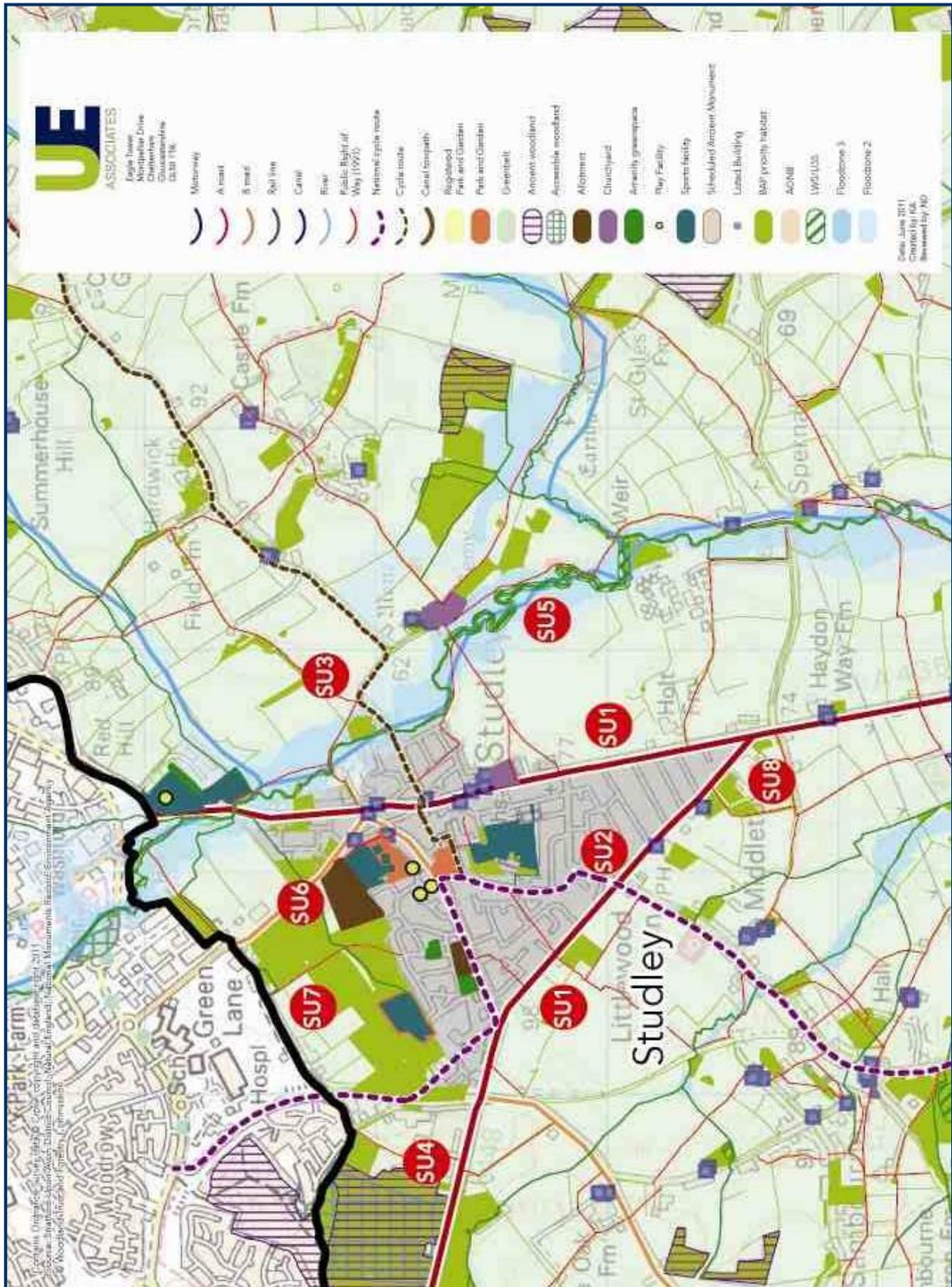


Figure 13.1: Green infrastructure in Studley

## 14 Wellesbourne

### 14.1 Existing green infrastructure in Wellesbourne

- 14.1.1 Wellesbourne is a large village is located in the north of the district 9km west of Stratford-upon-Avon and 11km south of Warwick. With a population of approximately 5,520 (Stratford-on-Avon District Council, 2011 - based on mid 2008 estimates), the settlement has rapidly expanded since the 1980s, with significant new areas of housing and employment locating in the village resulting in a 73% growth in the number of dwellings between 1981 and 2008 (Stratford-on-Avon District, 2010).
- 14.1.2 Public open spaces in the village include Dovehouse Field, Mountford Recreation Ground, and Mountford Sports Field, with further areas of amenity open space at Daniell Road, Elliot Drive and Hammond Green. Whilst there are no areas of Natural Accessible Greenspace present in the village, allotments are located in the east of the village at Kineton Road.
- 14.1.3 A range of sport and recreational facilities are located in Wellesbourne. These include: five football pitches, including at Dovehouse Sports Field, Wellesbourne Primary School and Mountford Sports Field; a cricket pitch at Mountford Sports Field; a rugby pitch at Dovehouse Sports Field; and a bowls lawn at Wellesbourne Bowls Club. There is also a basketball hoop at Mountford Sports Field. Children's play facilities can be accessed at Dovehouse Play Area, Hammond Green and Mountford Sports Ground Play area.
- 14.1.4 According to the recently completed PPG17 Assessment (Arup, 2011) there are 3.82 ha of parks, gardens and amenity greenspace in the village, with a provision to 0.69ha per 1,000 population. The PPG17 assessment suggests that this is a relative underprovision.
- 14.1.5 The River Dene flows through Wellesbourne on its course to joining the River Avon to the north-west of the village. Through dividing the village into two parts, the river is an important linear and landscape feature that acts as a blue corridor. The corridor links the village to the important and well known heritage asset of Charlecote Park and to the wider PRoW network of the district through a footpath which runs along the river. The river corridor also provides further opportunities for augmenting the existing Warwick-Wellesbourne-Leamington Spa cycle route which passes through the village, and links with National Cycle Network Route 41 at Charlecote Park.
- 14.1.6 The river is also a significant biodiversity corridor, and whilst the majority of the floodplain is dominated by improved grassland there are some areas of more ecologically significant value including semi-improved grasslands, ponds, woodland and plantations. The river however presents a number of challenges for flood risk management. The need to limit flood risk in the area has been highlighted by numerous historic flood events which have taken place in the town, including most recently when 70 properties were flooded in Wellesbourne during the floods of July 2007.

- 14.1.7 In addition to the River Dene, a key biodiversity feature located in the vicinity of Wellesbourne is Smatchley, Loxley and Wellesbourne Woods, which are located to the south-west of the village. Due to the size of the woodlands, this area provides a refuge for wildlife and offers breeding, foraging and roosting habitat for various species.
- 14.1.8 In relation to biodiversity designations, one SSSI is located close to the village, Loxley Church Meadow, which has been established as in favourable condition by Natural England. BAP priority habitats present near Wellesbourne include the wet woodland of Wellesbourne Wood and an area of lowland mixed deciduous woodland situated to the south-east of the village. Loxley Church Meadow SSSI also comprises lowland meadow. Other valuable habitats identified by the Ecological and Geological assessment carried out for the LDF include semi-improved grassland, species rich road side verges, mixed plantations, marshy pond and plantation woodland.

## 14.2 Recommendations and opportunities for Wellesbourne’s green infrastructure network

**Table 14.1: Recommendations and opportunities for Wellesbourne’s green infrastructure network**

Target Note	Recommendations and opportunities in Wellesbourne	Framework Link
<b>WE1</b>	There are opportunities to improve linkages between Wellesbourne and the National Cycle Network Route 41, including via off road cycle links along the River Dene.	2.1, 2.4, 3.2, 3.4
<b>WE2</b>	Improve the PRoW network from within Wellesbourne to the wider countryside. Seek to develop circular routes in addition to links with the wider PRoW network.	2.1
<b>WE3</b>	There are opportunities to create additional areas of accessible open space to help remediate deficiencies in amenity greenspace in the village.	2.2, 3.3
<b>WE4</b>	Enhancements to the village’s green infrastructure network should seek to improve linkages to and between important biodiversity features such as the Smatchley, Loxley and Wellesbourne Woods, Loxley Church Meadow and the River Dene.	2.4, 4.1,
<b>WE5</b>	Recognise the multifunctional benefits of allotments for biodiversity, health and reducing rainwater infiltration rates, and encourage individual and community allotments and gardening activities.	2.3, 3.3, 4.3
<b>WE6</b>	Promote and encourage links to local sub-regional GI Assets such as Compton Verney and Charlecote Park, and maintain these locations as important high quality visitor destinations.	1.2, 2.4
<b>WE7</b>	Recognise the multifunctional role of the Dene Valley, ensuring this key asset is protected and enhanced to deliver benefits associated with flood alleviation, recreation and biodiversity and its contribution to the GI network.	1.2, 2.4, 3.2, 4.1

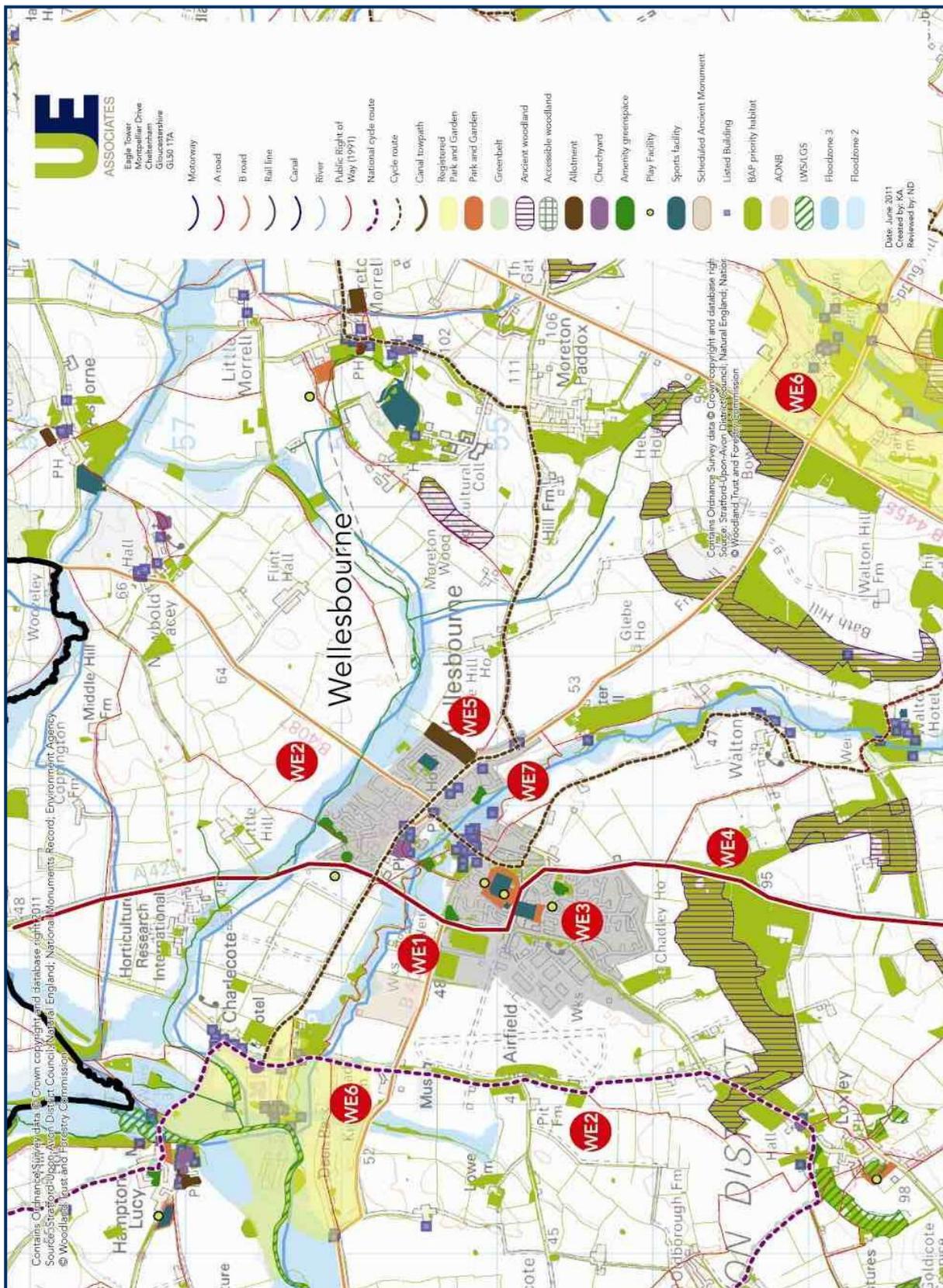


Figure 14.1: Green infrastructure in Wellesbourne

## 15 Delivering the study

### 15.1 Delivering the study through lead organisations and partnerships

15.1.1 This project has been funded by Stratford-on-Avon District Council; however for the Study aspirations to be delivered it should be taken forward and owned by a wide range of stakeholders. The Stratford District Partnership is the Local Strategic Partnership for Stratford-on-Avon and is well placed to provide a mechanism for the study to be taken forward. The Stratford District Partnership represents a conglomeration of organisations that regularly prepare and undertake work directly related to green infrastructure. Moreover, the Partnership incorporates cross boundary co-operation in developing and working to achieve the ideals set out in the Sustainable Community Strategy for Stratford-on-Avon (Stratford-on-Avon District Council, undated) and Warwickshire (Warwickshire Together, 2009). Additional mechanisms for delivery could develop with Neighbourhood Plans and planning processes proposed in the Localism Bill (2010).

15.1.2 Natural England's Guidance (2009) on delivery recognises the importance of co-operation and cross organisational workings in delivering green infrastructure objectives. The nature of green infrastructure and its wide ranging components allow it to be delivered through the work and aspirations of a range of partner objectives and related initiatives and policy areas. For example, green infrastructure objectives and requirements can be met through Local Transport Plans in the form of rights of way improvement plans that address deficiencies in linkages in the PRow network. Green infrastructure improvements and enhancements will not lie solely with planning authorities but also with other partners (Natural England, 2009). For example using green infrastructure to improve the appeal of historical assets may help meet the objectives of the Tourism Strategy, heritage led restoration objectives and elements of the Sustainable Community Strategy.

### 15.2 Cross boundary working

15.2.1 Within the Stratford-on-Avon district, there exists a tier of local government beneath the District Council comprising of over one hundred town and parish councils. Each of these councils has jurisdiction over local community assets including footpaths, allotments, parks and ponds, by working together they can ensure that these green infrastructure assets form part of a coherent district-wide network.

15.2.2 Stratford-on-Avon borders with several other local planning authorities:

- ▶ Bromsgrove Council (Worcestershire);
- ▶ Cherwell District Council (Oxfordshire);
- ▶ Cotswolds District Council (Gloucestershire);
- ▶ Daventry District Council (Northamptonshire);

- ▶ Redditch Borough Council (Worcestershire);
- ▶ Rugby Borough Council (Warwickshire);
- ▶ Solihull Council (West Midlands);
- ▶ South Northamptonshire Council (Northamptonshire);
- ▶ Warwick District Council (Warwickshire);
- ▶ West Oxfordshire District Council (Oxfordshire); and
- ▶ Wychavon District Council (Worcestershire).

15.2.3 As with all green infrastructure networks, the features and components that form the network, at whatever scale of planning e.g. district or settlement, rarely align with planning boundaries and are usually part of larger scale green infrastructure. An example of this would be the Cotswolds Scarp which is located in the south of the Stratford-on-Avon district which is part of the Cotswold AONB, of which 5% lies within the Stratford-on-Avon District. It must be noted that GI assets of different scale can also reside across multiple boundaries. In addition GI assets can be used and visited by people living across boundaries. For these reasons it is important to co-operate with neighbouring Local Authorities in GI planning and delivery.

15.2.4 Successful GI planning is characterised by the recognition that key assets may be available near to settlements but not actually lie within the district boundaries; this is important when defining the GI baseline. Secondly, if growth is proposed in nearby districts and boroughs, potential demands associated with growth in terms of needs and opportunities should be carefully considered. This latter issue can be addressed by cross-boundary working and sharing of information and proposals, for both development and green infrastructure network management, amongst the respective planning authorities. It is recommended that the councils work together with the relevant Town or Parish council in this respect and consider annual or biannual workshops to share plans and initiatives.

### **15.3 GI funding**

15.3.1 Funding for green infrastructure can be secured through a range of different funding streams and models of governance. Natural England's Guidance (2009) identifies and explains a variety of funding avenues available for local authorities and those seeking to carry forward GI projects. One model for funding is the local authority. However this approach can be limited as local authority budget allocations combined with an absence of statutory obligations for green infrastructure can often restrict the potential of this approach to secure the design, implementations and management of a high quality green infrastructure network (Natural England, 2009). It is therefore necessary to explore and encourage creativity in identifying appropriate funding avenues for the delivery of different green infrastructure objectives.

15.3.2 More detailed discussions should take place in subsequent stages of GI work. Natural England's Guidance (2009) provides a comprehensive overview of funding avenues including Environmental Stewardship Grants, s106 developer contributions, lottery opportunities, Community Infrastructure Levy (CIL), tax initiatives and voluntary sector involvement.

15.3.3 It is important to realise that different green infrastructure projects will meet different objectives and will require funding from a range of appropriate sources. The Warwickshire, Coventry and Solihull Sub-Regional GI Report (LUC, 2011) provides more information on funding in particular s106 agreements and the CIL.

15.3.4 Potential funding sources for green infrastructure delivery have been identified within the Warwickshire, Coventry and Solihull Sub-Regional GI Study (LUC, 2011). They include the following:

- ▶ Funding from the respective local authority's revenue budget;
- ▶ Multi agency public sector funding;
- ▶ EU funding such as EU LIFE+;
- ▶ Developer Contributions through s106 agreements;
- ▶ Environmental Stewardship Scheme;
- ▶ Private Sector sponsorship;
- ▶ Community land, development and conservation trusts; and
- ▶ Community Infrastructure Levy.

15.3.5 The recent Environment White Paper "The Natural Choice: securing the value of nature" (HM Government, 2011) identifies potential future funding and delivery avenues that will result from the creation of initiatives and programmes. Proposed programmes and initiatives fall within three broad categories: protecting and improving our natural environment, reconnecting people and nature and growing a green economy. These three aims will be facilitated by a range of measures and initiatives which are relevant to green infrastructure and include:

- ▶ Local Nature Partnerships: the government will encourage and support Local Nature Partnerships that work on a strategic level to improve the range of benefits and services obtained from a natural and healthy environment. In 2011/12 a one off fund worth £1 million will be made available to develop these partnerships;
- ▶ Nature Improvement Areas: support will be given to enable local authorities, communities, landowners, private sector and conservation organisations to establish Natural Improvement Areas based on local assessment of opportunity for restoring and connecting nature on a significant scale. £7.5 million will be made available over the current spending review period; and

- ▶ **Green Infrastructure Partnerships:** The government will establish a green infrastructure partnership to support the development of green infrastructure in England. This will consider how GI can be enhanced to strengthen ecological networks and improve communities health, quality of life and resilience to climate change (HM Government, 2011).

#### 15.4 Strategic GI initiatives

15.4.1 The Study has focused on settlement initiatives. To help recognise the district-wide links between settlements and consider those parts of the wider network that fall outside of the main settlements, a series of strategic projects have been suggested in **Table 5.1** in **Chapter 5**.

15.4.2 The purpose of this Study is to provide evidence for Stratford-on-Avon’s forthcoming Core Strategy. For green infrastructure to become properly integrated and planned for, subsequent stages of GI work will be crucial. This Study acts as a starting point for green infrastructure planning and delivery. The Stratford-on-Avon Core Strategy will be well placed to take forward recommendations made at the strategic district-wide scale, in addition to settlement scale. Recommendations made in this Study are relevant and linked to a range of issues and subject areas, which in turn are relevant to the Core Strategy. Accordingly, the Core Strategy should incorporate the spirit, meaning and aspirations that this Study sets out through its recommendations. The Core Strategy must guide the formation of a green infrastructure policy area but can also shape the formation of a whole suite of policies at a range of scales.

15.4.3 The Stakeholder Session highlighted (**Appendix C**) that a real commitment to GI planning and delivery is required and that a Green Infrastructure Supplementary Planning Document (SPD) would go some way toward achieving this. A GI SPD would be welcomed; this study would act as the starting point for its development.

15.4.4 This study has made several recommendations in the form of target notes for the main settlements and strategic projects across the district. **Table 15.1** includes these recommendations and adds four further key recommendations that should be considered when taking this forward as the basis for green infrastructure planning in the district.

**Table 15.1: Summary of recommendations**

No.	Recommendation	Description	Action
1	<b>Settlement Target Notes</b>	These represent local project suggestions that will enhance the local, and by association, strategic core network of green infrastructure in Stratford-on-Avon. In total, <b>71 individual recommendations</b> have been suggested.	The views of the six Community Forums should be sought to verify and support these recommendations as part of a neighbourhood planning approach. Recommendations need to be ratified, amended if necessary, considered in light of local need and carefully worked up into projects with details of the scope, budget and responsible delivery bodies being identified.

No.	Recommendation	Description	Action
2	<b>Strategic Recommendations</b>	These represent district-wide project suggestions that will enhance the strategic core network of green infrastructure in Stratford-on-Avon. In total, <b>9 recommendations</b> have been suggested.	Strategic recommendations are likely to need a strategic coordination. The District Council is perhaps best placed to consider these in the first instance. It is recommended that Stratford-on-Avon District Council verify and carefully plan out how these projects can be delivered. Details of the scope, budget and responsible delivery bodies need to be identified.
3	<b>Cross boundary working and co-operation</b>	The Warwickshire, Coventry and Solihull Sub-regional GI Study (LUC, 2011) illustrates where there is strategic green infrastructure in neighbouring authorities. It also illustrates the distribution of proposed projects.	Where appropriate for projects that either relate to border sites (such as Rough Hill Woods) or long distance routes (such as Shakespeare's Avon Way) cross boundary working and co-operation should be undertaken from the earliest opportunity.
4	<b>Consider how CIL can be used to deliver GI</b>	The Community Infrastructure Levy has a potentially significant role to play in delivering local and strategic infrastructure requirements that are identified by the Council, and a tariff is set for developer contributions.	Stratford-on-Avon District Council is in the process of finalising their Infrastructure Delivery Plan, and will use this GI study to provide evidence. The Council should investigate the implications of CIL on funding local level and strategic green infrastructure projects. The findings of this study coupled with views of the six Community Forums should be considered when determining the tariff and scope of infrastructure projects to which CIL would apply.
5	<b>A GI inventory for Stratford-on-Avon; common standards and quantification for green infrastructure</b>	The typologies defined in <b>Table 1.1</b> should be ratified by the Community Forums and Stratford-on-Avon District Council to inform a GI inventory for the district. For each typology, clear definitions relating to design, size, quality and terminology should be developed. Where appropriate, standards should be used or developed in relation to understanding what makes a good quality green infrastructure feature or resource (see <b>SR9, 5.12</b> ).	This action is important to assist with common language surrounding green infrastructure. In addition, engage with stakeholders to develop a monitoring/evaluation framework to assess the relative success of green infrastructure development across the district. Monitoring and measuring should be undertaken to assess whether GI projects are successful and whether or not the aims of the GI Framework and Vision are being delivered.

No.	Recommendation	Description	Action
6	<b>Establish monitoring standards</b>	Standards and monitoring play important roles when seeking to ensure that the green infrastructure network is being delivered and managed effectively. Key Performance Indicators should be considered as a means of measuring progress and maintaining standards.	A working group should consider standards for green infrastructure once the project recommendations have been considered by the Community Forums. Monitoring can be done via the Annual Monitoring process as well as using a system that quantifies the size, type, distribution, quality and quantity of green infrastructure. Monitoring standards may be different for different types of green infrastructure.

### 15.5 Study limitations and standards

- 15.5.1 This Study has been predominantly a desk based study utilising secondary data and information. The Study is a mixture of quantitative and qualitative analysis and has drawn on the views of stakeholders via a focus group event (see **Appendix C**), comprehensive baseline information, plans and programmes as well as different mapped information. There is however a significant lack of quantifiable data that would in some instances provide the recommendations with a stronger empirical footing.
- 15.5.2 For example, the PPG17 assessment information provides helpful quantitative information on suggested quantities of open spaces including playing pitches and children’s play areas. This information is nevertheless part of an assessment of open space rather than multifunctional capacity or connectivity. Behavioural considerations are also largely absent from the report except where health statistics provide contextual trends. Without primary survey data it is difficult to be certain that provision of a particular green infrastructure feature will guarantee its use by the local population.
- 15.5.3 Standards, where appropriate, have been used in order to guide and influence recommendations for individual settlements. However, the absence of local specific standards developed in conjunction with local people, has restricted the effectiveness of standards in developing recommendations. For recommendations and targeted intervention to have greater focus and impact, local standards should be sought in order to ensure the GI network for each settlement remains strong and matches the aspirations and requirements of local residents and their areas (**See Project SR9, section 5.12**). Locally specific standards would be useful in helping to identify needs, strengths and deficiency based on local requirements, in order to indicate what type of intervention is needed in order of priority. This would be advantageous for areas with limited funds.

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# **Green Infrastructure Study for the Stratford-on-Avon District**

**Volume 2: Appendices**

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## **Appendix A:**

# **Stratford-on-Avon Green Infrastructure Purpose Driver**

The aim of the purpose driver is to explain and show justification for the themes and objectives that form the green infrastructure framework. It details the process that was undertaken, and information used, to compile an informed and supported framework.

**The Purpose Driver**

Objectives	Stakeholder Group Comment	Plan, Program, or Strategy	Relevant Map/Baseline	Ecosystem/GI Service
<b>Theme I: A Sustainable, competitive and prosperous economy</b>				
<p><b>Objective 1.1</b>                      Support the revitalisation of the Stratford-on-Avon economy by ensuring new and existing places of work are affordable and attractive. These should be characterised by green open space, street trees and smart green design that contribute to a healthy motivated workforce.</p>	<p>There is a need to respect town survivability. It would be good to have more people living and working within the towns to keep the centres going.</p> <p>There is a need to encourage new innovative ideas such as green roofs, rooftop gardens and green walls.</p>	<ul style="list-style-type: none"> <li>• West Midlands Economic Strategy (2008).</li> <li>• Coventry and Warwickshire Local Enterprise Partnership’s Five Year Strategy (2011).</li> <li>• Benefits of Green Infrastructure Forest Research (2010).</li> <li>• Stratford Sustainable Communities Strategy (undated).</li> <li>• Warwickshire Local Transport Plan (2011).</li> <li>• Warwickshire Sustainable Communities Strategy (2009).</li> <li>• Stratford-on-Avon SHLAA (2008).</li> </ul>		<p><b>Provisioning:</b> Health and well-being</p> <p><b>Regulating:</b> Air quality and climate</p> <p><b>Cultural:</b> Aesthetic</p>

Objectives	Stakeholder Group Comment	Plan, Program, or Strategy	Relevant Map/Baseline	Ecosystem/GI Service
<p><b>Objective 1.2</b></p> <p><b>Support the growth of a sustainable tourism industry by utilising green infrastructure features to enhance the setting of key tourist destinations and the district’s outstanding heritage resource such as canals, historic buildings, archaeological remains and town centres. Recognise and maximise the potential of green infrastructure assets, such as nature reserves, woodlands and rivers, as alternative visitor destinations.</b></p>	<p>No specific comments made.</p>	<ul style="list-style-type: none"> <li>• Benefits of Green Infrastructure Forest Research (2010).</li> <li>• Stratford-on-Avon Tourism Strategy, from strength to strength (1999).</li> <li>• Stratford Sustainable Communities Strategy (undated).</li> <li>• Warwickshire Local Transport Plan (2011).</li> <li>• Warwickshire Sustainable Communities Strategy (2009).</li> <li>• Cotswolds AONB Management Plan (2008).</li> </ul>	<p><b>Baseline:</b> Tourism is an important sector for the local economy, and the district has approximately 5.5 million visitors per year, with 3.5 million visiting the main town of Stratford-upon-Avon.</p>	<p><b>Cultural:</b> Recreation, leisure and aesthetic</p> <p><b>Provisioning:</b> Health and wellbeing</p>

Objectives	Stakeholder Group Comment	Plan, Program, or Strategy	Relevant Map/Baseline	Ecosystem/GI Service
<p><b>Objective 1.3</b>  <b>Investigate and promote the commercial opportunities of green infrastructure that uphold the principles of sustainable development, for example wood fuel and food production.</b></p>	<p>Developers are happy to become involved with the delivery of green infrastructure, however this must be within reason as funding is in short supply.</p> <p>There is land available that could be turned to food production even on a temporary basis, community orchards or gardens, whilst future and availability of land is being decided and funds sought.</p>	<ul style="list-style-type: none"> <li>• Wood Fuel Strategy for England (2007).</li> <li>• Benefits of Green Infrastructure Forest Research (2010).</li> <li>• The Economic Value of Green Infrastructure (2008).</li> <li>• Warwickshire Sustainable Communities Strategy (2009).</li> </ul>	<p><b>Figure B-5:</b> Designations and woodland  <b>Baseline:</b> The district holds 72% of the county's traditional orchards.</p>	<p><b>Cultural:</b> Economic and educational  <b>Provisioning:</b> Food and fuel production</p>
<p><b>Objective 1.4</b>  <b>Draw on green infrastructure theory and assets to help support and develop a strong knowledge based economy that facilitates the development of key skills concerning green technologies, green infrastructure asset management and design.</b></p>	<p>The term green infrastructure is not generally used in planning applications and is not always understood. Guidance is needed that considers villages and local level development.</p> <p>GI is not high on the agenda therefore, it is not fully understood. There is no guidance and there is concern that this study will result in one policy and will not be as effective unless it becomes an SPD.</p>	<ul style="list-style-type: none"> <li>• Stratford Sustainable Communities Strategy (undated).</li> <li>• Stratford-on-Avon Green Space Strategy (2006).</li> <li>• Warwickshire Biodiversity Strategy (2005).</li> </ul>		<p><b>Cultural:</b> educational</p>

Objectives	Stakeholder Group Comment	Plan, Program, or Strategy	Relevant Map/Baseline	Ecosystem/GI Service
<b>Theme II: A healthy, active and involved community</b>				
<p><b>Objective 2.1</b></p> <p><b>Promote and maintain a strong network of linear and circular routes that encourages active travel and recreation, supporting the physical and mental health of the district's population.</b></p>	<p>It is important to identify PRow to find breakages and links between settlements, including their single use before looking at multifunctionality.</p> <p>There is a need for more transport corridors out of the towns in terms of green walks and cycle ways. There are opportunities to use redundant railway lines.</p> <p>More routes out of towns are needed and more footpaths need to be turned into bridleways to accommodate a range of users.</p>	<ul style="list-style-type: none"> <li>• Stratford's Open Space, Sport, and Recreation Assessment (2011).</li> <li>• Stratford-on-Avon Active Communities Strategy (2007).</li> <li>• Benefits of Green Infrastructure Forest Research (2010).</li> <li>• Stratford-on-Avon Green Space Strategy (2006).</li> <li>• Warwickshire Local Transport Plan (2011).</li> <li>• Warwickshire Sustainable Communities Strategy (2009)</li> <li>• Warwickshire's Rights of Way and Recreational Highways Strategy 2011-2026 (2011).</li> </ul>	<p><b>Figure B-1:</b> Access <b>Baseline:</b> Weaknesses in the district's PRow network include a lack of connectivity at some locations and many long term off-line and obstructed routes. Waterways provide important functions, including facilitating opportunities for linking district-wide and sub-regional walking and cycling networks along canal towpaths.</p>	<p><b>Provisioning:</b> Health and well-being</p> <p><b>Cultural:</b> Recreation and leisure</p>

Objectives	Stakeholder Group Comment	Plan, Program, or Strategy	Relevant Map/Baseline	Ecosystem/GI Service
<p><b>Objective 2.2</b></p> <p><b>Maintain a high quality network of playing fields, pitches and sporting venues that are easily accessible and safe, to encourage recreation and sporting activities amongst all aspects of society.</b></p>	<p>No specific comment made.</p>	<ul style="list-style-type: none"> <li>• Stratford-on-Avon’s Play Pitch Strategy (2011).</li> <li>• Stratford-on-Avon Active Communities Strategy (2007).</li> <li>• Stratford-on-Avon Green Space Strategy (2006).</li> <li>• Warwickshire Sustainable Communities Strategy (2009).</li> <li>• Sport England Strategy 2008-2011 (2008).</li> </ul>	<p><b>Baseline:</b> According to the Department of Health’s Health Profile for the district, the level of physical activity amongst children (including in schools) is lower than the national average.</p>	<p><b>Cultural:</b> Aesthetic and recreational</p> <p><b>Provisioning:</b> Health and wellbeing</p>
<p><b>Objective 2.3</b></p> <p><b>Promote and increase awareness of green infrastructure and its benefits. Encourage, support and facilitate neighbourhood involvement in maintaining and managing local green spaces through a sense of community ownership, pride and responsibility.</b></p>	<p>Case study of the Portishead Project at Portbury Ashlands involved dwellers in new homes built adjacent to a nature reserve contributing to the management of the reserve.</p> <p>Opportunities should be taken to explore links with voluntary organisations. There are innovative ways to bring communities together. Community supported agriculture schemes, such as Riverside Leamington, share the produce between those from the community that are involved.</p> <p>The community Woodland Network has guidance on how to set up and manage community woodlands.</p>	<ul style="list-style-type: none"> <li>• Stratford-on-Avon Active Communities Strategy (2007).</li> <li>• Benefits of Green Infrastructure Forest Research (2010).</li> <li>• Stratford Sustainable Communities Strategy (undated).</li> <li>• Stratford-on-Avon Green Space Strategy (2006).</li> <li>• Warwickshire Biodiversity Strategy (2005).</li> </ul>		<p><b>Provisioning:</b> Health and well-being</p> <p><b>Cultural:</b> Aesthetic, recreational and leisure</p>

Objectives	Stakeholder Group Comment	Plan, Program, or Strategy	Relevant Map/Baseline	Ecosystem/GI Service
	<p>Many large gardens are underutilised, but garden share schemes could better utilise these spaces.</p> <p>It must be remembered that local involvement is crucial and guidance and direction are needed to enable communities to make projects happen.</p> <p>British Waterways is seeking to encourage more community ownership and maintenance of canal towpaths.</p>			
<p><b>Objective 2.4</b></p> <p><b>Expand and develop a strong PRoW network that improves the connections between settlements and facilitates the use of non-motorised modes of transport. The development of off-road routes and greenways that benefit biodiversity and offer safe recreational opportunities should be encouraged.</b></p>	<p>It is important to identify PRoW to find breakages and links between settlement, including there single use before looking at multifunctionality.</p> <p>There is a need for more transport corridors out of the towns in terms of green walks and cycle ways. There are opportunities to use redundant railway lines.</p> <p>More routes out of towns are needed and more footpaths need to be turned into bridleways to accommodate a range of users.</p>	<ul style="list-style-type: none"> <li>• Nature Nearby Accessible Natural Greenspace Guidance (2010).</li> <li>• Stratford Sustainable Communities Strategy (undated)</li> <li>• Stratford-on-Avon Green Space Strategy (2006).</li> <li>• Warwickshire Local Transport Plan (2011).</li> <li>• British Waterways 2025 (2004).</li> </ul>	<p><b>Figure B-1:</b> Access</p> <p><b>Baseline:</b> Weaknesses in the district's PRoW network include a lack of connectivity at some locations and many long term off-line and obstructed routes.</p> <p>Long distance paths are key linkages in the district wide green infrastructure network.</p>	<p><b>Provisioning:</b> Health and well-being</p> <p><b>Regulating:</b> Air quality</p> <p><b>Cultural:</b> Recreation</p>

Objectives	Stakeholder Group Comment	Plan, Program, or Strategy	Relevant Map/Baseline	Ecosystem/GI Service
<h2 style="margin: 0;">Theme III: Flooding and a changing climate</h2>				
<p><b>Objective 3.1</b></p> <p>Respond to the effects of climate change by maximising the potential of green infrastructure to reduce CO<sub>2</sub> emissions, facilitate species migration and combat temperature rise by encouraging urban cooling.</p>	<p>There is still a role for carbon trading and offsetting, with tree planting a good way to increase carbon stores.</p> <p>Woodlands are a tool to deliver a range of benefits. Woodlands can help reduce flooding and provide sustainable drainage options amongst other things.</p>	<ul style="list-style-type: none"> <li>• Benefits of Green Infrastructure Forest Research (2010).</li> <li>• Stratford-on-Avon Green Space Strategy (2006).</li> <li>• Warwickshire Climate Change Adaptation Research (2006a).</li> <li>• Warwickshire Climate Change Adaptation Strategy (2006b).</li> <li>• Warwickshire Local Transport Plan (2011).</li> </ul>	<p><b>Baseline:</b> Stratford-on-Avon has significantly higher per capita greenhouse gas emissions than regional (West Midlands) and national averages.</p>	<p><b>Regulating:</b> Climate</p> <p><b>Provisioning:</b> Health and well-being</p> <p><b>Supporting:</b> Habitat creation</p>
<p><b>Objective 3.2</b></p> <p>Promote natural river corridor management by maintaining, restoring and increasing extent of floodplains where appropriate whilst maximising the multifunctional benefits of river corridors for recreation, biodiversity, landscape and</p>	<p>Woodlands are a tool to deliver a range of benefits. Woodlands can help reduce flooding and provide sustainable drainage options amongst other things.</p> <p>Would like to see more floodplains preserved and where possible reinstated.</p>	<ul style="list-style-type: none"> <li>• Warwickshire Avon Catchment Abstraction Management Strategy (2006).</li> <li>• River Basin Management Plan for the River Severn District (2009).</li> <li>• Benefits of Green Infrastructure Forest Research (2010).</li> <li>• Warwickshire County Council Strategic Flood</li> </ul>	<p><b>Figure B-6:</b> Waterways and Flood Zones</p> <p><b>Figure B-3:</b> Priority Habitats</p> <p><b>Baseline:</b> Risks relevant to Stratford-on-Avon resulting from climate change include</p>	<p><b>Supporting:</b> Water cycle and hydrology</p> <p><b>Provisioning:</b> Health and well-being</p> <p><b>Regulating:</b> Flood regulation</p> <p><b>Cultural:</b> Recreation, aesthetic and</p>

Objectives	Stakeholder Group Comment	Plan, Program, or Strategy	Relevant Map/Baseline	Ecosystem/GI Service
<p><b>flood defence.</b></p>		<p>Risk Assessment (2008).</p> <ul style="list-style-type: none"> <li>• Stratford-on-Avon District Strategic Flood Risk Assessment (2008).</li> <li>• Warwickshire Sub-regional Water cycle Study (2010).</li> </ul>	<p>increased risk of flooding to 1:100 year floods.</p> <p>The waterways of the district, including the River Avon and its tributaries, are important habitats for a range of protected species. Due to the impermeability of the underlying geology, and the size and shallow topography of much of the catchment area, fluvial flooding continues to be a significant issue for many areas of the district.</p>	<p>leisure</p>
<p><b>Objective 3.3</b>                      Recognise the importance of, and encourage the use of, green infrastructure to increase natural storage</p>	<p>Woodlands are a tool to deliver a range of benefits. Woodlands can help reduce flooding and provide sustainable drainage options in addition to other benefits.</p>	<ul style="list-style-type: none"> <li>• Warwickshire Avon Catchment Abstraction Management Strategy (2006).</li> <li>• River Basin Management Plan for the River Severn</li> </ul>	<p><b>Baseline:</b> Risks relevant to Stratford-on-Avon resulting from climate change include</p>	<p><b>Regulating:</b> Flood regulation and water purification</p>

Objectives	Stakeholder Group Comment	Plan, Program, or Strategy	Relevant Map/Baseline	Ecosystem/GI Service
<p>capacity, reduce storm water run-off rates and increase water purification. Permeability of settlements should be maximised, utilising sustainable drainage systems and where possible maximising multifunctionality.</p>		<ul style="list-style-type: none"> <li>• District (2009).</li> <li>• Benefits of Green Infrastructure Forest Research (2010).</li> <li>• Warwickshire County Council Strategic Flood Risk Assessment (2008).</li> <li>• Stratford-on-Avon District Strategic Flood Risk Assessment (2008).</li> <li>• Warwickshire Sub-regional Water cycle Study (2010).</li> <li>• Stratford-on-Avon Green Space Strategy (2006).</li> </ul>	<p>soil erosion due to flash flooding, increased drought and flood related problems such as soil shrinkages and subsidence, flooding of roads and railways.</p> <p>Biological water quality is less than favourable; since 2002 the biological water quality of watercourses in the district has decreased, continuing to be below regional and England averages.</p>	<p><b>Supporting:</b> Nutrient and water cycle</p>
<p><b>Objective 3.4</b> Investigate the role of green infrastructure in reducing Stratford-on-Avon’s carbon footprint through wood fuelled renewable energy, non-motorised transport and other carbon offsetting</p>	<p>There is still a role for carbon trading and offsetting, with tree planting a good way to increase carbon stores.</p> <p>Warwickshire County Council is seeking to encourage community investment in green energy, thus the GI study could explore its links to green space.</p>	<ul style="list-style-type: none"> <li>• England’s Community Forests (undated).</li> <li>• Renewable and Low Carbon Energy Resource Assessment (2010).</li> <li>• Stratford Sustainable Communities Strategy (undated).</li> <li>• Warwickshire Climate</li> </ul>		<p><b>Regulating:</b> Climate</p> <p><b>Provisioning:</b> Fuel, habitat creation and health and well-being</p>

Objectives	Stakeholder Group Comment	Plan, Program, or Strategy	Relevant Map/Baseline	Ecosystem/GI Service
initiatives.		Change Adaptation Strategy (2006b).		
<b>Theme IV: Biodiversity and natural resources</b>				
<p><b>Objective 4.1</b> Ensure the protection, enhancement and expansion of existing biodiversity by supporting the priorities of the Local Biodiversity Action Plan. In addition, improve the connectivity of habitats and ecological networks at all levels of scale and designation.</p>	<p>Living Landscape identifies areas for restoration, protection, creation and enhancement. The study should contribute to LBAP objectives and community interests in wildlife.</p> <p>Must ensure that development does not block access or fragment GI resources.</p>	<ul style="list-style-type: none"> <li>• Benefits of Green Infrastructure Forest Research (2010).</li> <li>• Stratford-on-Avon District Ecological and Geological Assessment (2010).</li> <li>• Coventry, Warwickshire and Solihull LBAP Species and Habitat Action Plans (undated)</li> <li>• Making Space for Nature (Lawton, 2010).</li> <li>• Stratford Sustainable Communities Strategy (undated).</li> <li>• Stratford-on-Avon Green Space Strategy (2006).</li> <li>• Warwickshire Biodiversity Strategy (2005).</li> </ul>	<p><b>Figure B-3:</b> Priority Habitats</p> <p><b>Figure B-5:</b> Designations and Woodland</p> <p><b>Baseline:</b> A number of protected sites are fragmented with poor connectivity of habitats, particularly between urban and rural areas. Biodiversity is under pressure from, amongst other things, residential, employment and retail growth and the subsequent</p>	<p><b>Regulating:</b> Pollination, air quality and climate</p> <p><b>Supporting:</b> Habitat provision, water and nutrient cycle</p> <p><b>Cultural:</b> Recreation and leisure</p>

Objectives	Stakeholder Group Comment	Plan, Program, or Strategy	Relevant Map/Baseline	Ecosystem/GI Service
			increase in population.	
<p><b>Objective 4.2</b></p> <p>Ensure that urban extensions and other new developments incorporate multifunctional green infrastructure features that meet need, contributing to and maintaining the character and sense of place of the district and settlements.</p>	<p>GI delivery can be facilitated simply by design, such as planting fruit trees, rather than ornamental.</p> <p>Gardens are an important component of GI, and there are many problems with inadequate garden areas in modern developments.</p> <p>GI needs to be multifunctional and multi-deliverable, incorporating new innovative ideas for green design.</p>	<ul style="list-style-type: none"> <li>• Benefits of Green Infrastructure Forest Research (2010).</li> <li>• Stratford Sustainable Communities Strategy (undated).</li> <li>• Stratford-on-Avon Green Space Strategy (2006).</li> <li>• Warwickshire Sustainable Communities Strategy (2009).</li> <li>• Stratford-on-Avon SHLAA (2008).</li> </ul>	<p><b>Figure B-4:</b> Historic Landscape Character</p> <p><b>Baseline:</b> Stratford-on-Avon has a rich and diverse historic environment resource, which is central to the character and distinctiveness of the district and providing a sense of place.</p>	<p><b>Cultural:</b> Aesthetic</p> <p><b>Provisioning:</b> Habitat creation</p>
<p><b>Objective 4.3</b></p> <p>Recognise the multifunctional importance of gardens and allotments for recreation, biodiversity and water retention. Encourage and support individual and neighbourhood allotment uptake and community gardening.</p>	<p>Gardens should feature strongly as this is a local study.</p> <p>Gardens are a good GI resource for ecology that can link areas to create corridors.</p> <p>Gardens are an important component of GI, and there are many problems with inadequate garden areas in modern developments.</p> <p>Can areas be identified for low density development to allow for gardens to contribute to development?</p>	<ul style="list-style-type: none"> <li>• Stratford Sustainable Communities Strategy (undated).</li> <li>• Stratford-on-Avon Town Council Allotment Policy (2011).</li> </ul>		<p><b>Provisioning:</b> Health and wellbeing and food</p> <p><b>Supporting:</b> Water/nutrient cycle and primary production</p> <p><b>Regulating:</b> Pollination</p>

Objectives	Stakeholder Group Comment	Plan, Program, or Strategy	Relevant Map/Baseline	Ecosystem/GI Service
	There is a community orchard in Alcester with one planned in Shipston. The harvest share scheme operates on the basis whereby trees are planted in gardens and the fruits are harvested and shared.			<b>Cultural:</b> Aesthetic and recreational

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## **Appendix B:**

# **Stratford-on-Avon GI Contextual Maps**

Figure B-1: Access

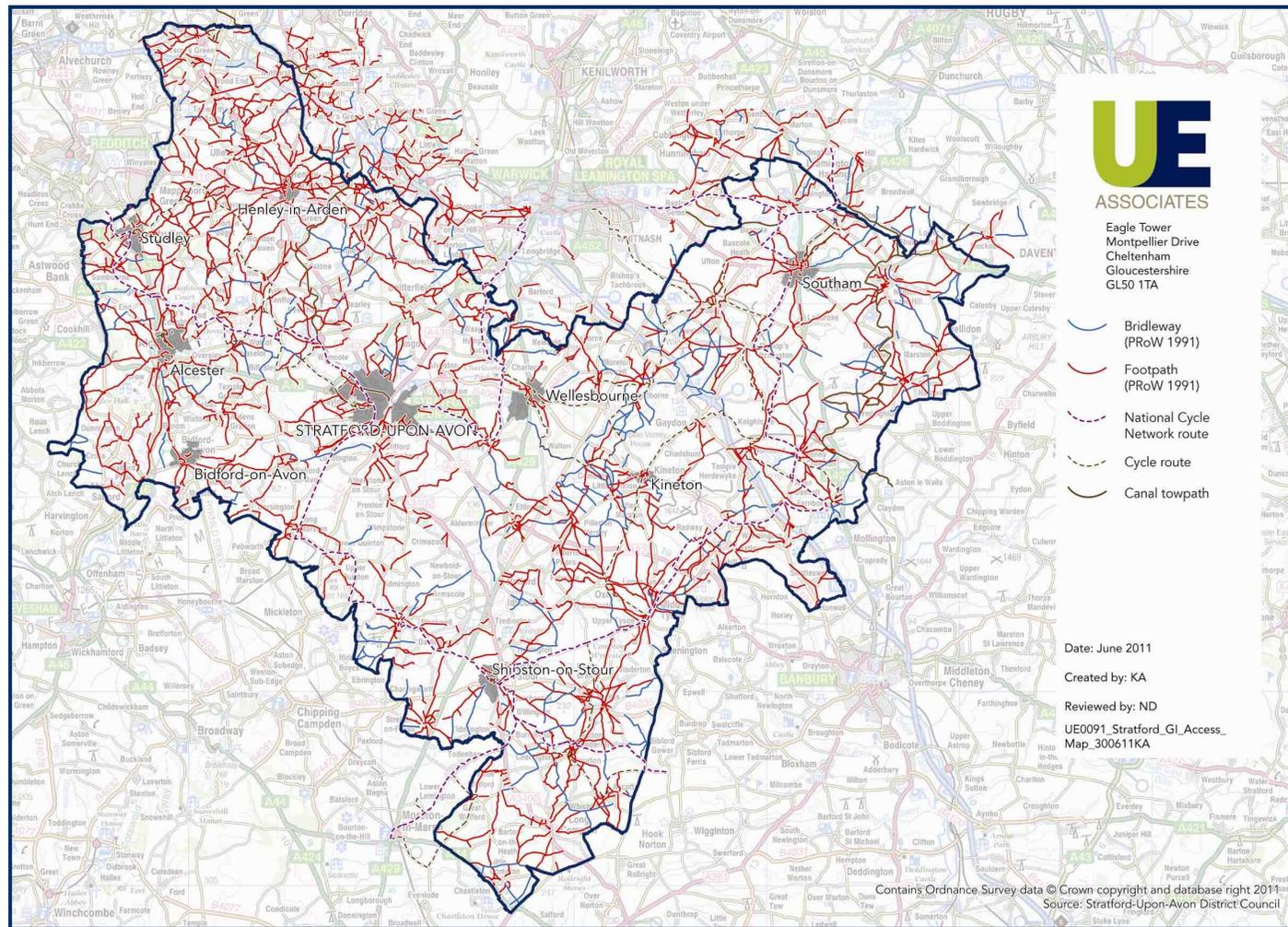


Figure B-2: Natural Accessible Greenspace

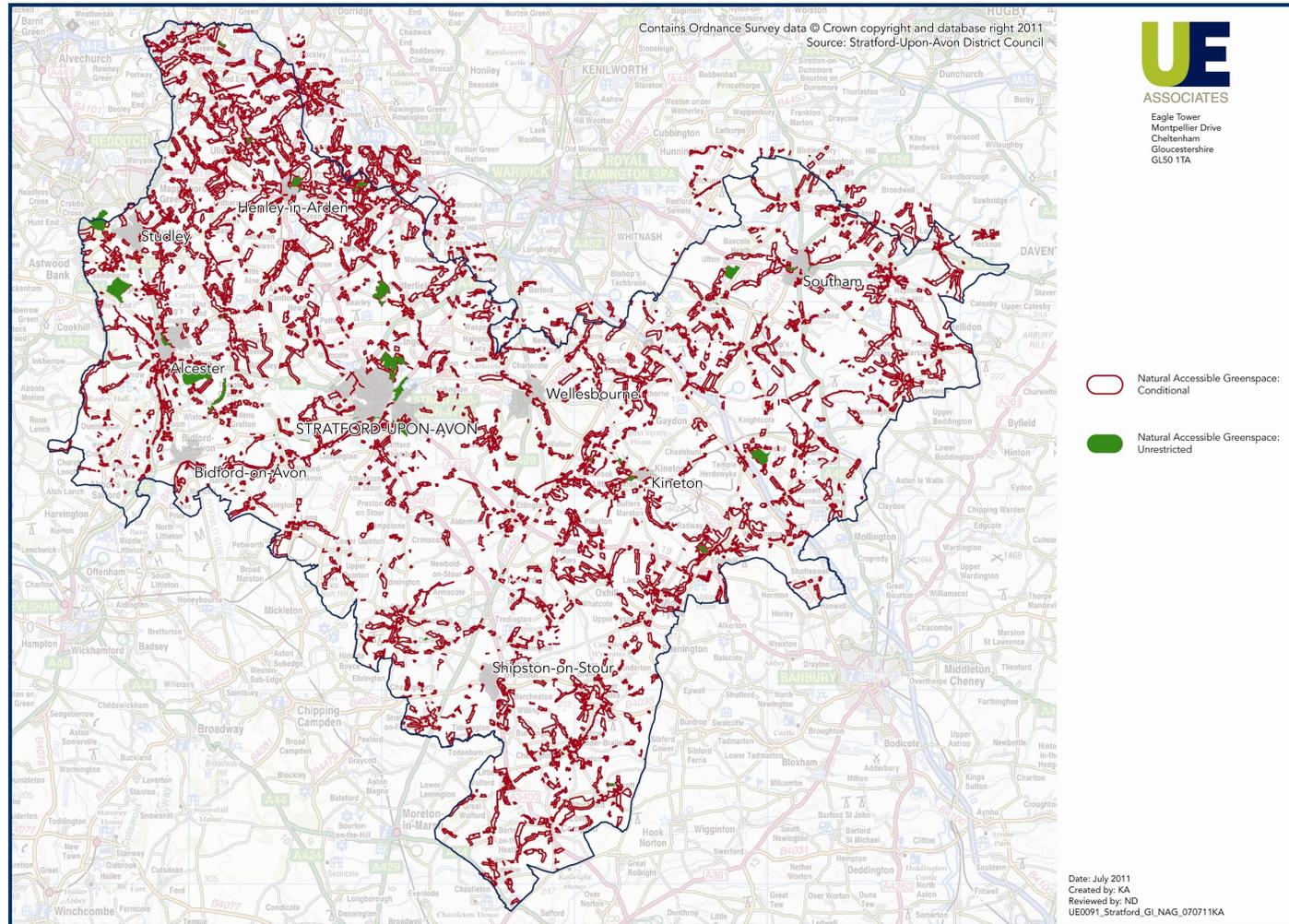


Figure B-3: Priority Habitats

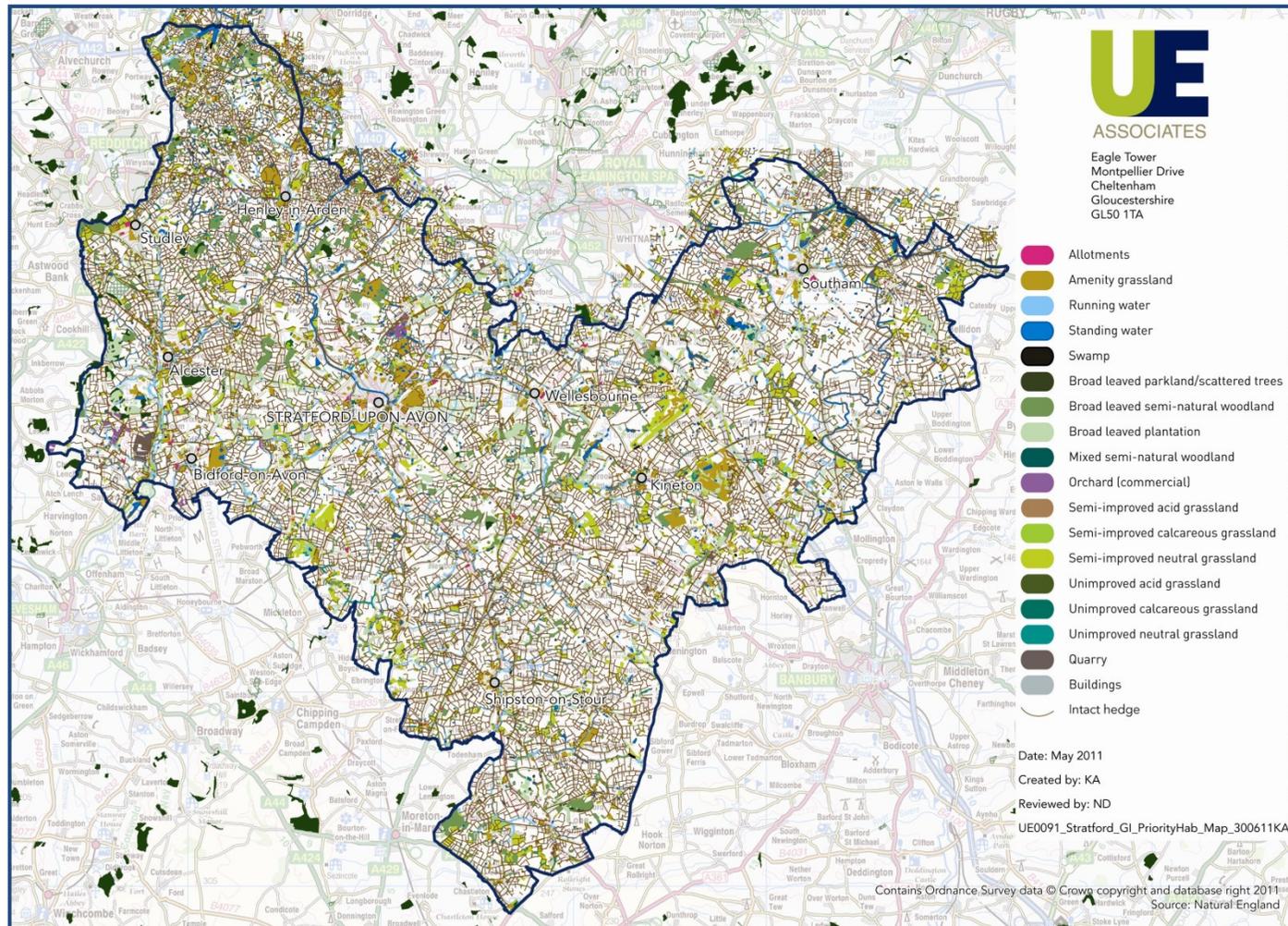


Figure B-4: Historic Landscape Character

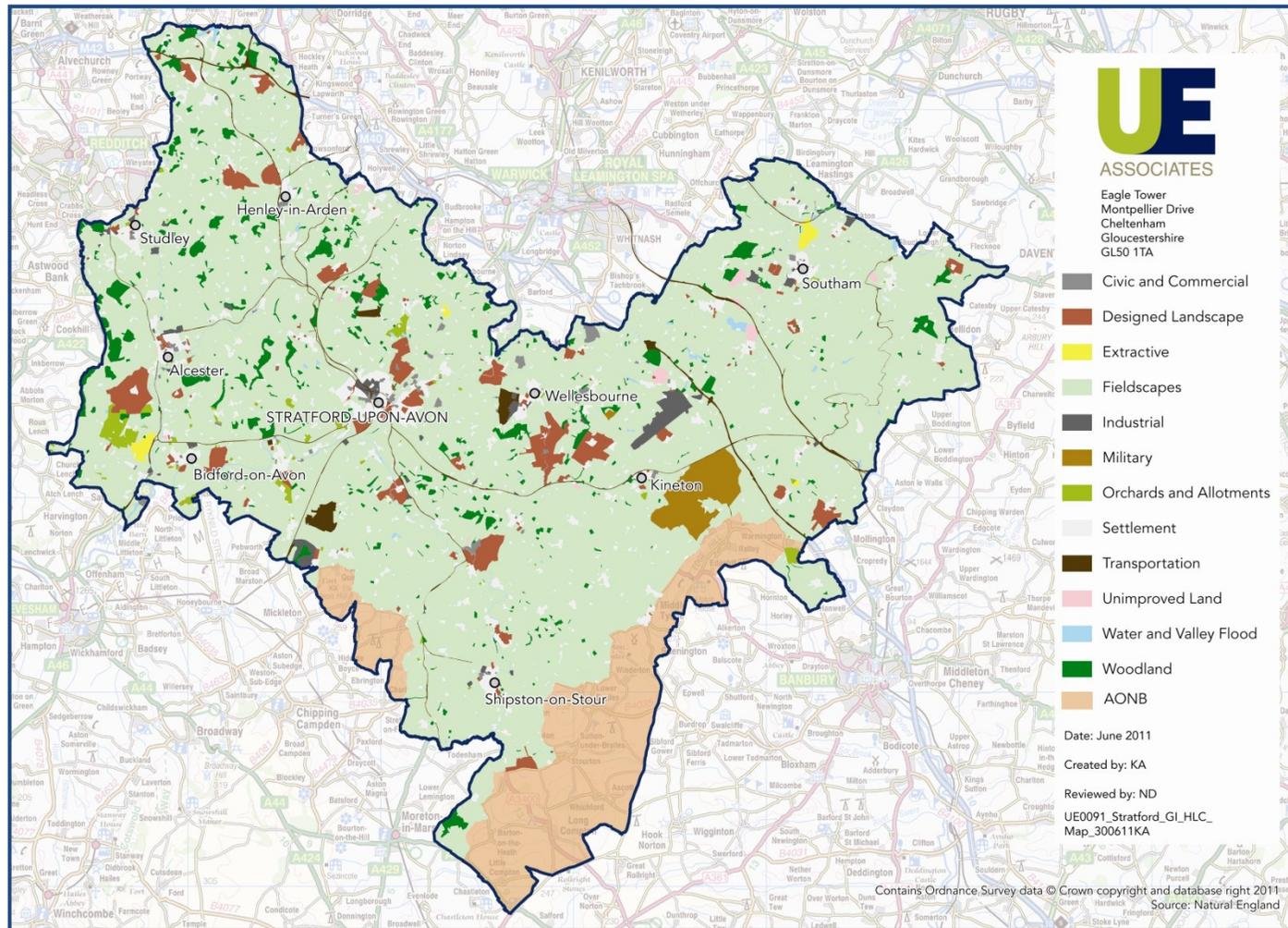


Figure B-5: Landscape Character

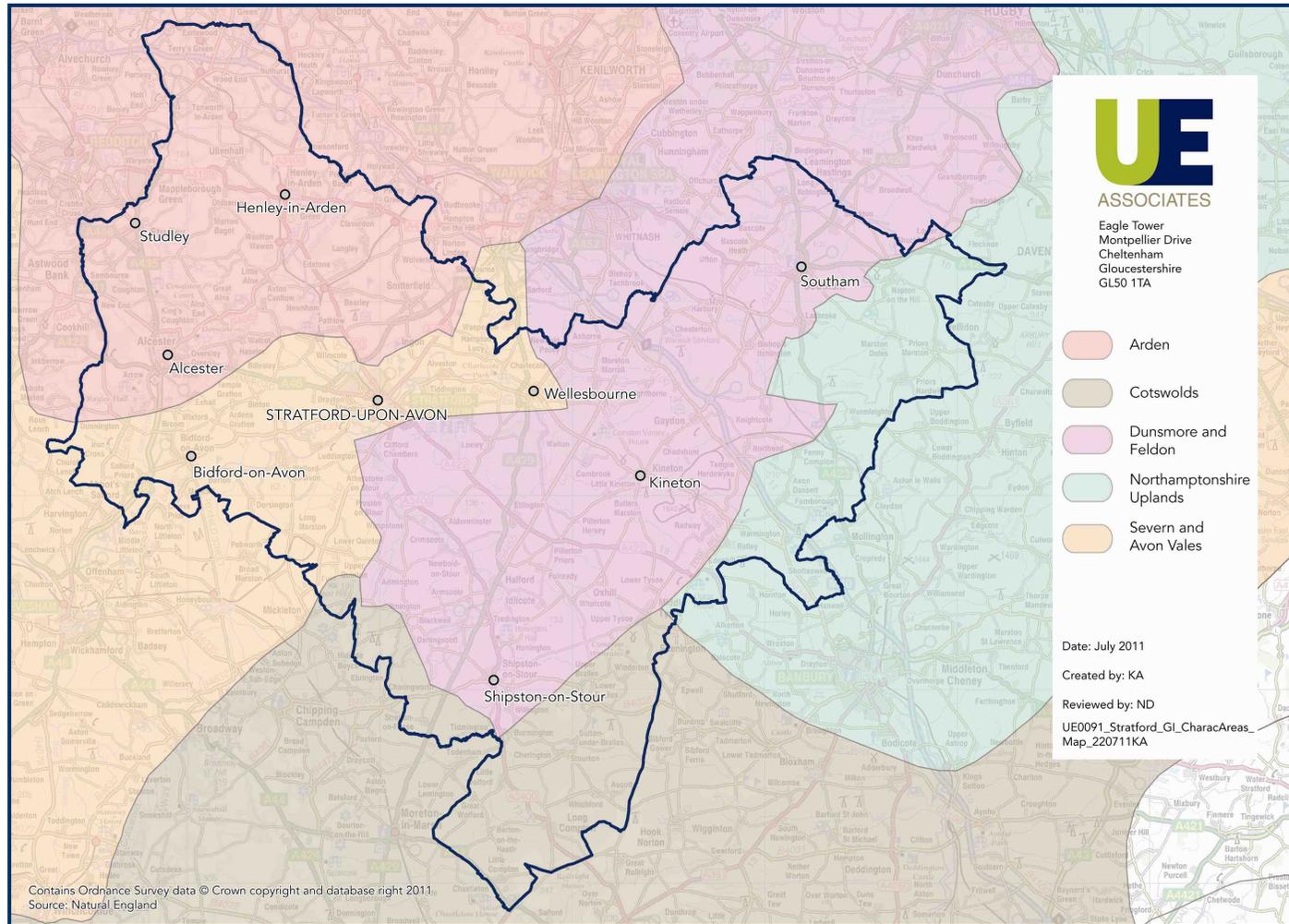


Figure B-6: Designations and Woodland

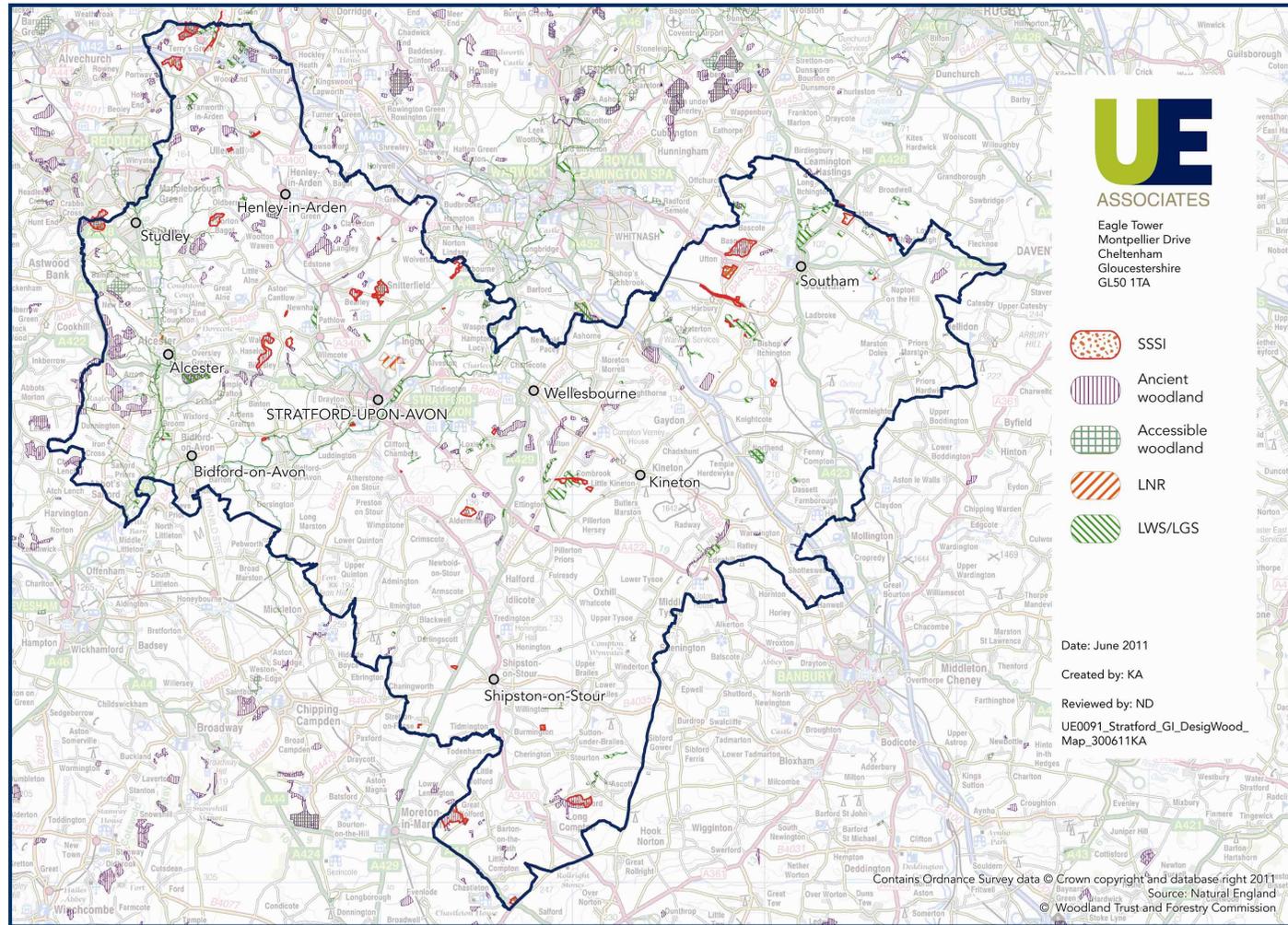


Figure B-7: Waterways and Flood Zones

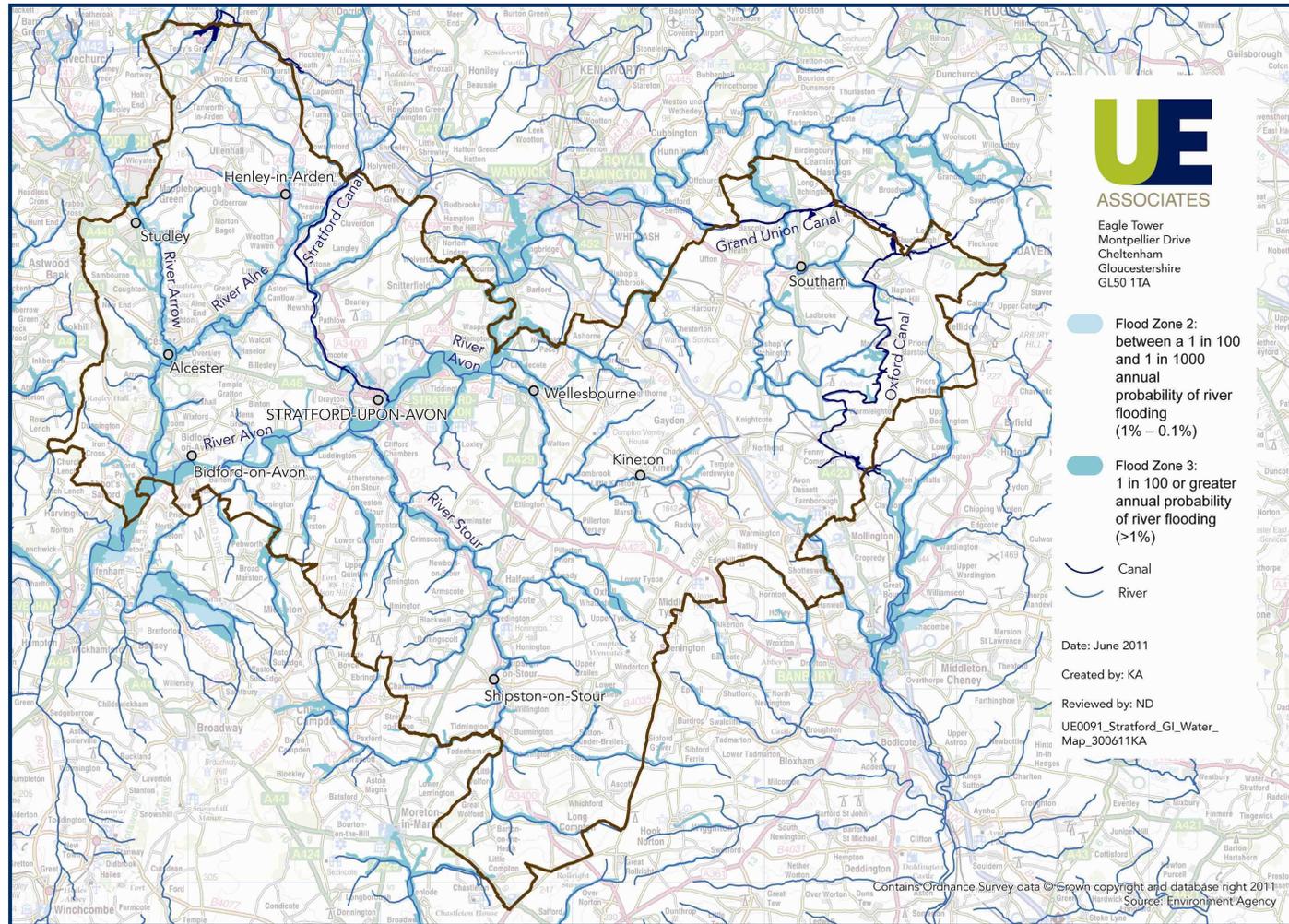
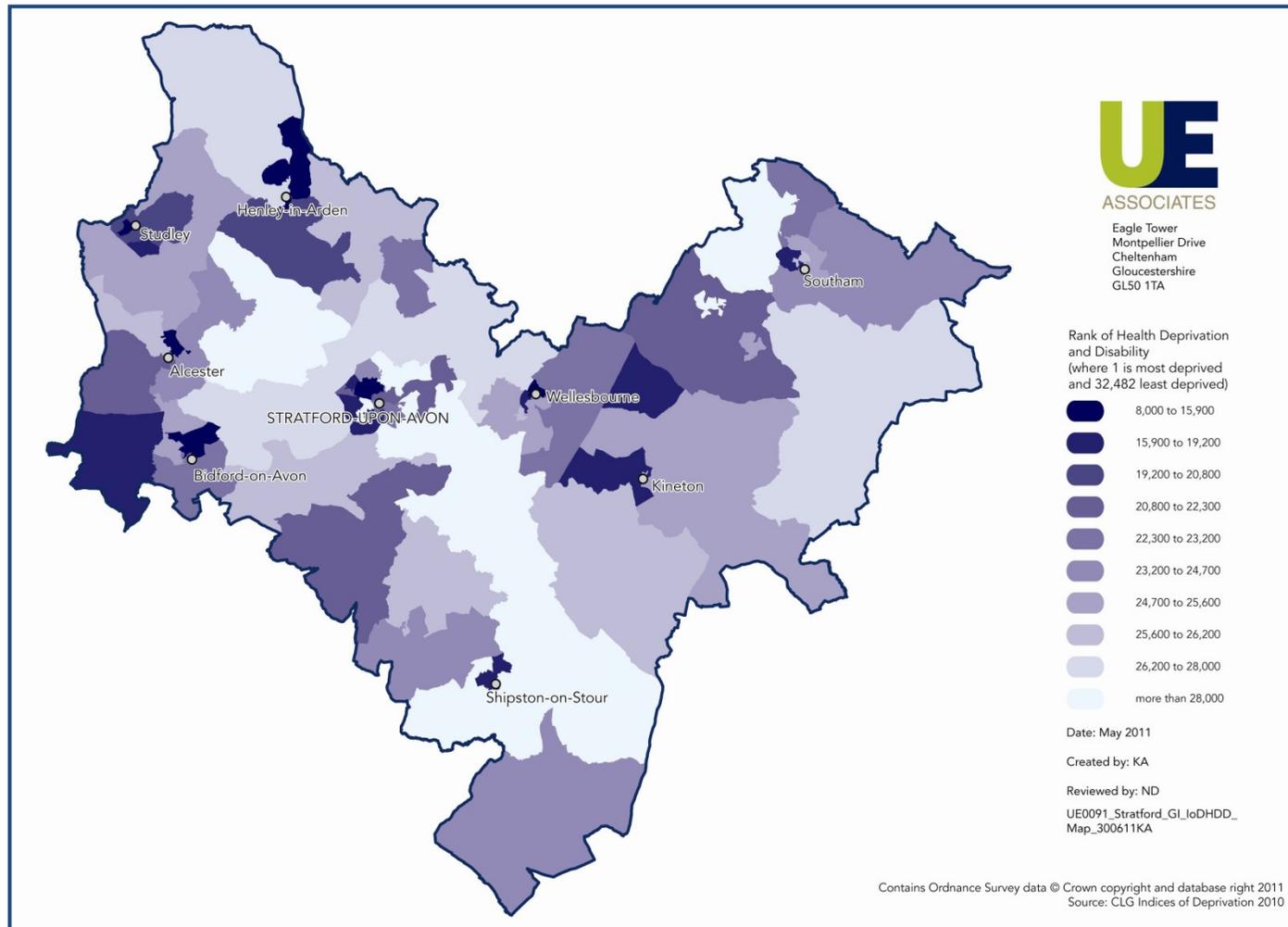


Figure B-8: Indices of Deprivation – Health and Disability Domain, 2010



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# **Appendix C:**

## **Stratford-on-Avon Stakeholder Opinions**

<b>Project</b>	Stratford-on-Avon Green Infrastructure Study		
<b>Date</b>	Tuesday 19 <sup>th</sup> April 2011	<b>Time</b>	10-12.15
<b>Venue</b>	Stratford District Council Offices, Church Street CV37 6HX		
<b>Subject</b>	Stakeholder Event	<b>Page</b>	2 of 5
<b>Attendees</b>	Kate Aulman <i>UE Associates</i> John Becket <i>Environment Agency</i> Peter Burgess <i>Stratford Society</i> Katherine Burnett <i>British Waterways</i> Stephanie Chettle <i>Stratford DC</i> Alison Crofts <i>Natural England</i> Neil Davidson <i>UE Associates</i> Paul Harris <i>Stratford DC</i>	David Lowe <i>Warwickshire County Council</i> Roger Matthews <i>Transition Stratford</i> Paul McCann <i>Banner Homes</i> Justin Milward <i>Woodland Trust</i> Mike Paginton <i>UE Associates</i> James Parvitt <i>Transition Stratford</i> Miranda Rogers <i>Stansgate Planning</i> Richard Wheat <i>Warwickshire Wildlife Trust</i>	
<b>Apologies</b>	Ben Morton <i>Warwickshire County Council</i>		

### Introduction: The Green Infrastructure Study and purpose of event

- ▶ UE Associates has been commissioned to prepare a green infrastructure study that will provide an evidence base to inform and support the Stratford-on-Avon District Council's Core Strategy.
- ▶ The Study will focus on Stratford-upon-Avon and eight main settlements within the district. A baseline review of the district's green infrastructure will be undertaken and presented as a distinct report. Findings will be analysed to inform recommendations for GI planning.
- ▶ The study is being prepared to inform the Core Strategy.
- ▶ The purpose of the meeting was to share ideas and gather relevant information that will help with the GI study.

### Group discussion: issues, priorities and deficits.

- 1) PH: There needs to be buy in from the wider council not just from planning.
- 2) PH: The sub-regional GI strategy is due to report at the end of April; the Stratford-on-Avon study will complement it.
- 3) DL: It is important to identify PROW to find breakages and links between settlements as well as their single use before looking at multifunctional opportunities. The sub-regional strategy should be overarching with the local GI study underneath it.

- 4) MR: The term green infrastructure is not really used in planning applications. Funding is in short supply. The study is welcomed as a guide to developers. Guidance also needs to consider villages and local level development.
- 5) PM: Developers are always happy to get involved with the delivery of GI, but within reason as funding is limited. Raised issue of the Community Infrastructure levy and how it will work in practice.
- 6) MR: Map based GI is welcomed as it can clearly demonstrate presence and absence. Council funding has been severely cut back so delivery of GI will rest mainly with developers and landowners.
- 7) ND: Raised the case study of the Portishead project at Portbury Ashlands where dwellers in new homes adjacent to a nature reserve contribute to the management of the reserve.
- 8) JP: Opportunities to explore links with voluntary organisations should be made. GI delivery can be facilitated simply by design, such as planting fruit trees, rather than ornamental trees.
- 9) ND: The previous decade has been characterised by higher density development with little open space, but larger plots such as suburban houses have advantages over higher density development. Gardens are an important component of GI.
- 10) DL: Gardens should feature strongly as this is a local study. Gardens are a good GI resource for ecology that can link areas to create corridors. Areas of Restraint should be designated. Can areas be identified for low density development to allow for gardens to contribute to development?
- 11) PB: The Localism Bill may threaten strategic planning of green infrastructure. Gardens are important but also need to respect town survivability. It would be good to have more people living in the town to keep the centre going. There is a balancing act to achieve as encouraging more people to live in the town will increase density. There is a need for more transport corridors out of the city in terms of green walk/cycle ways. There is an opportunity to use redundant railway lines e.g. Shipston.
- 12) JM: GI needs to be multifunctional as well as multi-deliverable. There needs to be more creative and flexible ways to secure delivery. Flexibility needs to be built into the Stratford GI Study. Community woodlands can be good but do not work for every location. The Community Woodland Network has guidance on how to set up and manage community woodland.
- 13) RM: There is a community orchard in Alcester, with one planned in Shipston. The Harvest share scheme operates on the basis whereby trees are planted in gardens and the fruits that are harvested are shared. There are problems with inadequate garden areas in modern developments.

Traditional allotments are not always the best choice, community gardening may more appropriate. Many large gardens are underutilised but garden share schemes could better utilize these spaces. Need to ensure that development does not block access and fragment gardens as a GI resource. It must be remembered local involvement is crucial and guidance and direction are needed to enable communities to make projects happen.

- 14) JM: NHS forest initiative and school packs are all small scale schemes that can be cost effective means of creating a good resource. Do not always need large scale.
- 15) RM: There is land available, which can be turned to food production even on a temporary basis while future land availability is being decided and funds being sought.
- 16) JP: There are innovative ways to bring communities together. Community supported agriculture schemes, such as Riverside Leamington, share the produce between those from the community that are involved. There is a need to try and motivate wider community actions on a similar scale.

**Group discussion: Stakeholder activities, data and projects.**

- 17) AC: The sub-regional GI strategy needs to be linked into the Stratford GI study. Sustainable water management, ecosystem service concept (Defra research). National Character Areas are being updated. MAGIC, Nature on the Map and ancient woodland inventory are good Internet sources. Natural England has data on local sites and proposed new sites.
- 18) KB: GIS data for ownership and assets. British Waterways is seeking to move to charitable status by the end of 2012, the implications of this are still unclear. Not aware of any specific projects but will check. There is a need to promote multifunctional aspects of canals and their benefits including access to towpaths. The Trust is working with Sustrans and has designated routes with ongoing work to improve there standard. Canal maintenance does utilise and support volunteer actions from local businesses e.g. canal adoption scheme. British Waterways is seeking to encourage more community ownership and maintenance of canals and towpaths.
- 19) PM: There is a need to understand constraints and opportunities as a developer to guide proposals. Developers cannot be wholly responsible for delivered GI assets, there needs to be established long term stewardship. Long-term results may not be realised if GI asset development and maintenance is entirely left to developers. There needs to be a shift away from high density developments towards low density developments. Indicative areas for GI assets. The code for sustainable homes agenda is weakening but there is still a role for carbon trading. Tree planting is a good way to increase carbon stores.
- 20) MR: When assessing designations it must be noted that they should not be blanket applied, e.g. AoR need not follow on from one plan to another. GI is not high on the agenda therefore it is not

fully understood. There is no guidance and there is a concern that this study will result in one policy. Unless the study becomes an SPD it will not be effective.

- 21) DL: Turning the study into an SPD is the way forward. The study can draw on data used in the sub-regional strategy. Ben Morton WCC has urban character study data. Local wildlife sites data and regional vulnerability assessment of habitats can be supplied. Warwickshire County Council has datasets of rights of way. For information relating to smallholdings and country parks owned by the Council contact David Russell.
- 22) PB: Would like to see peripheral sites properly planned with routes out of town by non-motorised traffic. More footpaths need to be turned into bridleways to accommodate a range of users.
- 23) JB: Can use strategic flood risk assessment data and hydraulic models of major rivers. Would like to see more flood plains preserved and where possible reinstated. There is difficulty in achieving this without potentially compromising the commercial value of different areas.
- 24) RW: Wildlife Trust areas owned or managed on behalf of local authorities. Living landscapes identifies areas for restoration, enhancement, creation or protection. The study should contribute to LBAP objectives and community interests in wildlife. There should be a focus on working in partnership with landowners and links with strategies outside of Stratford. Cross boundary working is important.
- 25) JM: Would like to see woodland used as a tool for delivering a range of benefits. Woodland can be used to reduce flooding and provide sustainable urban drainage options. The Ancient Tree Hunt is an audit of ancient, veteran and notable trees. There are no specific projects occurring however, the Jubilee Woodland initiative, which seeks to plant six million trees in celebration of the Queens Diamond Jubilee, could be considered.
- 26) JP: Multifunctionality needs to be as broad as possible. There is a need for new innovative ideas such as green roofs, rooftop gardens, and green walls. Warwickshire County Council is trying to encourage community investment in green energy, thus the GI study could explore its links to green space.
- 27) RM: May have data that could be used for the study but will need permission from the town council. It is important that the study explores how assets are used and maintained.

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# **Appendix D:**

## **Justification of Recommendations Table**

Target Note Justification		Theme I: A sustainable, competitive and prosperous economy				Theme II: A healthy, active and involved community				Theme III: Flooding and a changing climate				Theme IV: Biodiversity and natural resources		
		1.1	1.2	1.3	1.4	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3
<b>Alcester Target Notes</b>																
<b>AL1</b>	Protect and enhance the biodiversity and recreational value of the River Arrow LNR. Where possible seek to expand conservation efforts along the River Arrow whilst ensuring it does not become fragmented.															
<b>AL2</b>	Enhance the PRoW network ensuring existing routes are well signposted and connected to networks within the wider countryside. Circular routes should be encouraged in addition to maximising links to wider GI assets such as Ragley Hall and Oversley Woods.															
<b>AL3</b>	Protect and seek to reverse the fragmentation of woodland around Alcester to support biodiversity by utilising buffer zones and island stepping stones. Where possible maximise the multifunctional aspects of local woodlands and encourage recreational opportunities.															
<b>AL4</b>	Recognise the multifunctional potential of allotment sites and encourage individual or neighbourhood involvement and take up.															
<b>AL5</b>	Investigate the feasibility of utilising the rivers Arrow and Alne as multifunctional linear features for walking and cycling and recreational opportunities.															
<b>AL6</b>	Create additional cycle routes connecting to nearby settlements and the NCN Route 5.															
<b>AL7</b>	Investigate the feasibility of enhancing the setting of the industrial estate by utilising small scale GI features to provide a more attractive environment for local businesses which also supports biodiversity.															
<b>AL8</b>	Maximise the tourism potential of natural and historic assets such as the River Arrow LNR and Coughton Court.															
<b>AL9</b>	Maintain floodplain areas and seek to utilise GI assets to aid in flood alleviation.															
<b>Bidford-on-Avon Target Notes</b>																
<b>BD1</b>	Support and enhance biodiversity at Bidford Grange Hotel and Golf Course. Where possible increase tree planting and promote the recreational opportunities that the course has to offer.															
<b>BD2</b>	Investigate the feasibility of creating a greenway that follows the length of the dismantled railway, which could form an important walking/cycling and biodiversity link between Broom, Bidford and Welford.															
<b>BD3</b>	Strengthen PRoW networks. Seek to create cycle routes to nearby natural features such as Oversley Woods and Cleeve Prior LNR.															
<b>BD4</b>	Ensure the multifunctional use of land to the south of the village to support recreational opportunities in addition to aiding flood alleviation methods.															
<b>BD5</b>	Support and enhance the biodiversity of the rivers Avon and Arrow by maintaining bankside vegetation and buffers, whilst recognising the multifunctional potential of these features as important linear access routes.															
<b>BD6</b>	Recognise the multifunctional potential of St Laurence Churchyard for biodiversity, such as pollination, and supporting the historical setting of the church.															
<b>BD7</b>	Investigate the feasibility of enhancing the setting of the industrial estate by utilising small scale GI features to provide a more attractive environment for local businesses.															
<b>BD8</b>	Recognise the multifunctional benefits of allotments for biodiversity, health and reducing rainwater infiltration rates, and encourage individual and community allotments and gardening activities.															
<b>Henley-in-Arden Target Notes</b>																
<b>HE1</b>	Recognise the multifunctional importance of allotments, increase provision and encourage individual and neighbourhood uptake.															
<b>HE2</b>	Improve access by creating a cycle route and improve PRoW to May's Wood. Seek to enhance the recreational opportunities and expand May's Wood.															
<b>HE3</b>	Enhance biodiversity along the disused railway line and increase tree planting to connect fragmented woodland to connect to Bush Wood.															
<b>HE4</b>	Enhance the multifunctionality of the area around Beaudesert Castle, without degrading the archaeological significance of the area, to create a popular and high quality recreational resource.															
<b>HE5</b>	Where possible investigate opportunities to create additional parks, gardens or amenity green space to address deficiencies detailed within the Open Space and PPG17 assessment.															
<b>HE6</b>	Protect existing woodland and seek to reverse the fragmentation by new planting, using buffer zones and enhancing or restoring woodland connections.															
<b>HE7</b>	Support the aspirations and goals of the biodiversity action plan at Henley Golf and Country Club.															
<b>HE8</b>	Recognise the central importance of Riverside Park and where possible seek to open up a multifunctional linear access route along the River Alne.															
<b>HE9</b>	Promote and encourage strong connections to nearby green infrastructure assets such as the Stratford-on-Avon Canal, Austy Wood, Bannam's Wood.															

Kineton Target Notes		1.1	1.2	1.3	1.4	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3	
<b>KN1</b>	Enhance biodiversity at DM Kineton by supporting the aspirations of the Warwickshire biodiversity action plan.																
<b>KN2</b>	Recognise and protect the importance of the King John's Castle site as an important multifunctional area for biodiversity, recreation and archaeological significance.		o														
<b>KN3</b>	Seek to create additional play facilities within Kineton, especially within the south of the settlement.						o										
<b>KN4</b>	Seek to create circular walking routes to the north of Kineton leading from within the settlement out into the wider countryside. These circular routes should avoid conflict with restricted areas around DM Kineton.						o		o								
<b>KN5</b>	Protect and enhance biodiversity along the River Dene, whilst investigating the feasibility of a multiple all user access route that links Kineton to Oxhouse Farm and the 4.74ha SSSI. Seek LNR designation.		o			o			o								
<b>KN6</b>	Create additional cycle routes that connect to established routes. The proposed extension to the NCN Route 48 will provide a good north-east south-west route, but efforts should seek to also connect routes found to the north-west and south-east.					o			o	o				o			
<b>KN7</b>	Maximise the multifunctional potential of existing amenity green space to support recreation and BAP aspirations.						o										
Shipston-on-Stour Target Notes		1.1	1.2	1.3	1.4	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3	
<b>SH1</b>	Improve access between Shipston-on-Stour and Honington village via the River Stour whilst maintaining Honington Hall as an important visitor destination.		o						o	o				o			
<b>SH2</b>	Maximise the opportunities to develop the riverside area as a multifunctional area for recreation and leisure.					o					o						
<b>SH3</b>	Improve the provision of playing fields in the town, protecting existing playing fields and where possible creating new ones.						o					o					
<b>SH4</b>	Support biodiversity along the River Stour whilst investigating opportunities to create a multifunctional corridor for recreation.																
<b>SH5</b>	Recognise the multifunctional benefits of allotments for biodiversity, health and water retention, and encourage individual and community allotments and gardening activities.			o									o				o
<b>SH6</b>	Address deficiencies stipulated in the PPG 17 Assessment by creating additional parks, and/or amenity green space within Shipston, especially to the west of the settlement.											o					
<b>SH7</b>	Improve the PRoW network, in particular to link Shipston-on-Stour with open countryside to the west.					o			o								
<b>SH8</b>	Investigate and identify a suitable area that could be designated a Local Nature Reserve to support biodiversity and address deficiency based on ANGSt recommendations (see 5.5.3)																o
<b>SH9</b>	Investigate the feasibility of creating accessible woodland of at least 20ha within two kilometres of Shipston-on-Stour or 2ha within 500 metres. This would address deficiency according to the Accessible Woodland Standard (Woodland Trust, 2010)						o			o							o
Southam Target Notes		1.1	1.2	1.3	1.4	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3	
<b>SO1</b>	The development of a traffic free cycle link to National Cycle Route 41 and the Grand Union Canal to the north of the town should be progressed.		o			o			o					o			
<b>SO2</b>	Enhancements to green infrastructure should support the function and use of the River Stowe and River Itchen as natural river corridors which provide multifunctional benefits for flood defence, biodiversity, recreation and historic landscape quality.					o			o								o
<b>SO3</b>	Support the restoration of the disused quarry alongside the A426 to provide a high quality area for leisure and recreation whilst supporting biodiversity and nature conservation interests.		o														o
<b>SO4</b>	The historic environment function of the open space located within and adjacent to the Southam Conservation Area should be promoted in the context of enhancements to historic landscape and townscape character.		o														
<b>SO5</b>	Improvements to Southam's green infrastructure network should seek to enhance linkages to and between important biodiversity and geodiversity features present in the town's hinterland. This includes to Ufton Fields SSSI and Long Itchington and Ufton Woods SSSI, and Stockton Railway Cutting and Quarry Geological SSSI.		o														o
<b>SO6</b>	Recognise the multifunctional benefits of allotments for biodiversity, health and reducing rainwater infiltration rates, and encourage individual and community allotments and gardening activities.																o
Stratford-upon-Avon Target Notes		1.1	1.2	1.3	1.4	2.1	2.2	2.3	2.4	3.1	3.2	3.3	3.4	4.1	4.2	4.3	
<b>ST1</b>	Enhance multifunctional green infrastructure networks (including walking and cycling links) along the river corridor to the north-east of the town.					o			o		o						
<b>ST2</b>	Improve links to Stratford Recreation Ground from the western side of the river.					o											
<b>ST3</b>	Recognise the multifunctional benefits of allotments for biodiversity, health and reducing rainwater infiltration rates, and encourage individual and community allotments and gardening activities.												o				o
<b>ST4</b>	Extend and improve cycle routes in the town, including between the rail station and the town centre.								o	o				o			





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## **Appendix E:**

# **Green Infrastructure considerations in Planning Applications for Large-Scale Development**

## **1.1 Description**

- 1.1.1 This appendix has been prepared to support some best practice principles to be considered as part of new development or regeneration of existing sites. While certain principles will be relevant to small-scale development, the comprehensive approach set out in this Appendix is particularly applicable to the assessment of large scale development proposals whether they are the subject of a masterplan or not.

## **1.2 Design principles: Maximising service provision**

- 1.2.1 In March 2010, Milton Keynes South Midlands, the group of local authorities and partners set up to deliver growth in the Milton Keynes and South Midlands sub-region produced a document entitled "green infrastructure by design: adding value to development". This document highlights a series of key design considerations for those incorporating GI functions and services into masterplans, including those shown below:

## **1.3 Landscape setting and context for development**

- ▶ How does the site respond positively to the adjacent landscape character and context whilst complementing existing GI functions?
- ▶ How will the scheme connect with the wider GI network identified in the relevant GI strategy in visual terms?
- ▶ Have existing landscape and historic features been incorporated into the proposed GI and are there opportunities to conserve and enhance the setting of these features within the site?
- ▶ Have existing views into and out of the site been safeguarded and are there opportunities to create new views and vistas within the proposed development?
- ▶ What landscape edge treatments have been considered for the site boundary and do they provide sensitive and appropriate levels of integration to the surrounding area?
- ▶ Has an overarching landscape framework been developed and does it respond in design terms to local landscape character assessments?
- ▶ What design measures have been incorporated into the masterplan to protect and preserve the surrounding landscape setting and enhance the distinctiveness of existing settlements?
- ▶ Does the provision of GI within the masterplan create lasting value, identity and a distinct sense of place for the scheme?

#### **1.4 Habitat provision and access to nature**

- ▶ How will the scheme connect with the wider GI network identified in the relevant GI strategy in ecological and habitat terms? Has potential damage and impacts on designated sites and protected species been considered and necessary mitigation been considered?
- ▶ Has an Ecological Appraisal been carried out and used to inform the master plan and does it take into account the habitats beyond the site boundary?
- ▶ What existing habitats and landscape features such as hedgerows, tree groups, water bodies and corridors such as rivers and canals have been integrated into the scheme and how has the balance between accessibility and preservation been addressed?
- ▶ Have new accessible areas of habitat been created and do these contribute to local targets e.g. Biodiversity Action Plans / Green Space Strategies?
- ▶ Have native species of local provenance been specified within the landscape proposals?
- ▶ What local wildlife groups and other stakeholders have been consulted and have they informed the masterplan?
- ▶ How have natural play, education or interpretation opportunities been incorporated into the scheme to connect people to nature?
- ▶ Have robust funding, management/maintenance and conservation plans been produced for the scheme?

#### **1.5 Access, recreation, movement and leisure**

- ▶ How will the scheme connect with the wider GI network identified in the relevant documents such as GI strategies, Rights of Way Improvement Plans, Rights of Navigable Waters and Green Space Strategies?
- ▶ What provision has been made within the scheme to connect beyond the red line boundary into the wider route and spatial network and do these links also connect into other off site community facilities and open spaces offering opportunities for the wider community?
- ▶ Has an audit of existing GI assets on and off site been undertaken and do proposals complement and support these assets supplementing and strengthening them?
- ▶ What consideration has been made between balancing the need for access and protecting areas of ecological and biodiversity value and how will this be managed?
- ▶ What consideration is there for 'access for all' and is it possible for all residents to access a range of GI from their home easily and conveniently?

- ▶ Have opportunities for providing a range of functions, facilities and activities been considered in relation to local needs for accessible greenspace? For example, recreation grounds and sports pitches can incorporate ecological areas can be used by both school and public users as part of the wider GI network.
- ▶ Have connections and linkages been made between the scheme and any existing settlements and do these promote a reduction in car use and safe routes to school as well as contributing to the health and wellbeing of its residents?
- ▶ Has a management and maintenance plan been produced and is it funded robustly so the long term quality of the GI is ensured?

## **1.6 Energy production and conservation**

- ▶ Do proposals for the site make best use of off site places nearby where energy or fuel is produced? i.e. short rotation coppice, bio fuels and wind generation?
- ▶ How has existing or proposed woodland been incorporated into the scheme? Woodland can provide many benefits including carbon sequestration, habitat creation and wood chip production for renewable energy.
- ▶ Have green / brown roofs been incorporated into buildings within the scheme as these provide insulation and cooling benefits?
- ▶ Does structural planting create shelter from prevailing winds in winter and shade in summer, improving the usability of public open spaces whilst promoting walking and cycling locally?
- ▶ What opportunity is there to combine local food production, composting and waste recycling with the potential for energy from waste?
- ▶ Have street trees of an appropriate species and size been incorporated into the scheme to provide urban cooling and carbon sinks?
- ▶ Has built form been orientated to maximise solar gain whilst creating sheltered and sunny open spaces?
- ▶ Does the scheme incorporate solar water heating and solar electricity on roof space?

## **1.7 Food production and productive landscapes**

- ▶ Do the proposals for the site make best use of offsite places nearby where the production of food can take place and is this close to where people will live?

- ▶ Have adequately sized rear gardens been provided to allow small scale domestic food production?
- ▶ What opportunities are there to explore the potential for locally grown food to be used by local schools and other community facilities?
- ▶ What opportunity is there to combine food production with other GI functions such as energy production, access and recreation?
- ▶ Has a shortfall in allotments been identified in the area outside the site and if so is there potential to provide new allotments as part of the scheme that allow existing communities to use this space.
- ▶ What is the potential for community orchards, city / school farms and other edible landscapes such as hedgerows to be incorporated into the scheme?
- ▶ Has the use of livestock been considered to reduce / maintain management costs within the GI network?
- ▶ Has a site-wide composting strategy for garden and food waste been developed? Garden and food waste can be utilised as compost for allotments and renewable energy production.

## **1.8 Flood attenuation and water resource management**

- ▶ Have sustainable drainage systems been linked together to provide water resource management, increased biodiversity and an accessible recreational resource?
- ▶ Has an assessment of the ground water and water resource of the site taken place and what measures have been identified to improve the quality and quantity of water?
- ▶ What provision has been made for water balancing measures such as storm water ponds or lagoons to replace groundwater levels and have sustainable drainage systems either as permeable paving or swales been considered?
- ▶ Have relevant flood strategies been identified and do they inform the design and approach to on site water management and the wider masterplan?
- ▶ Have rainwater harvesting systems been incorporated to provide water for irrigation of gardens, public open spaces and use within ponds and other water features?
- ▶ Have rainwater harvesting systems been incorporated to provide grey water for non potable uses such as WCs?
- ▶ Have a variety of water elements to 'tell the story' of water from collection to discharge been included? These elements could include vegetated swales, wetlands, reed beds, flood meadows, lakes and ponds.
- ▶ Have green roofs been provided to slow the rate of runoff?

- ▶ Have the Water Framework Directive and relevant River Basin Management Plan(s) been taken into account with appropriate measures incorporated into the development?
- ▶ Have studies of groundwater, contaminated land etc been undertaken to determine the suitability of the site for sustainable drainage systems?

### **1.9 Countering the 'heat island' effect of urban areas**

- ▶ Has structural planting been proposed to enhance the local microclimate across the development site?
- ▶ Have street trees been proposed within the masterplan to create shade and cooling in external areas during summer months and reduce rainwater runoff?
- ▶ Have green / brown roofs been incorporated into the scheme to increase energy efficiency, conservation and provide shade?
- ▶ Has planting been used to minimise solar glare on buildings?
- ▶ What local provenance species have been chosen and are they the correct species to achieve objectives of cooling in summer, solar gain in winter and increased biodiversity?
- ▶ Have water bodies such as ponds and lakes been created to provide microclimatic cooling during the summer months?
- ▶ Have building roofs in the scheme been used to incorporate solar water heating and solar electricity?

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