

# Buckinghamshire Green Infrastructure Strategy

April 2009





The Buckinghamshire Green Infrastructure Consortium is a multi-agency forum established to promote the need to plan for and invest in Green Infrastructure at both a strategic and local level.



The partnership consists of the following members:

- Aylesbury Vale Advantage
- Aylesbury Vale District Council
- Berkshire, Buckinghamshire, and Oxon Wildlife Trust
- British Waterways
- Buckinghamshire County Council
- Buckinghamshire Rural Affairs Group
- Campaign to Protect Rural England (Buckinghamshire)
- Chiltern District Council
- Chiltern Society
- Chilterns Conservation Board
- City of London
- English Heritage
- Environment Agency
- Farming and Wildlife Advisory Group
- Forestry Commission
- Milton Keynes Council
- National Trust
- Natural England
- South Bucks District Council
- Sustrans
- Wycombe District Council



## Foreword



Green Infrastructure is a planned network of multi-functional greenspaces and inter-connecting links that contribute to high-quality natural and built environments. Helping to provide sustainable 'green access' to the countryside, such networks can help areas to adapt to climate change by reducing flood risk and overheating, and they promote access to open space, nature, culture, heritage and sport, thereby improving the quality of life for all.

In 2003, the Office of the Deputy Prime Minister's Sustainable Communities Plan identified that the supply of new homes had failed to keep pace with demand and described the Government's aim to take radical action to increase housing provision by speeding-up supply, reforming planning processes and raising standards in high-demand areas. Alongside the need for growth, the Government identifies Green Infrastructure as facilitating the delivery of multiple objectives because it can frame and shape the growth of sustainable communities and strengthen their image. In short, it helps define people's quality of life and liveability and underpins the quality, character and distinctiveness of new neighbourhoods.

The Buckinghamshire Green Infrastructure Consortium was established in 2007, providing the County with a lead body for strategic Green Infrastructure planning and delivery.

Consisting of a multi-agency forum, the Consortium comprises key local authorities, non-government agencies, and countryside and community related organisations. It promotes the need to protect, plan for and invest in Green Infrastructure at strategic and local scales. The Consortium focuses its attention on both current and future provision and seeks to ensure that development has a minimum impact on existing green assets and also delivers well designed, well proportioned, well managed, and well resourced 'green growth' which meets the needs of both people and wildlife.

It is the Green Infrastructure Consortium's pleasure to present this Green Infrastructure Strategy. Developed over a three-year period, it is based on Green Infrastructure analysis, and consultation with professionals in Green Infrastructure management. It examines strategic Green Infrastructure assets across the board, incorporating accessible greenspace, biodiversity, heritage, access routes and landscapes on an equal basis and integrating these themes to provide plans for a multi-functional accessible green network. Coordinating with plans and strategies of surrounding authorities, it sets out to ensure a clear vision and direction for Green Infrastructure in Buckinghamshire identifying strategic level opportunities and constraints and establishes priorities for delivery. The Strategy follows a year period of endorsement as a draft version.

The Green Infrastructure Consortium recognise that Green Infrastructure planning is a 'live issue' that needs to keep abreast with change and thus the Strategy will be subject to a process of review and development at five-year intervals. In addition the Strategy is backed by a three-year Action Plan that identifies a range of strategic level projects for partnership support and delivery. To ensure the Action Plan remains updated it will be reviewed annually.

The Buckinghamshire Green Infrastructure Strategy provides a key reference for professionals with an interest in Green Infrastructure management and planning in Buckinghamshire. It provides a strategic level approach to Green Infrastructure that will link, guide and underpin the production of local Green Infrastructure Plans, Greenspace Strategies, and green space that may be required of housing development through local planning policy. Along with a suite of other key documents it will act as part of the evidence base required for planning decisions, for the preparation of the Local Delivery Frameworks, and for the delivery of green growth.

***Buckinghamshire Green Infrastructure Consortium 2009***



## Acknowledgements

We would like to thank the representatives from the following organisations for their support throughout the preparation of the Buckinghamshire Green Infrastructure Strategy.

- Aylesbury Vale Advantage
- Aylesbury Vale District Council
- Berkshire, Buckinghamshire, and Oxon Wildlife Trust
- British Waterways
- Buckinghamshire County Council
- Buckinghamshire Rural Affairs Group
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- English Heritage
- Environment Agency
- Farming and Wildlife Advisory Group
- Forestry Commission
- Milton Keynes Council
- National Trust
- Natural England
- South Bucks District Council
- Sustrans
- Wycombe District Council



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# Executive Summary



## Introduction

The Buckinghamshire Green Infrastructure Consortium (GIC) was established in 2007, providing the County with a lead body for strategic Green Infrastructure planning and delivery. Consisting of a multi-agency forum, the Consortium comprises key local authorities, non government agencies, and countryside and community related organisations. It promotes the need to protect, plan for and invest in Green Infrastructure at strategic and local scales. The Consortium focuses its attention on both current and future provision and seeks to ensure that development has a minimum impact on existing resources and delivers well designed, well proportioned, well managed, and well resourced 'green growth' which meets the needs of both people and wildlife.

This Strategy is a key Consortium publication and is based on several stages of professional analysis and consultation over a three year period. Key to the document's development has been a technical study of Buckinghamshire's Green Infrastructure, completed by Chris Blandford Associates in 2006,<sup>1</sup> and their subsequent technical report,<sup>2</sup> completed in 2007. This Strategy follows a draft version from April 2008.

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<sup>1</sup>CBA, (2006) Towards A Vision for Green Infrastructure in Buckinghamshire: A Prospectus

<sup>2</sup>CBA (2007) Towards a Strategic Framework for Green Infrastructure in Buckinghamshire: Technical Report



## **What is Green Infrastructure?**

Green Infrastructure is a planned network of multifunctional greenspaces and interconnecting links designed, developed and managed to meet the environmental, social and economic needs of communities. It is set within and contributes to a high quality natural and built environment and is required to enhance the quality of life for both present and future residents and visitors. To be successful Green Infrastructure networks need to incorporate a strategic approach to enhancing wildlife networks and sustaining and improving biodiversity in urban and rural areas, in the face of climate change and development.

Green Infrastructure is now recognised for its wide range of functions and benefits. Not least is its ability to:

- provide opportunities for recreation and enjoyment
- provide important linkages, networks and gateways
- help preserve heritage and culture
- support and enhance habitat and biodiversity
- support economics, food production and green produce
- address both local and national issues relating to sustainable flood risk water management and impacts of climatic change.

## **A Definition of Green Infrastructure**

The following definition has been endorsed by the Buckinghamshire GIC and forms the basis of Green Infrastructure analysis, planning and delivery in the County:

*Green Infrastructure provides a vital life-support system, encompassing a network of green spaces, access routes, landscapes and natural and historic elements that intersperse and connect Buckinghamshire's urban and rural settlements with each other and the surrounding countryside. Operating at all spatial scales it enables a holistic overview of the natural and historic environment, acknowledging its multi-functional benefits for economy, wildlife and health and well being of local people and communities.*

## **Why Produce a Strategy?**

In 2003, the Sustainable Communities Plan announced the need for a 'step change' in the delivery of housing growth development in England, with a particular emphasis on delivery in London and the wider South East. As part of the Government's requirements, Milton Keynes and the South Midlands (MKSM) has been identified as a key area for growth. The MKSM Sub-Regional Growth Strategy recommends the supply of 44,900 new homes and associated infrastructure within the sub-region by 2026. Whilst growth in Buckinghamshire is focused on delivery around Aylesbury, the County's Green Infrastructure resources will continue to be put under additional increasing pressure from development and growth in areas such as Bicester, Milton Keynes, Dunstable, Luton and Leighton-Linslade.

The planning system identifies Green Infrastructure as facilitating the delivery of multiple objectives because it can frame and shape the growth of sustainable communities and strengthen their image. In short, it helps define people's quality of life and liveability and underpins the quality, character and distinctiveness of new neighbourhoods. Forming an integral part of the planning system it is well defined and adopted in policies at national and regional level.

Clearly it is an important resource that needs to be protected, planned, managed in the long term that is supported through a partnership-derived strategic framework. This Strategy provides that framework - and agrees a twenty-year vision for establishing a strategic Green Infrastructure network. As a response to growth it identifies priorities for Green Infrastructure investment linked to the enhancement of current provision and to the creation of new opportunities.

In order to meet Buckinghamshire's requirements for accessible strategic Green Infrastructure this Strategy:

- provides a vision for strategic Green Infrastructure in Buckinghamshire
- identifies issues for existing Green Infrastructure posed by housing allocations and other policies set out in the South East Plan
- establishes the extent of existing Green Infrastructure provision and assets
- establishes measures to enhance and protect existing Green Infrastructure in the County
- identifies areas that have the potential for delivering new accessible Green Infrastructure provision
- describes potential funding opportunities
- encourages a partnership approach to Green Infrastructure planning
- provides a plan for the ongoing long-term management and maintenance of Green Infrastructure assets
- provides a Strategic multi-functional Green Infrastructure Network map for Buckinghamshire

### **Strategy Aims and Requirements for Delivery**

This Strategy sets out to provide a clear vision and direction for Green Infrastructure in Buckinghamshire. It aims to ensure that pressure on our important natural and historic Green Infrastructure assets are minimised, and that opportunities to enhance these assets for the benefits of people and biodiversity are maximised.

In the context of sub-regional growth, a key requirement of the Strategy is to inform 'Local Development Frameworks'. Thus the document will form part of the suite of policy documents of value to both planners and developers, informing planning and development decisions.

The Strategy aims to guide strategic Green Infrastructure priorities and is not to be confused with other 'green space' requirements that may be required at a local level to meet planning requirements of new housing developments. Policies recognise the need for development to address and contribute to Green Infrastructure and this approach requires both planners and developers to give due consideration to linking and enhancing Green Infrastructure opportunities falling beyond development site boundaries.

### **Analysing Green Infrastructure Assets using ANGSt**

It is essential that documents which are intended to play a role in informing and guiding planning processes are robust in their methods of analysis. This Strategy uses spatial representations of the County's Green Infrastructure assets based on information derived from Buckinghamshire County Council's Geographical Information System database and consultation with professionals in Green Infrastructure management. Assets have been examined across the board, incorporating accessible greenspace, biodiversity, heritage, access routes and landscapes on an equal basis and integrating these themes in order to assess and identify areas of provision, opportunity and deficiency.

The overall approach used in the identification, analysis and interpretation of Green Infrastructure in this Strategy conforms to a nationally recognised approach and is consistent with that used in neighbouring counties. The assessment of Green Infrastructure provision, opportunity and deficiency in this Strategy is based upon the Accessible Natural Greenspace Standard (ANGSt) by Natural England and the Forestry Commission and supported by the national planning system.<sup>3</sup>

ANGSt is considered a national benchmark, accepted as:

- forming part of planning guidance on strategic green space provision (PPG17)
- having the 'best fit' to Green Infrastructure planning and assessment
- being important for assessing levels and assisting in the production of standards and targets

The standard emphasises the importance of communities having easy access to different sizes of natural and semi-natural green spaces close to where they live and provides two measures of analysis based on scale (the size of green space provision) and catchment (representing the zone of influence provided by a provision and the distance that people are prepared to travel to it).

The ANGSt model states:

- No person should live more than 300 m from their nearest area of natural greenspace of at least 2 ha in size ('Neighbourhood Scale' provision). Further, there should be at least 2 ha of accessible natural greenspace for every 1000 population

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<sup>3</sup>McKernan and Grose, 2007: 'An analysis of accessible natural greenspace provision in the South East. Forestry Commission and High Weald AONB Unit



- There should be at least one accessible 'District, scale' provision of 20 ha site within 2 km of home
- There should be one accessible 100 ha site within 5 km of home
- There should be one accessible 'Sub-Regional' scale provision of 500 ha site within 10 kilometres of home

### Green Infrastructure in Buckinghamshire: Deficiencies

Applying ANGSt to the County's database of Green Infrastructure opportunities identifies a broad range of issues and opportunities. At a strategic level it establishes that, whilst areas such as the Chilterns, South Bucks and the Thames Valley are well provided for in terms of strategic level accessible Green Infrastructure, much of Aylesbury Vale is, on the other hand, deficient of provision (Table 1).

**Table 1 Percent of households that meet ANGSt requirements in Buckinghamshire**

District area	No. of dwellings	% of households meeting requirement						
		Within 300m of 2ha+ site	Within 2km of 20ha+ site	Within 5km of 100 ha+ site	Within 10km of 500ha+ site	Meeting all ANGSt requirements	Meeting none of the ANGSt requirements	Served only by linear greenspaces
Aylesbury Vale	68,248	7	16	27	15	1	69	32
Chiltern	37,514	16	59	70	33	2	0	0
South Bucks	26,727	24	86	100	46	7	0	0
Wycombe	66,689	28	89	96	0	0	2	1
<b>Total County</b>	<b>199,178</b>	<b>18</b>	<b>58</b>	<b>68</b>	<b>18</b>	<b>2</b>	<b>24</b>	<b>11</b>

Forming approximately 50 per cent of the County, Aylesbury Vale is considered of particular importance in relation to this Strategy's priorities for Green Infrastructure development and enhancement. Due to the combination of Green Infrastructure deficits in the Vale, and also increased demands that may impact on this area as a result of development growth proposed around Aylesbury and from outside of the County (Bicester, Milton Keynes, Leighton-Linslade), this strategy identifies the need for two Action Areas (see Addressing Issues and Delivering Priorities section) to focus investment in protecting existing resources and delivering new and enhanced Green Infrastructure opportunities.

For this study, settlements with a population over 3000 (based on 2001 census figures) are considered. This threshold is used as it is considered to encompass all the main settlements in Buckinghamshire (i.e. market towns and larger villages) where demand for access to green space is of greatest significance in a countywide context (Appendix E).

A detailed assessment of provision establishes that only five of the 19 settlements considered in this study meet the minimum ANGSt requirements for provision of larger accessible natural greenspaces of over 100ha:

- Aston Clinton, ● Buckingham, ● Wendover, ● Amersham, ● Chesham

The County also fails to have its 'own' 500ha 'strategic facility' – with communities in Buckinghamshire reliant on visiting assets provided across the County's boundaries, particularly the Salcey and Whittlewood Forest complex in Northamptonshire and the Ashridge Estate spanning from Hertfordshire into Buckinghamshire across the Chiltern Hills. Achieving a 500 ha sized provision is a difficult ambition for any area in the South East however this assessment establishes that Buckinghamshire does possess large existing assets that, through the extension to existing boundaries or by improving site linkages (for example the 325ha site of Wendover Woods near Aylesbury), the development of a 500ha resource is achievable.

### **Green Infrastructure in Buckinghamshire: Opportunities**

By modelling proposed development growth over the next twenty years this Strategy identifies the need to enhance current assets to better provide new accessible natural greenspace in appropriate locations to meet the needs of growth communities within and around the County over the next 20 years. This enhanced level of provision would need to be supported by improvements to the public Rights of Way network in line with the Buckinghamshire Rights of Way Improvement Plan.<sup>4</sup>

### **Priority Action Areas**

In order to prioritise attention to Green Infrastructure delivery within the County this Strategy establishes a requirement for 'Green Infrastructure Priority Action Areas'. These identify locations where targeting investment is most likely to deliver multiple benefits across a range of key environmental, social and economic policy areas and where current deficiencies in Green Infrastructure provision needs to be addressed.

### **Action Area Components of Delivery**

Opportunity analysis of Green Infrastructure has identified the following components within each Priority Action Area:

- Countryside Access Gateways - key locations that are best placed to act as Gateways to the wider Green Infrastructure network

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<sup>4</sup>Buckinghamshire Rights of Way Improvement Plan (2008-2018) Buckinghamshire County Council

- Access Links - existing or proposed new links providing strategic movement corridors between main settlements and Countryside Access Gateways
- Green Infrastructure Opportunity Zones - land where there are strategic opportunities, needs or demands to protect and enhance existing assets and create new Green Infrastructure opportunities

## **Addressing Issues and Delivering Priorities**

In response to this research, three Action Areas in Buckinghamshire have been identified:

### **Priority Action Area 1 – North Aylesbury Vale**

This covers the northern part of Aylesbury Vale where deficiency in accessible Green Infrastructure is most prominent and aims to provide for the needs of communities on the west side of Milton Keynes, Leighton-Linslade, Buckingham and Winslow and to help buffer the associated pressures of growth from outside the County.

### **Priority Action Area 2 – Aylesbury Environs**

Action Area 2 considers the urban and peri-urban area of Aylesbury. It also takes into consideration the wider hinterlands that provide the Green Infrastructure opportunities that serve the town and form the landscape backdrop to the town. Of particular importance is the need to address both existing and future community needs - particularly in light of plans for significant growth up to 2026.

### **Priority Action Area 3 – Wycombe District South and South Bucks**

This Action Area aims to provide for the Green Infrastructure needs of communities in the southern part of Wycombe District South and South Bucks within Buckinghamshire, and for Windsor & Maidenhead, Slough and Hillingdon in neighbouring areas. Whilst this area is served by a range of Green Infrastructure assets, much of this is fragmented and under pressure from a large surrounding 'catchment' population.

## **Delivery through a 'Live' Action Plan**

The Buckinghamshire GIC has identified a schedule of Green Infrastructure projects within each Priority Action Area. Produced in the form of an agreed 'Action Plan' this schedule is key to the delivery of strategic Green Infrastructure, it is a response to the needs and opportunities arising from the analysis, and reflects suggestions from the Buckinghamshire GIC for actions to address perceived needs for enhanced Green Infrastructure provision in the County. To ensure that the Action Plan is kept relevant and up-to-date, it comprises of a three-year rolling process that will be reviewed and updated annually.



## Summary of Key Recommendations

The following provides a summary of the key recommendations of the Buckinghamshire Green Infrastructure Strategy:

- Secure the adoption of the Buckinghamshire Green Infrastructure Strategy within relevant Local Authority Local Development Frameworks.
- Ensure endorsement of the Buckinghamshire Green Infrastructure Strategy with key partners including Local Authorities and Local Delivery Vehicles.
- Engage local community and professional organisations in the Green Infrastructure Strategy.
- Protect and enhance existing Green Infrastructure and access routes of strategic significance in Buckinghamshire.
- Promote the delivery of new Green Infrastructure of Strategic significance in Buckinghamshire.
- Address the three Priority Action Areas (North Aylesbury Vale, Aylesbury Environs and Wycombe District South and South Bucks) where deficiencies of Green Infrastructure have been identified via the provision of new or enhancement of existing strategic accessible greenspace.
- Give priority to the conservation and enhancement of landscape character, biodiversity and historic environment in the Opportunity Zones.
- Ensure that the Buckinghamshire GIC take on a leading role in supporting and delivering the individual projects identified in the Action Plan. Strong working relationships between partners will be key in delivering this Strategy.
- Continue to engage with special interest groups and the local community.
- Any new development within Buckinghamshire should deliver better opportunities for accessible Green Infrastructure within the local proximity. This should be through the enhancement or protection of existing assets or, where resources are limited locally, through the supply of new provision.



## Chapter 1 Introduction



### Background

In October 2006, Buckinghamshire County Council commissioned Chris Blandford Associates (CBA) to undertake a Countywide study of accessible strategic Green Infrastructure provision in Buckinghamshire, encompassing the Districts of Aylesbury Vale, Chiltern, South Bucks and Wycombe.<sup>5</sup> The final report, The Buckinghamshire Green Infrastructure Framework, was completed in May 2007 and provides an important evidence base for the preparation and development of this Buckinghamshire Green Infrastructure Strategy.

### Purpose of the Strategy

Developing the original work prepared by CBA, this Green Infrastructure Strategy promotes a vision for establishing a strategic Green Infrastructure Network in Buckinghamshire. It provides a definition of Green Infrastructure and describes its benefits and functions and, through a partnership derived Action Plan, identifies priorities for the creation of new strategic level Green Infrastructure and the enhancement of current provision. It considers the pressures and demands facing Buckinghamshire over the next

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<sup>5</sup>The study was undertaken in accordance with a Project Brief developed by Buckinghamshire County Council, the Project Brief is provided in Appendix C

twenty years and, in-line with identified restraints and opportunities, makes recommendations for Green Infrastructure investment.

It is essential that Buckinghamshire's Green Infrastructure assets are protected and enhanced as part of the implementation of growth and development. Future changes should respect and sustain the environmental qualities that make Buckinghamshire special and developments in all areas should contribute to Green Infrastructure by safeguarding existing assets, enhancing these where appropriate and creating new opportunities to meet identified needs.

In order to meet requirements for Green Infrastructure in Buckinghamshire this strategy:

- provides a vision for Green Infrastructure in Buckinghamshire
- identifies pressures on existing Green Infrastructure posed by the housing allocations and other policies set-out in the South East Plan
- establishes the extent of existing Green Infrastructure provision within Buckinghamshire
- identifies areas that have the potential for new Green Infrastructure provision
- describes potential funding opportunities
- encourages a partnership approach to Green Infrastructure planning
- establishes measures to enhance and protect existing Green Infrastructure
- provides a Strategic Green Infrastructure Network Map for Buckinghamshire

Continued work towards the provision and management of Green Infrastructure is progressing at all levels within the County. However, it is recognised that a mechanism is needed that will bring such processes together in a coherent way. The production of this Countywide Strategy will help to meet this need. It will provide the key means for engaging and informing those who are enabling and facilitating growth in and around Buckinghamshire

Green Infrastructure is a 'live' issue and it is important that the Strategy Action Plan is kept relevant and up-to-date. The Action Plan is therefore a separate and replaceable component of this Strategy that will be maintained as a 3 year rolling plan to be reviewed annually by the GIC.

### **The Green Infrastructure Consortium - A Partnership Approach**

Planning for County level Green Infrastructure protection, acquisition and management is a strategic activity. The value of developing a strategy through partnership is to ensure that Green Infrastructure needs are planned for, delivered and managed in a coordinated and integrated manner.

To meet the needs for a partnership, the Buckinghamshire GIC was established in 2007.

It is a multi-agency forum established to promote the need to plan for and invest in Green Infrastructure at both a strategic and local level.<sup>6</sup>

### **Need for the Strategy**

Green Infrastructure is recognised as a quality-of-life indicator and is considered a key element to delivering sustainable communities. It now forms an integral part the planning system and is well defined and adopted in policies at the national and regional level.

The Strategy has been written in response to the environmental challenges posed by the sub-regional growth areas in and around Buckinghamshire. Of particular note is that the County and adjacent areas have been identified for delivering significant growth within the Government's Sustainable Communities Plan.<sup>7</sup> Growth is further detailed in the Draft South East Plan which includes a long-term spatial vision and development strategy for the region until 2026.<sup>8</sup>

Whilst Buckinghamshire is primarily a rural County, there is population expansion predominately in Aylesbury and High Wycombe. There is also major growth in adjoining administrative areas including Milton Keynes, South Bedfordshire, West London, Oxford, Bicester and Slough with some development beginning to extend into Buckinghamshire, for example on the western flank of Milton Keynes. The projected high levels of growth in and around Buckinghamshire will put increasing pressure on existing Green Infrastructure assets in the County, many of which are already under pressure or deficient.

If poorly managed, the level and speed of growth proposed in the sub-region is likely to have significant implications for biodiversity, landscape and historic environment and may reduce the ability of the natural environment to adapt to climatic change.

This Strategy will need to play a key role in ensuring that growth is delivered in a way that provides new and enhanced Green Infrastructure opportunities for both existing and future communities. It will aim to help reduce pressures on important natural and historic Green Infrastructure assets whilst, at the same time, identifying suitable opportunities to support and enhance existing assets for the benefits of people and the environment are maximised.

Some key areas in Buckinghamshire, including the Chilterns and South Bucks district are relatively well provided for strategic level accessible Green Infrastructure. However, this Green Infrastructure needs to be protected with new opportunities developed to help absorb additional pressures.

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<sup>6</sup> See Appendix A for the Buckinghamshire GIC Terms of Reference

<sup>7</sup> Sustainable Communities: Building for the Future (ODPM, 2003)

<sup>8</sup> A Clear Vision for the South East: The South East Plan – Draft Plan for Submission to Government (SEERA, March 2006)



The advantages of producing this Strategy for Buckinghamshire include:

- a published and agreed vision for Buckinghamshire's Green Infrastructure
- ownership of the Green Infrastructure concept
- co-ordination of strategic investment in Green Infrastructure protection and provision
- a partnership approach
- involvement of all key groups and the community in planning and delivery
- shared resources
- clear direction
- a strengthened position for funding applications
- accountability and development of an evidence base
- long-term management and maintenance planning

### **What is Green Infrastructure?**

The concept of Green Infrastructure, as an approach to long-term environmental planning for sustainable development in urban and peri-urban areas, began in the USA. Green Infrastructure has only recently started to gain currency in the UK, initially in the growth areas of the South East and East of England and more latterly in the East Midlands and the North West and North East of England.

As with built (or 'Grey') Infrastructure (e.g roads, sewers, utilities), there is a need to plan for the provision of 'Green' Infrastructure to meet wider existing and future needs of sustainable communities.

This approach is reflected in Planning Sustainable Communities: A Green Infrastructure Guide for Milton Keynes & the South Midlands, which defines Green Infrastructure as:

*'A network of multi-functional greenspace that contributes to the high quality natural and built environment required for existing and new communities in the future. It consists of public and private assets, with and without public access, and in urban and rural locations.'*<sup>9</sup>

A more detailed definition of Green Infrastructure is provided by the Draft South East Plan, which states that *'Green Infrastructure includes outdoor recreational and sports facilities, parks, gardens and allotments, tracks and pathways, natural and historic sites, canals and water spaces, as well as accessible countryside. It is a network of multi-functional greenspaces in urban areas, the countryside in and around towns, and the wider countryside.'*<sup>10</sup> This definition provides a clearer focus towards assets being more accessible to communities.

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<sup>9</sup>Planning Sustainable Communities: A Green Infrastructure Guide for Milton Keynes & the South Midlands (Milton Keynes and South Midlands and Quality of Life Sub Group (2005))

<sup>10</sup>A Clear Vision for the South East: The South East Plan Implementation Plan – Draft Plan for Submission to Government (SEERA, March 2006)



## **A Green Infrastructure definition for Buckinghamshire**

The following definition has been endorsed by the GIC and forms the definition for Buckinghamshire:

*Green Infrastructure provides a vital life-support system, encompassing a network of green spaces, access routes, landscapes and natural and historic elements that intersperse and connect Buckinghamshire's urban and rural settlements with each other and the surrounding countryside. Operating at all spatial scales it enables a holistic overview of the natural and historic environment, acknowledging its multi-functional benefits for economy, wildlife and health and well being of local people and communities.*

Green Infrastructure assets include:

- Accessible greenspace
- Allotments
- Cemeteries
- Children's play space
- Country parks
- Formal sports facilities
- Habitats for wildlife including nature reserves, Sites of Special Scientific Interest and County green corridors
- Historic parks and gardens and historic landscapes
- Public Rights of Way and cycleways
- Scheduled Ancient Monuments
- Urban parks and gardens
- Waterways and water bodies, including flooded quarries
- Wildlife sites

## **A Vision for Green Infrastructure in Buckinghamshire**

A long-term vision for Green Infrastructure in Buckinghamshire (Table 1.1) has emerged from consultations with key stakeholders during the development of the two key Green Infrastructure documents: *Towards a Vision for Green Infrastructure in Buckinghamshire – A Prospectus*<sup>11</sup> and *Towards A Strategic Framework For Green Infrastructure In Buckinghamshire Technical Report*.<sup>12</sup>

The vision seeks to embrace the multi-functional nature of the Green Infrastructure concept and the range of national, regional and local policy objectives for Green Infrastructure. It also reflects the opportunities and needs arising from the analysis of key assets that contribute to Green Infrastructure resources in Buckinghamshire.

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<sup>11</sup>Towards a Vision for Green Infrastructure in Buckinghamshire – A Prospectus (CBA for Bucks CC, November 2006)

<sup>12</sup>Towards a Strategic Framework for Green Infrastructure In Buckinghamshire Technical report (CBA May 2007)

**Table 1.1 A Vision for Green Infrastructure in Buckinghamshire**

The vision is based on a multi-functional network of natural, semi-natural and man-made greenspaces and green links that provide an environmental support system for communities and wildlife.

The network should be high quality, bio-diverse and accessible and be widely valued by all those who visit, live, work and play in Buckinghamshire. Opportunities to inspire local communities and businesses to adopt low carbon and healthy lifestyles based on a greater awareness of their 'environmental footprints' should be encouraged.

The network will further connect urban areas with the surrounding countryside via Rights of Way and access routes; providing opportunities for communities in towns and villages to access, enjoy and appreciate a variety of greenspaces on their doorstep and in the wider countryside. The network should connect a diverse range of wildlife habitats and provide important corridors for species dispersal and migration.

The Green Infrastructure approach will be regarded as a long-term framework for sustainable development, protecting the County's natural and historic environment and enhancing the qualities that give Buckinghamshire its special character.

Green Infrastructure will be delivered, protected and managed through the commitment and involvement of the public, private and voluntary sectors working in partnership with each other.



## Green Infrastructure Functions

Green Infrastructure is linked to a wide range of functions and these need to be considered in relation to the provision and management of Green Infrastructure across the County (Table 1.2).

**Table 1.2**  
**Green Infrastructure Functions**

Function	Aim
Active Recreation	Accessible Green Infrastructure and access routes have a role in the provision of outdoor sports facilities – both formal sports provision and recreation.
Passive recreation and quiet enjoyment	Well-designed, interesting and safe accessible Green Infrastructure of the natural environment and meet the demands for urban communities for tranquil spaces for relaxation and stress relief.
Sustainable transport and public Rights of Way	A network of Green Infrastructure connected by green, attractive, sheltered and safe footpaths, bridleways, towpaths and cycleways can encourage increased levels of walking and cycling. Connecting public transport routes with Green Infrastructure will benefit the wider access network. The use of rivers and canals as sustainable transport corridors can provide attractive linkages between rural and urban places.
Networks, links and gateways	Green Infrastructure networks can provide the framework for the built environment and the rural-urban fringe by facilitating continuous and attractive walking and cycling routes from and out to the surrounding countryside, thereby acting as a 'bridge to the country' and providing an attractive 'gateway to the neighbourhood'.
Social venue/ meeting place	Accessible Green Infrastructure can provide an excellent focus for establishing a sense of place and community ownership.
Education and training	Green Infrastructure can provide outdoor classrooms for school education and life-long learning and formal educational and training facilities where appropriate.
Heritage preservation	The provision of new accessible Green Infrastructure and/or the enhancement of existing spaces offer opportunities for the conservation or restoration of historic assets.
Landscape and townscape structure	The design and characteristics of Green Infrastructure assets can enhance the structure of the local landscape and townscape context, providing a distinctive setting for development.

Function	Aim
Wildlife habitat and biodiversity	Green Infrastructure can incorporate existing wildlife habitats such as designated sites, forestry and woodlands, nature reserves and Biodiversity Action Plan habitats. The creation or restoration of wildlife habitats can link, buffer and extend existing wildlife sites, contributing to an ecological network which is more resilient to the pressures of growth and climate change. This network can also provide opportunities for greater access to nature for local people.
Sustainable water and flood risk management	Well-planned Green Infrastructure can provide water storage capacity and can help reduce flood risk. Water storage areas offer great potential for biodiversity and for recreation if designed appropriately.
Sustainable energy use and production	Green Infrastructure can contribute to low-carbon energy production (e.g. 'green' developments incorporating solar roofs, biomass and wood heat schemes, farm waste schemes and wind turbines).
Sustainable waste management	Green waste produced as a result of management and use of Green Infrastructure can be composted and reused within the space, or can provide a renewable energy source.
Green produce and food production	Allotments or community gardens can be regarded as forms of Green Infrastructure and provision for these areas should be considered in relevant development plans.
Adaptation to a changing climate	Green Infrastructure provides temperature regulation and shaded spaces.
Integration of new and existing communities	Green Infrastructure can provide a sustainable setting for development and attractive surroundings for new and existing residents.
Shared experience of greenspace creation	Green Infrastructure can offer opportunities for social cohesion and for bringing new and existing communities together.

## **The Benefits of Green Infrastructure**

Green Infrastructure is now recognised as having a wide range of environmental, social and economic benefits. Alongside the need for growth, planning policy identifies Green Infrastructure as facilitating the delivery of multiple objectives because it can frame and shape the growth of sustainable communities and strengthen their image. In short, it helps define people's quality of life and liveability and underpins the quality, character and distinctiveness of new neighbourhoods. This section describes some of the key benefits associated with Green Infrastructure provision:<sup>13</sup>

**Economic contribution/encouragement and employment benefits** – Infrastructure is considered important in its ability to:

- provide attractive places to live, work and visit
- deliver resources and processes that are supplied by natural ecosystems
- develop enhanced environmental backdrops that can help to encourage new businesses and inward investment
- promote inward investment, regeneration and tourism through a high quality environment
- create real opportunities for new commercial activity, for instance in conservation, agriculture and the renewable energy sectors, creating new employment in and around towns and cities
- provide employment opportunities linked to outdoor environmental education and leisure enterprises
- promote a working landscape approach to Green Infrastructure. Working landscapes help to sustain local employment and Green Infrastructure functions including; biodiversity, recreation, renewable energy and landscape distinctiveness. Working landscapes promote locally sourced materials and support environmentally sensitive development. A working landscape can encourage and enable landowners to maximise recreational use of their land, thus relieving pressure on protected landscapes within the County

**Environmental benefits** – Green Infrastructure can assist in:

- strengthening of image and visual amenity through high quality design; recognition of historic character/sense of place and enhanced management of heritage assets
- enhancing biodiversity through habitat restoration and creation
- increasing community awareness of environmental issues
- helping reverse habitat fragmentation by improving the links between sites and habitat areas
- contributing to the management and protection of historic and natural sites

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<sup>13</sup>Based on the guidance provided by the 'Thames Gateway Green Infrastructure Guidance' (Greening the Gateway Partnership), which reflects the approach promoted in 'The Countryside in and Around Towns: a vision for connecting town and country in pursuit of sustainable development', Countryside Agency and Groundwork Trust.



- aiding natural processes of filtration, sedimentation and biodegradation
- improving local air quality through pollution filtering by vegetation

**Climate change** – Green Infrastructure can mitigate the effects of climate change by:<sup>14</sup>

- reducing impacts of traffic by creating new functional cycle routes and access networks encouraging a move from cars to other sustainable modes of transport
- reducing the heat island effect of urban areas
- adjusting micro-climate
- managing floodplains and water meadows in order to help protect urban areas from the risk of flooding
- increasing tree and woodland cover to meet needs for shade during warmer summers
- reducing the impact of climate change on biodiversity by offering 'green corridors' which plants and animals can migrate
- improving carbon storage and sequestration

**Physical and psychological health benefits** – Green Infrastructure can help:

- facilitate physically active lifestyles
- promote mental well-being/stress reduction through provision of quiet green refuges
- improve 'quality of life'
- provide exercise opportunities that can help reduce coronary heart disease and obesity levels

**Social inclusion and equality** – Green Infrastructure can provide accessible, safe and welcoming open spaces and links that:

- promote community safety
- provide opportunities for people to get closer to and learn about history, nature and culture and provide a focus for community activities that promote community capacity building and a shared sense of cohesion/civic pride
- incorporate access provision for less mobile users
- provide stimulating natural environments for the sensory impaired
- offer greater integration between existing and new communities
- impact positively on areas of economic and social deprivation through an enhanced environment, containing green and open spaces

### **The Strategy Preparation Process**

In 2006, Buckinghamshire County Council commissioned Chris Blandford Associates (CBA) to undertake an initial consultation and assessment of Green Infrastructure for the County. The findings, used in the publication *Towards a Vision for Green Infrastructure in Buckinghamshire: A Prospectus* (2006) provides an important overview of current and projected needs for accessible Green Infrastructure.

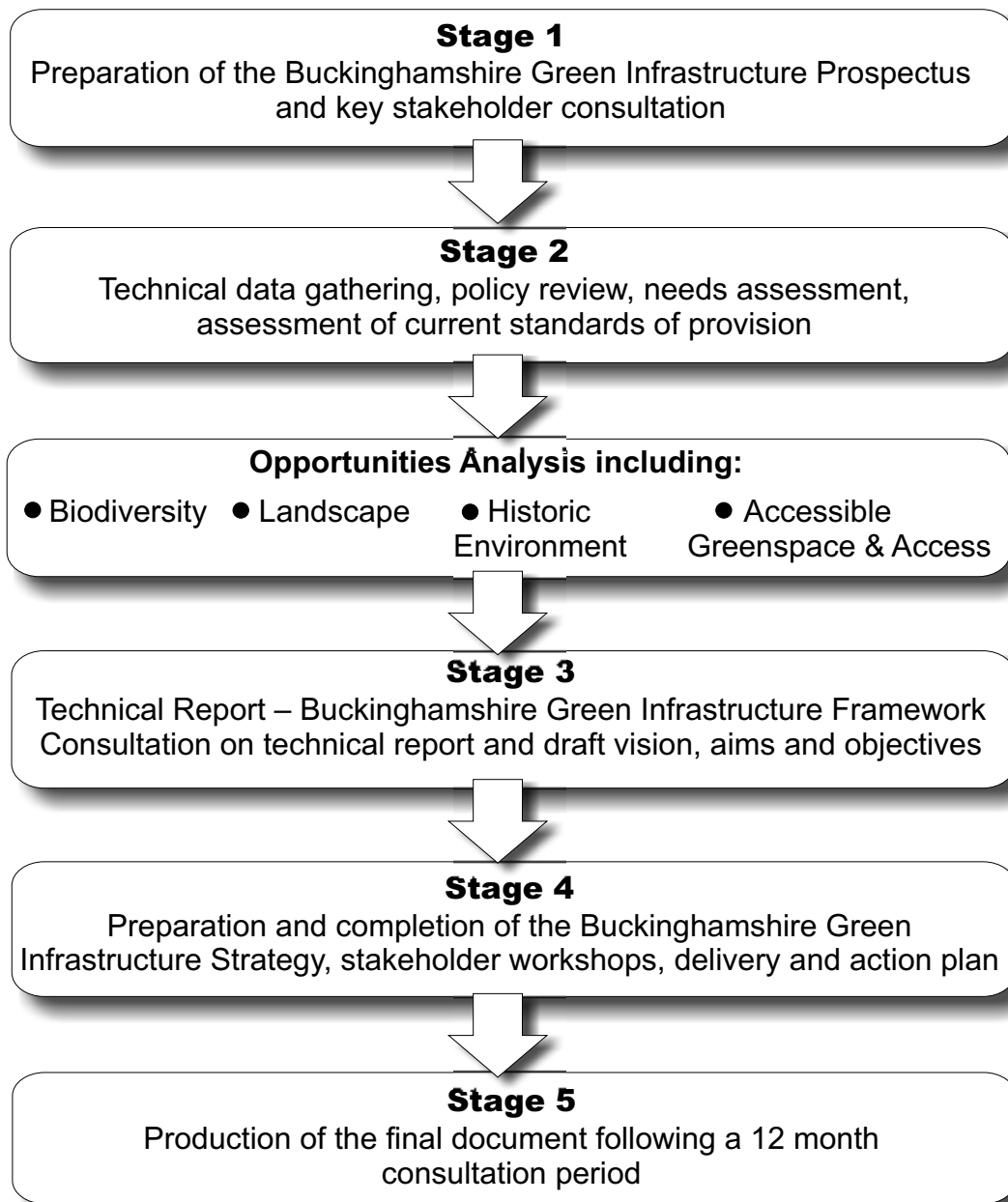
<sup>14</sup>For more information on Climate change see <http://www.sustainablecities.org.uk/greeninfrastructure/benefits>

The County Council re-appointed CBA in 2007 to undertake a second phase of consultation and analysis. Its findings, published in Towards a Strategic Framework for Green Infrastructure in Buckinghamshire - Technical Report (2007), were used to identify Countywide restraints and opportunities for Green Infrastructure and identified 'Action Areas for Investment' as a means to address deficiencies and priorities for Green Infrastructure within Buckinghamshire.

Through the latter part of 2008, the preparation of this Strategy further developed the work undertaken in the above documents. Guided and developed by the Buckinghamshire GIC, the new Strategy for Buckinghamshire will underpin the development of local Green Space plans that meet District and Parish requirements.

The various stages of delivery of this Green Infrastructure Strategy are summarised in Figure 1.1.

**Figure 1.1 The development process leading to the Process of the Buckinghamshire Green Infrastructure Strategy<sup>15</sup>**



### **Aims for Green Infrastructure in Buckinghamshire**

The Buckinghamshire Green Infrastructure Strategy aims to ensure that pressures on natural and historic Green Infrastructure assets are minimised, and opportunities to enhance these assets for the benefits of people and biodiversity are maximised. Where appropriate, measures will be required to manage effects on these resources arising from the social and economic development of the County and the wider sub-region.

<sup>15</sup> A more detailed description of each of the stages can be found in Appendix B

This Strategy promotes:

- understanding of the concept of Green Infrastructure and its place and value in contributing to the environmental, social and economic well being of the County
- the protection and conservation of Green Infrastructure assets
- the enhancement of Green Infrastructure assets where these are of low quality, in decline or require investment to realise their potential to meet future demands
- the mitigation of and response to the effects of development, new land uses and climate change
- the creation of new Green Infrastructure assets where there is an identified deficit, or growth is planned and additional provision or compensatory measures are needed
- the promotion of a “Working Landscapes” approach to Green Infrastructure with opportunities to enhance or diversify
- a strategic approach that will lead to the preparation of local Green Infrastructure plans described as ‘Living Networks’.

### **Delivering quality Green Infrastructure in Buckinghamshire**

The provision of high quality Green Infrastructure can be an important factor which influences people's decision to live, work and invest in an area. In 2003, the Sustainable Communities Plan identified that the supply of new homes had failed to keep pace with demand and described the Government's aim to take radical action to increase housing provision by speeding-up supply, reforming planning processes and raising standards in high-demand areas.<sup>16</sup>

Alongside the need for growth, planning policy identifies Green Infrastructure as facilitating the delivery of multiple objectives because it can frame and shape the growth of sustainable communities and strengthen their image. In short, it helps define people's quality of life and liveability and underpins the quality, character and distinctiveness of new neighbourhoods.

Green Infrastructure provision is now a key component of design, development, master planning and growth decisions and provides an important spatial framework for guiding sustainable development. In-line with such decisions, this document assists in providing an evidence-base and long term spatial vision consistent with the objectives in Planning Policy Statement 12 'Local Development Frameworks' and will assist Local Authorities when producing Local Development Frameworks.

The GIC's vision for Green Infrastructure can be linked closely to a range of related factors that need to be considered important for encouraging a consistent approach to delivering Green Infrastructure provision and management:

**Multi-functionality** – Provision of a multi-functional network of high quality Green Infrastructure, providing access for all users to green spaces that deliver multiple

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<sup>16</sup>The Sustainable Communities Plan, Building for the Future (OPDM, 2003)

environmental, social and economic benefits. Such opportunities need to be developed in conjunction with the needs of the landscape and landowners, whilst considering that not all individual assets should or can be treated as multi-functional.

**Meeting needs** – Current and projected deficiencies in the quality and quantity of Green Infrastructure provision in Buckinghamshire must be addressed in order to meet local and strategic needs. Such an approach can only be met by needs assessment and by then planning for and delivering Green Infrastructure at all spatial scales.

**Integrated approach to provision** – That investment in Green Infrastructure is provided as a priority alongside the provision of other essential infrastructure when planning new developments.

**Sense of place** – The distinctive historic, cultural and natural qualities that make Buckinghamshire special need to be protected and reinforced, and the effects of development need to be managed to sustain the rural character of the County.

**Access for All** – Access to the countryside and a diversity of Green Infrastructure should be provided via 'gateways' providing access opportunities connecting urban and rural areas with high quality visitor facilities and information centres linked to public transport and, the wider access network.

**Sustainable movement** – A properly planned network of Green Infrastructure provides a key sustainable means for access and movement within and outside urban areas. The future development of this network must be complimented by enhanced public transport links to this network.

**Biodiversity** – The condition, extent and connectivity of wildlife habitats are improved through appropriate land management and landscape-scale restoration and creation schemes. Where appropriate, suitable management and provisions must increase existing biodiversity resources, reverse the effects of habitat fragmentation and create conditions to allow habitats and species to adapt to the effects of climate change.

**Heritage enhancement** – Historic environment assets form a key component of Green Infrastructure. Where applicable, the management, presentation, accessibility and interpretation of historic environment assets need to be enhanced as an integral part of Green Infrastructure provision.

**Connectivity** – A carefully planned Green Infrastructure network in Buckinghamshire will allow connections to neighbouring assets at sub-regional and local scales. Opportunities for enhancing and delivering better-connected walking and cycling provision opportunities will also need to be complimented by enhanced public transport connections to this network.



**Respecting environmental capacities** – The capacity of natural processes, systems and resources must be taken into account in responding to the challenges of adapting to and mitigating the effects of climate change.

**Healthy lifestyles** – Accessible Green Infrastructure needs to be provided in and around areas close to where people live and work to accommodate healthy lifestyles and provide opportunities for active and passive recreation. This means better-connected cycleways and footpaths to enable healthy exercise and environmentally sound travel; opportunities to connect with nature, as well as more facilities for informal sport, leisure and exercise and more and better green spaces to promote general wellbeing.

**Employment benefits** – New employment opportunities are created throughout Green Infrastructure networks through the incorporation of sustainable low carbon energy production over the long term, such as waste wood and energy crops.

**Community benefits** – Community engagement in Green Infrastructure is able to provide a strong focus for social inclusion, community development and 'lifelong learning' leading to greater public awareness of, and respect for, the environment.

**Sustainable financial management of Green Infrastructure resources** – Through economic leverage, supporting strategies and partnership working.

**Working Landscapes** – The landscape is a working environment and it is a key requirement to sustain local employment and Green Infrastructure functions including: tourism, farming, leisure, recreation, renewable energy, rural business and enterprise, skills and training and employment. Engaging these functions within Green Infrastructure will decrease costs and create more successful opportunities for delivery. This Strategy values the existing delivery made by working landscapes and seeks to further enhance the opportunity to deliver via existing and emerging markets.

### **A Sustainable Approach to Green Infrastructure**

Green Infrastructure can help support reduced energy consumption and meet renewable energy production objectives. Thus, a modern approach to green space management can ensure that sites can be designed and managed to allow them to be more sustainable, energy efficient and have minimal energy requirements. Within this context there are three main areas for consideration:

**Waste handling** – The management and use of green spaces produces waste. Green waste produced as a result of management should be composted and reused within the space, or can provide a renewable energy source. Litter resulting from the public use of spaces should be reduced wherever possible and managed in a sustainable manner.

**Supporting renewable energy and sustainable approaches** – Wood products and green waste can provide energy sources for renewable energy projects. Green Infrastructure management should encourage appropriate economic activity, which supports the management of woodlands in the long term and promotes a sustainable woodland economy.

Green spaces, as well as providing sustainable energy materials (e.g. wood for heating), should be considered as suitable sites for renewable energy schemes in themselves. Many good examples exist where site visitor centres employ sustainable approaches to heating, cooling and water use as well as incorporating sustainable build and design if new building opportunities arise.

Championing the principles of Green Infrastructure can help promote and support developments that are environmentally sensitive; e.g. solar roofs; biomass and wood heat schemes; farm waste schemes; small, medium, and in some instances, large wind turbines.

**Appropriate material use** – Direct site management provides a good opportunity to develop a sustainable approach. Imported materials for use on sites (e.g. fencing materials, path surfacing) should be appropriate to the site and locality of a site and should, where possible, use locally sourced materials or materials sourced from responsible managed sustainable resources (for example Forest Stewardship Council certified (FSC)).

