South East Green Infrastructure Framework

From Policy into Practice

Acknowledgements

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The project was overseen by a steering group comprising representatives from the partnership:

- Environment Agency (Kate Potter, Adam Ingleby, Ellie Seaborne, Joe Stevens)
- Forestry Commission (Alan Betts, Bruce Collinson)
- Government Office for the South East (Julie Price, Dougal Driver)
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- South East England Partnership Board, formerly the South East England Regional Assembly (Greg Pitt, Catherine Rose)
- Wildlife Trusts in the South East (Ian Hepburn, Tony Whitbread)

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Government Office for the South East

Forestry Commission England

The Wildlife Trusts South East

SEEDA South East England Development Agency

South East England Partnership Board

Natural England

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Foreword

The South East is overwhelmingly a rural region, appreciated by all who live and work here. Some of the country's most densely populated urban areas are in close proximity to the dominant rural landscapes of the region which are home to many of England's finest landscapes and wildlife. With the region's mix of high quality environments, population and traffic pressures, combined with easy access to London and other European cities, South East England has been and will remain subject to many competing pressures.

This framework gives the policy context and the key tools needed to develop high quality green infrastructure into the heart of our new and existing communities. The key to our success is to build excellent multi-functional greenspace not only in new developments but into our existing spaces and communities too.

These should be identified in regional and local plans and designed into all major new development and regeneration schemes from the outset. They will include established green spaces and new sites, surrounding the built environment and connecting the urban area to its wider rural hinterland. This needs to be delivered at regional, sub-regional, local and neighbourhood levels, accommodating both accessible natural green spaces within local communities and often much larger sites in the urban fringe and wider countryside.

This green infrastructure will provide a range of functions, including landscaping, flood control, recreation, cool spots in a warming climate, food production, safer routes and of course biodiversity. Together they form a 'life support system' and give rise to a wide range of environmental and quality of life benefits, including improved public health, opportunities for sustainable transport, and provision of attractive and distinctive places to live, work and play.

Many of these benefits have the potential to deliver significant economic value, by increasing a locality's attractiveness to employers and workers, supporting tourism revenues, reducing healthcare costs or delivering environmental services. These greenspaces will be the lifeblood of our cities and towns. So providing access to high quality, well-designed green infrastructure needs to be a central part of the way our cities and towns are planned and evolve.

By providing opportunities for new 'green' jobs and training, the delivery of green infrastructure could also support delivery of the Government's 'Green New Deal' which should boost the environmental sector. Far from being an unaffordable luxury, investment in green infrastructure therefore needs to be at the very core of our aspirations to create and maintain sustainable communities. This multi-functional approach to green infrastructure will be an efficient and cost effective use of land and brings with it the need for a partnership approach to delivery and management.

This framework has been produced by a Partnership of key governmental and non-governmental bodies in the South East to help implement the South East Plan's green infrastructure policy. It seeks firstly to engender a common understanding of the role and importance of green infrastructure throughout the South East and its urban and rural areas. Secondly and most importantly, it encourages local authorities to embed green infrastructure in any local plans and processes from the earliest stages, delivering through partnership working.

The South East Green Infrastructure Partnership looks forward to working with local authorities on green infrastructure strategies and proposals in the coming months and years.

Regional Minister Comment

There is no doubt that the South East Region is a busy place with all our communities facing several competing challenges. This Green Infrastructure Framework along with the policies outlined in the South East Plan, gives everybody involved in the design and development of places a clear rationale for making places better.

However, this framework is not only about defining a new policy - it is also a resource where designers, planners, and many others can find the tools, evidence and case studies they need to deliver excellent green infrastructure on the ground.

I would like to thank all of the partners who have worked so hard to bring all of these issues together into an excellent document which I am sure will make a real difference to people's lives across the whole of the South East.

Jonathan Shaw,
Regional Minister for the South East

Terry Farrell Comment

The South East Green Infrastructure Partnership has published essential planning guidance for South East Local Authorities and planning partnerships. The South East Green Infrastructure Framework will enable those who make decisions for and live in the region, to work towards a shared vision for their surroundings. Landscape is, after all, the 'primary infrastructure'.

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Terry Farrell CBE

Section 1:
Introduction

Introduction

Key messages

The South East Plan requires local authorities and partners to work together to plan, provide and manage connected and substantial networks of accessible multi-functional green space in the South East.

This Framework provides guidance to local planners on how to deliver that green infrastructure.

Purpose and scope of this Framework

The Framework seeks to establish green infrastructure as an integral and essential component of sustainable communities, develop a common understanding of the role and importance of green infrastructure, and provides detailed guidance on how green infrastructure can be delivered through the planning system and local partnerships, including securing funding for its creation and long term maintenance.

Following the publication of the Framework, the Steering Group (see Acknowledgements) will continue as a regional partnership to provide a forum of expertise and advocacy for green infrastructure in the South East. Its aim will be to add value to existing regional green infrastructure activity and broker strong partnership working arrangements, resulting in the proactive planning and delivery of high quality green infrastructure.

The Framework reflects both regional planning policy and the views of the key green infrastructure stakeholders consulted during its preparation. In addition to delivering green infrastructure through the Local Development Framework process, this Framework emphasises the need to consider green infrastructure within Sustainable Community Strategies, Local Area Agreements and, where appropriate, Multi Area Agreements. Whilst local planning authorities are the primary audience for the Framework, it also identifies the stages of the planning process at which stakeholder inputs should be sought and highlights the importance of partnerships and other organisations' strategies in green infrastructure delivery.

This document can be downloaded from:

www.gose.gov.uk/gose/planning/regionalPlanning/?a=42496

The South East Plan can be downloaded from:

http://www.gos.gov.uk/gose/planning/regionalPlanning/815640/

Regional context

Planning policy at both national and regional level supports implementation of green infrastructure into local policies, reflecting the wide range of benefits it can bring to communities and the environment. This section focuses on the regional context whilst national policy is covered in **Appendix 1**. **Box 1.1** reproduces the green infrastructure policy in the South East Plan.

Box 1.1: South East Plan Policy CC8: Green Infrastructure

'Local authorities and partners will work together to plan, provide and manage connected and substantial networks of accessible multi-functional green space. Networks should be planned to include both existing and new green infrastructure. They need to be planned and managed to deliver the widest range of linked environmental and social benefits including conserving and enhancing biodiversity as well as landscape, recreation, water management, social and cultural benefits to underpin individual and community health and 'well being'. They will be created and managed as a framework of green spaces and other natural features that will boost the sustainable development of settlements and increase the environmental capacity of the locality and region as a whole, helping communities to be more resilient to the effects of climate change.

The provisions of this policy apply region-wide. However, the successful designation and management of green infrastructure will be particularly important in areas designated as regional hubs, where growth may impact on sites of international nature conservation importance or where there is a need to enhance the existing environmental capacity of an area.'

The sustainability benefits delivered by green infrastructure can provide excellent value for money. Certain forms of regional land use, notably agriculture, horticulture and forestry, can be both financially viable and capable of sustainable management such that they can continue to help deliver a broad range of social, economic and environmental benefits, relative to other types of infrastructure investment and benefit local economies in a variety of ways (see **Box 1.2**).

Research in the South East has shown that regional businesses which contribute to or depend upon the environment generated 6% of regional Gross Value Added (GVA) and employed 230,000 people in 2000[1]. More recent work for Natural Economy Northwest[2] confirmed an equally significant contribution of the environment to GVA and employment in the North West. Identified areas of economic benefit from investment in green infrastructure included attractiveness of the region to employers and workers, property values, productivity of staff, tourism revenues, products from the land, health and activity of the regional population, ecosystem services, flood alleviation and water management and climate change mitigation and adaptation. **Box 1.3** illustrates how green infrastructure is seen as integral to the Thames Gateway, a major regeneration project in the South East.

Box 1.2: Benefits to local economies[3]

Research has shown that investment in local environmental improvements benefits local economies by:

- Influencing locational decisions by businesses deciding where to start up or to move to.
- Increasing footfall or customer numbers.
- Supporting development of good quality local shops (at a village location) and attracting more residents to work locally (on an industrial estate).
- Helping local businesses to attract staff.

The research also showed that the cost to the public sector of the studied investments in the local environment was significantly less than either the private funds attracted into the projects or their wider economic impact.

Given these policy and economic imperatives, green infrastructure must be regarded as essential to sustainable communities in the South East and its planning should be embedded in the spatial planning process from the earliest stages. A rigorous approach to green infrastructure planning must take account of local social, economic and environmental conditions and identify the costs and benefits of delivery. This Framework provides such a process, the outputs of which provide a sound evidence base to inform the Sustainable Community Strategy and Local Development Framework of local authorities in the region.

Box 1.3: The Parklands Vision

The Thames Gateway is the UK's largest regeneration programme, stretching for 40 miles along the Thames Estuary and includes North Kent within the South East Region. The Government has set out the Parklands Vision to underpin the integration of green and open space development in the Thames Gateway with that of housing, jobs and commerce. In support of the vision, 'Greening the Gateway, Kent and Medway' have developed the North Kent Parklands Business Plan to deliver nine strategic green infrastructure projects between 2008 and 2011. The strategic focus of the North Kent programme is on sub-regional connectivity; enhanced public realm and natural environment; positive land management and accessibility within the urban fringe; and the end users and local support.

Structure of this Framework

The remainder of this document is set out in the following sections:

- **Definition of green infrastructure** – provides a definition of green infrastructure for the South East.
- **Contribution of green infrastructure to spatial planning and sustainability in the South East** – explains the concepts of multi-functionality and place-shaping and describes the physical functions that green infrastructure can have and the regional policy objectives that these functions can help to meet.
- **Delivering green infrastructure effectively** – describes the key principles which are a pre-requisite for effective delivery of green infrastructure through the local spatial planning system and the green infrastructure considerations at each stage of the plan-making process.

Section 2:
Definition of green infrastructure

Definition of green infrastructure

Key messages

Green infrastructure, defined by the South East Plan, refers to many different types of green spaces.

Definition of green infrastructure

A variety of definitions of green infrastructure exist but for the purposes of spatial planning in the South East Region, the most relevant is that provided by the South East Plan, as set out in **Box 2.1**.

Box 2.1: Definition of green infrastructure

For the purposes of spatial planning the term green infrastructure (GI) relates to the active planning and management of sub-regional networks of multi-functional open space. These networks should be managed and designed to support biodiversity and wider quality of life, particularly in areas undergoing large scale change.

The following areas can form part of networks of green infrastructure:

- Parks and gardens - including urban parks, country parks and formal gardens.
- Natural and semi-natural urban greenspaces - including woodlands, urban forestry, scrub, grasslands (e.g. downlands, commons and meadows), wetlands, open and running water, wastelands and derelict open land and rock areas (e.g. cliffs, quarries and pits).
- Green corridors - including river and canal banks, cycleways, and rights of way.
- Outdoor sports facilities (with natural or artificial surfaces, either publicly or privately owned) including tennis courts, bowling greens, sports pitches, golf courses, athletics tracks, school and other institutional playing fields, and other outdoor sports areas.
- Amenity greenspace (most commonly, but not exclusively, in housing areas) – including informal recreation spaces, greenspaces in and around housing, domestic gardens and village greens.
- Provision for children and teenagers - including play areas, skateboard parks, outdoor basketball hoops, and other more informal areas (e.g. 'hanging out' areas, teenage shelters).
- Allotments, community gardens, and city (urban) farms.
- Cemeteries and churchyards.
- Accessible countryside in urban fringe areas.
- River and canal corridors.
- Green roofs and walls.

Planning Policy Guidance 17 (PPG17)[4] requires local authorities to undertake robust assessments of existing and future needs for open space, sports and recreational facilities. The definition of green infrastructure in the South East Plan is broadly consistent with the typology in PPG17. Assessments under this Guidance will therefore provide a valuable information source for planning green infrastructure.

Section 3:

Contribution of green infrastructure to spatial planning and sustainability in the South East

Contribution of green infrastructure to spatial planning and sustainability in the South East

Key messages

Green infrastructure performs a wide range of functions. These deliver benefits that meet the South East's sustainable development policy objectives.

Functions and benefits

Table 3.1 identifies the physical functions of green infrastructure and how they relate to regional policy priorities. When functions meet the policy priorities, we realise the benefits of green infrastructure, identified with a shaded box. More information on the benefits of green infrastructure in relation to each function is provided under each functional heading below, while regional policy objectives are described in more detail in **Appendix 1**.

Through a process of consultation on this Framework, green infrastructure stakeholders in the South East have reached a common understanding of which of the many potential functions of green infrastructure are most important in the regional context. Those functions are listed in **Box 3.1** and they align closely with the 'multifunctional objectives' for green infrastructure provided by the South East Plan.

When planning green infrastructure in the region, practitioners should determine the social, economic and environmental baseline at the local scale. This will inform an analysis of local needs, potential benefits and opportunities in respect of each of the key green infrastructure functions and allow their relative priorities to be determined according to local circumstances and regional policy priorities.

Detailed guidance on how this analysis can be integrated into the spatial planning process is provided in **Section 4**.

Box 3.1: Key functions of green infrastructure in the South East

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

GREEN INFRASTRUCTURE FUNCTIONS	South East policy objectives (see Appendix 1)						
	ECONOMIC		ENVIRONMENTAL			SOCIAL	
	Promote economic growth, employment and skills improvement	Provide sufficient employment space, housing and supporting infrastructure of appropriate type and quality	Protect and enhance biodiversity, cultural heritage, landscape and natural resources	Mitigate and adapt to climate change	Promote sustainable transport and travel patterns	Promote sustainable communities	Promote health and well being
Biodiversity conservation and enhancement	■		■	■		■	■
Sense of place and appreciation of landscape and cultural heritage	■	■	■			■	■
Recreational opportunities and supporting healthy living	■			■	■		■
Water resource and flood management	■	■	■	■			
Climate change adaptation and mitigation		■	■	■			■
Sustainable transport, education and crime reduction					■	■	■
Food, fibre and fuel production	■			■	■	■	■

Table 3.1 Green infrastructure and regional policy objectives (Where GI functions meet the policy objectives, GI benefits are realised - Shaded Cells)

Biodiversity conservation and enhancement

The House of Commons Environmental Audit Committee has concluded that spatial planning is failing to assist in halting biodiversity loss and that an 'ecosystems approach' is required which takes account of the full value of biodiversity and ecosystem services in land use decisions.[5] Expanded, well managed and better connected networks of green infrastructure in the South East will deliver enhancements for wildlife, contributing to national Biodiversity Action Plan (BAP) targets and allowing species to respond and adapt to climate change. Regional priorities to improve, restore and create BAP habitats are set out in the South East Biodiversity Strategy.[6] This includes Biodiversity Opportunity Areas (BOAs) which are a spatial expression of key areas for BAP habitat enhancement.

The most effective way to conserve and enhance regional biodiversity using green infrastructure is to create an ecological network that extends and links existing areas of high biodiversity value, facilitating the colonisation of new areas in response to new opportunities or changing conditions. Policy support for ecological networks is provided by Planning Policy Statement 9 (PPS9)[7]. A vision for applying such an approach in the region is provided by the Wildlife Trusts in the South East[8].

In some cases, the need to conserve or enhance biodiversity may require creation of significant new areas of semi-natural greenspace to provide compensatory habitat or, as in the example of Thames Basin Heaths SPA (see **Box 3.2**), to provide alternative greenspace for recreation.

Boardwalk nature trail, Thursley National Nature Reserve © Peter Wakely, Natural England

The Thames Basin Heaths example (**Box 3.2**) illustrates how provision of green infrastructure can help to meet requirements under the Habitats Regulations to avoid adverse effects on the integrity of international sites. In addition to recreational disturbance, development can often lead to habitat loss or fragmentation or create barriers to the movement of species. The spatial planning of green infrastructure and its integration into development can overcome these problems through the planning and establishment of 'buffer zones' to protect important habitats from the impacts of development, or 'wildlife corridors' to link habitats to one another[9]. The sensitive management of green spaces in urban areas can significantly contribute to such wildlife corridors, linking existing areas of high biodiversity value and facilitating colonisation of new areas by species in response to new opportunities or changing conditions including climate change. Such spaces may also provide an opportunity for people to have access to nature.

As well as creating new spaces for biodiversity alongside new development planners should also consider 'retro-fitting' existing, single-function open spaces with additional functions such as biodiversity, so that they make a greater contribution to the green infrastructure network. A recent report by the UK Green Building Council[10] provides case studies and guidance on increasing the ecological value of sites during building development or refurbishment.

Space for biodiversity can also contribute to the attractiveness of an area as a place to live and work, thus supporting inward investment and economic growth. Voluntary community involvement in wildlife conservation and enhancement projects, for example local tree planting, ongoing management or acting as guides or educators, can promote community cohesion and deliver more sustainable communities. As described under 'Recreational opportunities and supporting healthy living', natural green spaces can also provide health benefits and associated healthcare cost savings.

Box 3.2 Case study – Thames Basin Heaths and SANG[11]

The Thames Basin Heaths Special Protection Area (SPA) is a site of European importance for three species of breeding birds: woodlark, Dartford warbler, and nightjar. It is highly fragmented and spreads across 13 separate sites in the heavily urbanised Thames Valley. A risk to its integrity was identified from recreational disturbance due to further planned development in the area. To enable housing developments to go ahead, local authorities in the vicinity of the SPA have agreed a strategic approach that allows financial contributions to be collected from developers to fund the provision of avoidance measures. These measures include providing Suitable Alternative Natural Greenspace (SANG) of appropriate character to attract visitors and divert additional informal recreational pressures (in particular dog-walking) from the SPA. The requirement for new greenspace arising from new housing development is based on the number and type of new houses, the proximity of the development site to the SPA and the existing amount and quality of greenspace provision.

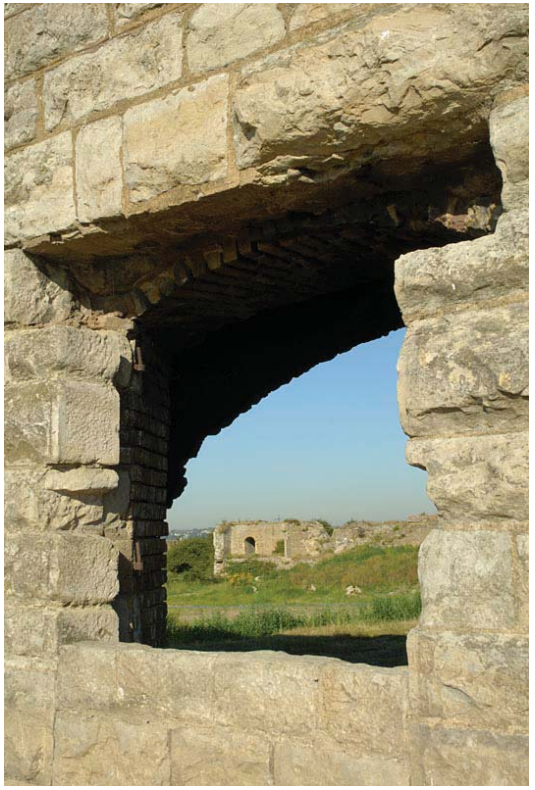
The Thames Basin Heaths Joint Strategic Partnership Board has been set up (comprising elected councillors from local authorities, the regional planning body, and advisory members representing the nature conservation sector, development industry, access and recreation interests and major landowners) to help facilitate joint working and provide advice about the protection of the Thames Basin Heaths and importantly, to monitor the provision of avoidance measures to ensure that they function effectively.

Sense of place and appreciation of landscape and cultural heritage

Landscape is one of our greatest regional resources. It includes all urban and peri-urban landscapes, towns, villages and rural areas and applies to ordinary or even degraded landscape as well as those areas that are outstanding or protected. Landscape is a meeting ground between past, present and future as well as between natural and cultural influences. Cultural heritage spans prehistoric monuments, great country houses, village greens, churches and industrial towns, as well as evolving knowledge, beliefs and traditions, and is a uniquely rich and precious inheritance.

The South East has a diverse and rich landscape and rich cultural heritage. The region's distinctive natural and cultural landscapes, such as ancient woodland, open downland, salt marshes and historic settlements, offer valuable and heavily used opportunities for fresh air, exercise and recreation. The South East has more woodland and ancient woodland than any other English region, a number of Heritage Coastlines and Areas of Outstanding Natural Beauty, two World Heritage Sites and numerous Listed Buildings, Scheduled Monuments, Historic Parks and Gardens and Conservation Areas. The recently designated South Downs and longer established New Forest National Parks provide a critical green lung for the South East, providing millions of people with access to open countryside with benefits for their health, well-being and their appreciation of the importance of the natural environment.

The high quality of the South East environment is key to attracting and retaining businesses and their employees and to improving health and well-being. In providing public amenity spaces that conserve and enhance landscape and cultural heritage, green infrastructure can also help to preserve the intrinsic cultural and environmental value of places and in so doing support, or even create, a sense of place and identity. An attractive environment can also promote community cohesion by offering opportunities for education and volunteering and by providing valued places for meeting and events. This makes it a powerful tool for shaping places and supporting sustainable communities.



Shornemead Fort, Kent Thameside Green Grid © Andrew Critche, Kent Thameside Regeneration Partnership

Recreational opportunities and supporting healthy living

Key public health issues in the South East include increasing obesity, rising mental health issues, significant health inequality, and the increasing burden that an ageing population will place on healthcare, especially where older people are inactive.[12]

Only 40% of men and 30% of women in the South East are active at the recommended level.[13] The Government's Chief Medical Officer states that '*the annual costs of physical inactivity in England are estimated at £8.2 billion'* and that '*the scientific evidence is compelling (that) physical activity is essential for good health*'. [14] Green infrastructure can provide opportunities for recreation and physical exercise, whether for informal recreation such as walking or cycling or organised sports, which in turn can provide physical health benefits.[15] By providing walking or cycling routes, green infrastructure also enables sustainable transport, with benefits for traffic congestion, air pollution and reductions in greenhouse gas emissions.

It is not just recreation spaces that can contribute to healthy living. Allotments, school or community gardens, and urban farms provide opportunities for healthy eating and outdoor exercise, as well fostering community cohesion and involvement in sustainable and local food production.

It is estimated that at least 1 in 6 people in Britain are suffering from mental health problems at any one time and in England alone, mental health problems result in annual costs of £3.8 billion to the NHS.[16] The UK economy is estimated to lose £77 billion each year due to people being unable to work as a result of stress-related and mental health problems.

The South East has the third highest sickness absence rate in England. [17] Regular physical activity reduces the risk of depression and has positive benefits for mental health including reduced anxiety, and enhanced mood and self-esteem.[18] In addition, green spaces can also offer an escape from densely developed urban environments, providing a place for relaxation and contemplation which engenders a sense of wellbeing and improved mental health. Research indicates that viewing a natural scene provides a pleasurable and calming distraction to stressful thoughts that can rapidly lower reported levels of anxiety and produce measurable improvement in stress-related physiological symptoms in the short run and even improve clinical outcomes of hospital patients.[19] Those that exercise in a greenspace are also more likely to continue to exercise.

Boy playing on log, Alice Holt Forest, Surrey © Forestry Commission

There is also evidence that in some circumstances, green infrastructure may be able to contribute to air quality improvements, with consequent benefits for public health. Potential mechanisms for this include providing open space which allows pollutants to be diluted and dispersed and the role of vegetation in trapping particulate matter[20,21] or absorbing gaseous pollutants.[22,23]

Whilst the South East is the healthiest region of England, there is a more than a 5 year difference in life expectancy between areas with the best and worst life expectancy for males.[24] Natural England has identified areas within the region where the natural environment can make a significant contribution to health, based on a collection of public health indicators chosen for their potential to be improved by outdoor activity. Further analysis indicates which of these areas may need additional greenspace and which may need actions to make existing greenspace more accessible. Further information on this data is provided in **Appendix 2**.

Water resources, water quality and flood management

Major growth is proposed in parts of the South East, a region where water resources and the ability to handle increased volumes of sewage effluent, are already constrained. By using green infrastructure to help deliver sustainable water management, local authority planners can help to address existing water management issues and mitigate the effects of new development, thus contributing towards attainment of objectives for the South East's water bodies which must be met under the Water Framework Directive. [25]

By intercepting rainfall on plant surfaces and by helping water to permeate into the ground, green infrastructure helps to reduce the amount and speed with which rainfall flows into river channels, thereby reducing the risks of flooding downstream. In some circumstances, green spaces can be designed to act as flood storage areas, holding large volumes of water in temporary ponds to protect built-up areas from flooding. This will become increasingly valuable as climate change increases flood risks. Green infrastructure in high flood risk areas also has the potential to enhance or extend wetland habitats and river corridors often provide an opportunity to link up habitat areas.

Green infrastructure also contributes to the reduction of water pollution, by exploiting the natural processes of sedimentation, filtration and biodegradation to remove pollutants.[26] Increased surface permeability may also make a small contribution to recharge of groundwater supplies, helping to maintain water levels over the year and reduce the risk of drought over the summer months[27].

By reducing the likelihood and severity of flooding, droughts and water pollution, the social, environmental and economic (e.g. flood insurance) costs associated with these events are reduced.

Planning Policy Statement 25 (PPS25)[28] supports the use of green infrastructure for flood storage, conveyance and sustainable drainage systems (SUDS). The Pitt Review[29] supports working with natural processes as part of a portfolio of measures to manage flood risk and highlights that partnership working is required for this to be successful. The approach to positive planning for green infrastructure set out in this Framework fosters co-operation between local partners.

Swale forming part of SUDS at Upton eco-extension, Northampton, © Andy Gale

Climate change adaptation and mitigation

Climate change is expected to result in warmer, wetter winters, hotter, drier summers and an increase in the frequency and intensity of extreme weather, particularly in London and the South East of England.[30] Climate change adaptation is the process of preparing local environments and communities for these conditions, as far as is possible. Green infrastructure has the potential to provide adaptation by:

- Reducing the likelihood and severity of flooding particularly storm water runoff, flash floods and drought (see 'Water resource, quality and flood management' section).

- Supporting healthy ecosystems which *'will be more resilient to climate change and so more able to maintain the supply of ecosystem services on which our prosperity and well being depend'*.[31]

- Reducing the risks of overheating and associated health problems, particularly in urban areas, by improving micro-climates through shading and evaporative cooling.[32]

These adaptations benefit both people and wildlife, making the region more resilient to climate change impacts. Green infrastructure can also play a role in climate change mitigation by helping to reduce energy consumption and hence the greenhouse gas emissions associated with its generation. Extensive mature tree canopies can, for example, contribute to a changed energy balance for a city, reducing the heat island effect and hence the energy consumed in cooling systems. Cooling may also reduce demand for drinking and washing water and the energy consumption associated with its treatment and distribution. Carbon savings associated with this reduced energy requirement have been calculated to be considerably greater than the amount captured directly by urban trees through photosynthesis[33]. A further example is the way that green roofs can contribute to cooling of buildings and hence reduced energy consumption. Guidance on how green infrastructure can influence the masterplanning process in the face of the climate change challenge is available from the Environment Agency's 'Green Roof Toolkit'[34], and the TCPA's guides 'Biodiversity by Design'[35] and 'Climate Change Adaptation by Design'[36].

River Quaggy restoration and flood alleviation scheme, Sutcliffe Park, LB Lewisham, © Environment Agency

Sustainable transport, education and crime reduction

Green Infrastructure can support sustainable and healthy living by providing safe, easily accessible green routes for incorporating walking and cycling into people's everyday routines. Encouragement should be given to creating green infrastructure corridors on routes of pedestrian or cycling demand, particularly where alternative access by car is convenient. Creating pleasant corridors that people enjoy using can promote modal shift to walking and cycling, which delivers wider benefits such as a reduction in carbon emissions, congestion and improved journey reliability.

Green infrastructure can provide semi-natural green spaces and corridors within urban areas and link these areas to other social infrastructure such as schools and local commercial centres. By facilitating access to nature in people's everyday lives, green infrastructure provision can encourage a new and positive relationship with nature[37]. It can also act as a resource for more formal education on natural environment or health topics. Research on access to natural green space in the South East is described in **Appendix 2**.

In addition to the various improvements to quality of life (health, recreation opportunities etc.) and local economies that green infrastructure can bring, it can also help to deliver broader benefits to communities such as social cohesion and crime reduction. Mechanisms include the role of green infrastructure in fostering community involvement in civic life through community owned spaces, friends groups and open spaces forums.

The creation and enhancement of green infrastructure which serves multiple functions helps to build attractive and vibrant urban areas with a real sense of place, improving liveability and people's quality of life[38]. People want to live in, work in and visit attractive areas and this helps to increase land and property values[39] and stimulate the local economy in areas with good quality greenspace. A Government poll found that liveability issues (including improved parks) were one of the top four responses to the question 'what would improve quality of life in your area?'[40] Good management of public space and design to incorporate natural surveillance can help to reduce the perception of crime and crime itself.

Bridleway © Andrew Critche, Kent Thameside Regeneration Partnership

Food, fibre and fuel production

Although not a function explicit in the South East Plan policy, green infrastructure can provide space for food, fibre and fuel production. Independent food growing initiatives such as allotments, community gardens and community orchards can be particularly valuable in dense urban areas, and more economically-deprived areas, where past development patterns mean that many people may not have access to a garden. With Government policy promoting high density housing in order to make efficient use of land and reduce travel distances and with increasing public interest in locally grown produce to reduce food miles, the demand for allotments and other community growing space is likely to increase. Community food production also increases opportunities for involvement in planting, maintenance and education and can provide places for people to gather.

The rising cost of fossil fuels and increasing concerns about security of supply from politically unstable parts of the world make local production of energy and increased self-sufficiency increasingly attractive. Local energy production can also help to reduce the transmission losses associated with centralised generation. Green infrastructure may provide a setting for built renewable energy infrastructure, such as wind turbines, or be used to produce renewable, CO_2 neutral fuels such as wood chip and biomass. Local timber production can help to supply the needs of the regional construction industry to meet Government housing growth targets, whilst reducing the carbon emissions associated with its long distance transport. The South East is the most heavily wooded English region but a significant proportion of its woodland is under-managed. Demand for wood fuel and timber could help to revitalise woodland management and restore the related benefits to biodiversity, landscape and the economy.[41] If renewable energy or biomass land uses are to be considered within green infrastructure, careful consideration of environmental impacts must be made e.g. on biodiversity assets, landscape character, and setting of heritage assets.

Wood fuel © Andrew Critche, Kent Thameside Regeneration Partnership

Allotments © LUC

Multi-functionality

A key concept that is often used to justify use of land for green infrastructure is that of 'multi-functionality'. Multi-functionality refers to the potential for green infrastructure to have a range of physical functions. Multi-functionality can apply to individual sites and routes, but it is when the sites and links are taken together that we achieve a multi-functional green infrastructure network. **Figure 3.1** demonstrates how one site or location can provide a variety of green infrastructure functions.

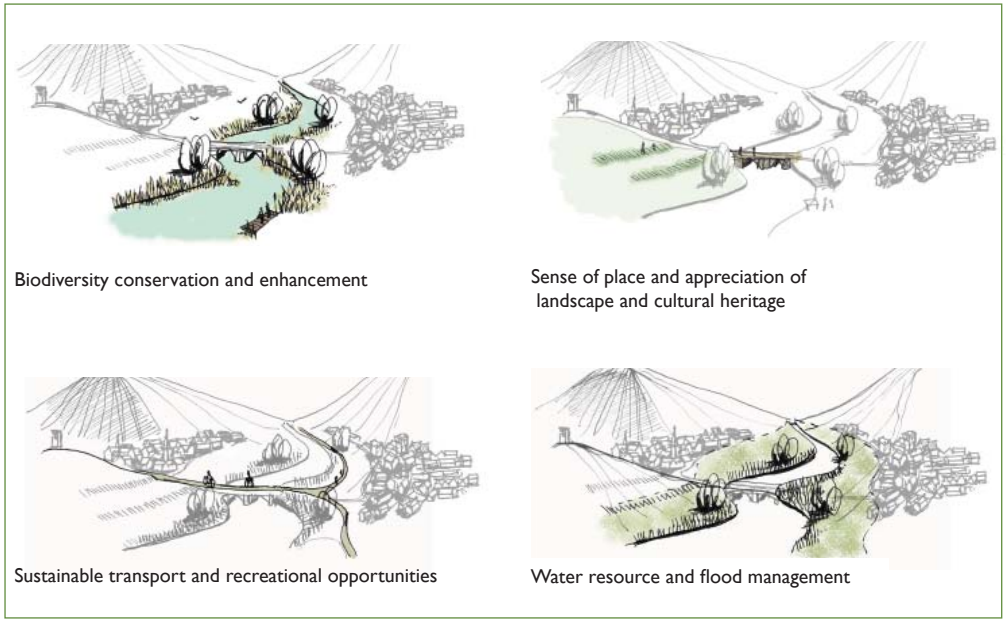


Figure 3.1 Multi-functionality

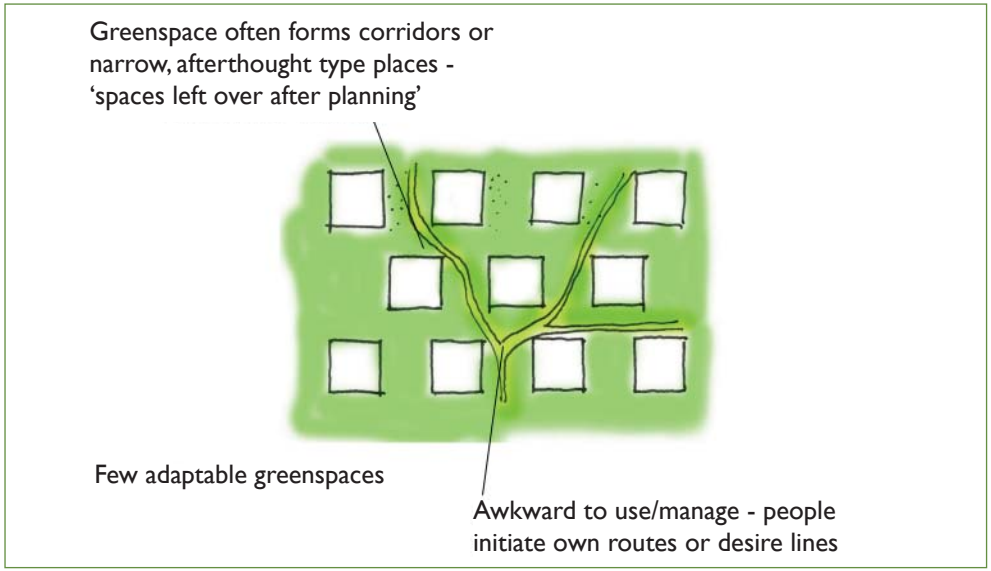


Figure 3.2 The 'fitted carpet complex' or 'Spaces Left Over After Planning' – 1970s greenspace planning

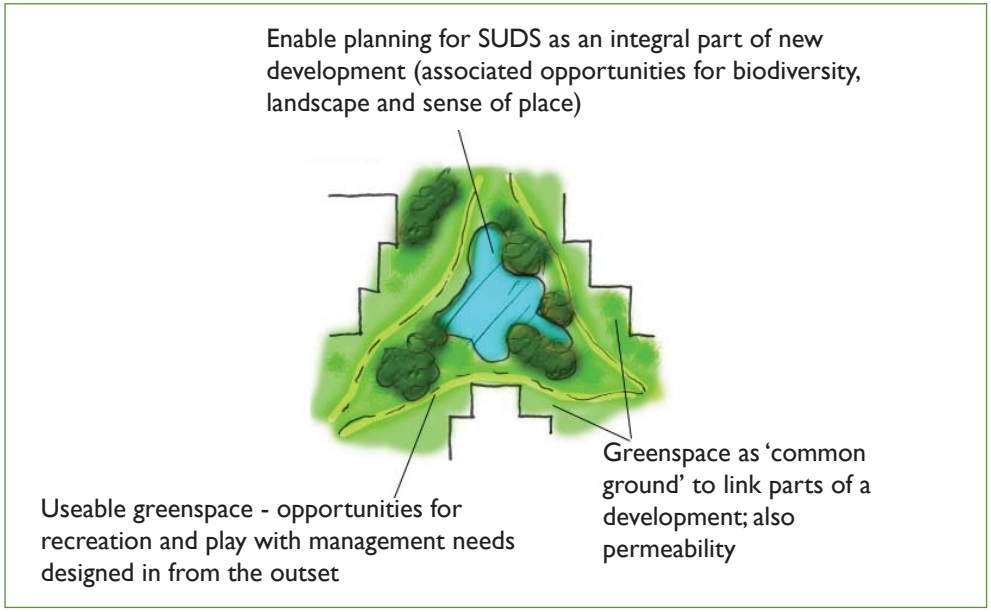


Figure 3.3 Variation in development layouts provides opportunities for multi-functionality and more meaningful landscape spaces – the green infrastructure approach

A green infrastructure approach to greenspace provision involves considering different development layouts and densities to provide usable space to deliver meaningful opportunities for multiple functions. **Figure 3.2** shows a commonly adopted approach to greenspace provision in development in the 1960s and 1970s. This 'fitted carpet complex'[42] results in a comparative lack of usable greenspace with anything more than a purely visual function. **Figure 3.3** shows how variation in density and layout on the same basic footprint provides the opportunity for a range of green infrastructure functions, including formal and passive recreation, habitat provision and flood attenuation.

Adaptation and retrofitting to provide multiple functions

It is desirable for green infrastructure components to be locally available to improve accessibility and to decrease dependency on less sustainable modes of transport. This may not always be practical, particularly if retrofitting green infrastructure into established high density urban environments. In such cases we must look to the wider environmental context, for example a flood storage function required in an urban area may be served by providing upstream green infrastructure in a river catchment. Where this is the case careful consideration must be given to physically or functionally linking those outlying green spaces to communities deep within the existing town or city.

The opportunity to retrofit green infrastructure to existing urban environments is greater for individual green infrastructure elements than for large new areas of greenspace. These can be realised through green roof systems and roof gardens, green walls to provide insulation or shading and cooling, swales integrated as part of streetscape and traffic calming schemes, or neighbourhood play areas. The before and after sketches at **Figure 3.4** show an example of retrofitting green infrastructure in an established, high density environment - Arundel Square in Islington, North London.

BEFORE: A terrace of Georgian houses faced a small park, adjacent to a railway line cutting, with an industrial estate beyond.

AFTER: Demolition and redevelopment of the industrial estate for flats provided the opportunity to create a 'podium' to bridge the railway line and therefore a greatly expanded central greenspace – a new urban square.

Figure 3.4 Schematic before and after illustrations of retrofitting green infrastructure in the Arundel Square development

Place-shaping

'Place-shaping' means recognising the character and distinctiveness of different locations, ensuring that policies and programmes respond accordingly. Central to place-shaping is the realisation that the quality and management of neighbourhoods, streets and parks are directly related to civic pride, community and civic values or perceptions, and identity.

Green infrastructure can play a key part in place-shaping, by formulation of design principles which respond to landscape character, vernacular and sense of place, and by identifying opportunities for community involvement in projects through design and implementation to foster ownership and involvement. A holistic understanding of the landscape and environmental setting and sensitivities as they relate to green infrastructure is critical to understanding character and place – a bespoke response to landscape and townscape. An understanding of place is therefore crucial to plan-making for sustainable development.

Place-shaping principles have been embodied in a number of recent green infrastructure strategies such as for Thetford Growth Point[43] and the Ashford Green and Blue Grid Strategy[44]. The Ashford strategy takes forward the Greater Ashford Development Framework Masterplan, setting out a series of overarching high level principles and more detailed illustrative landscape and design 'visions' for key growth areas.

Figures 3.6, combines the concepts of multi-functionality and place-shaping to illustrate the considerable potential of the green infrastructure approach. The following case study illustrates some of the principles of place-shaping and multi-functionality in a 'real life' context.

Case study: Melbourn Riverside Park[45]

A small development of 5 houses provided the starting point for this scheme of wetland habitat creation and landscape enhancement of a neglected floodplain site, alongside the River Mel in Cambridgeshire. The 5 hectares of land along the riverside form a new riverside park, not only for the new residents but also for the wider community within the village of Melbourn. The scheme included implementation of a reptile mitigation strategy and connects to the green infrastructure network developed for the Cambridgeshire sub region. On completion, the park was handed over to the parish council as part of the Section 106 agreement. A detailed landscape and nature conservation management plan was an integral part of the Section 106 and is being used to steer management of the site to maintain and enhance landscape character and biodiversity.

Melbourn Riverside Park, Cambridgeshire © CSa Environmental Planning

Figure 3.5 Responding to place – extracts from the sensitivity analysis for Thetford Growth Point showing how landscape and visual issues informed green infrastructure planning.[46]

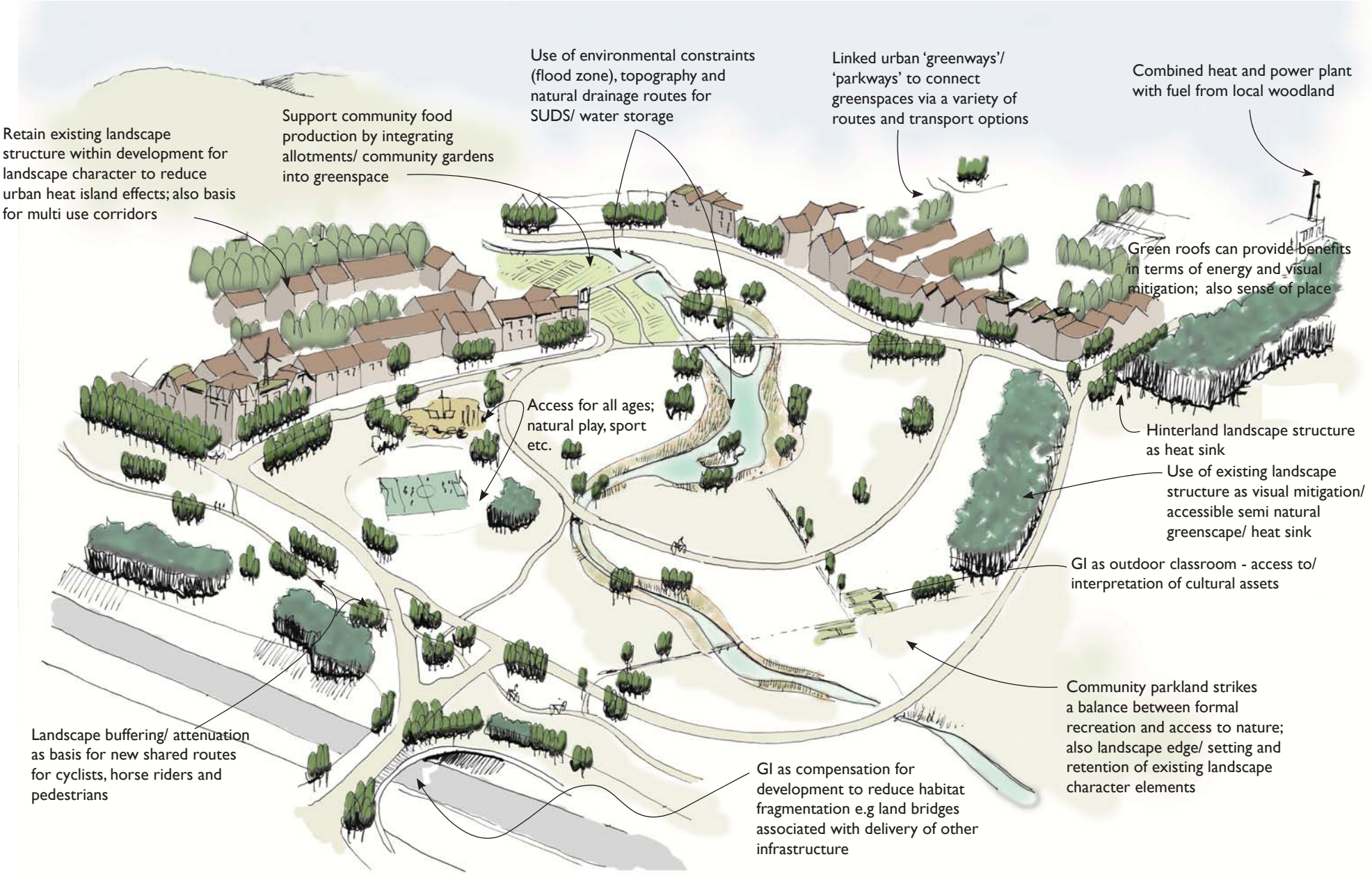


Figure 3.6 Green infrastructure, multi-functionality and place-shaping.

Section 4:
Delivering green infrastructure effectively

Delivering green infrastructure effectively

Key messages

Green infrastructure evidence gathering and analysis must inform the strategic vision within the Local Strategic Partnership's Sustainable Community Strategy and related Local Area Agreement targets.

In order to deliver green infrastructure effectively and meet Local Area Agreement targets, it is essential that green infrastructure is fully integrated into the plan-making process, that consideration of green infrastructure begins at the earliest stages of that process and that green infrastructure provision is considered in relation to the particular functions most relevant in each area.

Local authorities should take the lead in forming partnerships which utilise partners' expertise, financial resources and land-ownership to contribute to the planning, provision and maintenance of local green infrastructure, whilst addressing the diverse objectives of the constituent organisations.

The role of Sustainable Community Strategies, Local Area Agreements and partnership working

Sustainable Community Strategies

The Sustainable Community Strategy (SCS), prepared by the Local Strategic Partnership (LSP) for a local authority area, establishes the overall strategic direction and long-term vision for the economic, social, and environmental well-being of the area, and should include two key elements:

- The long-term vision based firmly on local needs;
- Key priorities for the local area, which may be realistically achieved in the medium term.

Green infrastructure clearly provides a means of dealing, in an integrated way, with the need for natural green space throughout existing and new communities to help to address local community, economic and environmental issues, and to deliver a range of benefits and services to local people and wildlife in a sustainable manner. It is therefore imperative that green infrastructure be incorporated in the SCS and the evidence gathering stage of the process in **Figure 4.3** must therefore take place early enough to inform development of the SCS. Unprompted community consultation may not identify green infrastructure as a priority. Lead officers within the local authority and other local green infrastructure stakeholders should therefore actively engage with the LSP to ensure that the importance of green infrastructure is understood, as well as championing the benefits of green infrastructure within the local authority itself. It is also important that the SCS considers cross-boundary green infrastructure issues and the LSP should therefore include a political, community or other leadership figure able to champion green infrastructure at a sub-regional scale.

Partnership working

It is apparent from **Figure 4.1** that many different partners have an interest in securing new or improved green infrastructure. For example, providing cycle routes within green links could address objectives within a local transport plan for more sustainable travel and objectives within a local health strategy to increase exercise levels. This once again highlights the importance of ensuring that green infrastructure objectives are embedded in the SCS as well as in the LDF, and that they are reflected in LAA targets.

Local Area Agreements

Local Area Agreements (LAAs) are the delivery mechanism for SCSs, setting out the priorities for a local area agreed between central government and a local area (represented by the LSP). These priorities are translated into a set of LAA targets. LSP partners choose indicators that will best help achieve the agreed priorities, and set targets for each indicator, for each year of the LAA's three-year timeframe. In common with the SCS, LAAs provide an opportunity to identify partnerships where shared objectives relating to green infrastructure and other priorities can be delivered by joint funding across different sectors.

LAAs contain designated and non-designated targets. Designated targets are selected from the set of 198 National Indicators announced in the 2007 Comprehensive Spending Review. There is scope for local authorities to link green infrastructure delivery to a variety of the national indicators (for example those related to health, flood and coastal erosion risk management, climate change adaptation, appreciation of local area and improved local biodiversity). Non-designated targets, also called local targets, are chosen by LSP partners to achieve priorities considered not to be addressed by the National Indicator Set. These can be more directly linked to green infrastructure delivery.

For those green infrastructure issues best tackled at a sub-regional level, Multi Area Agreements (MAAs) can be used as cross-boundary LAAs to agree objectives and pool resources.

The strategic position of the SCS within the planning framework and the relationship to LAAs and the LDF are illustrated in **Figure 4.1**.

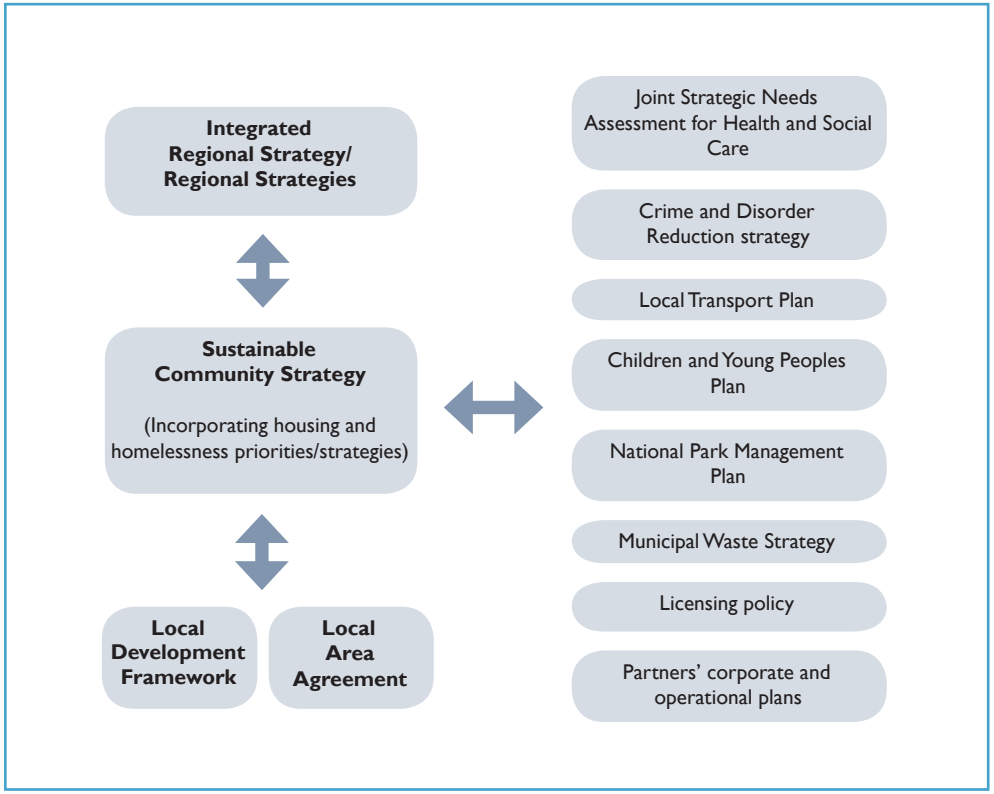


Figure 4.1 The relationship of Sustainable Community Strategies with the Local Planning System[47]

Figure 4.2 further explores how green infrastructure relates to various partners' objectives and can therefore be funded and delivered by bodies other than local authorities through partnership working arrangements brokered by local authorities.

Figure 4.2 Meeting partners' objectives through green infrastructure provision

An example of partnership working is provided in **Box 4.1** which describes some of the partnership working arrangements for projects in the Colne Valley Regional Park (CVP).

Box 4.1 Partnership working at Colne Valley Regional Park[48]

In addition to those identified in the example in **Box 4.1**, other partners may include county councils, English Heritage, neighbouring local authorities, local wildlife trusts, water companies, local access forums and NGOs other than those already named. Clear roles and responsibilities for these organisations should be agreed at an early stage in green infrastructure planning and delivery.

Delivering green infrastructure through local spatial planning

In order to deliver tangible benefits which meet the policy priorities identified in Sections 2 and 3, green infrastructure planning cannot take place in isolation. It is essential that green infrastructure considerations are integrated into local plan-making and development management processes from their earliest stages and with full stakeholder participation.

Whilst green infrastructure planning and delivery requires partnership working, the local authority should take a leadership role. Within a local authority, the planning department should take responsibility for the strategic planning of green infrastructure, seeking inputs from other departments as required. Preparation of a green infrastructure strategy can assist the partnership process and public engagement.

Figure 4.3 sets out a 'model process' for embedding green infrastructure in plan-making. The diagram shows a simplified approach for clarity but in reality, considerable overlap exists between the process stages. The same approach to green infrastructure planning should apply in both urban and rural areas and in areas facing incremental growth as well as in major growth areas. The level of detail required is likely to be greatest, however, in locations where most growth is proposed.

The green infrastructure planning and delivery tasks required at each stage of the plan-making and development management process are set out in the remainder of this section.

Green infrastructure strategies

Following the model process means that green infrastructure is embedded from the outset through study and understanding of place and character and is secured, protected, enhanced and managed through appropriate policies. In these circumstances a separate green infrastructure strategy is not necessarily required. It is recognised, however, that it may be desirable to draw up a green infrastructure strategy, as these have the potential to engage and concentrate a range of partners in a common focus. Strategies are based upon an analysis of existing provision, deficiency and need. This analysis guides the strategy's priorities as well as highlighting opportunities for green infrastructure creation, enhancement and investment.

Strategies are generally produced at sub-regional and local scales, and address the mechanisms needed for delivery at these scales. Green infrastructure strategies are often developed in the context of high levels of planned growth (e.g. housing) so as to ensure green infrastructure provision is integrated into the development process from the very beginning, and to ensure that it complements and supports future developments.

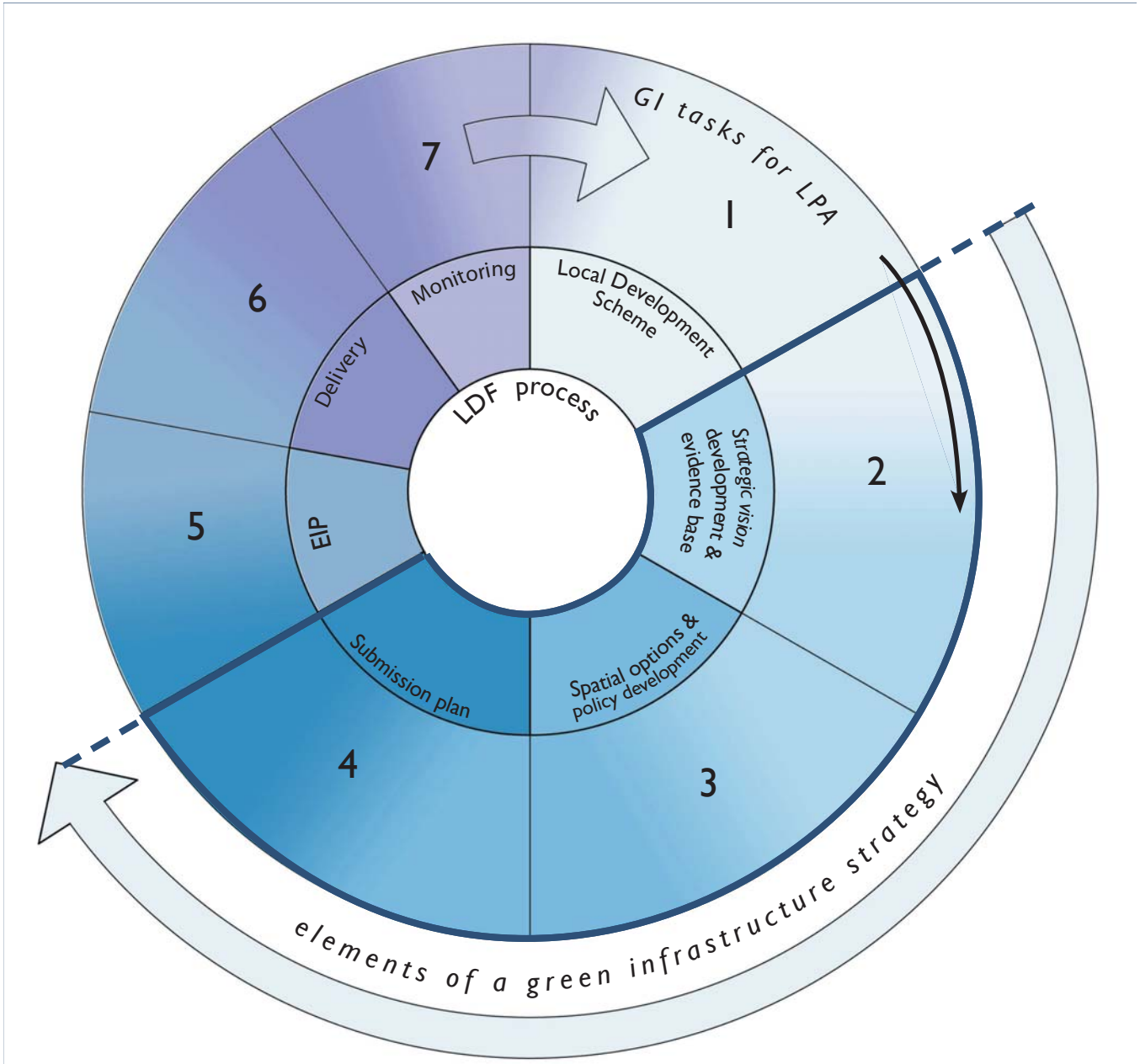


Figure 4.3 Integrating green infrastructure in the Local Development Framework process

GI tasks for LPA

1 Describe how GI will be addressed in the Local Development Framework

2 Environmental characterisation of plan area.
Establish local need for GI functions.
Identify deficiencies (amount and type).
Initial assessment of broad opportunities and key delivery partners.
Document evidence base for future EIP.

3 Develop supporting policy options.
Consult GI stakeholders.
Refine Options.
Consult public
Other relevant strategies.
Initial scoping of delivery mechanisms.

4 Develop spatial plan for GI network within core strategy key diagram and other development plan documents as appropriate.
Core Strategy policy framework.
Consult on and define delivery and long term management mechanisms.

5 Refer to GI evidence base, if required

6 Secure relevant partnership working for delivery through LSP and set Local Area Agreement targets.
Planning decisions.

7 Monitor performance of GI in relation to identified functions.

GI planning and delivery tasks in the LDF process

Stage 1. Local Development Scheme

Green infrastructure planning and delivery tasks
With the publication in 2008 of a revised Planning Policy Statement 12 (PPS12) the Government no longer regulates the precise details of how a local authority should prepare a local development plan. Each Local Planning Authority will therefore need to decide for itself how it wishes to address green infrastructure planning within the LDF.

There is a new emphasis on the Core Strategy which becomes more specific, detailed, spatial and focused. The Core Strategy is produced first and provides the vision and broad spatial plan for green infrastructure, consistent with the SCS vision. A Site Allocations Development Plan Document (DPD) or Area Action Plan DPD may be used to provide more detail on delivery. These DPDs can be used to detail the spatial extent of green infrastructure and delivery timescales in relation to other planned development. Where a Site Specific Allocations DPD is produced, this should incorporate green infrastructure in addition to housing and employment allocations.

Given the need to integrate green infrastructure considerations at the earliest stages of the LDF, it is unlikely to be appropriate to address green infrastructure solely within a Supplementary Planning Document (SPD). An SPD may be of use, however, in providing detailed guidance on implementation, delivery and design.

Where can I find relevant information?
The Plan Making Manual[49] accompanies the revised PPS12 and provides useful guidance on all aspects of LDF preparation.

Who else should be involved?
At this early stage, the Local Planning Authority should also take steps to raise awareness amongst key stakeholders (e.g. elected members) of the physical functions and policy benefits that green infrastructure can deliver. This might be achieved through educational events supported by documents such as this Framework. Planners should also open a dialogue with other relevant directorates within the local authority for instance grounds maintenance, health, education, recreation and so on, as it is important to obtain buy-in from an early stage, and to encourage staff across the council to think strategically about green infrastructure.

Key outputs
A Local Development Scheme which includes details of how green infrastructure will be addressed in the LDF. Awareness-raising events.

Stage 2. Strategic vision development and evidence base

Green infrastructure planning and delivery tasks
Early integration of green infrastructure can help to ensure that it is delivered in advance of, or phased alongside, the development it supports. Retrofitting green infrastructure in areas of deficiency should also be considered. In this way green infrastructure can be planned as an integral part of the community, and recognised as a valuable community asset or 'common ground'. Consideration of green infrastructure at the evidence gathering stage helps to meet the requirements of the 'test of soundness' for development plans, provides a firm foundation for later planning decisions and supports future funding bids.

Section 3 set out the key functions that green infrastructure can deliver in the South East. When assembling the evidence base, planners should consider each of these in turn to determine whether it is locally relevant. The relevant functions should then be prioritised to inform choices about the features and extent of green infrastructure to be provided at different locations within the study area. It is also vital that the priority functions for each green infrastructure site continue to be reflected in its future management. Safeguarding of appropriate future site management may require the use of planning conditions and planning obligations. In determining priorities, planners should have regard not just to local baseline conditions but also to the green infrastructure policy, other related sustainability policies and supporting text within the South East Plan.

Characterisation

The key task at this stage is to gather and analyse local evidence to build the case for green infrastructure - the multi-functionality of green infrastructure helps to make this case stronger. The availability of this information should be determined as early as possible, so that additional information can be mapped if necessary. **Appendix 2** provides detailed guidance on the tasks to inform green infrastructure characterisation. Existing, baseline conditions should be established with respect to the existing state of the environment (its landscape, hydrology, biodiversity and so on) and to existing green infrastructure assets (their nature, extent, management, funding, quality and so on). An extract from environmental characterisation undertaken by Land Use Consultants (LUC) for Thetford Growth Point is shown in **Figure 4.4**.

In addition to this characterisation exercise, the local requirement for green infrastructure should be established in terms of both community demand (e.g. desires expressed in consultation exercises) and functions (for example, the flood storage area required by a local river to minimise the risk of downstream flash flooding). Consideration should also be given to future demand and needs, for example how the current requirement may change in light of projected population growth and development.

Deficiencies in the amount and type of green infrastructure should then be identified by comparing existing green infrastructure provision with identified needs/demand. This analysis should consider each of the key green infrastructure functions described in **Section 3**. For some functions it may be possible to identify deficiencies by reference to standards. Two such standards, Natural England's Accessible Natural Greenspace Standard (ANGSt) and the Fields in Trust Six Acre Standard, are described in **Appendix 3. Table A2, Appendix 2** provides a link to a Forestry Commission study on ANGSt in the South East. Locally-derived standards should, however, be applied wherever available, in line with PPG17. The use of standards for green infrastructure provision is further discussed in **Appendix 3.** If it is necessary to make use of externally defined standards, their local relevance should be considered and confirmed. An example of deficiency analysis undertaken by LUC for Thetford Growth Point is shown in **Figure 4.5**.

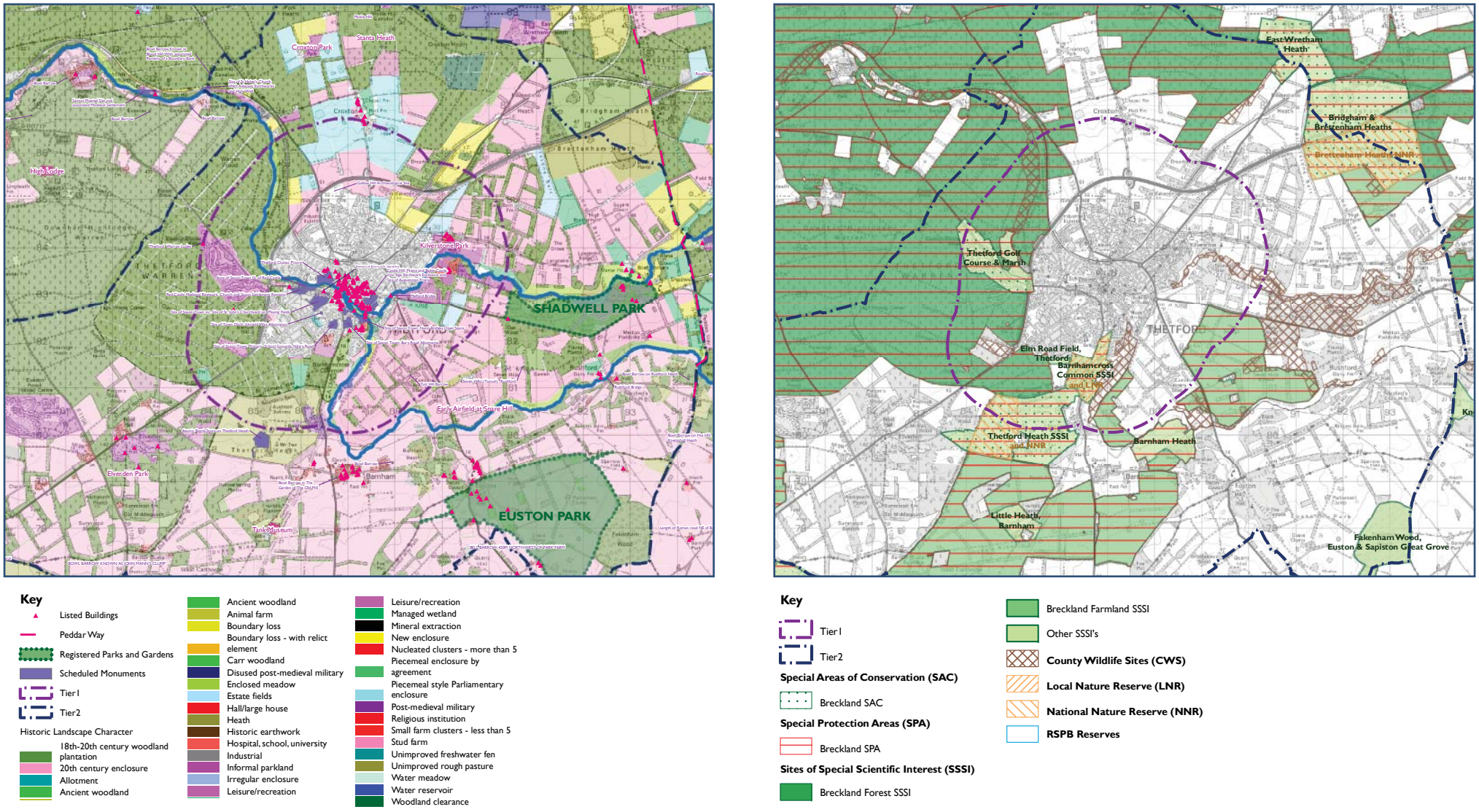
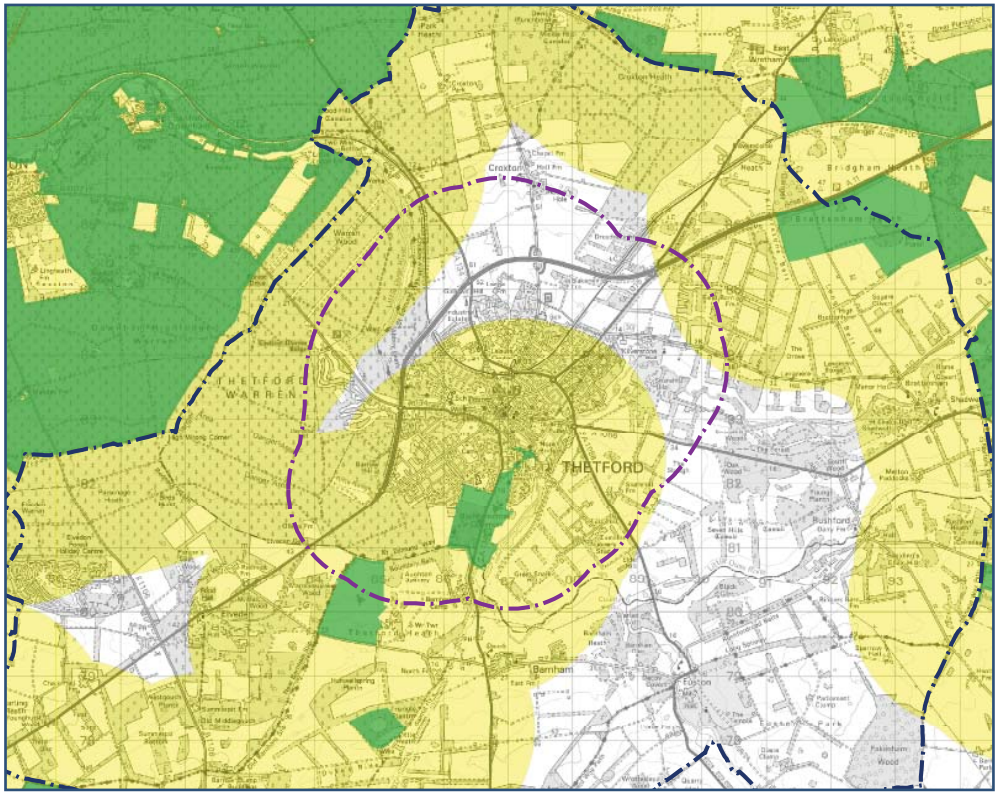


Figure 4.4: Environmental characterisation themes for Thetford Growth Point[50]

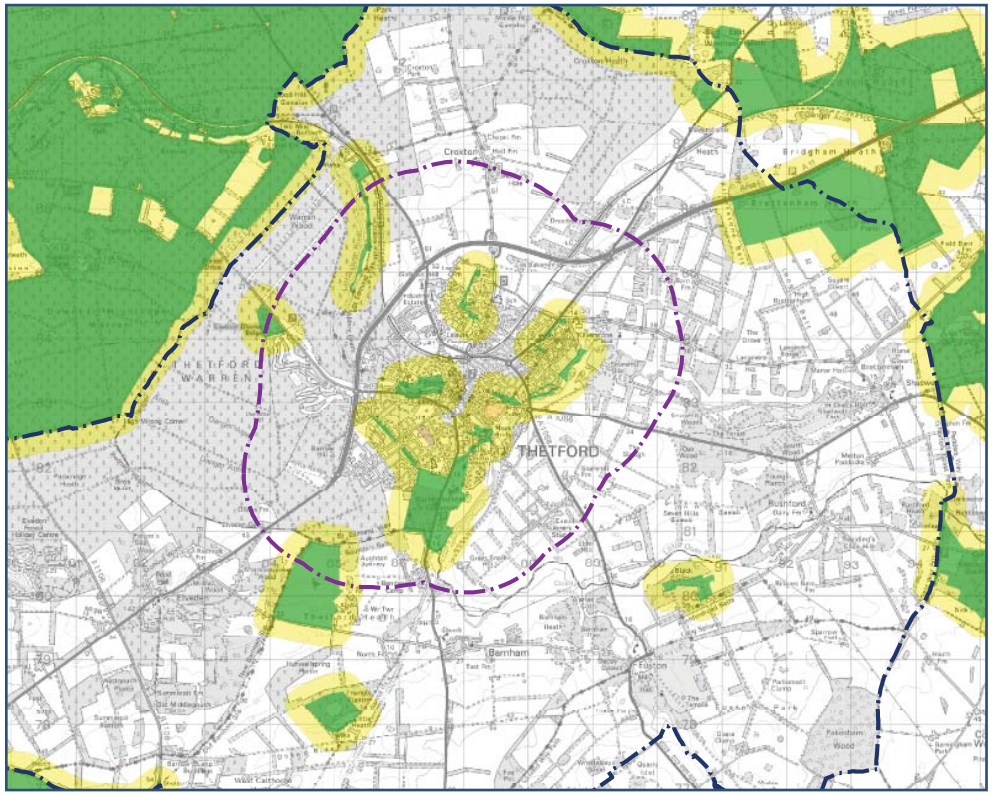


Key

- Tier1
- Tier2
- Catchment of District Scale Sites

Open Space

- Natural and semi-natural green space



Key

- Tier1
- Tier2
- Catchment of Neighbourhood Scale Sites

Open Space

- Amenity green space
- Cemeteries and Churchyards
- Natural and semi-natural green space

Figure 4.5: Extract from the deficiency analysis for Thetford Growth Point[51], using Natural England's ANGSt model

It should also be possible at this early stage to make an assessment of possible areas of opportunity for new or enhanced green infrastructure assets, although these may not yet be linked to specific functions or deficiencies. With respect to opportunities for biodiversity, use of the South East Biodiversity Strategy's Biodiversity Opportunity Area (BOA) mapping is encouraged (see **Table A2**, **Appendix 2**).

Sustainability Appraisal (SA) is a statutory component of the plan-making process. SA scoping reports are required to outline the environmental, social and economic characteristics of the plan area, highlighting problems and deficiencies, and opportunities or assets. These should be informed by the evidence gathering stage of the green infrastructure process to ensure that green infrastructure provision is considered at an early stage of the SA process. Similarly, links should be made to Habitats Regulations Assessment of the development plan from an early stage, considering, for example, the potential for provision of new areas of green infrastructure for planned development to avoid impacts on Natura 2000 or Ramsar sites, e.g. through buffering or provision of alternative sites for outdoor recreation.

As noted in the preceding section, the evidence base should also feed into the SCS vision which will, in turn, guide the Core Strategy spatial vision. In developing the vision, it is important to consider cross-boundary issues such as the presence of large green infrastructure assets in neighbouring districts. One mechanism for this is the joint production of a sub-regional green infrastructure strategy. Such strategies aim to develop strategic links with green infrastructure networks in adjacent administrative area, both spatially (e.g. the connection of green spaces) and practically (e.g. identifying the relevant organisations to support collaboration and delivery across counties, and identifying appropriate funding sources for capital works and management). One such strategy currently under development is described in **Box 4.3**

Box 4.3 PUSH Green Infrastructure Strategy

The Partnership for Urban South Hampshire (PUSH) comprises the eleven local authorities in South Hampshire and key external partners. The PUSH area is designated as one of the Government's New Growth Points as well as a Diamond for Investment and Growth in the South East Plan. PUSH identified the need for a Green Infrastructure Strategy to deliver its environmental policy objectives and its vision to improve South Hampshire's quality of life. One of the stated aims of the strategy, which currently exists as a consultant's report to PUSH, is to *'Supplement relevant work being undertaken by individual authorities or organizations (e.g. PPG 17 open space strategies) by showing what the inter-linkages are across Local Authority boundaries'.*

Locations where a coordinated planning response, arrived at by cross-boundary working on green infrastructure, is likely to be particularly valuable include those where:

- Significant growth is proposed, particularly where this crosses or lies close to administrative boundaries, for example the Green Infrastructure Strategy for the PUSH area described in **Box 4.3**
- A major existing or potential green infrastructure resource exists, for example the joint planning for Thames Basin Heaths described in **Box 3.2**.
- Green Infrastructure lies outside the boundary of the local authority that benefits from its functions, e.g. flood storage areas.

Where can I find relevant information for strategic vision development and evidence base?
Information and studies which may inform environmental characterisation and deficiency analysis, including available regional datasets, are listed in **Appendix 2**. As previously described, links should also be made to other studies informing the planning process, notably SA, HRA and Strategic Flood Risk Assessment (SFRA). Together, these datasets can provide a consistent starting point to local authorities across the South East. Given the similarity between the regional definition of green infrastructure and the PPG17 definition of open space, sport and recreation facilities, any existing PPG17 audit of facilities and assessment of need for them is likely to be a key data source.

Who else should be involved in the development of strategic vision and evidence base?
Informal consultation with statutory and other local green infrastructure stakeholders at this stage will help with evidence gathering. Potential future partners for delivery and management of green infrastructure should also be identified and engaged at this early stage, as far as possible. Representatives of other local authority directorates who were engaged at Stage 1 should continue to be involved at this stage, in order to build a truly multi-functional vision for green infrastructure.

Key outputs of strategic vision development and evidence base?
Documented, spatial evidence base comprising: environmental characterisation and green infrastructure baseline; needs/demand for green infrastructure; analysis of amount and type of deficiencies; potential opportunity areas; potential partners.

Stage 3. Spatial options and policy development

Green infrastructure planning and delivery tasks
This stage involves using the evidence gathered to define opportunities and options for a green infrastructure network. These options are then refined through stakeholder consultation, including public consultation, at appropriate stages of the development plan process. Consultation workshops should also gather information on locally appropriate delivery and governance mechanisms.

Where can I find relevant information?
Information is drawn from Stage 2 of the process.

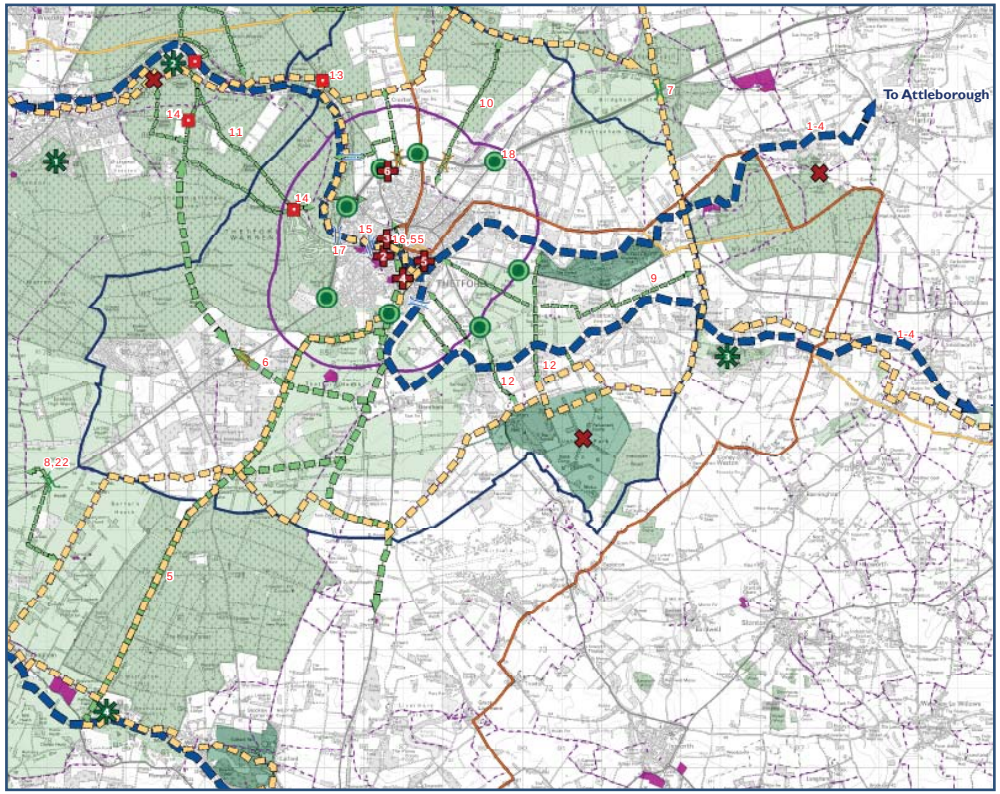
Who else should be involved?
Depending on local context, stakeholders may include representatives from the relevant government agencies, local developers and landowners, community groups, local environmental organisations, the Primary Care Trust and/or Strategic Health Authority, council officers and members. Potential delivery partners should be involved at this stage.

Key outputs
Outline of preferred option for green infrastructure network, based on feedback from stakeholder and public consultation; a set of principles to inform the planning, design and delivery of green infrastructure.

Stage 4. Submission plan

Green infrastructure planning and delivery tasks

At this stage green infrastructure proposals and projects will have been identified and mapped in a format which can be used on a key diagram or proposals map, as appropriate. An example is shown in **Figure 4.6**. The multifunctional nature of green infrastructure means that a number of development plan policies can support its implementation (e.g. landscape policy, flood risk policy, open space policy). An overarching green infrastructure policy in the LDF Core Strategy should ensure that green infrastructure is prioritised in planning decisions.



Key

Existing

Tier1
Tier2

Country Parks and Forestry Parks

Brandon Country Park
Knettishall Heath Country Park
High Lodge Forest Centre
West Stow Country Park

Strategic Heritage Assets

Grimes Graves
Saxon Town Sites
The Holy Sepulchre
Castle Hill
Thetford Priory
Gallow Hills Tumulus

Existing Links

LEVEL 1 Green Links (Existing)
National Cycle Network Route 13 (A10)
Public Rights of Way
Regional Cycle Route 30 (A12)
Pingo Trail
The Sheep Walk

Important Sites

Destination Sites

Sites of Biodiversity and Historic Interest

Historic parks and gardens
Biodiversity sites
Lakenheath Fen RSPB Reserve
Scheduled monuments

Proposed

Green and Blue Links

LEVEL 1 Green Links (Proposed)
LEVEL 2 Green Links* (Proposed)
LEVEL 3 Green Links (Proposed)
LEVEL 1 Blue Links, incorporating River Valley Park (Proposed)

Other Proposed Features

Proposed Gateway
Strategic Blue Bridges
Strategic Green Bridges
Strategic Bridge
Proposed Crossing Points
7 Project numbers
Lakenheath Fen RSPB Reserve Indicative Area of Search

Key

Existing Features

Existing Links

Existing Avenue to Enhance
Existing Pedestrian Green Link to Enhance

Recreational Routes

Public Rights of Way
Regional Routes

Open Space

Existing open space
Enhancement of Open Space
Restricted Access or No Public Access
Crown Estate Land leased to Forestry Commission
Site to Safeguard Biodiversity

Existing sites

Parkland setting
Cultural Heritage Asset (strategic)
Strategic Views
Strategic View (Axial view to conserve)

Proposed Features

Development by 2021
Development by 2031
Site with Planning Permission for Employment

Proposed Green Links

Proposed Avenue Link
Proposed Sustrans Route
Proposed Footpath / Bridleway Green Link
Proposed Pedestrian Link to open space sites

Proposed Blue Links

Strategic Blue Link
Proposed Blue Links - Swales

Proposed Landscape

Proposed Landscape Buffer

Proposed sites

Proposed/potential for semi-natural greenspace
Green roof area
Proposed river valley park
SPA buffer - extent to be determined through Appropriate Assessment

7 Green Infrastructure Project numbers
Gateways
Strategic SuDS
Strategic Bridging point

Figure 4.6: Strategic and local level green infrastructure network derived for Thetford Growth Point[52]

The green infrastructure proposals should be supported by an implementation plan to link capital and revenue projects to funding streams and delivery partners. This plan may either form part of the spatial delivery strategy within the LDF Core Strategy or be cross-referenced to it. Within the implementation plan, consideration should also be given to how the proposed green infrastructure projects fulfil the locally relevant green infrastructure functions identified in the needs assessment, the practical constraints to achieving the green infrastructure projects and an outline prioritisation exercise, to shortlist green infrastructure projects.

Further information on appropriate funding and governance for green infrastructure is provided in **Appendix 4** but a number of more general considerations should be borne in mind:

- It is not possible in strategic guidance to relate particular types of green space to particular funding models or management options. This will always depend on local circumstances, including the characteristics of the site and its surroundings, the financial circumstances of the local authority and the knowledge, management skills and motivation of the local authority, not-for-profit organisations, community groups and developers in the area.

- Developer contributions, gathered through Section 106 agreements or other mechanisms, provide the possibility of establishing a 'pot' of money for off-site mitigation where the Core Strategy establishes a need for green infrastructure to be provided but where those functions cannot be met through the provision of green infrastructure on the development site.

- A benefit of incorporating multi-functionality into the design is being able to utilise a wider range of funding opportunities.

- By partnering with appropriate not-for-profit organisations, or if necessary, by creating a new delivery 'vehicle' such as a dedicated trust, local authorities can access funds from a wider range of sources, as well as drawing on outside expertise, volunteer labour and help with fund-raising.

If green infrastructure has not previously been considered in the development plan process, it may still be introduced at submission plan stage. This type of catch-up situation is illustrated in **Figure 4.7.** Although it is possible to plan for green infrastructure or produce a green infrastructure strategy at a later stage, this may require parts of the development plan to be revisited.

Where can I find relevant information?
Two key funding sources are described in **Box 4.5** and two examples of how delivery bodies may be organised are set out in **Box 4.6**. A broader review of funding streams and governance models that may be appropriate is provided in **Appendix 4**.

Who else should be involved?
Appropriate funding streams should be identified (with input from key partners and stakeholders), based on the character of individual projects, as should outline capital and revenue costs and phasing if enough detail is available.

Key outputs
Spatial plan of green infrastructure network for inclusion in key diagram or proposals map; text for green infrastructure policies in Core Strategy; Implementation Plan, including preliminary recommendations for delivery.

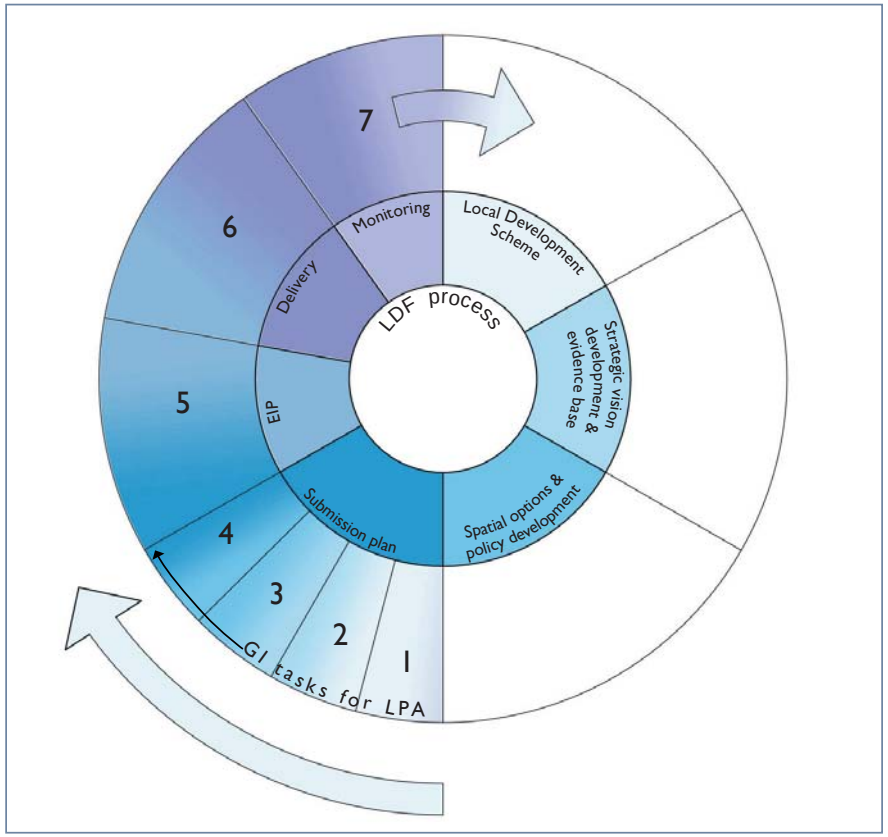


Figure 4.7 'Catch-up' - Integrating green infrastructure part way through the Local Development Framework process

Box 4.5 Examples of funding sources

Regional Infrastructure Fund (RIF)[53]:

The purpose of this fund is to ensure delivery of essential infrastructure in step with growth, at the regional level. The RIF is intended to benefit existing and new communities and to recover the investment through development (e.g. through privately financed, or PFI projects). The draft investment criteria make it clear that funding will be prioritised to support large developments within the regional hubs, diamonds for growth, growth areas or new growth points identified in the South East Plan.

Community Infrastructure Levy[54,55]:

The Planning Act 2008, empowers local councils to apply a Community Infrastructure Levy (CIL) on new developments in their areas to support infrastructure delivery. Draft regulations setting out details of the CIL regime will be issued for public consultation in autumn 2009 and are expected to come into force by spring 2010. The CIL will use a simple formula-based approach, relating the size of the charge to the character of the development. The levy will be suitable for sub-regional infrastructure projects, and could therefore be used for landscape scale green infrastructure works.

Stage 5. Examination in public

Green infrastructure planning and delivery tasks
The information gathered and analysis performed at Stage 2 provides a firm evidence base that underpins the planned green infrastructure network. It may be necessary to present this evidence base at Examination in Public in order to demonstrate that the 'test of soundness' has been met. The evidence base may include a green infrastructure strategy document but this is not a prerequisite.

Where can I find relevant information?
Stage 2 baseline information; the SA; the green infrastructure strategy (if prepared).

Who else should be involved?
It may be appropriate to call upon the support of the statutory consultation bodies and other local stakeholders who have been engaged during the plan making process.

Key outputs
Presentation of green infrastructure evidence at examination in public, if required.

Stage 6. Delivery

Green infrastructure planning and delivery tasks
Links should now be made with the funding and delivery partners that were identified in prior stages in order to secure funding and to establish the delivery body. Actions at the earliest part of the delivery stage are likely to include land assembly or ownership negotiations, detailed site investigations, further consultation and feasibility studies to inform a design with a view to securing outline planning consent. Two examples of delivery mechanisms are provided in **Box 4.6**

Development management
Most significant development and land use change requires planning permission and the development management process affords considerable potential to promote and deliver green infrastructure.

Delivery can come in the following forms:

- The conservation, restoration and enhancement of existing green infrastructure, increasing functionality.
- The creation of new green infrastructure.
- The linking of green infrastructure assets.

When considering how individual applications can contribute to green infrastructure delivery, there are a number of considerations:

- The green infrastructure policy in the South East Plan should underpin planning decisions. Other RSS or LDF policies which have potential green infrastructure implications can also be referred to – for example, policies regarding open space provision, flood risk and climate change. Additionally, national planning policy can act as a 'hook' to guide decisions.

- Green infrastructure strategies or other documents comprising the green infrastructure evidence base for the Core Strategy can provide important contextual information to the development management process. Design objectives within green infrastructure strategies are good guides to inform development proposals. Local delivery partners highlighted in the strategy can help developers understand how their proposals can support green infrastructure provision.

- Local partners may also be able to assist in the long-term management of green infrastructure, which development proposals should address. Site management requirements, e.g. nature conservation management plan, can be incorporated in a Section 106 agreement or planning conditions to help ensure that a site continues to be managed in such a way as to deliver the planned-for functions and benefits.

- Where developments coincide with or adjoin existing green infrastructure, opportunities to restore (where needed) and enhance these assets should be encouraged. Any restoration or enhancement should ensure consistency with green infrastructure strategy objectives, where a local strategy exists.

- Proposed developments may lead to a reduction in green infrastructure. This is undesirable, but in some cases may be unavoidable. In these cases, reductions should be recouped as far as possible through mitigation and/or compensation measures incorporated into the development design and secured through the planning process.

Where can I find relevant information?
Delivery of the green infrastructure network will make reference to the implementation plan from Stage 4. National planning policy, South East Plan green infrastructure policy and other regional and LDF policies, as well as any green infrastructure strategy document should guide development management decisions.

Who else should be involved?
Funding and delivery partners.

Key outputs
Funding secured; delivery body established; outline planning consent obtained.

Box 4.6 Delivery case studies

Milton Keynes Parks Trust[56]
The Parks Trust is an independent charitable organisation that owns and maintains the strategic network of green infrastructure covering around 20% of the area of Milton Keynes. The Trust was established in 1992 and endowed with a commercial property portfolio to generate the income required to cover its operating costs. The Trust works with developers and planning bodies to promote and facilitate the extension of the green infrastructure network as Milton Keynes expands. The Trust is nominated as the adopting body for all new areas of parkland around the city, using developer contributions which the Trust invests to provide the income to pay for ongoing maintenance. Cost calculations consider the whole life costs of green infrastructure projects, including the eventual replacement of key assets.

Colne Valley Regional Park[57]

The 10,000 ha Colne Valley Regional Park was established to the west of London in the mid 1960s to safeguard the area from urbanisation, to conserve and enhance the landscape and to provide recreational facilities. The Colne Valley Partnership, a voluntary association of local authorities, is responsible for strategic direction, addressing planning issues and providing political and financial support. The Colne Valley Partnership is supported by the Colne Valley Executive, consisting of officers from the local authorities and Groundwork. This group provides the technical advice and support that enables the Park to function (particularly on planning matters). Groundwork acts as the 'managing agent' for the park, employing several staff with responsibility for developing and implementing projects relating to landscape enhancement, improving access, promotion, environmental education and visitor services. The local authority members pay an annual levy which supports basic marketing and publicity and running of the visitor centre. Groundwork, a charity, and other park partners (government agencies, private companies and local groups) can access funding for projects which is not normally available to local authorities. This project funding amounts to approximately ten times the local authority levy each year.

North Kent Parklands[58]

Greening the Gateway Kent and Medway (GGKM) is a sub-regional partnership of 22 organisations with complementary interests in the economic, social and environmental regeneration of Dartford, Gravesham, Medway and Swale. GGKM has developed the North Kent Parklands Business Plan to identify nine strategic green infrastructure projects, costing £31m, across North Kent in support of the wider Thames Gateway Parklands programme. To achieve this task, emphasis has been placed on meeting the Thames Gateway Parklands' transformation themes, plus project deliverability, value for money and local support. Key features of the plan development process which resulted in submission to Communities and Local Government of a robust programme with a strong sense of ownership were:

- Local participation – engagement of north Kent's 3 green grids when inviting project proposals.
- Transparency – establishment of a Parklands task group with representation from local authorities, local delivery vehicles, government agencies and the 3rd sector.
- Initial assessment – amalgamation and streamlining of received project bids in partnership with the 3 green grids, to select the best for further consideration
- Information capture – collect information for appraisal of emerging best project proposals using standard forms, capturing detailed budget requirements, match funding, risks and so on.
- Green Book appraisal – of projects in emerging business plan by independent experts.
- Oversight and sign-off – review of the emerging plan by a Thames Gateway Kent Partnership (TGKP) Board resulted in a tighter working group, comprising local authority chief executives, to support its development. The Board also refined the project list from 12 to 9 before sign-off.

Stage 7. Monitoring

Green infrastructure planning and delivery tasks
Monitoring will help to inform and refine future spatial plans and policies at both local and regional levels in relation to the spatial plan and LDF policies relating to green infrastructure.

Strategic level monitoring should focus on the extent to which the planned green infrastructure network has been delivered. At a site level, inspections should be made by the local authority or adopting body prior to site handover to ensure planning conditions are met. Longer term monitoring of a site should seek to confirm that it continues to be managed so as to deliver the functions for which a need was identified during plan making. Site management requirements may have been specified in planning conditions or Section106 agreements.

Site monitoring may occur through visitor surveys, or through the audit trail established for grant funded projects. The Annual Monitoring Report (AMR) is used to report on progress against Core Strategy policy objectives. Since the process described in this Framework integrates green infrastructure planning into the LDF process, indicators to monitor green infrastructure delivery should be incorporated in the AMR. The targets and indicators monitored should be aligned with those relating to green infrastructure in LAAs.

Where can I find relevant information?
The measures used to assess existing green infrastructure provision against community needs when compiling the evidence base at Stage 2 can also form the basis of monitoring plan delivery.

Who else should be involved?
Officers responsible for choosing indicators for and compiling the AMR and LAA monitoring.

Key outputs
Confirmation of fulfilment of planning conditions; long term tracking of functional performance against originally identified needs.

Appendix 1:
National policy for green infrastructure and regional objectives

National policy support for green infrastructure

National planning policy provides strong support for green infrastructure provision, recognising its contribution to sustainable development as follows.

- **Planning Policy Statement 12 (PPS12)**[59]: Local Spatial Planning - requires local planning authorities to plan for the infrastructure requirements of new development, including green infrastructure. PPS12 also calls for local planning to make links with the strategies and investment plans of other organisations. This latter point is particularly relevant to green infrastructure given that its many functions can help to meet a broad range of policy objectives. As well as responsibilities for delivery, PPS12 notes that the infrastructure planning process should identify, as far as possible, infrastructure costs, phasing of development and funding sources. This Framework provides examples of funding mechanisms to illustrate the breadth of possibilities.

- **Planning Policy Statement 1 (PPS1)**[60]: Delivering Sustainable Development - states that development should ensure an appropriate mix of uses, including the incorporation of green space.

- **Planning and Climate Change Supplement to PPSI**[61]: states that spatial strategies and any development should help deliver, amongst other things, green infrastructure and biodiversity as part of a strategy to address climate change mitigation and adaptation.

- **Planning Policy Guidance 17 (PPG17)**[62]**:** Planning for Open Space, Sport and Recreation - calls on local authorities to seek opportunities to improve the local open space network, and to incorporate open space within new development.

- **Planning Policy Statement 9 (PPS9)**[63]: Biodiversity and Geological Conservation - calls for an integrated approach to planning for biodiversity in LDF's, including networks of natural habitats as part of a wider provision of strategy for protecting and extending open space and access routes.

- **Other relevant planning policy** - A number of other planning policy statements are also relevant in relation to green infrastructure. These include PPS7: Sustainable Development in Rural Areas[64] (which has an emphasis on landscape character conservation and enhancement), PPS25: Planning and Flood Risk[65], and PPS22: Renewable Energy[66].

The Government's **Growth Points**[67] initiative is aimed at communities who wish to pursue large scale and sustainable growth, including new housing, through a partnership with Government. These partnerships are based on the core principles of early and effective housing delivery, and working with local partners to coordinate infrastructure and service provision with growth (i.e. that the two occur in step with one another). Nine Growth Points have been named in the South East Region so far. A green infrastructure strategy is required for all Growth Points.

The Sustainable Communities Plan[68] identifies three Growth Areas - Thames Gateway, Milton Keynes-South Midlands (MKSM) and Ashford - which fall wholly or partly within the South East Region. The Government is committed to ensuring that infrastructure is delivered in step with growth in these areas and 10% of first round funding for Growth Areas was ring-fenced for greenspace projects. Local authorities are responsible for allocating Growth Fund monies from subsequent rounds through the Programme of Development process. A guide[69] has been produced to assist local delivery vehicles and local authorities in addressing the GI

planning and delivery needs set out in the MKSM Sub-Regional Strategy. Similarly, green infrastructure in the Thames Gateway has been the subject of a published framework (the Parklands Vision[70]), green infrastructure partnerships and green grids. The work in both these areas demonstrates how a sub-regional position on green infrastructure can be developed.

Green infrastructure is recognised by the **TCPA Eco-towns Worksheet** [71] as being *'essential to both the environmental sustainability and the long term social and economic success of eco-towns'* and it emphasises the importance of integrating green infrastructure into the detailed planning of eco-towns. Its recommendations include that green infrastructure should be: factored into land values and decisions on housing densities and urban structure, and should be designed to reflect and enhance the area's locally distinctive character; implemented primarily through focused green infrastructure strategies and the spatial planning system of RSSs and LDFs, and that it should be formally adopted within these planning policy documents. As a general rule, 40% (including private gardens) of the total land in an eco-town should be earmarked for green infrastructure and at least half of the green infrastructure provision should be publicly accessible.

Whilst delivering significant amounts of green infrastructure in a dense urban area can seem challenging, it should be borne in mind that well over half of London's area comprises green spaces or water. [72] Further examples of how green infrastructure can be integrated into urban areas are available from the Sustainable Cities website[73].

The Government's 2007 **Strategy for England's Trees, Woods and Forests**[74] highlights the contribution that trees make to social, environmental and economic objectives today and sets out a vision for their future role.

Regional Policy Objectives

This section summarises the 16 Core Objectives of the South East Plan (RSS) and the 14 targets in the Regional Economic Strategy (RES). These have been categorised to arrive at the 7 high level regional policy objectives against which green infrastructure functions have been scored in **Table 3.1**.

Economic Objectives

Promote economic growth, employment and skills improvement
RES1 Global Businesses and Foreign Direct Investment - increase the percentage of businesses located in the SE operating internationally.

RSS2 Economic growth and competitiveness in the region will be sustained, with Gross Value Added (GVA) in the region increased by 3% per annum over the period 2006-16.

RES2 Knowledge Transfer and Business Expenditure on Research and Development - increase the proportion of SE businesses reporting R&D links with universities, and increase R&D expenditure.

RES3 Innovation and Creativity - increase the percentage of total SE business turnover attributable to new or significantly improved products.

RES5 Enterprise - increase the number of businesses per head of population and the number of new businesses run by women by 2010.

RES6 Skills - maximise the number of people ready for employment at all skill levels, and ensure they are continually equipped to progress in the labour market.

RES7 Competition and Business Regulation - increase the level of participation of SE businesses (especially small businesses and social enterprises) in tendering for public sector contracts.

RES10 Employment - improve the productivity of the workforce and increase the proportion of residents that are economically active.

RSS3 New initiatives to tackle skills deficits will be promoted.

Provide sufficient employment space, housing and supporting infrastructure of appropriate type and quality

RES4 Infrastructure - secure investment in infrastructure priorities to maintain international economic competitiveness.

RES9 Physical Development - ensure sufficient and affordable housing and employment space of appropriate quality, type and size and ensure the efficient use of land resources.

RSS6 A sufficient level of housing will be delivered.

RSS7 A substantial increase in the supply of affordable housing will be pursued, through measures to deliver this goal.

RSS8 Adequate infrastructure will be provided in a way that keeps pace with development.

RSS9 Key transport links will be improved, providing access for all, especially disadvantaged groups.

RSS16 New development will be of a high quality sustainable design and construction, and be an asset to the region.

Environmental Objectives

Protect and enhance biodiversity, cultural heritage, landscape and natural resources

RES12 Sustainable Consumption and Production - reduce per capita water consumption and increase GVA generated per tonne of materials entering the waste stream.

RES13 Natural Resources and the Environment - achieve measurable improvements in the quality, biodiversity and accessibility of green and open space.

RSS13 Better natural resource management and efficiency will be pursued, leading to reductions in the consumption of water and energy and the production of waste.

RSS15 The best of the region's historic, built and natural environment will be protected and where possible enhanced, both for its own sake and to underpin the social and economic development of the region.

Mitigate and adapt to climate change

RES11 Climate Change and Energy - reduce CO_2 emissions and increase the contribution of renewable energy to energy supply.

RSS14 New development will be delivered in a manner which mitigates the effects of, and adapts to climate change.

Promote sustainable transport and travel patterns
RES8 Transport - reduce road congestion and pollution levels by improving travel choice, promoting public transport, managing demand and facilitating modal shifts.

RSS4 A closer alignment between jobs and homes will be pursued.

Social Objectives

Promote sustainable communities
RES14 Sustainable Communities - enable more people to benefit from sustainable prosperity across the region and reduce polarisation between communities.

RSS5 Economic and social disparities within the region will be reduced.

RSS12 Crime and the fear of crime will be reduced.

RSS11 Spatial planning in the region will consciously take into account the needs of an ageing population and its implications.

Promote health and well being
RSS1 A sustainable balance between planning for economic, environmental and social benefits will be sought, to help improve quality of life for everyone in the South East.

RSS10 Heath provision and access will be improved.

Regional Strategies

In addition to the RSS and RES, other regional strategies that make reference to green infrastructure are listed below. These are referenced in the main body of the Framework where relevant.

- **South East England Health Strategy**[75] – has amongst its objectives to *'increase safe, sustainable and green spaces'* and references studies on the health benefits of green spaces.

- **Regional Sustainability Framework** [76] – refers to *'timely provision of environmental and green infrastructure'* as a key delivery mechanism for achieving regional sustainability goals and includes an objective to improve access to the countryside, including natural greenspace.

- **Regional Forestry Framework** [77] – describes how woodlands form a vital component of a regional green space network that provides better places for people to live, as well as their contribution to the South East environment and economy and the health of its inhabitants.

- **South East Biodiversity Strategy** [78] – promotes a landscape scale approach to ecosystem restoration and seeks to ensure that wildlife has space to respond to climate change, as well as identifying Biodiversity Opportunity Areas (BOAs). These are a spatial representation of regional BAP objectives for the restoration and creation of habitats.

- **Climate Change Mitigation and Adaptation Implementation Plan for The South East Plan**[79] - sets out a suite of actions to be undertaken by key partners to help deliver the climate change commitments set out in the South East Plan. Includes actions on development location, flood storage, SUDS, green roofs and migration of habitats and species.

- **Thames Gateway Delivery Plan**[80] **and Parklands**[81] – the Delivery Plan sets out Thames Gateway's aspiration to be the UK's first 'Eco Region'. It also commits to the Parklands programme which aims to provide a network of accessible, high quality and sustainable landscapes and waterways which capitalise on existing natural, built, historic and cultural assets. Strategic Parklands projects for the South East are set out in the North Kent Parklands Business Plan (see **Box 4.6**).

Mapping GI data to inform GI planning

This appendix describes the recommended method for mapping green infrastructure data to inform GI planning. **Table A1** outlines the mapping tasks which could be completed to inform the LDF stages and GI tasks described in **Section 4.**

Table A1: Summary of LDF Stages, GI tasks and associated mapping tasks

LDF Stage	GI Tasks	Mapping Tasks
Stage 2: Strategic vision development and evidence base	Environmental characterisation of plan area	Gather and analyse evidence on the state of the environment and existing GI (See **Box 2.1**), Create interactive map file with baseline information. Environmental characterisation of plan area. Identify location of potential major developments.
	Identify deficiencies (amount and type)	Identify areas of GI deficiency by reference to standards or local functional requirements (e.g. flood storage). Map zones of green space deficiency, and other GI deficiency where spatially quantifiable. Identify areas of potential future need in light of new development, and calculate area of green space needed to support urban extensions.
	Initial assessment of broad opportunities and delivery partners	Initial GI opportunities mapped, identifying which spaces have potential to deliver multiple functions and which a single function.
	Document evidence base for future EIP	Finalise mapped information to support environmental characterisation.
Stage 3: Spatial Options and Policy Development	Develop spatial GI opportunities	Develop and map GI options.
	Develop supporting policy options	Identify areas of GI deficiency. Map zones of green space deficiency, and other GI deficiency where spatially quantifiable. Identify areas of potential future need in light of new development, and determine area of green space needed to support urban extensions.
	Consult GI stakeholders	Prepare maps for consultation.
	Refine Options	Amend map as necessary.
	Consult public	Prepare maps for consultation.
	Refine Options	Amend maps as necessary and finalise.
	Initial scoping of delivery mechanisms	

Further detail on the mapping tasks at Stages 2 and 3 is provided below.

Stage 2: Strategic vision development and evidence base

Environmental characterisation of the plan area

Gather and analyse evidence on the state of the environment and existing GI

Relevant mapped datasets should be identified and compiled in a Geographic Information System (GIS). This will enable a picture of the existing environmental assets and unique features of the area to be built up and the existing green infrastructure to be identified.

A list of mapped data which can usefully inform the GI study is provided in **Table A2**. It is recommended that all the mapped data listed be gathered if available. Where gaps exist a decision should be taken as to whether it is necessary and/or feasible to fill those data gaps.

Key partners should be contacted in order to gather datasets which they may hold. This also provides a good opportunity to make contact with partners and advise them on the consideration of green infrastructure in the area. See **Figure 4.2** for more detail on potential key partners.

Create interactive map file with baseline information

An interactive map is a useful tool for storing mapped GIS layers, and allows the user to view multiple layers in combination, without having to print the maps. They are easy to create in ArcGIS (Published Map), MapInfo (ProViewer) or other GIS packages. The interactive map is viewed on free software without the expense of purchasing a full GIS package.

Table A2: Baseline/Spatial data to inform GI planning

Data set	Potential Source
General	
Ordnance Survey base maps at 1: 25k, 1:50k scales	Local authority (Borough/District Council)
Environmental characterisation	
Biodiversity and nature conservation	
National and international nature conservation designations e.g. National Nature Reserve	Natural England (www.magic.gov.uk)
Local nature conservation designations e.g. Natura 2000 sites, Sites of Special Scientific Interest, National Nature Reserves	Local authority or County/Local environmental records centre
Ancient woodland	Natural England (www.magic.gov.uk)
BAP habitats and species records	Local enviromental records centre
Biodiversity Opportunity Areas (BOAs)	South East England Biodiversity Forum (http://strategy.sebiodiversity.org.uk/map.php)
Heritage and historic landscape	
Historic Landscape Character	County Councils
Heritage Designations (including Scheduled Ancient Monuments and Registered Parks and Gardens)	English Heritage (www.magic.gov.uk)
Other national and local historic information	English Heritage (http://www.heritagegateway.org.uk/gateway)
Landscape	
Landscape Character	Local authority (Borough/District Council)

Data set	Potential source
Open space and access	
Sustrans routes	Sustrans (http://www.sustrans.org.uk/)
Cycleways and greenways	Local authority (Borough/District Council)
Public Rights of Way	Local authority (County Council)
Sport facilities	Sport England (www.activeplaces.com)
Areas deficient in accessible natural greenspace	Forestry Commission; Natural England (http://www.forestry.gov.uk/forestry/infd-7d4mgd)
Accessible open space	Local authority (Borough/District Council)
Access Land	Natural England
Green corridors	Local authority (Borough/District Council)
Green spaces within institutional land (e.g. housing estates, hospitals)	Local authority (Borough/District Council)
Suitable Alternative Natural Greenspace	Local authority and other interested parties
Water enviroment	
Water Cycle planning	Local authority
Rivers and other waterbodies	Ordnance Survey / Local authority
Flood risk zones	Environment Agency; local authority strategic flood risk assessment
River Basin Management Plan information	Environment Agency
Socio-economic	
Indices of Multiple Deprivation	Office for National Statistics
Health indicators that may be affected by use of greenspace	Natural England

Data set	Potential source
Other	
Forestry	Forestry Commission - National Inventory of Woodland and Trees
Agriculture	Defra - Agricultural Land Classification; Integrated Administration and Control System; Agricultural Census;
Planning designations (Green Belt or Green Wedges)	Local authority (Borough/District Council)
Identification of deficiency and need	
Accessible open space	Local authority (Borough/District Council)
Areas deficient in accessible natural greenspace	Forestry Commission; Natural England (http://www.forestry.gov.uk/forestry/infd-7d4mgd)
Cycleways and greenways	Local authority (Borough/District Council)
Long distance routes	Local authority (Borough/District Council)
Public Rights of Way	Local authority (County Council)
Potential development locations	Local authority (Borough/District Council)
Areas of open space deficiency or deficiency standards which can be mapped	Local authority (Borough/District Council)
Land ownership	Local authority (Borough/District Council)
Previously developed land.	Local authority/National Land Use Database

Environmental characterisation of the plan area
Once the key mapped datasets and other relevant reports, studies and policies have been identified, a desk based study should be undertaken to define the character of the local environment. Environmental characterisation can be structured by themes or subject areas. These themes can later be prioritised in terms of the importance of each theme to the area; for example, in areas which contain extensive Natura 2000 sites, biodiversity might be a priority, whilst if parts of the study area are liable to flooding, flood risk might be prioritised. The process of environmental characterisation assists identification of possible opportunities for improving GI in relation to each of the GI themes.

The themes to be addressed are likely to include the following:

- Landscape character;
- Accessible green space and public rights of way;
- Cultural heritage;
- Biodiversity and ecology;
- Socio-economic factors;
- Ecosystem functions (such as flood risk and climate cooling).

Mapping should distinguish between areas with the potential to deliver multiple functions and those likely to serve a single function. By identifying areas where investment in GI can deliver multiple functions, the local authority can build a case for GI to be supported by a broad range of public bodies whose objectives are met (e.g. Primary Care Trust; Environment Agency). Information and observations should also be gathered on the management and quality of existing green infrastructure. This is sometimes available in PPG17 studies, but site visits are usually required in order to ensure that up to date information on existing GI is at hand.

It is useful to understand where there is potential for provision of future GI infrastructure, or GI enhancements. Data that can be collated to help to build up a picture of potential includes: areas of derelict /disused land, local authority owned land and agricultural land. This data will not automatically dictate where green infrastructure investment should take place but can help to inform potential opportunities.

Identify location of potential major developments
Where the local authority has allocated broad areas or sites for development, these should be mapped. This information is key to informing the network of GI, and prioritisation of the delivery of GI (although it may not be publicly available at the earlier stages of the plan-making process). Where there is uncertainty as to which sites will actually be taken forward and developed, this uncertainty should be considered when developing GI options.

Identify deficiencies (amount and type)
Identify and map GI deficiency
The local requirement for green infrastructure should be established in terms of: a) community demand (e.g. expressed in the Sustainable Community Strategy or determined through PPG17 consultation exercises); and b) GI functions (e.g. the flood storage area required by a local river to minimise the risk of downstream flooding). Consideration should also be given to potential future demand and needs, i.e. how the current

requirement may change in light of projected changes such as population growth or committed development.

If available, locally-derived PPG17 deficiency standards (e.g. semi-natural green space or amenity green space standards) can be applied to determine deficiency in green space. These will have been informed by extensive public consultation and thus reflect local community need. Agreed standards for provision can be mapped in GIS by creating a buffer to reflect the distance standard (e.g. 300m) and applying it to the mapped open spaces layer.

Where GI is being planned across multiple local authorities, it may be appropriate to identify a GI deficiency standard which can be applied across the entire study area/sub-region. This would involve review of locally derived PPG17 standards, alongside established national standards such as ANGSt and the TCPA green space standards. Consideration should also be given to the effect of different standards on the future recreational use of nearby sensitive areas, such as Natura 2000 sites. For example, if a Natura 2000 site is particularly vulnerable to recreational pressure it can be removed from the map of accessible green space, so that the deficiency analysis reflects the need to reduce pressure on that site by provision of alternate natural greenspace.

UK BAP targets for the restoration or enhancement of specific habitat types can also form the basis of deficiency mapping, where existing assets differ from specified targets. Targets for the South East and a map of the regional priority areas for BAP restoration and creation are available from the South East England Biodiversity Forum web site (See **Table A2**). Some types of BAP habitat are compatible with public access.

Mapped data on deficiency and need for other GI functions is not generally available, although there may have been bespoke studies undertaken in some local areas, e.g. outlining priority areas for flood plain restoration. In the majority of cases it is not possible to fully quantify deficiency in, and need for, green infrastructure functions. Professional judgement must be applied in order to determine where provision of specific GI functions is required. Partners and other stakeholders should be consulted on these issues.

Identify areas of potential future need, considering new development

In some areas the PPG17 study may have defined a standard for the amount of open space to be provided 'per 1,000 population'. Where available, this allows more accurate identification of the amount of future green space provision required per ward/ parish, by enabling the necessary amount of open space per head of population to be determined as well as the deficiencies in relation to distance standards. Where the local authority has identified areas for significant residential development or an urban extension, the approximate number of new residents can be factored into the parish or ward population to show potential future trends. This data can be mapped to demonstrate the impact of population increase on the provision of green space, and identify target areas for future green space provision.

Initial assessment of broad opportunities and delivery partners

Map potential GI opportunities

Through the process of environmental characterisation and deficiency analysis, initial GI opportunities will become apparent. It is useful to record these on a map during the process, so that these ideas can inform Stage 3 of the plan process.

Document evidence base for future EIP

Finalise mapped information to support environmental characterisation

It is recommended that the evidence gathered through Stage 2 of the LDF process is documented. The mapped information will be a significant element of this evidence base, and this should be stored in an appropriate format so that it can be used to support the GI options.

Stage 3: Spatial options and policy development

Develop spatial GI options

Develop and map GI options

The aim of this stage is to develop a spatial vision for the plan area, building on the environmental characterisation, together with the needs and deficiency analysis. The challenge is to design a multi-functional joined up and deliverable GI network. The characterisation and deficiency analysis work undertaken as part of the strategic vision development and evidence base (Stage 2) should inform the development of spatial options for the GI network. These options should be mapped based on key existing GI, potential and required new GI, the appropriate function of the new GI, and the potential for enhanced or new multi-user paths to link these sites.

In order to identify the key GI opportunities, the mapped information should be layered and analysed. This will indicate where there are gaps in the existing GI network, and locations where multiple functions and benefits can be accrued through GI investment. Sites which can deliver GI functions and benefits most needed in the plan area should then be prioritised for delivery. The interactive map created in Stage 2 is a useful tool to aid map layering, so that numerous themed layers can be considered alongside areas of opportunity such as previously developed land and local authority owned sites, and potential areas of new development.

Consult GI stakeholders

Prepare maps for consultation

A stakeholder workshop is an important opportunity to gather local knowledge and expert feedback on elements of the GI strategy. Maps of the existing GI assets and environmental characterisation should be presented at the stakeholder workshop. In addition, maps of the GI opportunities and spatial options identified should be displayed at the workshop.

Refine options

Stakeholders' suggested amendments can be marked on the maps so that any necessary amendments can be made, and additional datasets added to the evidence base where necessary. These amendments can then be incorporated into the interactive map file.

Consult public

Prepare maps for consultation

Similarly to the stakeholder workshop, maps of the existing GI assets and environmental characterisation should be presented at a public exhibition. The GI spatial options maps will be a particularly important element of public consultation, as any proposed enhancement to existing GI and creation of new GI will require broad public support.

Refine options

As for the stakeholder consultation, amendments proposed by the public and agreed with the local authority should be incorporated into the interactive map file, and the relevant maps should be updated.

Use of standards for green infrastructure provision

A range of standards can be used to inform a deficiency and needs analysis. Natural England's Accessible Natural Greenspace Standards (ANGSt), for example, provide a catchment based hierarchy or typology of semi natural greenspaces, whilst local authorities have historically used open space standards to determine provision per head of population, often based on Fields in Trust's (formerly the National Playing Fields Association) Six Acre Standard. Sometimes standards which combine these two approaches are used.

In every case, however, standards can only be used as a guide because green infrastructure provision must reflect local need and the specific opportunities and constraints presented by individual sites, taking into account population trajectories and proximity to existing green infrastructure. New provision or enhancement of existing green infrastructure should, for example, seek to increase ecological connectivity between existing habitats. It must also reflect the need for sustainable urban form (e.g. greenspaces accessible by sustainable modes of transport). Whilst it is important to plan new green infrastructure in advance of development, it should also take account of established character (including landscape and townscape) and urban grain.

Natural England's Accessible Natural Greenspace Standards (ANGSt)

The ANGSt model sets standards for provision of community access to standards of natural green space. It defines four tiers of semi natural greenspace, based on distance thresholds from dwellings, as follows:

- Sub regional provision (sites or habitats over 500 hectares): Within 10km
- County scale provision (sites or habitats over 100 hectares): Within 5km
- District scale provision (sites or habitats over 20 hectares): Within 2km
- Neighbourhood scale sites (sites or habitats over 2 hectares): Within 300 metres

Fields in Trust Six Acre Standard[82]

One commonly applied standard for the provision of public open space for sport, active recreation or children's play is the so-called Six Acre Standard. Fields in Trust (formerly the National Playing Fields Association – NPFA) recommends that 2.4 ha (6 acres) of outdoor playing space are provided per 1,000 population. The detailed recommendations of the standard are as follows:

A
Outdoor Sport: 1.6 hectares (4 acres)

i) Facilities such as pitches, greens, courts, athletics tracks and miscellaneous sites such as croquet lawns and training areas owned by local authorities, at all tiers.

ii) Facilities described in (i) within the education sector which are available for public use by written agreement.

iii) Facilities described in (i) within the voluntary, private, industrial and commercial sectors, which serve the leisure time needs for outdoor recreation of their members, or the public.

NOTE:
Included within the standard for outdoor sport is a specific allocation of 1.2 hectares (3 acres) per 1,000 people for pitch sports.

+

B
Children's Playing Space: 0.8 hectares (2 acres)

i) Designated areas for children and young people containing a range of facilities and an environment that has been designed to provide focused opportunities for outdoor play.

ii) Casual or informal playing space within housing areas.

↓

MINIMUM STANDARD
Total Playing Space: 2.4 hectares (6 acres)

Green infrastructure funding and governance models

Multi functional green infrastructure can be secured via a number of different funding streams and governance models. Local authority funding is the traditional model. However, local authority budget allocations combined with the absence of a statutory duty for GI provision or management, limit the potential of this approach alone to secure the design, implementation and management of high quality green infrastructure. A short summary of some appropriate alternative models (with some examples) is set out below. Typically, a combination of funding models will need to be followed and involvement of appropriate partners at the concept stage is therefore a key to success.

Multi agency public sector grant funding

Funding for green infrastructure can come from a range of government departments and public agencies, based on the policy objectives supported (e.g. housing growth) or delivered (e.g. healthy living and healthy communities) by green infrastructure. Multi-functionality in green infrastructure and component greenspace projects is key to successful application of this approach. Local authorities have a pivotal role to play in forming partnerships with public sector organisations whose goals are served by green infrastructure functions. If possible the local authority should attempt to quantify the monetary value of functions provided e.g. water management; health benefits; benefits to business.

Some examples of multi agency public sector grant funding are set out below:

Safer and Stronger Communities Fund (SSCF)
This consolidates DCLG and Home Office funding streams available to local authorities, aimed at tackling crime and anti-social behaviour, empowering communities, and improving the condition of streets and public spaces, particularly in disadvantaged neighbourhoods. The fund was created in 2005 and is scheduled to run to 2010.

Heritage Lottery Fund (HLF) and Big Lottery Fund(BLF)
Parks for People is one of the HLF grant schemes, supporting capital and revenue projects to improve public parks, including historic parks and designed landscapes. It also creates opportunities for communities to learn about the natural environment. Key to the success of HLF grant schemes is expert monitoring – the establishment of an audit trail which can be used as part of the wider GI monitoring procedure. BLF programmes such as Access to Nature (administered by Natural England) can be used creatively to involve people in their local greenspace, for example following through monitoring of biodiversity.

Priory Park, Reigate – an example of successful delivery of HLF funding (image © LUC)

Environmental Stewardship schemes administered by Natural England
Higher Level Stewardship (HLS) schemes can support projects to enhance the landscape quality, natural resources, biodiversity, historic environment and public accessibility and understanding of farmland in private ownership.

English Woodland Grant Scheme administered by the Forestry Commission
This supports projects to create new woodlands and enhance the management of existing ones for public benefit, on farmland in private ownership. Separate grant schemes are available for planting of new woodlands and for bringing existing ones into management[83], as well as for regeneration and improvement of existing woodland plantings. Grants could apply to large scale woodland planting in relation to urban extensions, where visual mitigation is required.

Aggregates Levy Sustainability Fund administered by Natural England
This supports projects mitigating the effects of aggregate extraction on local communities and the natural environment.

SITA Trust offers Enriching Nature and Enhancing Communities grants, for projects around qualifying waste processing and landfill sites[84].

Landfill Communities Fund (LCF)
Landfill Operators (LOs) must pay a tax to the Government on every ton of waste that they dispose of in a landfill site. The LCF allows LOs to give a proportion of the tax to organisations who deliver environmental objectives, instead of paying it to Government. The types of green infrastructure-related work that can be funded from the LCF include provision or enhancement of a public park or other public amenity within 10 miles of a landfill site; remediation or restoration of polluted land; and biodiversity conservation.

Parc Andre Citroen, Paris – a high standard of management provided by the ring fenced model (image © A.Tempany)

Tax initiatives

Ring-fencing of local taxes
This can fund delivery and management of greenspace in expectation of increasing visitor and customer numbers and 'liveability' for residents and workers. This approach has been applied successfully overseas, including the Parisian parks implemented from the 1990s. However, there are currently few greenspace examples in the United Kingdom, as UK local authorities have little autonomy to impose additional local taxes.

Business Improvement Districts (BIDs)
English local authorities have limited freedom to impose additional taxes across whole districts. The Business Improvement District (BID) Regulations[85], however, allow local businesses to vote for a levy on their rates bill to fund investment in the local trading environment. Research[86] shows that UK BID schemes (e.g. Reading[87] and Winchester[88] town centres) have focused on investment in public safety, promotion and street cleaning. Potential exists to extend investment to greenspaces as these can address all of the top three business needs from BIDs[89] - environmental improvement, crime and safety, and attracting more visitors.

Successful application of the BID model will require greenspaces to be located in close proximity to those local businesses to be taxed under the scheme. It will also be necessary to convince local businesses of the potential benefits which will accrue in terms of visitor perceptions and numbers. Availability of initial funds to develop a BID scheme may act as a constraint. A BID scheme must also be integrated with other strategies which can improve the commercial and residential environment, and which can provide support for enhancement of greenspace.

Planning and development opportunities

A number of the funding models discussed below entail the collection of contributions from developers. In negotiating these, planning authorities should refer to the benefits that GI can deliver to businesses and employees described in **Sections 1** and **3.**

Planning conditions
Local authorities can require restoration, enhancement or creation of greenspace as part of the conditions of planning consent for a particular development. These are separately applied for each proposal, and are often supported by arrangements for funding and future adoption. As with planning obligations below, they must be necessary to allow the development to proceed, and must relate directly to the effects of the proposed development (e.g. to mitigation of the development's environmental impact).

Planning obligations (Section 106 agreements)
In this case, the developer agrees with the local authority to fund provision and management of greenspace required by a specific development. They are separately negotiated for each development proposal.

Where the combined impact of a number of developments creates a GI need, developers' contributions may be pooled between those developments and where applicable between local authorities. Section 106 agreements can be limited by the schedules of rates local authorities operate for maintenance. These may act as a barrier to creative greenspace design as it may be perceived as more costly to maintain.

Melbourn Riverside Park, Cambridgeshire – an example of the successful application of a Section 106 agreement to secure capital works and deliver the management plan (image © CSa Environmental Planning)

An example of this funding model is the Forest of Marston Vale in Bedfordshire, where Section 106 contributions are being used to provide for ongoing management for a 25 year period (monies held by a Trust).

There must be a strong evidence base to justify the need for green infrastructure, as for other infrastructure requirements and planning obligations (e.g. affordable housing) of new development. This can be developed in the LDF process detailed in **Section 4** so that the need to make a contribution is clear to potential developers from the outset.

Roof taxes
This is where the local planning authority requires the developer to pay a standard tariff per new dwelling to fund essential supporting infrastructure, including green infrastructure. Such an approach has been applied successfully by the Milton Keynes Partnership and delivered in association with the Parks Trust, and also in Mid Bedfordshire District, through a Planning Obligations SPD.

Community Infrastructure Levy (CIL)
A charge levied by local authorities on new developments, using formulae based on the size and character of the development, with proceeds to be spent on local or sub-regional infrastructure, including green infrastructure, required by the development plan(s).[90] See also **Box 4.5.** Both roof taxes and the CIL can be used to fund off-site GI.

Regional Infrastructure Fund (RIF)
This supports delivery of essential infrastructure for large developments within a Growth Area or Growth Point. See also **Box 4.5.**

Growth Point funding
Supporting delivery of infrastructure in named Growth Points, through the Housing Growth Fund. As a pre-requisite to the allocation of funding by Government, local authorities are required to produce 'Programmes of Development', setting out their infrastructure spending requirements (which includes green infrastructure). Funding is allocated as block funding to relevant local authorities rather than ring-fenced for particular projects, and as such can apply to a wide range of projects identified within a green infrastructure strategy.

Private management charges
In this instance publicly accessible greenspaces are created by the developer who retains ownership of them and funds ongoing maintenance via management charges levied on leaseholders on the development site. A successful example is the Canary Wharf Estate in London's Docklands – this includes over 8 hectares of open space which is publicly accessible but owned and maintained by a private company (Canary Wharf Group plc). Funding comes from the £30 million per year in service charges collected from building tenants on the estate. Limitations of such an approach are that charges are only applicable where a private property company retains ownership of both greenspace and freeholds on the properties. Negotiated sums must also be calculated to cover long term maintenance, and not just capital costs.

Bonds and commercial finance

The Local Government Act 2003 means that local authorities are now free to raise finance for capital expenditure from any source without Government consent, provided that they can afford to service the debt without Government support.

In theory, this provides an opportunity to raise loan finance, e.g. by issuing bonds, for greenspace improvement or expansion. Loan repayments would be funded from a combination of increased council tax revenues, (due to the rise in domestic property values attributable to high quality local greenspace) and revenue generating uses within the greenspaces themselves (see 'Income Generating Opportunities' funding model).

Whilst this is a way to obtain a large lump sum at the outset of greenspace investment it does not actually secure additional finance. Although a number of overseas examples exist, these are not directly applicable under the current UK local government financing system.

Income generating opportunities, including private sector funding

Financially viable land uses

Certain land uses, notably agriculture, forestry and horticulture, may be economically viable in their own right whilst delivering some of the wider social and environmental benefits of green infrastructure.

Incidental income generating opportunities, including private sector funding

In these situations, revenue may be generated from the private sector or the general public in return for benefits they receive from greenspace. Income sources from businesses include: rent or franchise fees for operating commercial activities within the greenspace (as in some Country Parks, for example); sponsorship or charitable donations; contributions to large scale, structural planting to offset carbon emissions; or, the sale of renewable energy from generating facilities built in the greenspace.

Charges to the public may include entry to special features or exhibitions, or hire of event space for parties and weddings. Authorised officers of parish and community councils are able under the Clean Neighbourhoods and Environment Act to levy fixed penalty notices for 'environment crimes' such as littering and these could theoretically be reinvested into community facilities.

A notable example of income generated funding is Mile End Park in London, where the London Borough of Tower Hamlets funds 50% of the park's annual maintenance budget requirement from income generating activities within the park, including lease of shop units beneath a land bridge, entry fees from a kart track, café franchises and hiring out pavilions for events.

Endowments

In this case, long term funding is provided for greenspace from investment income earned on assets such as property or shares owned by the local authority or other body responsible for greenspace. Notable examples of this approach include the River Nene Regional Park and The Parks Trust, Milton Keynes.

The Parks Trust in Milton Keynes is an independent charitable organisation that owns and maintains the strategic network of green infrastructure covering around 20% of the area of Milton Keynes. Established in 1992, it is endowed with a commercial property portfolio to generate the income required to cover its operating costs. The Trust works with developers and planning bodies to promote and facilitate the extension of the green infrastructure network as Milton Keynes expands. The Trust is nominated as the adopting body for all new areas of parkland around the city, using developer contributions which the Trust invests to provide the income to pay for ongoing maintenance. Cost calculations consider the whole life costs of green infrastructure projects, including the eventual replacement of key assets, and administration costs. Further information on the Trust's work is available at http://www.theparkstrust.com.

Endowments can also be generated through the development process, both for initial capital investment (e.g. Shenley Park, Hertfordshire) and for subsequent management (e.g. Grand Union Village, West London).

Voluntary sector involvement

Funding requirements can be reduced by fund-raising activities and by contributions of labour and expertise from not-for-profit organisations and voluntary and community groups. These also foster a sense of local ownership of greenspaces and promote community cohesion. Neighbourhood ownership of greenspaces by non-profit trust organisations is encouraged by Government[91].

Partnership bodies formed between local authorities and not-for-profit organisations can increase access to lottery and regeneration funding whilst charitable status confers tax relief and widens the pool of possible investment sources. Partnerships can also be established with organisations who have specialist knowledge and management skills. For example, the local Wildlife Trust is to manage the community Eco Park at Cambourne, Cambridgeshire.

Further information

Research conducted for Watling Chase Community Forest et al provides a useful review of the advantages and disadvantages of various green infrastructure management options.[92]

More detail on the funding options outlined in this appendix is available from the CABE Space publication 'Paying for Parks'.[93]

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www.cabe.org.uk/publications/paying-for-parks

Additional photography credits

Front cover background - Wildlife highway © Wildlife Trust BCNP

Section 1 title page - Runners on the South Downs overlooking Eastbourne seafront © Eastbourne Tourism Department

Section 2 title page - Abbott's Wood, East Sussex; a model Forestry Commission woodland ride enhanced as part of a butterfly reintroduction project © Butterfly Conservation

Section 3 title page - Whitehawk Hill Local Nature Reserve looking south over the Crew Club green roof, East Brighton © James Farrell

Section 4 title page - Cycle path © Andrew Critche, Kent Thameside Regeneration Partnership