UE ASSOCIATES

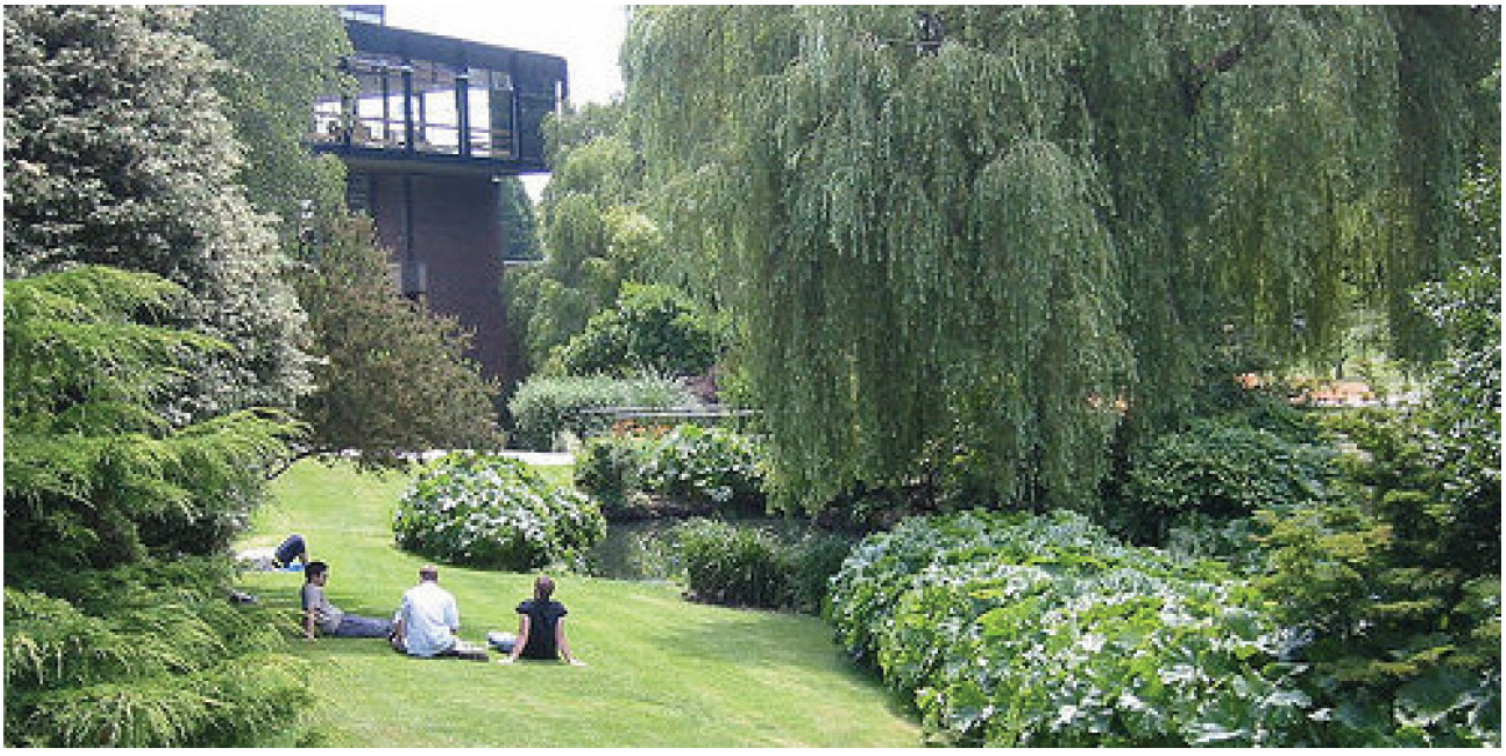
GREEN INFRASTRUCTURE STRATEGY

FOR THE

PARTNERSHIP FOR URBAN SOUTH HAMPSHIRE

Final Strategy

June 2010



Green Infrastructure Strategy for the Partnership for Urban South Hampshire

Final Version

Adopted June 2010

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- Frank Campbell, Chair (Havant Borough Council)
- Anne Jaluzot (CABE)
- Nerys Jones (CABE enabler)
- Nick Radford (Natural England)

The Group has advised on a number of complex issues and factors which characterise green infrastructure. The sub-region has its own existing green infrastructure assets and, in preparing a strategy to expand and strengthen the green infrastructure network, several key aspects have featured strongly amongst considerations as the strategy took shape. Contributions from the Commissioning Group, and on an individual basis from Group members, have enabled a thorough and rigorous approach to the preparation of the strategy.

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The Steering Group represented the following organisations:

- East Hampshire District Council
- Eastleigh Borough Council
- Environment Agency
- Fareham Borough Council
- Forestry Commission
- Gosport Borough Council
- Hampshire County Council
- Havant Borough Council
- New Forest District Council
- Partnership for Urban South Hampshire (PUSH)
- Portsmouth City Council
- Southampton Borough Council
- Test Valley Borough Council
- Winchester City Council

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Abbreviations

AA	Appropriate Assessment
ANGSt	Accessible Natural Greenspace Standards
CIL	Community Infrastructure Levy
DCLG	Department for Communities and Local Government
DPD	Development Plan Document
GIS	Geographic Information Systems
GI	Green Infrastructure
GVA	Gross Value Added
HRA	Habitats Regulations Assessment
IROPI	Imperative Reasons of Overriding Public Interest
JAC	Joint Advisory Committee
LDF	Local Development Framework
LNR	Local Nature Reserve
LPA	Local Planning Authority
MAA	Multi-Area Agreement
MDA	Major Development Area
ODPM	Office of the Deputy Prime Minister (defunct)
PINS	The Planning Inspectorate
PPS	Policy Planning Statement
PROW	Public Rights of Way
RSS	Regional Spatial Strategy
ROWIP	Rights of Way Improvement Plan
SA	Sustainability Appraisal
SAC	Special Area of Conservation
SANGS	Suitable Alternative Natural Green Space
SDA	Strategic Development Area

SEA	Strategic Environmental Assessment
SDMP	Solent Disturbance and Mitigation Project
SINC	Site of Importance to Nature Conservation
SMP	Shoreline Management Plan
SPD	Supplementary Planning Document
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Drainage System
TCPA	Town and Country Planning Association

Executive Summary

E1.1 The south Hampshire sub-region has been identified as an area for growth in the South East Plan (GOSE, 2009). New homes and numerous employments sites are being planned as part of the Local Development Framework process across the sub-region. The planned growth includes consideration of the effects that new growth might have on the natural resources of the region. A key part of these considerations has been to commission the preparation of a Green Infrastructure Strategy.

E1.2 The **purpose** of this Strategy is to identify existing green infrastructure (GI), consider what enhancements or introductions should be made, and to recommend how the Strategy might be delivered. The guiding principles for green infrastructure use connectivity and multifunctionality to create a robust network of green spaces to address identified deficits and needs.

E1.3 The **vision** for the Strategy is: *To provide a long term framework (to 2026) to shape and enhance an integrated and multifunctional green network of south Hampshire's distinctive local environments to ensure they can adapt to climate change and are managed and valued as part of sustainable, prosperous and healthy lifestyles.*

E1.4 The **aims** of the strategy are to:

- Identify sub-regional strategic initiatives and project proposals to provide a high quality of life for the people who live and work in the sub-region.
- Seek to maximise multifunctional use of open space and natural spaces for a range of benefits including biodiversity, climate change, the production of food, fibre and fuel, economic investment and activity, health, landscape, recreation and well-being.
- Promote connectivity of all types of greenspace at a range of scales.
- Provide a key element of the sub-region's mitigation strategy in relation to the Habitats Regulations.

E1.5 The first two chapters explain the reasons why green infrastructure is important in the sub-region and explore the influential factors that have been considered when designing the GI network. **Key factors** that prevail in the sub-region include planning considerations to facilitate growth proposals, the importance of the Habitats Regulations, GI deficits (which, among other things, have been identified from accessible natural greenspace analysis and Natural England's work on health) and current green infrastructure related activities such as the comprehensive network of country parks and Forestry Commission woodlands.

E1.6 Chapter 3 presents a review of the **evidence** which has been collected and analysed for use in the preparation of the Strategy. Collection of evidence began in 2007 and there is a

significant amount of data and information which has been evaluated and translated as part of understanding green infrastructure in the sub-region.

E1.7 On the basis of an in-depth analysis of factors and evidence, the Strategy has drawn up a **GI Framework** made up of Themes and Objectives to guide the direction of the Strategy. Chapter 4 sets out the framework and includes supporting information about each theme, its context, benefits to be derived and key issues that affect the theme. The Themes and Objectives are summarised in **Table E.1**. The GI Framework is designed to work as a guide to green infrastructure development and provide the reasoning behind recommendations made in the Strategy.

Table E.1: *The GI Framework*

THEME I: Sustainable economic development, attractive workplaces and desirable tourist destinations	
Objective 1	Ensure the design of existing and new workplaces leads to diverse and attractive green environments for businesses wishing to relocate, grow or set-up in the South Hampshire sub-region.
Objective 2	Complement the resources of existing visitor destinations, facilitate increased tourism opportunities and enhance the visitor economy.
Objective 3	Promote businesses and markets that provide low carbon, multifunctional and cost-effective delivery of Green Infrastructure Themes and Objectives.
THEME II: Maximising biodiversity opportunities, adapting to change and protecting European sites	
Objective 4	Conserve and enhance existing biodiversity: restoring habitats according to Biodiversity Opportunity Area priorities, helping deliver Habitat Action Plans and Species Action Plans in the BAP, and improving connectivity of habitats at all scales and levels of designation.
Objective 5	Contribute to the mitigation of the impacts of growth on European sites using buffer zones, providing alternative recreation destinations and reducing the effects of coastal squeeze by providing new habitat sites.
THEME III: Landscape quality and diversity, distinctive features, cultural heritage and appreciation of sense of place	
Objective 6	Protect and enhance the unique quality, diversity and distinctiveness of the sub-region's landscape and heritage.
Objective 7	Maintain and where necessary improve the identity and character of settlements in urban and rural locations.
THEME IV: Access to the countryside and green spaces, providing recreational opportunities and experiences	
Objective 8	Create, maintain and promote a network of high quality, multifunctional, interconnected routes to provide a network of linear access for a variety of users.
Objective 9	Address deficiencies in access to greenspace through creation of new or enhanced recreation sites at all scales, enabling use by all sectors of society. All such sites should avoid conflict with established nature conservation interests.

THEME V: Providing high quality water resources, managing flood risk and increasing water retention	
Objective 10	Increase natural storage capacity, reduce the run-off rate of storm water and increase onsite water purification and infiltration. Permeability in settlements across the sub-region should be maximised.
Objective 11	Promote river corridor management to provide multifunctional benefits for flood defence, recreation, landscape and biodiversity.
THEME VI: Climate change adaptation and mitigation	
Objective 12	Maximise the GI contribution to mitigating urban temperature and prepare for sea level rise.
Objective 13	Facilitate reduced carbon emissions and contribute to the development of south Hampshire's low carbon economy.
THEME VII: Food, fibre and fuel production	
Objective 14	Promote the opportunity to support locally grown products such as food, biomass and construction materials.
Objective 15	Promote, increase and raise awareness of commercial activities, such as farming and forestry, which provide multi-purpose and cost effective delivery of Green Infrastructure Themes and Objectives.
THEME VIII: Well being and health	
Objective 16	Use GI as a resource for improving the physical and mental well-being of the population of south Hampshire.
Objective 17	Promote the health and well being benefits of GI.

E1.8 Drawing on the GI Framework, the Strategy has identified extant green infrastructure features and prepared a **spatial interpretation**, known as the GI Architecture. This is an expression of the current strategic spatial form of green infrastructure in the sub-region. In doing this, a spatial baseline has been created around which enhancements or additions can be planned. The GI Architecture is composed of corridors, sites and areas within which common GI features or processes occur, together with sites that form core GI assets. Chapter 5 explains the approach to the GI Architecture in more detail and includes maps of each area. The four areas are: (i) the Coastal Zone, (ii) the Forest of Bere, (iii) the Western Arc, and (iv) the Urban Realm and its Setting.

E1.9 **Recommendations** for deliverable activities are based around five strategic sub-regional initiatives and forty-six proposed projects. Between them, they facilitate the aspirations of the GI Framework. Effectively, they provide the means to develop a robust and integrated multifunctional network of greenspaces and other GI features in order to meet the growth agenda and help address the statutory requirements of Habitats Regulations Assessment (HRA). The five sub-regional initiatives are summarised in **Table E.2**.

E1.10 The forty-six **project proposals** have been selected to represent GI activities at smaller scales such as the city/town or local level. Some projects represent quick wins; others contribute directly to the sub-regional initiatives, and they all correspond to one of the GI Architecture Areas. They are not definitive, but are suggestions that would contribute to the delivery of the strategic GI. Their feasibility will be tested through the development of an Implementation Plan following on from this Strategy.

Table E.2: *Proposed sub-regional GI initiatives*

No.	Name	Description and Justification
1	The Green Grid	This initiative establishes a GI network of linear features and provide connectivity between GI assets which perform a variety of functions. It includes rivers, roads, recreational routes, hedges and other corridors.
2	Coast for People, Wildlife and Improved Water	This initiative applies mainly to Area 1 of the GI Architecture and is driven by HRA requirements. Sea level rise and associated habitat creation, and recreational issues at coastal locations are the main considerations.
3	The Forest of Bere Land Management Initiative	The Forest of Bere is an extant area with strong landscape and land management features which includes sites of high biodiversity value. A strategic GI initiative of this nature could take a comprehensive and integrated approach to the creation and management of various GI assets in the area. This would yield multifunctional features to support sustainable food, fibre and fuel production, opportunities for open air recreation and biodiversity.
4	Country Parks and Woodlands	This initiative seeks to identify robust GI sites in the form of country parks and woodland sites that between them form the core of larger scale multifunctional GI assets.
5	Greener Urban Design	The initiative aims to concentrate on local level GI assets in the built environment to support the communities that live there. Presented as a sub-regional initiative, it is likely to manifest itself as a series of smaller scale, local projects that adhere to the principles of the GI Framework and seek to address GI deficit, opportunity and need.

E1.11 Projects have not been prioritised because the precise way forward should be decided by those organisations that are best placed to deliver it; the GI Steering Group resisted allocating 'owners' to projects. This Strategy has identified the existing GI Architecture and has recommended initiatives and projects that form a strategic support mechanism that helps introduce a sub-regional GI function. The projects are not the only GI projects that could be taken forward; there are many others, several at a local scale the likes of which have not been incorporated into this Strategy because the Strategy has sought to retain a sub-regional focus.

E1.12 Local authorities have different **planning and delivery** mechanisms with which to develop green infrastructure projects and initiatives: Development Plan Documents, Supplementary Planning Documents or perhaps as a separate action plan outside of the Local Development Framework process but supported by planning policies. As authorities finalise their Core Strategies, the requisite green infrastructure plan needs to be ready to respond to planning applications as they are submitted, while offering benefits to other aspects of work such as potential HRA mitigation requirements. A key action in the short term is to include green infrastructure policies within Core Strategies; a model policy is recommended.

E1.13 Turning to **governance** issues, it was proposed by the consultants that a formal partnership be established, possibly along the lines of a Joint Advisory Committee with political representation as well as identified funding partners and an independent chairman. This was considered by the Joint Committee which determined that the continuing work on Green Infrastructure should be overseen by the Sustainability and Community Infrastructure Delivery Panel, which includes political, local authority officer and non-local authority representatives.

E1.14 Delivery of the Strategy is now a key consideration. The Partnership for Urban South Hampshire has done an excellent job in guiding the creation and development of this Strategy utilising the process structure depicted in **Figure E.1**. The next steps are to consider:

- A formal, operational governance structure;
- Incorporation of GI into the LDF process;
- Preparation of local GI strategies;
- Development of a detailed implementation plan;
- Research and establish standards for GI in the sub-region;
- Commitments to delivery;
- Funding arrangements; and
- A timetable for action.

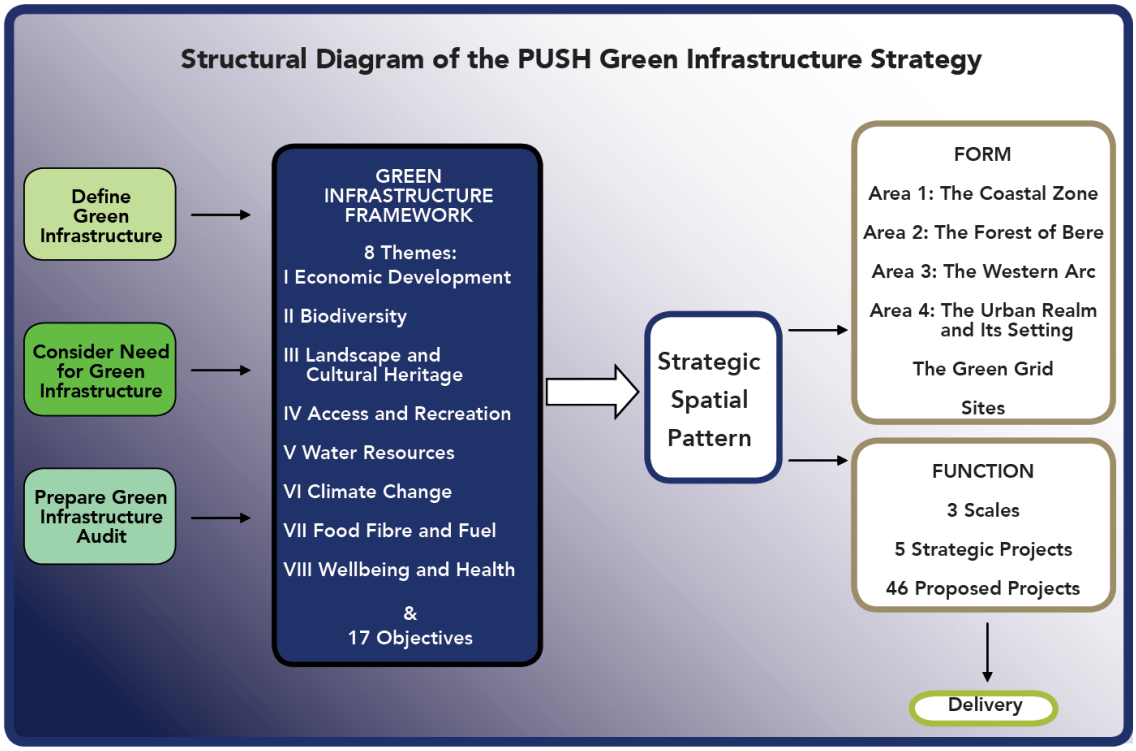

Figure E.1: *Summary of the GI Strategy preparation process*

1 Introduction

1.1 About this document

Adopted by the PUSH Joint Committee as a policy framework document in June 2010, the Green Infrastructure Strategy provides a sub regional policy framework as a basis for the development of Local Development Framework policy within each of the constituent PUSH authorities. It also provides a framework for the delivery of green infrastructure (GI) on the ground. Within this context, local authorities and a wide range of partners and stakeholders with an interest in, and responsibility for, GI can implement GI projects. Agreeing the GI Strategy is not the end of the matter but rather it marks the beginning of a long-term commitment to the delivery of GI across the sub-region. PUSH intends to establish a Green Infrastructure Partnership, to oversee the production of an Implementation Plan following the adoption of the Strategy. The Implementation Plan will be prepared in close collaboration with partners and regular progress reports will be provided to the PUSH Sustainability and Community Infrastructure Delivery Panel.

GI projects, concepts and initiatives contained within the implementation plan, and others which may emerge during the lifetime of the strategy, will be tested for their feasibility, priority, human and financial resource needs, timetable, ability to deliver strategic objectives (including Habitat Regulations Assessment considerations), and future management requirements. This will lead to firm proposals being developed with clear outcomes that take account of any sensitivities and constraints, responsibilities and funding streams, which will in turn result in appropriate action on the ground.

One of the key purposes of the Strategy is to ensure that, through providing a framework for implementation, the requirements of the Habitat Regulations are considered. There are particular sensitivities relating to the internationally important habitats and sites on the coast and in the New Forest, and it is important that the Strategy both recognises these sensitivities and provides the means by which the potential impacts of growth can be addressed. The key vehicle for defining the impacts of growth on internationally protected sites and habitats is the local authorities' individual Local Development Framework Core Strategies and associated Local Development Documents. These need to reference the Green Infrastructure Strategy as a policy framework, whilst also including policies that address the need for more locally specific responses to emerging research and detailed development proposals.

It is not just the internationally protected biodiversity that needs to be considered. The strategy is also the framework to enable the identification of more local biodiversity interests, reflected in its objective to conserve and enhance existing biodiversity. Through the implementation plan the detailed opportunities to deliver biodiversity benefits and contribute to halting the decline in biodiversity will be identified.

In preparing the Strategy a number of different sources of guidance and best practice have been used, all of which are fully referenced in the Strategy. In cases of potentially conflicting

guidance, the South East Green Infrastructure Framework (South East Green Infrastructure Partnership, 2009) is used as a definitive reference. **Figure 1.1** shows the location and extent of the sub-region.

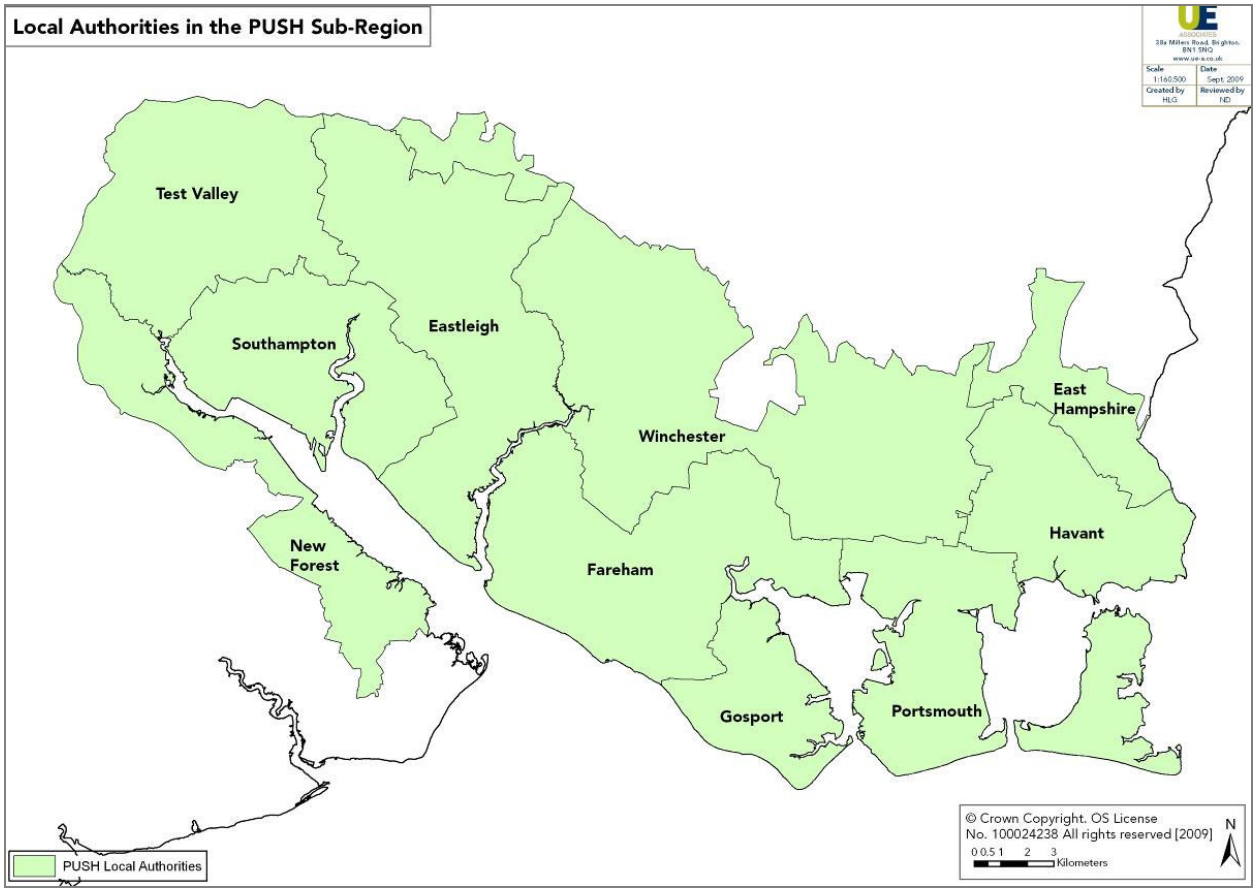

Figure 1.1: *The South Hampshire sub-region*

1.2 The purpose of the Green Infrastructure Strategy for PUSH

Following earlier work on the preparation of a green infrastructure strategy for the sub-region (see **Chapter 3**), PUSH created a commissioning group to oversee and guide the preparation of this Strategy. In February 2009, the group appointed UE Associates Ltd to translate early baseline activities into a workable Green Infrastructure Strategy for the sub-region that would:

- Set a framework up to 2026 for strategic initiatives in the South Hampshire sub-region to provide a high quality of life for the people who live and work in the sub-region;
- Seek to maximise multifunctional use of open space and natural spaces for a range of benefits including biodiversity, climate change, economic investment and activity, health, landscape, recreation and well-being;
- Aim to promote connectivity of all types of greenspace at a range of scales; and
- Provide a key element of the sub-region's mitigation strategy in relation to the Habitats Regulations.

To this end, the present Strategy provides:

- The rationale for PUSH to invest in green infrastructure planning and management, as well as the key factors that prevail in the South Hampshire sub-region (**Chapter 1 and 2**);
- A review of the evidence collected by PUSH (**Chapter 3**);
- GI Themes and Objectives (**Chapter 4**);
- Key projects (**Chapter 5**); and
- Implementation – governance and policy (**Chapter 6**).

1.3 Definition of green infrastructure

There are a variety of different, but broadly analogous, definitions of green infrastructure. The South East Plan (GOSE, 2009) does not include a definition of green infrastructure but encourages its provision in the forward planning process, stating that local definitions of green infrastructure should be described and spatially mapped in Local Development Frameworks (LDF). The Plan refers to the 'Framework for Green Infrastructure in the South East', which represents the views of several organisations including the Forestry Commission, Natural England, the Environment Agency, Government Office for the South East, Groundwork, South East England Development Agency, the South East Partnership Board and the Wildlife Trusts in the South East. This Strategy has adopted the Framework's definition of green infrastructure accordingly. **Box 1** introduces the full description and typologies.

Box 1: Definition of green infrastructure (reproduced from the South East Green Infrastructure Framework, 2009)

"Green infrastructure relates to the active planning and management of sub-regional networks of multifunctional 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."

Typologies regarding the coast, agricultural land and peri-urban woodland are further clarified below.

To clarify the typologies presented in this definition, in the case of the South Hampshire sub-region the coast should be included as a typology. Similarly, in the case of woodland, it is worth drawing attention to the importance of peri-urban woodland which plays an important role in the sub-region. Agricultural land is not included in the definition, however in the case of PUSH there are important agricultural landscapes which incorporate green infrastructure features and should therefore be included in the GI typologies for PUSH.

Some key benefits of green infrastructure are presented in **Table 1.1**. This information is drawn from various sources including the Landscape Institute's 'Green infrastructure: connected and multifunctional landscapes' position statement (2009).

Table 1.1: *Benefits of green infrastructure in the South Hampshire sub-region*

Climate change adaptation
Even modest increases in tree canopy cover can significantly reduce the urban heat island effect via evapotranspiration and shading, as well as improving air quality, which often suffers because of higher temperatures. Connectivity of GI via wildlife corridors is also critical in ensuring that biodiversity is safeguarded in the face of a changing climate, and green space can ameliorate surface water run-off to reduce the risk of flooding.
Climate change mitigation
In addition to acting as carbon sinks, trees and landforms can reduce energy use for heating and cooling buildings by shading them in summer and sheltering them in winter. A GI approach to planning can also optimise the potential for efficient, decentralised renewable energy, improving local energy security, and for providing space for ground source heating, hydroelectric power, biomass and wind power. Well-designed and managed GI can encourage people to travel in a more sustainable way, such as cycling and walking. For example, the River Itchen has seen the development of cycleways linking Southampton city centre with the National Cycle Network, Southampton Common and other GI assets.
Health and Well Being
Provision of strong GI networks which include a variety of safe and open green spaces as well as multifunctional non-motorised access routes can encourage and enable healthier lifestyles. When integrated with good public transport systems, this can provide an excellent means of allowing people to avoid using cars – which has related climate change mitigation benefits. Attractive and visually inspiring GI can provide mental stimulation and relaxation. Hospital grounds and other health buildings should for this reason be surrounded and supported by green infrastructure features.

Water management

GI is a good approach for managing flood risk. This can involve placing sustainable drainage systems (SuDS) in developments to attenuate surface water runoff and enhance biodiversity and recreation. Agricultural land and wetlands can be used to store flood water in areas where there is no risk to homes and commercial buildings. GI can be used to manage coastal retreat as well as to restore wetlands, enhancing carbon sequestration whilst providing important wildlife habitat. Increasingly, across the highway network in the South Hampshire area, sustainable water management is implemented through drainage schemes, including onsite balancing lakes and waterways, which are designed to alleviate the flooding of neighbouring areas. Locating new GI features on top of ground protection zones can avoid risks of contamination to ground water.

Dealing with waste

GI assets can deal with waste in a sustainable way. A good example of this is the use of reed beds which remove pollutants from water, as demonstrated at the Queen Elizabeth Park, which has installed reedbeds to process sewage from park infrastructure. Historically, waste has been placed in landfill sites, which have then been adapted for other GI functions, including wildlife habitats and leisure parks. Disused landfill sites are a legacy which could provide a much greater range of functions if further investment is made available.

Food production

Creating space for food production through allotments and community gardens and orchards increases access to healthy food, provides educational opportunities, contributes to food security and reconnects communities with their local environment. Footpaths and cycleways can further strengthen the reconnection of local communities with these assets. The potential for GI to contribute to neighbourhood food production in the South Hampshire sub-region is clearly demonstrated in Portsmouth, where approximately 1,800 people are currently on the waiting list for allotments.

Biodiversity enhancement, corridors and linkages

The role of GI in providing wildlife habitat in both urban and rural areas is well established, but taking a landscape-scale approach to the planning, design and management of connected GI assets provides the framework within which species migration can more readily occur in response to environmental pressures such as climate change. The Woolston Riverside redevelopment in Southampton and the West of Waterlooville Major Development Area have been cited as examples of good practice relating to the incorporation of GI and habitat creation within new development in the sub-region.

Economic values

Quality green space can have a major positive impact on land and property markets, creating settings for investment and acting as a catalyst for wider regeneration. High quality, connected environments attract skilled and mobile workers which in turn encourage business investment. New and improved GI in the sub-region can help realise the benefits of a high quality environment in the South Hampshire area.

Local distinctiveness

Well-designed and managed GI assets, particularly those that engage local communities and which relate to landscape character and heritage, can enhance local sense of place and foster community spirit. Through these benefits, they can be a catalyst for regeneration and for stimulating employment opportunities by attracting investment and tourism.

Education

Natural environments which are connected to local communities can provide a range of educational opportunities. Reconnecting society with the natural environment is a fundamental prerequisite of living within environmental limits, and a cornerstone of the Government's sustainable development strategy.

Stronger communities

GI can help in meeting a wide range of community needs. The spirit of the GI approach means that social, environmental and economic potential is considered and optimised. It can be a focus for public participation through community management, as well as providing opportunities for education,

training, volunteering and capacity building. The development of the Swanwick Nature Reserve and Study Centre near Southampton is a good example of how GI can make use of the opportunities.

1.3.1 Connectivity

The connectivity of habitats and landscapes, businesses and communities at a range of scales, and the provision of improved linkages between existing and proposed green infrastructure resources is key to the provision of good quality green infrastructure. A primary benefit relates to biodiversity, in linking habitats through corridors to increase ecological connectivity, providing some continuity in the face of increasing fragmentation. Existing corridors should be protected and enhanced through management to act as a focus for further improvements. Identifying gaps in existing connections and enhancing links between existing habitats at a range of scales is essential to a successful GI framework. National and regional guidance (Natural England, 2009a) also recognises that connectivity has the ability to enable natural environments to adapt to climate change.

Connectivity of recreational routes and paths or cycleways used for non-motorised access is another important function of a good green infrastructure network. All types of non-motorised route, facilitated by the wider public rights of way network, especially bridleways, can benefit from connectivity that avoids crossing busy and dangerous roads. Similarly, a well-connected network of paths which are accessible for all people that integrates with a good public transport system can provide multiple benefits including for recreation, health and climate change. Communities need to have connectivity between settlements (whether between urban, peri-urban or rural) that is sustainable in order to reduce congestion and emissions. Promotion of travel by cycling, walking or public transport can reduce the impact of commuting, recreation, tourism or day visits.

1.3.2 Multifunctionality

National and regional guidance (Natural England, 2009a) on green infrastructure recognises 'multifunctionality' as being "*central to the green infrastructure concept and approach*". This refers to the potential for green infrastructure to have a range of functions and to deliver a broad range of ecosystem services. Thus the guidance notes that "*multifunctionality can apply to individual sites and routes, but it is when the sites and links are taken together that we achieve a fully multifunctional green infrastructure network*". An example of such multifunctionality is demonstrated by the case of GI along a river corridor. It can:

- provide biodiversity and conservation enhancement;
- contribute to a sense of place and appreciation of landscape and cultural heritage;
- provide opportunities for sustainable transport or recreation; or
- help with the management of water resources or flooding.

Whilst multifunctionality is a desirable outcome of green infrastructure assets and the wider network, the eco-town guidance for green infrastructure (TCPA, 2008) rightly notes that, "*good planning and management can maximise the multifunctionality of a site and the ecosystem services that the land can provide [however] this must be done appropriately and certainly not to the detriment of an overriding management priority, such as the need to protect a sensitive habitat*".

In other words, although green infrastructure should, where possible, aspire to being multifunctional, it is notable that in some cases GI can be an important 'unifunctional' resource (e.g. providing a refuge for wildlife to which public access is not permitted). The planning of the functions of GI on individual sites should also take account of the potential negative impacts on adjoining areas, including residential areas, to ensure that they are not adversely affected by possible uses.

1.4 Green infrastructure in the South Hampshire sub-region

South Hampshire benefits from a wide variety of green corridors such as rivers, large-scale site-based features such as country parks, and smaller-scale area-wide features such as a network of hedgerows, pocket parks for children to play in or local woodlands.

Presently, some elements are under pressure from development; for example the high numbers of planned new houses in Southampton and Portsmouth will lead to further scrutiny of sites for development which could potentially involve the loss of some elements of green infrastructure. Other components are changing in response to longer term physical trends such as climate change; for example sea level rise has been recorded in and around the Solent (Cole et al, 2008). Many elements are subject to different uses which may on occasion conflict with each other; for example recreational demand for waterside access at coastal locations might coincide with over wintering bird populations (Stillman et al, 2009).

The PUSH Green Infrastructure Strategy offers an unprecedented opportunity to take a proactive approach to this changing context. The vision for the Strategy is:

To provide a long term framework (to 2026) to shape and enhance an integrated and multifunctional green network of south Hampshire's distinctive local environments to ensure they can adapt to climate change and are managed and valued as part of sustainable, prosperous and healthy lifestyles.

Chapter 2 presents an in-depth consideration of strategic factors which together affect green infrastructure in relation to:

- growth proposals;
- international nature conservation duties;
- planning policy;
- the need for green infrastructure; and
- existing green infrastructure activities.

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2 Factors affecting Green Infrastructure in south Hampshire

2.1 Planning policy

2.1.1 National policy context

At a national level there are several planning policy documents which are relevant to green infrastructure. PPS12 'creating strong, safe and prosperous communities through Local Spatial Planning' defines green infrastructure as "*a network of multifunctional green space, both new and existing, both rural and urban, which supports natural and ecological processes and is integral to the health and quality of life of sustainable communities*". It is a key driver to the planning and provision of Green Infrastructure, stating that *"the core strategy should be supported by evidence of what …green infrastructure is needed to enable the amount of development proposed for the area, taking account of its type and distribution. This evidence should cover who will provide the infrastructure and when it will be provided. The core strategy should draw on and in parallel influence any strategies and investment plans of the local authority and other organisations."* **Appendix A** identifies other relevant national planning guidance.

2.1.2 Regional planning context

The South East Plan includes a policy within its cross-cutting themes in relation to green infrastructure:

> ***POLICY CC8: GREEN INFRASTRUCTURE***
>
> *Local authorities and partners will work together to plan, provide and manage connected and substantial networks of accessible multifunctional 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.*

Other key regional policies related to GI are listed in **Appendix A**.

2.1.3 Local planning frameworks in South Hampshire

Each LPA is preparing its own suite of Local Development Framework documents. Green infrastructure will feature as a key consideration. **Section 6.2.2** provides recommendations for planning policy action with regard to the Strategy.

2.2 Growth proposal for South Hampshire

According to the South East Plan (GOSE, 2009) the aim for the sub-region is to improve economic performance up to 2026, which will allow for the provision of 80,000 net additional dwellings, whilst at the same time seeking to address areas of social deprivation and protect and enhance its environmental quality. In October 2006, south Hampshire was designated as a New Growth Point, with an accompanying phased allocation of funds for key projects.

The particular challenges faced by the sub-region include how to:

- realise the potential of the sub-region to improve its sustainable economic performance;
- ensure this benefits areas of economic and social deprivation;
- deliver sufficient decent homes and provide housing to meet the needs of the area;
- achieve all the above in the context of constraints on land supply while respecting the sub-region's environmental quality; and
- ensure joint action to raise skills levels, development of appropriate business clusters and improving the scale of knowledge transfer from the sub-region's universities.

The South East Plan includes housing numbers for the sub-region which are to be shared between the eight district and borough authorities, and two unitary authorities. These are reproduced in **Table 2.1**.

Housing is part of the development programme for PUSH. Besides new homes, a programme of regeneration (DCLG, 2006a) focused on the two cities of Portsmouth and Southampton and the adjoining urban areas will include:

- Redevelopment of a number of significant brownfield sites;
- Planning for the provision of 2 million square metres of new employment floor space;
- Providing critical infrastructure to deal with current deficits as well as newly arising needs;
- Two new Strategic Development Areas, one linked to Southampton (Hedge End) and the other linked to Portsmouth (Fareham SDA); and
- A Strategic Employment Area at Eastleigh close to Southampton Airport.

Table 2.1: *Housing numbers by district from the adopted South East Plan (GOSE, 2009)*

Local Planning Authority	Annual average	Total
East Hampshire (part)	60	1,200
Eastleigh	354	7,080
Fareham	186	3,720
Fareham SDA (starting in 2016)	1000	10,000
Gosport	125	2,500
Havant	315	6,300
New Forest (part)	77	1,540
Hedge End SDA (starting in 2016)	600	6,000
Portsmouth	735	14,700
Southampton	815	16,300
Test Valley (part)	196	3,920
Winchester (part)	337	6,740
Sub-Regional Total	**4,000**	**80,000**

Policy CC8, green infrastructure, is relevant to all of the growth aspects listed above and the policy applies to each LPA. The South East Plan underlines this by making special reference to the need to provide green infrastructure as part of the proposed SDAs at Hedge End and Fareham. The two regional hubs at Portsmouth and Southampton also warrant special mention since the Plan states that all regional hubs, amongst other delivery priorities, should be a focus for new green infrastructure. **Figure 2.1** illustrates some of the key growth locations planned for the sub-region.

2.3 Habitats Regulations Assessment

The Habitats Regulations place a requirement on all LPAs to ensure that their proposed development plan documents will not have an adverse effect on features of international nature conservation importance. The nature and characteristics of the South Hampshire sub-region, with its high number and extensive area of European sites of nature conservation interest (see **Figure 2.2**), means that this is a significant influential statutory factor which has a strong bearing on the need for robust and diverse green infrastructure in the sub-region.

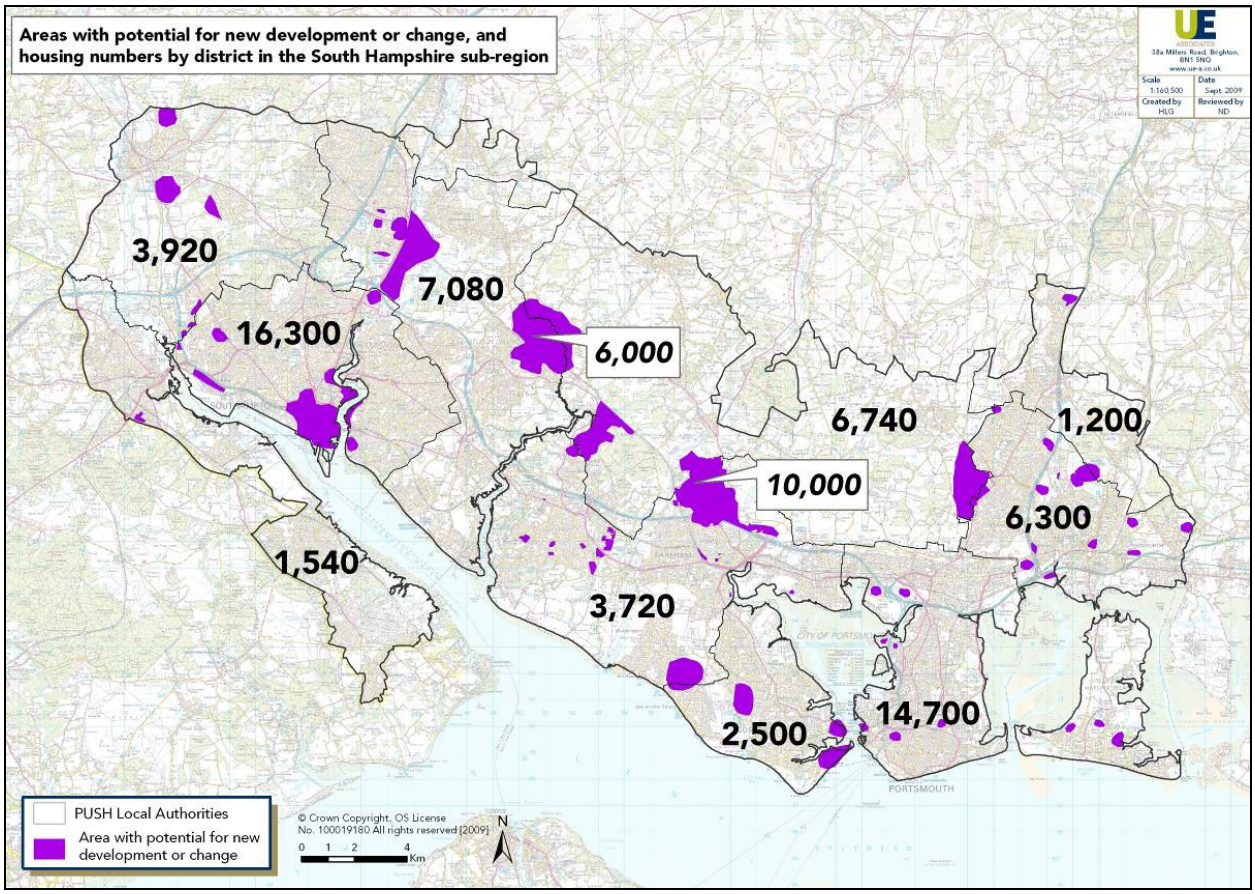

***Figure 2.1**: Areas with potential for new development or change in the South Hampshire sub-region.*

Consideration of known and likely HRA requirements has informed and influenced the strategic GI framework (see **Chapter 4**). To this end, Theme II, 'Maximising biodiversity opportunities, adapting to change and protecting European sites' includes the following objective (Objective 5, see **Chapter 4**):

> *To contribute to the mitigation of the impacts of growth on European sites using buffer zones, providing alternative recreation destinations and reducing the effects of coastal squeeze by providing new habitat sites.*

HRA mitigation proposals in the sub-region often include:

a. The need to provide adequate coastal areas for the inevitable displacement of coastal habitats and birds which is predicted to arise as a result of sea level rise, which when combined with flood defence work, can lead to "coastal squeeze". The Environment Agency's Regional Habitat Creation Programme and the emerging North Solent Shoreline Management Plan (SMP) are both important considerations in this respect;

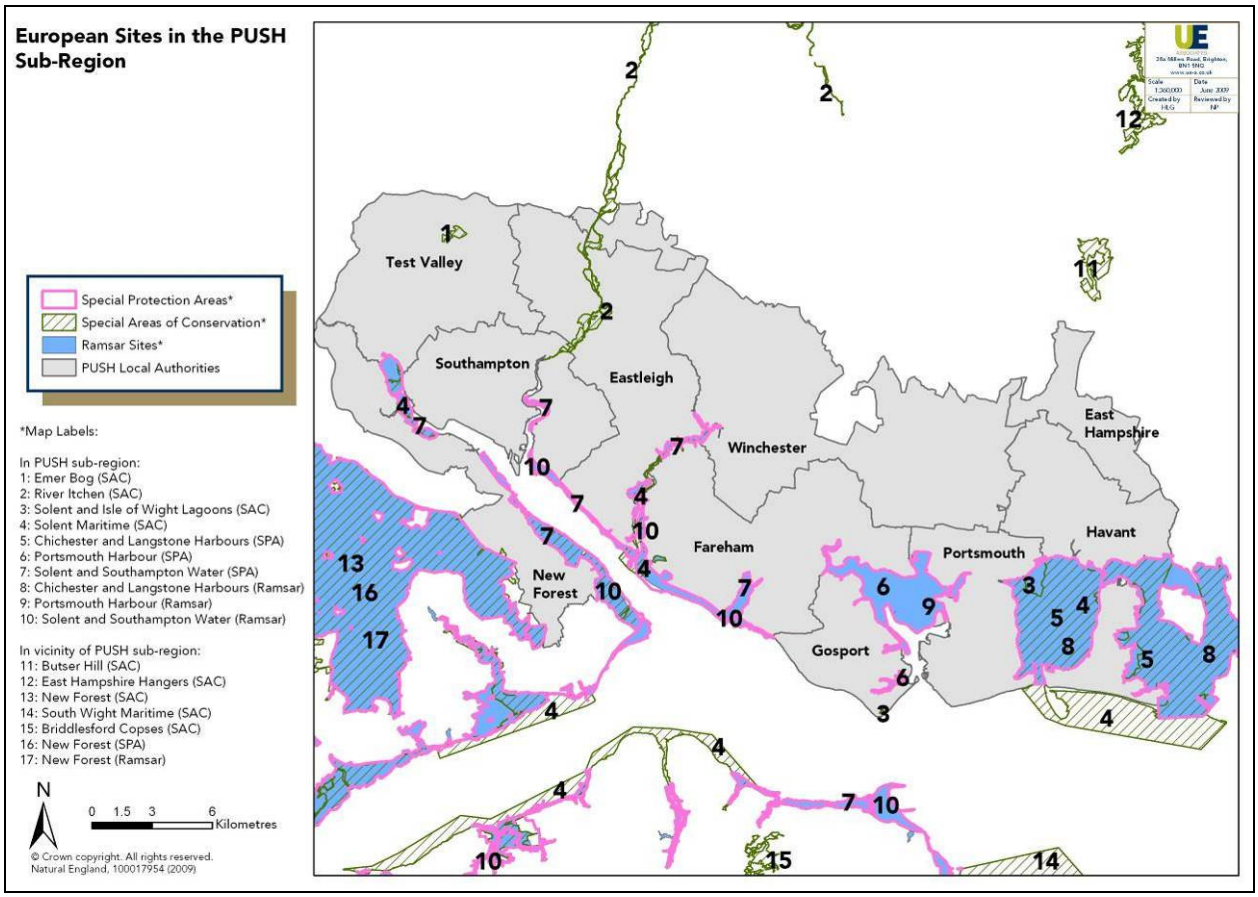

Figure 2.2: *European sites of nature conservation interest in and around the sub-region*

b. Recommendations for the creation of alternative recreational destinations or enhancements to existing ones, within reach of the areas where major growth is proposed, that will help in diverting visitors away from the Natura 2000 network of European sites, and help mitigate pressures on the New Forest National Park's features of nature conservation importance associated with European site designations. This can include provision of a new country park(s) or similar major green infrastructure components.

The PUSH Green Infrastructure Strategy is well placed to make a significant contribution to both of these considerations and therefore to help with mitigating the impacts of development in the sub-region on internationally important sites of nature conservation interest. To help deliver Objective 5, the proposed sub-regional initiatives and projects (see **section 5.9**) draw on existing HRA assessments and HRA-related research (see **Appendix B**). Whilst HRA issues are not exclusively focused on recreational pressures, many HRAs in the sub-region invariably cite the need to consider potential impacts arising from increasing recreational pressure at European sites, and (by way of mitigation) to introduce new or enhanced areas of accessible natural greenspace in close proximity to new development wherever possible.

At this time there is insufficient evidence to quantify the nature and scale of potential risks to the Natura 2000 network from planned growth. Consequently it is not possible to define with precision the quantum of alternative green space required to mitigate the risks of impact. To address the data gap, PUSH has joined with Natural England and other agencies, NGOs and

other fora, to instigate new site-specific research. Two current projects which both relate directly to this issue are (i) the Solent Disturbance and Mitigation Project (SDMP), and (ii) a partnership project between Natural England, the Forestry Commission and the National Park Authority to understand the contribution of visitor impacts on the fluctuating numbers of Annex 1 birds in the New Forest.

The SDMP has arisen through early HRA work in the South Hampshire sub-region which identified the need to better understand recreational impacts at coastal sites for birds. It began in 2008 and in 2009 a Phase 1 report (Literature Review and Interviews) was issued (Stillman et al, 2009) and the 2008/09 winter bird disturbance survey report is now available. The project is scheduled to run for another year and will include further survey work, visitor questionnaires, modelling, mitigation and monitoring recommendations.

The New Forest visitor research is being led by Natural England which is committed to working with stakeholders to follow up a recent study (Sharp et al, 2008) to investigate the possible effects of recreational disturbance on Annex 1 birds in the New Forest Special Protection Area; work is expected to focus on the 2010 breeding bird season.

Both projects will provide an evidence base to inform future decision making processes in terms of planned development and green infrastructure provision to mitigate risks to the Natura 2000 network in and around the South Hampshire area. In the meantime, PUSH has adopted a proactive position to provision of GI which is likely to count towards positive mitigation of potential adverse effects associated with new development on European sites. The recommended sub-regional initiatives and proposed projects (see **Chapter 5**) combine to enhance and increase the total amount of suitable accessible natural greenspace in the sub-region to form part of an enhanced and managed GI network to deliver multifunctionality in the sub-region over the next 20 years. The precise quantum of new proposed new greenspace has not been calculated.

The scale of this identified resource is considerable in terms of new accessible greenspace and is likely to make a major contribution to effective mitigation concerning potential adverse effects of disturbance to breeding and overwintering birds from increased recreation. Provision of new greenspace and enhancement of existing areas is likely to form part of a suite of forthcoming mitigation measures from HRAs that will also include on-site recreation and visitor management.

Chapter 6 suggests recommendations for the delivery of this GI Strategy. The operational means of facilitating the proposed initiatives and projects include (i) strong political commitment to the Strategy through a PUSH-wide MAA, (ii) adoption of the GI Strategy as a sub-regional policy framework, and (iii) the creation of a Joint Advisory Committee which would take responsibility for delivering the Strategy. Commitment through the Partnership will facilitate the integrated and consistent ability to deliver this Strategy. **Chapter 6** recommends that PUSH Local Planning Authorities (LPA) should consider producing Development Plan Documents (DPD) or Supplementary Planning Documents (SPD) to enable the Strategy to be translated and become operational at the district or borough level.

The following recommendations relate to Objective 5 of the GI Framework and could feature in a model SPD in order that the benefits to HRA can be fully realised. The purpose of these recommendations is to provide PUSH local authorities greater certainty in the delivery (and timescale of delivery) of this important element of the GI Strategy, and hence (where appropriate, together with complementary access management measures within the European sites) allow local authorities to satisfy the requirements of the Habitats Regulations in respect of new housing proposed within their LDFs.

If GI SPDs are selected to help directly mitigate HRA impacts associated with recreation, they could normally include the following:

- A zone of influence around the European sites within which alternative greenspace is required to offset recreational pressures arising from new housing;
- Appropriate quantity standard of greenspace required per 1,000 population in order to provide an attractive alternative to the European sites (including a minimum size recommendation);
- Suitable catchment zones for different sizes / character of alternative greenspace, and therefore the distance that the open space should be from new housing development;
- Appropriate alternative greenspace quality guidelines for LPAs (similar to Natural England's quality guidelines for the Thames Basin Heaths, based on visitor perception surveys);
- A suitable method of capacity calculation for greenspaces with current access;
- Standard methods for calculating capital and ongoing maintenance costs of alternative greenspace, in order to establish a suitable tariff for developer contributions;
- Recommendations for an appropriate delivery mechanism to ensure consistent implementation across the affected local authorities; and
- Requirements for future monitoring to ensure that the alternative greenspace is effective.

2.4 The need for green infrastructure: GI deficit

Besides statutory planning policy drivers and HRA considerations, another factor affecting green infrastructure is the need to address green infrastructure deficits. Two established datasets guide the Strategy in this respect:

- English Nature's (now Natural England) Accessible Natural Greenspace Standards provide a benchmark to assess the extent to which greenspace is readily available to people's homes.
- Recent research by Natural England into the links between health and greenspace has produced several significant findings about the importance of open space and green environments to people's health.

2.4.1 Accessible Natural Greenspace Standards

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

- At least two hectares within 300 metres walking distance (five minutes walk) from their home;
- At least 20 hectares within two kilometres;
- At least 100 hectares within five kilometres;
- At least 500 hectares within ten kilometres;
- One hectare of Local Nature Reserve per 1,000 population.

Figure 2.3 shows areas of deficit the for the 20ha category. **Appendix D** (**Figures D.1 – D.3**) illustrate ANGSt maps at the 2ha, 100ha and 500ha categories. These highlight that whilst most of the sub-region has access to sites over 20ha, the following areas are considered to be deficient in local green space: Gosport, Southampton and Portsmouth.

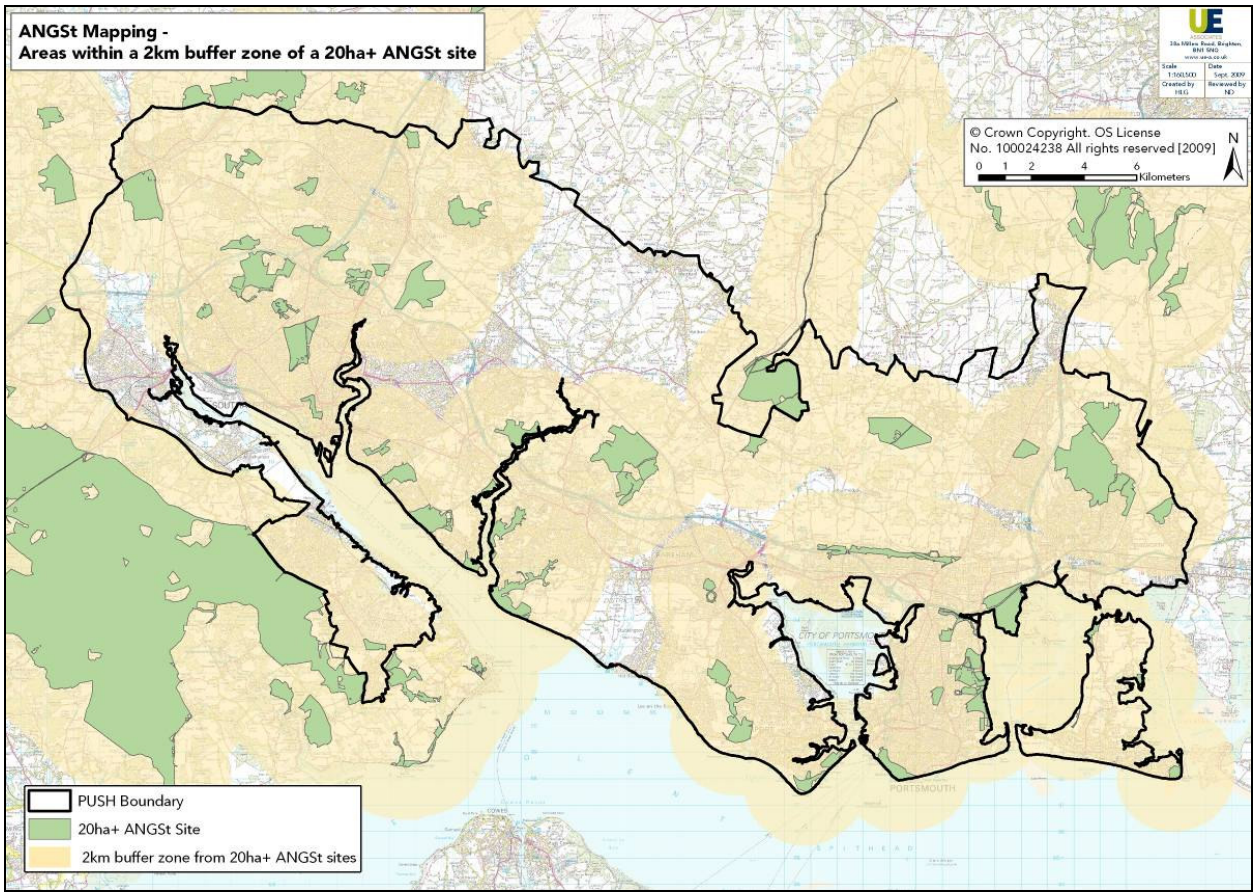

Figure 2.3: *ANGSt analysis at the 20 ha level for the sub-region.*

2.4.2 Health Indicators

Natural England is presently running a campaign called the Natural Health Service. It is focused on considering how the natural environment can help deliver or address a number of

national indicators. These include issues relating to obesity, mental health, life expectancy and physical activity. A key part of the project has been to look at a basket of indicators which is used to identify areas in the south east region which are likely to benefit from additional local greenspace provision. In the case of the South Hampshire sub-region several areas have been identified in this way. **Figure 2.4** shows an extract from the regional map and depicts those areas within the sub-region which are likely to benefit in health terms from additional greenspace.

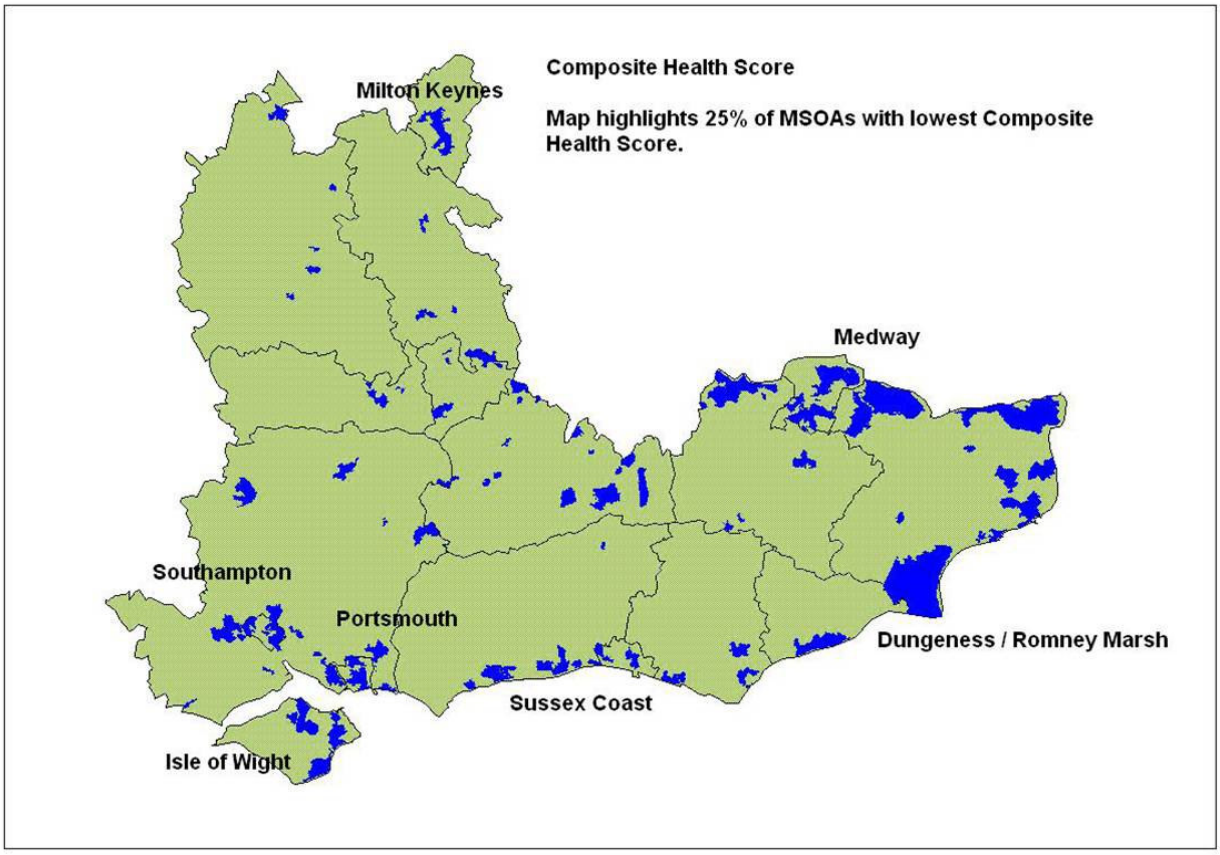

Figure 2.4: *Areas of the poorest health in the South East region where health would benefit from use of the natural environment.*

2.5 Existing green infrastructure activities

Existing green infrastructure is managed and delivered by different organisations each of which has similar but differing remits. **Figure 2.5** illustrates some of the key organisations and bodies which are involved with aspects of green infrastructure.

2.6 Other plans, programmes and strategies

See **Appendix C** for a review of other plans and programmes which have a bearing on green infrastructure in the sub-region.

Key organisation	Interest area includes	Relationship to GI
National Park Authorities, AONB Partnerships, County, Borough and District Councils	Landscape character assessments; landscape strategies (ELC compliant tools for landscape protection), AONB Man't Plan.	Potential to deliver landscape visions, landscape quality objectives or strategic guidelines through establishment of green infrastructure design principle
Natural England	Higher Level Stewardship; Rural Delivery Plan for England; England's Trees, Woodlands and Forests Delivery Plan.	Potential to contribute to BAP targets for Key Biodiversity Areas; Access to nature; Relief of visitor pressure on key sites through alternative provision.
South East England Biodiversity Forum (SEEBF)	Mapping Biodiversity Opportunity Areas (BOAs), protected species, statutory and non-statutory sites, BAPs, HAPs and SAPs.	Potential to contribute to reversal of habitat fragmentation; Contribution of GI to higher level network; Climate change adaptation, habitats / ecosystem services.
County Councils	Countryside Access Plans (ROWIP).	Address deficiency by delivering improvements to ROWs identified as a priority and to enhance / expand ROWIP.
County, Borough and District Councils	Ownership and management of green spaces such as country parks, town parks and other green spaces.	Local authority owned and managed sites for green space and open air recreation are important nodes in the green infrastructure network.
Environment Agency	Catchment Management Plans, Flood Risk Zones, Strategic Flood Risk Assessments.	Functioning floodplain and sustainable flood management / storage; Access to nature; Amenity / recreation.
Forestry Commission	SE Regional Forestry Framework, England's Trees, Woodland and Forests Delivery Plan, English Woodland Grants.	Woodland creation and enhancement (biodiversity targets; economic value of woodland products; attracting tourism, inward investment and other economic activity).
English Heritage, the Heritage Lottery Fund, County, Borough and District Councils	Conserving, regenerating, understanding and appreciating historic places.	Preserving cultural heritage and sense of place; providing opportunities to enjoy the historic environment.
Parish and Town Councils	Grassroots level development and regeneration; green space ownership and management.	Potential to contribute to regeneration and enhancement of public amenity space.
Primary Care Trusts, Local Education Authorities	Provision of other public services e.g. healthcare; education.	Increased activity levels e.g. green gyms; environmental education.
NGOs: National Trust, BTCV, RSPB, Wildlife Trusts etc	Nature conservation and environmental management.	Working in general with non-statutory nature conservation designations and protected sites.

Figure 2.5: *Organisations currently involved with green infrastructure (adapted from GOSE, 2009)*

3 Reviewing the Evidence

3.1 Earlier evidence collection (2007-2008)

In 2007 the PUSH partnership appointed consultants TEP to compile and collate datasets providing an evidence base for the development of a sub-regional green infrastructure strategy for the area. TEP produced two volumes of work, both of which have informed the local-scale analysis and recommendations presented in this Strategy:

1. Towards a Green Infrastructure Strategy for South Hampshire: Revised Research Report (November 2007)

2. Towards a Green Infrastructure Strategy for South Hampshire: Advice to PUSH (July 2008)

3.2 Introducing local analysis of evidence

Since being appointed in February 2009, UE Associates has revisited the sub-regional datasets and prepared further analysis of green infrastructure issues and assets at the local level (i.e. district level) within the sub-region. The local analysis followed the five steps presented in **Table 3.1**.

Having reviewed the TEP (sub-regional) evidence and also collected and analysed local dataset information, the development of the Strategy is able to incorporate both a top-down and bottom-up approach to evidence gathering and utilisation.

3.3 Limitations of evidence

The available evidence and data used in the preparation of this Strategy varies in quality. Wherever possible the most recent available data and research are used. It is important that data collection and management is prioritised during the early stages of delivering the Strategy.

Table 3.1: *Analysing information at the local (district) level*

Step	Description
Step 1: Assemble typology maps	Typology maps were prepared by drawing together available baseline information for the typologies which are listed in Box 1 (see Chapter 1) of this document. The purpose of the typology maps is to provide a spatial indication of the existing green infrastructure baseline in a given district.
Step 2: Prepare GI baseline matrix	To prepare a green infrastructure baseline for each district, a matrix was designed to incorporate the different typology classes and component parts. The matrix was populated with an indication on the quantity and quality of GI.
Step 3: Establish deficiency	Review relevant plans with GI checklist as to any bearing they have on the Strategy and ways in which the Strategy can facilitate the aspirations of the plan In particular, deficiency has been considered in light of (i) Reviewing relevant plans and programs such as PPG17 assessments; (ii) ANGSt maps; (iii) Biodiversity by Design (TCPA, 2004) standards for provision of accessible biodiversity sites near to where people live; and (iv) professional interpretation.
Step 4: Consider HRA recommendations	HRA is a very important consideration in the sub-region. In order for the Strategy to deliver Objective 5 (see GI Framework in **Chapter 4**), and bearing in mind the importance of empirical facts and figures to guide the preparation of green infrastructure that might usefully mitigate potential effects of increased development and the associated effects in the sub-region, HRA issues have been carefully considered (using the available information) at each stage of preparing the Strategy (see **section 2.3** and **Appendix B** for an analysis of HRA issues in the sub-region).
Step 5: Synoptic analysis	Drawing on information from the Typology Maps (see Step 1 and **Appendix D**), GI Baseline Matrix (see Step 2), known deficiency levels (Step 3) and the review of HRA issues (Step 4 and **Appendix B**), a synoptic analysis was prepared for each district. This summarised positive elements of GI in a district and also identified main priorities and issues / challenges.

4 GI Strategy Framework

4.1 About this chapter

This chapter presents a vision for green infrastructure and establishes the GI Framework. Information about the eight GI Themes includes details about the benefits and key issues associated with each theme. Useful contextual information in the form of maps, facts and figures is also provided in **Appendix D**. The information provided in the following sections has informed the Strategy's development in terms of identifying an appropriate architectural structure for the Strategy to operate within (see **Chapter 5;** the reader may find it useful to read the two sections together).

4.2 The GI Framework: Themes and Objectives

The purpose of the GI Framework is to provide a means of identifying topics which are relevant to green infrastructure and which should be considered when designing the green infrastructure network for the sub-region. It is composed of Themes and Objectives, which have been informed by a stakeholder workshop held in May, 2009. Each Theme has accompanying Objectives. The Themes provide an overarching recognition that a particular topic area is significant. They are intended to provide context to the broad and varied discipline of green infrastructure; inevitably, to some extent the Themes overlap. The Objectives provide information about how each respective Theme can be translated to provide different aspects of green infrastructure relevant to that Theme. The Themes and Objectives are derived from the earlier analysis of issues relevant to green infrastructure provision and management undertaken by TEP (see **section 3.1**).

The Themes apply across the entire sub-region and are not site specific. For example, the coast (and coastal zone in particular) does not have its own theme; instead there is a coastal zone area to which all the themes apply albeit that Themes II and IV are paramount. The GI Framework therefore forms a context for green infrastructure creation and integration across the sub-region. In terms of preparing site specific components of green infrastructure, and considering how the green infrastructure network should operate to deliver the Themes and Objectives, the structure (form) and initiatives/projects (function) need to be considered. This is addressed in **Chapter 5**.

It would be desirable to also include information about standards, targets and case studies however, it has not been possible to identify these on a consistent basis as part of this Strategy.

4.3 THEME I: Sustainable economic development, attractive workplaces and desirable tourist destinations

4.3.1 Objectives

1: Ensure the design of existing and new workplaces leads to diverse and attractive green environments for businesses wishing to relocate, grow or set-up in the South Hampshire sub-region.
2: Complement the resources of existing visitor destinations, facilitate increased tourism opportunities and enhance the visitor economy.
3: Promote businesses and markets that provide low carbon, multifunctional and cost-effective delivery of Green Infrastructure Themes and Objectives.

4.3.2 Context

Throughout the sub-region, PUSH is seeking:

- To raise economic performance (annual Gross Value Added, GVA) from around 2.7% in 2006 to 3.5% by 2026;
- To raise the annual increase in productivity (GVA per employee) to 2.7% by 2026;
- To create 59,000 new jobs, notably in business services, advanced manufacturing, logistics and distribution; and
- To create nearly two million square metres of additional employment space by 2026.

Planned growth across the sub-region is focused in part by the South East Plan (GOSE, 2009) which, drawing on work by the Regional Development Agency, has identified Portsmouth and Southampton as a focus for commercial development amongst other things. Similarly the South East Plan identifies two SDAs for the sub-region, at North Fareham and Hedge End, which will both contain significant quotas for employment land.

This Theme is not solely about new employment sites but also about existing workplaces. On this basis, across the sub-region and at differing scales, this Theme is relevant. **Figure 2.1** illustrates planned development in the sub-region. The map shows the position of the SDAs, the city hubs, and locations which are identified for future development; some of which are exclusively employment sites, some are residential and others are mixed use. The purpose of the map is to illustrate the wider distribution of development sites to which this Theme will apply.

4.3.3 Benefits

- Green work locations can help attract new employers to an area, providing more jobs and investment to the sub-region. The South East Green Infrastructure Framework (South East Green Infrastructure Partnership, 2009) cites research by Groundwork (2007) which illustrates these benefits plus the opportunity for increased footfall or customer numbers.

- Research shows that improved problem solving and reduced staff turnover occur in green surroundings.

- The tourist economy is strongly influenced by green infrastructure. On a small and local scale this applies to accommodation; the setting is important and the surroundings should be relaxing and help deliver a good quality visitor experience. At a larger scale, the available green infrastructure can be the primary reason for attracting people in the first place. Some obvious examples in and around the sub-region are the National Parks and the historic seafront at Portsmouth.

- The financial burden of delivering green infrastructure can be reduced through promoting sustainable commercial activities and multifunctional use.

4.3.4 Issues and Opportunities

1. In order to exploit the opportunities for tourism in the sub-region related to outdoor activities, green infrastructure should be managed, enhanced and, if appropriate, expanded to consider how existing markets might be encouraged to visit the wider countryside of the sub-region.

2. Another significant economic opportunity relevant to green infrastructure is the management of land, in particular woodlands, for commercial outputs (this issue is covered in more depth as part of Theme VII: Food, fibre and fuel).

3. New employment sites to be developed at North Fareham and Hedge End offer the opportunity to utilise green roofs, SuDS and provision of high quality outdoor space to reinforce the competitiveness of the South Hampshire area in attracting and retaining investment.

4. Investment in the use of green technologies presents opportunities for the manufacture and production of these to meet local demand.

4.4 THEME II: Maximising biodiversity opportunities, adapting to change and protecting European sites

4.4.1 Objectives

4: Conserve and enhance existing biodiversity: restoring habitats according to Biodiversity Opportunity Area (BOA) priorities, helping deliver Habitat Action Plans and Species Action Plans in the BAP, and improving connectivity of habitats at all scales and levels of designation.
5: Contribute to the mitigation of the impacts of growth on European sites using buffer zones, providing alternative recreation destinations and reducing the effects of coastal squeeze by providing new habitat sites.

4.4.2 Context

A range of habitats and species (and geological sites of interest) can be found in south Hampshire which together make up the biodiversity and geodiversity of the area. Some parts of the sub-region are designated as statutory nature conservation sites. These include European sites, Sites of Special Scientific Interest (SSSI) and Local Nature Reserves. Other sites are non-statutory designations such as Sites of Importance to Nature Conservation (SINC). Together they form a network of biodiverse areas which in turn is connected at differing levels. For example, the European sites form important elements of an international network of sites; the local area designations form a network of locally integrated biodiversity. Together, and including the wider countryside which has no designation, biodiversity is represented by the different species and habitats which can be found here.

Awareness of the various aspects of biodiversity, and management of biodiversity, is the subject of the UK Biodiversity Action Plan, the South East Biodiversity Strategy and the Biodiversity Action Plan for Hampshire (see **Appendix C** for more information about the BAP). The BAP is an ongoing dynamic document which works on the basis of partnership to identify local priorities and determine the contribution they can make to the delivery of the UK BAP. The Hampshire BAP includes 493 priority species and 14 priority habitats. Recent work at the county level has identified and mapped Biodiversity Opportunity Areas (see **Figure D.4** in **Appendix D**). The maps identify areas of greatest potential for restoration and creation. Certain habitat types and species are not well represented within the Biodiversity Opportunity Areas, such as wildlife associated with arable farmland. The GI Strategy can help address such issues affecting a wider area.

At the landscape ecology scale, connectivity of habitats and the development of a green infrastructure network to facilitate proper function, structure and composition is vital if a matrix of habitats and metapopulations is to be strengthened and encouraged. Corridors feature at a range of scales and include small scale local corridors such as hedgerows, green bridges and streams, right up to large scale strategic corridors such as the Solent coast, and major rivers which flow through the area such as the Meon and Itchen (see **section 5.1.4** on corridors in the GI Architecture).

Solent Waders and Wildfowl

One of the reasons our coastal intertidal areas are internationally designated for wildlife is because of the large numbers of wading birds and wildfowl they support during the winter. These winter visitors rely on the Solent's rich feeding grounds exposed at low tide. At high tide and during stormy weather, however, these birds need places to rest and graze. Many of the areas used for this purpose are not covered by statutory conservation designations yet they support internationally important birds.

For example, in the urban areas around Portsmouth, many playing fields are used by flocks of Brent Geese which rely upon them for grazing. The 2002 ***Brent Goose Strategy*** mapped these sites and has been used by planners to make decisions which minimise loss of these sites. A revised strategy is due for release shortly.

4.4.3 Benefits

- Green infrastructure can provide support zones or buffer zones as part of mitigation strategies for European sites (which have been identified through the forward planning process).

- It can provide new habitat where coastal habitat is being lost to encroachment by the sea.
- Green infrastructure can help facilitate the recreation and restoration of habitats identified through the Biodiversity Opportunity Areas.
- It can help with the anticipated effects of climate change such as habitat loss, coastal squeeze and provision of corridors for movement of species which may seek to migrate over a period of time.
- Identification of new or enhanced green infrastructure to support this Theme might lead to additional identification and creation of new SINCs which would enhance and strengthen the network of biodiversity sites.

4.4.4 Issues and Opportunities

1. Climate change and development pressures have effects on biodiversity. Climate change in particular may lead to the colonisation of new species and possibly local species extinctions as conditions are characterised by hotter, drier summers and warmer, wetter winters. Sea level rise and coastal squeeze are both anticipated to have continued effects on the south Hampshire coastline.

2. The GI Strategy can play an important role in helping to mitigate some of the perceived effects associated with new development and HRA in the sub-region. **Section 2.3** (which includes a map, **Figure 2.2**, of all European sites in and around South Hampshire) provides an overview of HRA considerations and **Appendix B** provides a comprehensive snapshot of HRA issues that have been identified as part of various HRAs around the sub-region. Drawing on this information, it is particularly important that the GI Strategy:

   - Plans for inevitable displacement of coastal habitats and birds caused by coastal squeeze. This is informed by the Environment Agency's Regional Habitat Creation Programme and the emerging North Solent Shoreline Management Plan.
   - Identifies alternative recreational destinations, or enhancements to existing sites, within reach of the areas where major new growth is proposed, that will help in diverting visitors away from the Natura 2000 network, and help mitigate pressures on the New Forest National Park's features of nature conservation importance associated with European site designations.

4.5 THEME III: Landscape quality and diversity, distinctive features, cultural heritage and appreciation of sense of place

4.5.1 Objectives

6: Protect and enhance the unique quality, diversity and distinctiveness of the sub-region's landscape and heritage.
7: Maintain and where necessary improve the identity and character of settlements in urban and rural locations.

4.5.2 Context

The landscape is composed of natural, cultural and perceptual factors that, in combination, make one place distinct from another and create a strong sense of place with which people identify. The differences between one place and another can be mapped, and the landscapes of south Hampshire are defined at a number of scales. At a national scale, the Countryside Character Map of England includes three character areas in south Hampshire: the South Coast Plain, the South Downs and the New Forest (see Natural England's Nature on the Map). At a county scale, Hampshire County Council is currently preparing a new landscape character assessment, and at a local level most local authorities have produced district or borough landscape character assessments.

The landscape of south Hampshire is very diverse as a result of natural factors such as geological variation and as a result of the way in which the land has been managed over thousands of years. The combination of low-lying coastal plains and shorelines, high chalk downland, and wooded and farmed clay lowlands provides the opportunity for a varied and exciting network of green infrastructure. This diversity extends into the towns and cities of the sub-region which have their own individual character that derives from their historical function.

These associations from the past are what shape the cultural heritage of the sub-region. They can be appreciated through the patterns of fields and woodlands, the presence of large scale designed parks and gardens in both town and country, as well as through art, writing and cultural activities that are associated with a specific location. Green infrastructure provides an opportunity to identify, promote, protect and enhance these cultural assets, and to begin creating new associations and features that will in time become embedded in the culture of the sub-region.

4.5.3 Benefits

- Landscapes provide cultural identity; green infrastructure is essential in supporting landscape quality and reinforcing sense of place.

- Attractive landscapes supported by green infrastructure entice people to visit and stay in the countryside.

4.5.4 Issues and Opportunities

1. Anticipated high demand for the National Park and AONB experience amongst local populations can be offset by alternative landscape destinations in the sub-region.

2. The Forest of Bere is a distinctive landscape area which, through an area-wide green infrastructure initiative, could bring several large scale landscape benefits.

3. It is important that green infrastructure complements the existing landscape strategies of the sub-region. It should promote the enhancement of those GI assets which have a strong landscape character association, and help support landscape sensitivity and provide tolerance to change.

4.6 THEME IV: Access to the countryside and green spaces, providing recreational opportunities and experiences

4.6.1 Objectives

8: Create, maintain and promote a network of high quality, multifunctional, interconnected routes to provide a network of linear access for a variety of users.
9: Address deficiencies in access to greenspace through creation of new or enhanced recreation sites at all scales, enabling use by all sectors of society. All such sites should avoid conflict with established nature conservation interests.

4.6.2 Context

Green infrastructure can help provide more areas for open air recreation and help provide alternative sites, when considering a conflict of land uses when managing sites. In terms of linear access, some of the most common activities are those which can be supported and enhanced by green infrastructure including walking, cycling and horse-riding.

A key recreational resource in the sub-region relevant to this theme (as well as other Themes) are the various country parks which can be found across the area. Country parks play a significant role in providing multifunctional accessible natural greenspace. Typically they are located near or within towns and cities and therefore close to where people live. Multifunctional aspects of country parks mean that they can provide a wide range of opportunities for recreation, health and education and improve the quality of life for their local communities as well as providing biodiversity rich locations. **Figure D.5, Appendix D** shows country parks, National Parks and recreational routes.

One specific initiative related to this theme is the Marine and Coastal Access Bill which proposes coastal access along the entire coastline of England and Wales. Natural England's draft coastal access scheme (Natural England, 2008c) sets out ideas for delivery of this proposed new right of access, including details about excepted land such as industrial areas and land under military bylaws.

The recently released access audit for south east England (Natural England, 2009b) confirms that the coast of south Hampshire has a significant deficit of coastal access. Introducing access will not be a straightforward process as several European sites (see **Figure 2.2**) designated due to the importance of their bird assemblages are also present in coastal locations. New or increased recreational activity can have an adverse effect on bird populations. The current Solent Forum research (Stillman et al, 2009) will help inform this area of work. Green infrastructure can provide alternative sites for recreation but details about the location and size of suitable accessible natural greenspace can only be estimated in lieu of further studies, such as the Solent Forum research, Core Strategy HRA reports and the forthcoming North Solent Shoreline Management Plan.

4.6.3 Benefits

- Benefits of recreation include those directly associated with healthy living and the economy.

- Some forms of tourism are directly associated with outdoor leisure pursuits that require green infrastructure to enable the activity to take place and businesses to operate.

- Other benefits can be associated with the multifunctionality of routes for recreational walking by providing routes to, for example, workplaces and schools.

4.6.4 Issues and Opportunities

The Hampshire County Council Countryside Access Plans (2008a, b, c) each identify and discuss issues associated with access and recreation in south Hampshire. The issues and opportunities presented below build upon this work:

1. There is a high reliance on cars and the availability of car parking to access the countryside. Good opportunities exist to improve the cycling network and reduce the reliance on using motorised routes;

2. In relation to the coast, there are limited opportunities for access to and along the coast of the New Forest and south west Hampshire despite there being strong demand for access to the coastal areas and river estuaries both by land and by water;

3. In some parts of the sub-region, lack of local greenspace and rights of way adds pressure to existing publicly accessible sites, which may also be of high conservation value;

4. Rights of way are often fragmented and do not link up to provide a connected network;

5. There is an undersupply of horse-riding routes; and

6. There is a need to increase the permeability of the urban-rural fringe, overcoming obstacles and barriers to movement.

4.7 THEME V: Providing high quality water resources, managing flood risk and increasing water retention

4.7.1 Objectives

10: Increase natural storage capacity, reduce the run-off rate of storm water and increase onsite water purification and infiltration. Permeability in settlements across the sub-region should be maximised.
11: Promote river corridor management to provide multifunctional benefits for flood defence, recreation, landscape and biodiversity.

4.7.2 Context

The Environment Agency (2007) recognises that rivers can make an important contribution to GI in south Hampshire by virtue of their multifunctional potential and, importantly, their role under flood conditions. Several rivers cross the sub-region and join the Solent. Each needs restoring in order to focus on improving the quality and function of river environments by removing redundant structures (unless they have heritage value) and restoring a more natural form of river channel. From east to west, the rivers in question are the Wallington, Meon,

Hamble, Itchen and Test. **Figure D.7, Appendix D** depicts the location of the rivers and illustrates those stretches which present opportunities for river restoration. **Figure D.8**, **Appendix D**, illustrates water quality.

The presence and movement of water in the sub-region is not restricted to rivers. For example, water is absorbed into the ground, filtered, and the rate of flow reduced before it reaches a water course or the sea. This is of particular importance where the speed of transfer to the receiving environment increases the likelihood of damaging flood impacts. In this respect, urban open (permeable) space is important and includes gardens, parks and playing fields. Patterns of rural development are similarly important when considering the rate of run-off and movement of water downstream, although valleys, woods and fields are better equipped environments to deal with heavy rainfalls and flood conditions. **Figure D.9**, **Appendix D** illustrates flood risk in the sub-region.

Ponds and lakes are key water retention features which are important in providing biodiversity benefits. Conversely, water scarcity during warm weather spells is an equally important feature of the sub-region's water environment.

4.7.3 Benefits

- GI can reduce flood risks by improving flood storage capacity, increasing onsite infiltration rates and reducing storm water run-off rates.
- GI can improve water quality by reintroducing natural edges along river courses that help to filter pollutants.
- Restored river corridors provide a range of semi-natural habitats which benefits both wildlife and people, by providing an attractive setting for walking and cycling.
- GI can restore culverted rivers to their natural form in urban places.

4.7.4 Issues and Opportunities

1. The Water Framework Directive 2000/60/EC will require the protection, enhancement, and restoration of all bodies of surface water with the aim of achieving good surface water quality status.
2. Water retentiveness: New and existing development should seek to maximise water retention and help avoid flooding through water storage features and the creation of sustainable drainage systems. These offer improved attenuation by releasing water into the catchment more slowly when compared with heavy rain falling onto hard surfaces such as tarmac, which can lead to flash flooding. It is important that water considerations do not just apply to new development; the existing built environment requires similar measures to be incorporated wherever possible.

4.8 THEME VI: Climate change adaptation and mitigation

4.8.1 Objectives

12: Maximise the GI contribution to mitigating urban temperature and prepare for sea level rise.
13: Facilitate reduced carbon emissions and contribute to the development of south Hampshire's low carbon economy.

4.8.2 Context

Sea level rise and increasing flood risk are two of the most challenging anticipated impacts of climate change across the South Hampshire area. Flooding is exacerbated by hard surfaces and lack of water retention features that help slow the flow of water. Sea level rise is compounded by sea defences which cause rising waters to displace to a different location along the shoreline, leading to increased rates of sea level rise and associated erosion in certain places (Cope et al, 2008).

Ground water supplies are also potentially threatened by climate change, with Environment Agency predictions suggesting that recharge rates will reduce in coming years. The Agency has developed groundwater models which can be used to assess the impact of climate change. The two models have been used to consider the impact of change on groundwater levels and riverflow. The Test and Itchen Groundwater model was run with the UKCIP02 medium/high scenarios and suggested that by the 2020s recharge to the chalk aquifer may fall by 5%, and already low summer flows in the Test and Itchen may fall by a further 5 - 7%. It is likely that using the groundwater models to make predictions beyond 2020 will show more dramatic reductions in recharge and riverflow.

The East Hampshire and Chichester Chalk model has been used to look at potential changes in flow at Havant and Bedhampton Springs. This model used scenarios agreed by UK Water Industry Research (2006) where rainfall is perturbed by three factors, representing wet, mid and dry scenarios. The work suggested that recharge to the chalk aquifer could vary from 20% less to 27% more than current values. The model suggested that this would result in a potential change in average flow at Havant and Bedhampton of between 12% less to 11% more. Green infrastructure can provide important water retention functions to help capture water during short heavy rainfalls and flood events.

Biodiversity conservation and enhancement is also likely to be affected by climate change as the distribution of habitats and species will slowly alter (see **section 4.4.4**).

4.8.3 Benefits

- Greenspaces can provide an efficient and cost-effective 'soakaway' for rainwater and a reservoir for surface water storage (TCPA, 2008) thus helping in part with demand for accessible water features.

- Greenspaces and associated vegetative cover are important in providing a natural cooling effect to mitigate urban heat islands. This is especially important for the two cities and larger urban locations, including the planned SDAs.

- An appropriate network of green infrastructure allows habitats and species to migrate and adapt to the effects of climate change.
- Suitable landscaping and vegetation can help reduce the effects of air pollution and store carbon.
- Green infrastructure features such as accessible corridors and increased greenspace can, at a local scale, encourage a reduction in motorised travel and facilitate movement on foot or by bike.

4.8.4 Issues and Opportunities

1. A primary adverse effect associated with sea level rise in the sub-region is the loss of protected habitats, and feeding and roosting grounds for waders and wintering wildfowl which use the extensive mudflats, saltmarsh and other estuarine habitats that are naturally exposed during the tidal ebb and flow of the Solent.

2. The 80,000 new homes and employment sites should be designed with appropriate GI quanta to retain water and help reduce the effects of localised flooding, introduce greenspace with trees for cooling and consider networks of street trees.

3. Building design that ensures new developments incorporate features such as green roofs, green walls and adequate space for future tree growth and naturalised watercourses.

4.9 THEME VII: Food, fibre and fuel production

4.9.1 Objectives

14: Promote the opportunity to support locally grown products such as food, biomass and construction materials.
15: Promote, increase and raise awareness of commercial activities, such as farming and forestry, which provide multi-purpose and cost effective delivery of Green Infrastructure Themes and Objectives.

4.9.2 Context

Commercial land uses, such as forestry and agriculture, that provide multifunctional and cost effective delivery of Green Infrastructure Themes and Objectives will be a priority for PUSH partners to support. The purpose is to strengthen connectivity between the built and natural environment, provide market-based solutions and synergies (i.e. energy production, construction materials, local food etc.) to consumer needs, bring together rural and urban areas, new and existing communities, and local raw material providers and processors. At both site and landscape scales, GI can help build adaptation and mitigation to climate change, develop low carbon services, act as a crucial carbon sink and strategically provide flood prevention. Finally it can support, enhance and help diversify markets (e.g. timber, woodfuel, clothing, meat) providing jobs and developing skills.

Local food production and increasing awareness of local food production requires greenspaces where the food can be grown. The purpose of such an initiative is to raise

awareness of food production and encourage local food to be produced. What is more, given the right amounts of greenspace it is possible that larger parts of the population will be able to grow their own food or be part of a local supply service e.g. producing food as part of a vegetable box scheme. Green infrastructure provides an opportunity to re-establish links between local communities and their wider environment through recreation, food and fuel production (allotments at the small scale but also local farms and woods).

Where there is limited opportunity for local food production, cities and larger built-up areas must consider new spaces. In the wider countryside, larger scale and professionally managed food production operations can make a considerable contribution to this Strategy. Under both circumstances a variety of local food can be grown, increasing the amount of fruit and vegetables which are produced locally, and helping to reduce food miles. This can in turn be distributed to local communities through farmers markets, which provide additional community and recreational benefits.

Fibre and fuel production play an important role in providing sustainable raw materials needed for the built environment (i.e. fire wood, woodfuel, construction timber etc.) and providing employment (i.e. jobs and skills) within the natural environment. Active management of the countryside in both rural and urban areas delivers numerous cost-effective and multi-functional benefits. For example, in some of the sub-region's woodlands, especially those owned by the Forestry Commission, it is possible to use the same woodland for the production of fibre and fuel as well as recreation, tourism, biodiversity enhancement, landscaping, water retention and carbon sequestration. **Figure D.10** in **Appendix D** depicts woodland owned or managed by the Forestry Commission in the sub-region.

A key matter related to GI management under this Theme should be an exploration of opportunities to reduce the costs of delivering public benefits (green infrastructure) by supporting and developing local market-based solutions i.e. through working with the forestry and agricultural sectors.

4.9.3 Benefits

- Multifunctionality means that multiple benefits can be derived simultaneously from the landscape.
- A limited number of woodlands can be managed on the basis of traditional (non-intensive) management for multifunctional benefits such as access, health, landscape and biodiversity.
- Existing and new woodlands can play a greater role in attracting tourism, inward investment (recreation opportunities), carbon sequestration, drainage and economic activity (e.g. timber and wood fuel).
- Productive management can provide multifunctional and cost effective delivery of Green Infrastructure Themes and Objectives. This can provide important resources for communities such as food, energy, heat, timber, safe recreation destinations, and attractive landscapes.

4.9.4 Issues and Opportunities

1. The numbers of orchards and allotments are declining; there is a need and opportunity to protect them and increase their number.

2. Community gardens should be encouraged in new and existing settlements which include space for vegetable and fruit growing, and relaxation.

3. Land in school grounds can be provided to enable education and raising awareness about the importance of locally grown food and healthy eating, along the lines of the Local Roots initiative from the Royal Horticultural Society.

4. Efforts should be focused on increasing public awareness of local food production and local products that can be produced through green infrastructure initiatives. This applies to allotments, local woodlands and other green spaces that can incorporate production of useful bio-products (for example osier beds) that are part of the ecosystem services offered by respective elements of green infrastructure.

5. The merits of fuel versus food production at certain locations in the sub-region need to be considered. This is a potentially contentious and very complicated issue; it would form a discrete exercise in its own right and most likely focus on agricultural land which is not currently identified as green infrastructure according to the definition in **section 1.3**.

4.10 THEME VIII: Well being and health

4.10.1 Objectives

16: Use GI as a resource for improving the physical and mental well-being of the population of south Hampshire.
17: Promote the health and well being benefits of GI.

4.10.2 Context

The health and wellbeing of south Hampshire's populations varies across the sub-region. It is effectively a microcosm of the south east region. Whilst the south east is the healthiest region of England, life expectancy can vary by as much as 5 years between different locations. Natural England has used a composite indicator of health factors to identify areas in the sub-region where the natural environment would most benefit health (see **Figure 2.4**). Several areas are identified in the sub-region, most of which coincide with built-up urban areas: Gosport, Havant, Portsmouth, and Southampton.

4.10.3 Benefits

- Green infrastructure can provide a place for relaxation and physical activity.

- Easily accessible and attractive green infrastructure close to where people live and work is proven to contribute to improved mental health and reduced stress.

- Green infrastructure, and tree cover in particular, can significantly contribute to improving air quality, positively impacting on the incidence of respiratory illnesses.

4.10.4 Issues and Opportunities

1. Provide safe 'breathing spaces' for residents and workers alike, to enjoy visually stimulating and mentally refreshing experiences.

2. Ensure good quality green space around hospitals and care homes.

3. Maximise the potential offered by school grounds as a community resource.

4. Provide opportunities for a range of open air exercise including healthy walking initiatives.

5. Dog walking is a popular form of recreation across the sub-region, bringing benefits for health and quality of life to those who walk their dogs. Recognise and accommodate the needs of dog walkers whilst managing their potential impacts on wildlife sensitive to disturbance and on health.

5 Recommendations for developing the GI network in south Hampshire

5.1 Approach to the GI Strategy

This chapter explains how the Strategy has been prepared. The following sections explain the approach to the Strategy's development and include details about:

- The methodology used to develop the Strategy into a strategic form (the architecture) and applied function (a range of recommended projects);
- How the GI Architecture was drawn up into corridors, sites and areas; and
- How projects were identified to facilitate the functioning of the architecture and hence a robust green infrastructure network for the sub-region.

Whilst the Strategy is a sub-regional framework for action and strategic operation in relation to green infrastructure management and governance, UE Associates has approached the work from the bottom-up. That is to say, it has been possible to draw on the strategic sub-regional dataset produced by TEP and translate this comprehensive volume of information into a form that can be referenced by LDFs, before revisiting and fully developing the sub-regional GI Strategy.

5.1.1 Form, function and scale

In order that the Strategy is formulated according to a strategic spatial structure, within which green infrastructure can function, it is necessary to map the sub-region into strategic spatial features. This can be thought of as the GI Architecture or **the Form**. It is presented in this Strategy as a combination of areas which are criss-crossed by a network of corridors and sites, identified according to their place in the ANGSt hierarchy (see **section 2.4.1**). **Figure 5.1** illustrates these corridors, areas and sites.

For the form of green infrastructure to fully function, it is necessary to consider the different types of green infrastructure that are already available in the sub-region, how they operate together and importantly whether they operate to the best of their abilities or whether additional green infrastructure is needed. This operational capability is known as **the Function**. The GI Framework provides an aspirational structure of ambitions and potential benefits which can be gained if green infrastructure is managed and expanded in particular ways. The areas identified below as part of the GI Architecture provide opportunities for individual green infrastructure features.

Significantly, the quantity and distribution of green infrastructure (see **Chapter 3**), and different types of green infrastructure (**Chapter 1**), directed by the GI Framework (**Chapter 4**), is driven by various factors (**Chapter 2**) and operates at a range of scales. **Scale** is an important consideration when attempting to understand the existing green infrastructure network and planning the way forward as part of a GI Strategy (see **section 5.9**).

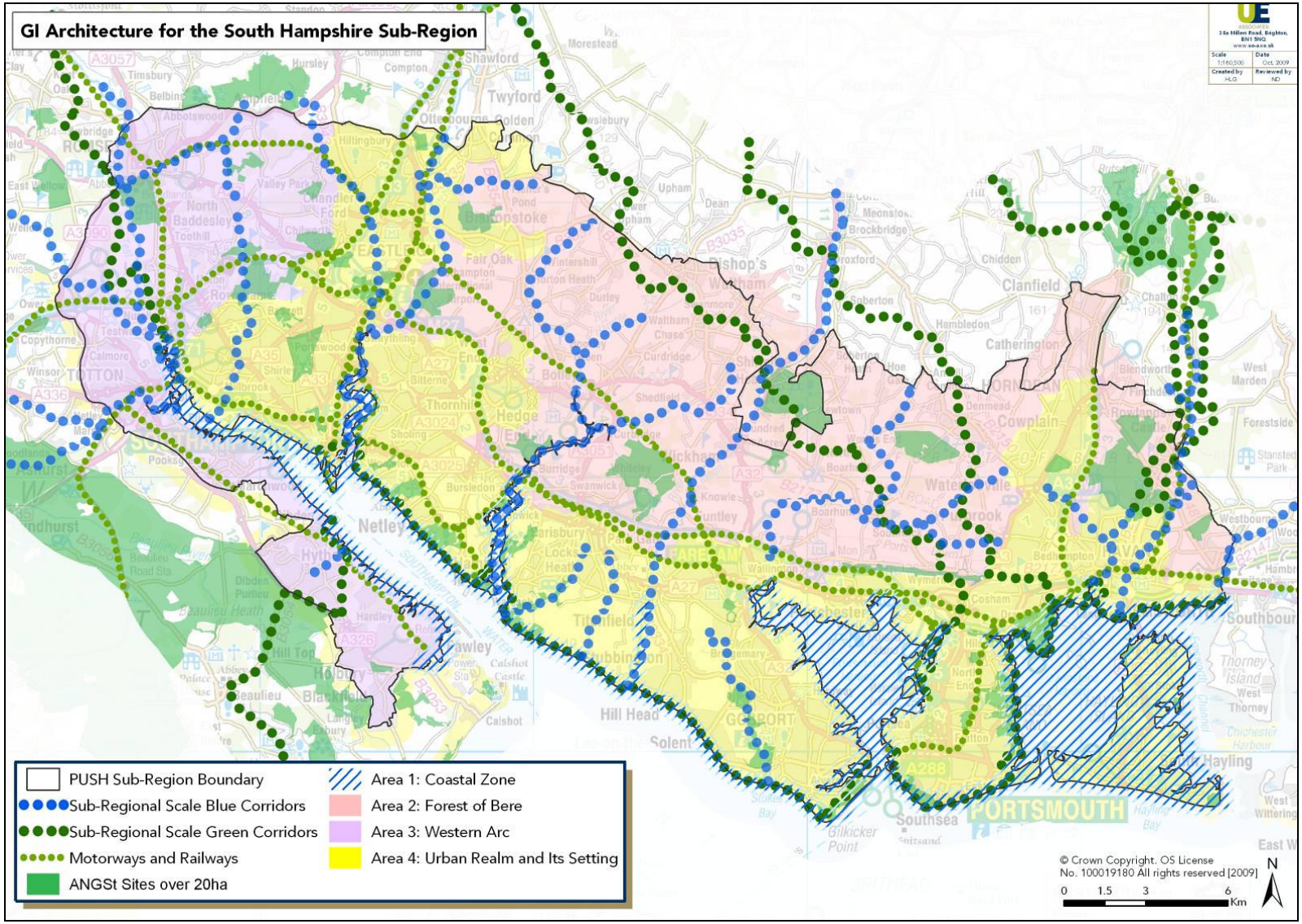

Figure 5.1: *GI Architecture for the sub-region*

5.1.2 The importance of scale

Scale represents the different sizes and extent of green infrastructure. The size of a particular GI asset may have operational influences at a wide scale if it is large and a local scale if it is small, although the qualities of GI are also significant in this respect. Scale is important when considering the spatial or temporal measure of a particular GI asset or GI proposal. Components of scale include the composition of a particular piece of GI, its structure and function (Turner & Gardner, 1991).

Three scales are adopted for use in this Strategy to categorise GI architectural features and projects:

1. **Sub-Regional Scale:** This relates to GI Architecture or projects which are considered to have a sub-region wide influence. At this scale, the GI asset in question may be used by large parts of the sub-region's population, or serve as a strategic component of a network of integrated ecological sites. Examples of corridors at this scale include motorways and trunk roads, railways, main rivers and long distance paths. Examples of sites at this scale include the larger country parks.

2. **City/Town Scale:** The city/town scale focuses not only on the two cities but also on larger urban settlements including the proposed SDAs and wider conurbation. Examples of corridors at this scale include greenways, local branch railways, non-main rivers and tributaries, key roads (other than main arterial routes), and footpaths/cycle paths which are promoted city-wide.

3. **Local Scale:** This scale represents GI assets or projects which provide a neighbourhood scale function. It applies to local communities and residential situations as well as the wider countryside where appropriate. Examples of corridors at this scale include hedgerows, footpaths, ponds and tree-lined streets, and are likely to be identified through the LDF, while sites include pocket parks, allotments and play spaces.

All scales of project are relevant to ensuring the GI network is balanced and represents a good range of features at different sizes. Scale is also important when considering how projects might be delivered and managed (see **section 6.2.3** on management).

5.1.3 GI Architecture: A spatial structure for the GI Strategy

The following three sub-sections describe how each aspect of the GI Architecture (corridors, sites and areas) has been identified and describes how each aspect is a core component of the spatial structure. The identification of GI Architecture has focused on land within the sub-region, however it is worthy of note that the components of GI Architecture are often closely related to or integrated with other GI components in the boundary surrounding the sub-region. For example, Queen Elizabeth County Park is an important site that provides significant GI functionality to the sub-region. Sites such as these are included in **Figure 5.1** to provide context to the wider sub-region.

5.1.4 Corridors

Corridors are multifunctional linear features which contribute to the delivery of a number of themes. They are an established component of green infrastructure and feature in various

strategies around the country. In terms of biodiversity (Theme II) corridors represent continuity of habitat and act as conduits for the movement for plants and animals; in relation to recreation (Theme IV) they are used as local and long distance routes; and for flood alleviation, river corridors can provide the ability to retain heavy flows of water during storm conditions (Theme V), particularly when structured in the right way, as well as being important for water-based recreation. Corridors can only perform these various functions if they are managed accordingly. The identification of projects has deliberately sought to enhance the continuity of corridors and strengthen overall interconnectivity to secure a multifunctional role.

5.1.5 Sites

For the purpose of identifying the GI Architecture, amongst the Areas and along the Corridors it is important to identify key Sites which represent sub-regionally significant components of GI in the wider network. These are identified as ANGSt sites which are equal to, or above, 20ha in size. This is not to ignore smaller sites as being insignificant and the approach does not represent hard and fast scientific rigour, but it does enable core GI sites to be identified which represent potentially manageable units of GI, in turn providing a focus within which the GI Function (i.e. consideration of GI projects) can be established.

5.1.6 Areas

By focusing on the GI Framework and considering the driving forces which directly influence the form of the GI Architecture across the sub-region, it is possible to identify four areas where common influences prevail. The following areas represent zones where certain GI Themes can be prioritised whilst other GI Themes should be focused on as important support mechanisms. **Figure 5.2** illustrates the distribution of the areas. The boundaries of these areas are in the nature of transition zones rather than clearly defined edges and there will be a merging of thematic priorities across them.

- Area 1: The Coastal Zone
- Area 2: The Forest of Bere
- Area 3: The Western Arc
- Area 4: The Urban Realm and its Setting

5.2 Area descriptions

5.2.1 Area 1: The Coastal Zone

The coastal zone runs along the length of the South Hampshire coast and includes European sites of nature conservation interest (see **Figure 2.2**). An approximate 1 km buffer zone is used to follow the coast either side of the shoreline and around the European sites where they occur. Evidently, this Area overlaps with Area 4, the Urban Realm and its Setting, at a number of locations. The differences, in GI terms, between each area are however clear.

The coastal zone is an area where the demand for different land and water uses can lead to potential conflicts of interest. The various European sites which coincide with the coastal zone have been designated for their important habitats and bird communities. The coast and tidal

rivers are also popular for various recreational interests including walking, cycling, fishing, boating, jet skiing and kite flying, to name a few. Indeed, the waters around south Hampshire are internationally famous for sailing, as well as being important for naval and commercial shipping, which places significant pressures on the management of the coastal zone. This is relevant to Theme IV. Theme II of the GI Strategy is especially relevant as it is seeks to provide green infrastructure components which can help ease the demand for, and overuse of the same sites by providing alternative green space locations. Similarly, the same Theme seeks to use green infrastructure to enhance biodiversity qualities which are relevant to ongoing coastal squeeze effects being experienced at the coast, as a result of sea level rise and the defence of settlements with hard engineering structures. Strategic GI Architecture features in Area 1 are depicted in **Figure 5.1** and are also represented in **Figure 5.4** in the proposed projects for Area 1 (**section 5.9.1**).

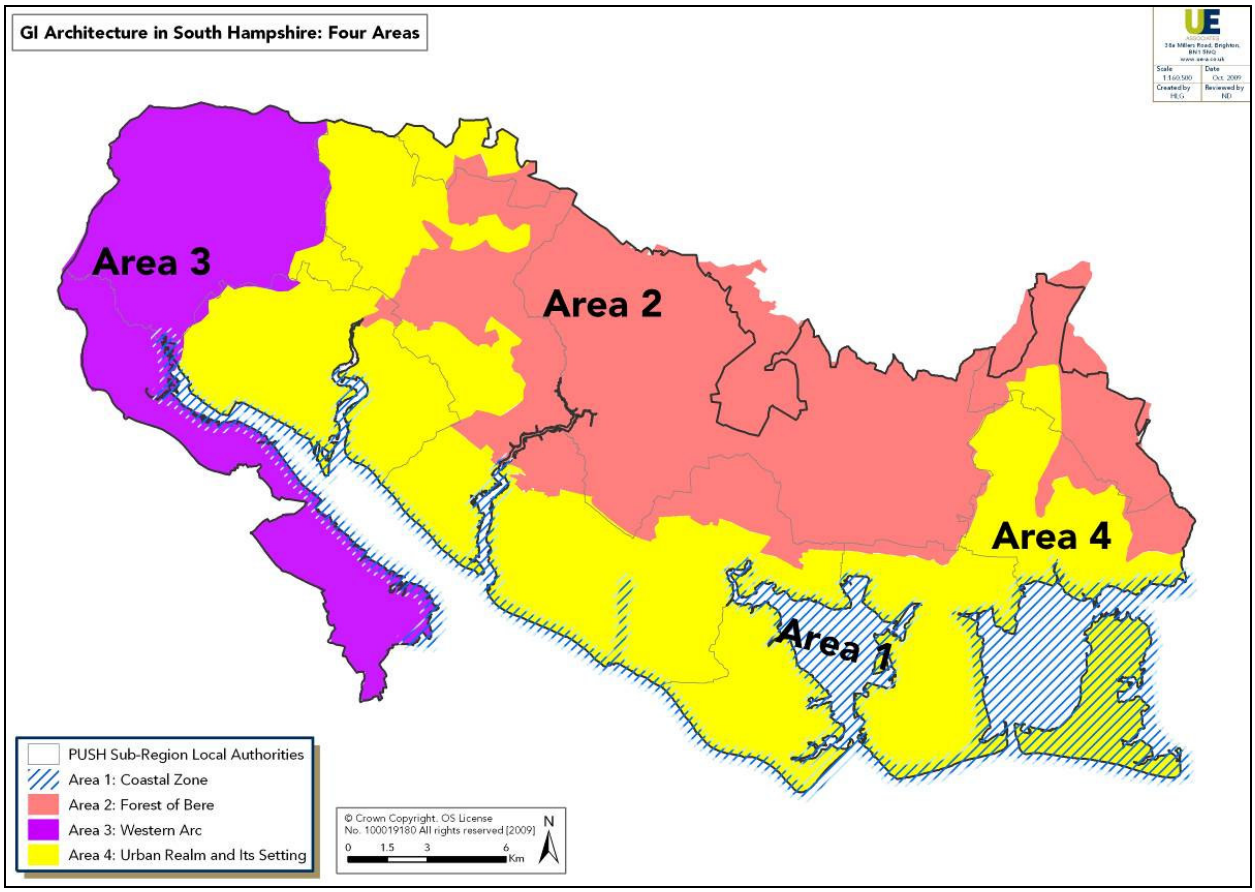

Figure 5.2: *Distribution of 'Areas'*

5.2.2 Area 2: The Forest of Bere

The Forest of Bere is an extensive former royal hunting forest with a mixture of plantation and ancient semi-natural woodland, open space, heathland, farmland and downland and is important to many different people for a variety of reasons. It is described by the Forestry Commission[i] as the nearest and most accessible countryside for many of the residents of south-east Hampshire. Together with the remaining 19th century oak and modern 20th

[i] http://www.forestry.gov.uk/website/recreation.nsf/LUWebDocsByKey/EnglandHampshireBere

century conifer plantations, there are areas of retained scrub and coppice, streams, ponds and an extensive network of rides and paths. The many habitats provide an excellent area for watching wildlife. There are walking and cycling opportunities within the forest ideal for all abilities.

Historically the area has strong cultural and landscape links with the fact that the Forest was once a royal forest and has been the subject of various land use management initiatives in the past, including being the subject of a former Countryside Management Project led by Hampshire County Council and partners. As a living, working landscape there are opportunities to introduce green infrastructure features that can function in tandem with the working landscape. These can offer additional ecosystem services to those already in existence by considering increased connectivity of habitat corridors and accessible routes, without compromising land management operations in the area, and yet introducing enhanced green infrastructure multifunctionality.

The Forest of Bere Countryside Action Plan (CAP; HCC, 2008a) notes that the Forest of Bere is a rural area within a short distance of several substantial conurbations, but at present it is difficult for people living in nearby towns to get into the area to enjoy the countryside. There is a particular lack of off-road routes for cyclists and equestrians. Many horses are kept in the area, and those routes which do exist are heavily used. This, coupled with predominantly clay soils, means that multi-use routes are in worse condition in the Forest of Bere than in the rest of the county overall. Landowners, farmers and other land managers find that public access involves extra work and expense, and can have an adverse effect on land management, whether for productive uses or for nature conservation. This can in turn affect their willingness to increase access across their land. Access issues are therefore potentially complicated and require a coordinated and inclusive approach. However, as the CAP recognises, the area offers an attractive rural setting where people from adjoining urban areas can enjoy the countryside close to where they live.

The common features of the area align themselves strongly with GI Theme VII whilst a sub-regional initiative for green infrastructure in the Forest Area could introduce benefits for Themes II, III and IV. Strategic GI Architecture features in Area 2 are depicted in **Figure 5.1** and are also represented in **Figure 5.5** in the proposed projects for Area 2 (**section 5.9.2**). The area forms a buffer to the South Downs National Park and, from a strategic GI perspective, the area should seek to emulate some of the sensitivity associated with land management adjacent to protected landscapes. Strong links may also be made with the wider South Hampshire conurbation to the south, however prevailing GI activity should seek to concentrate on a rural land management focus. Close engagement with land managers to explore ways in which the area might supply enhanced ecosystem services will be an important feature of the area.

5.2.3 Area 3: The Western Arc

The Western Arc extends from the south western tip of South Hampshire near Fawley round to the north western tip near Romsey. It includes an area of land between the two National Parks, the New Forest and South Downs National Park. The area consists of agricultural land, various green infrastructure sites and a multitude of important corridors. The area is an important buffer between the growth planned to take place in Area 4 (the Urban Realm and

its Setting) and internationally important nature designations in the New Forest National Park; Themes II and IV are very relevant as a consequence.

The section of the Western Arc which lies between the Solent and New Forest National Park is heavily developed, and includes substantial industrial uses. It also contains many overlapping European sites, home to internationally important habitats and bird assemblages. This section coincides with Area 1 (the Coastal Zone) in places, but is included as part of the Arc since it will need to have a GI network which serves its various settlements and which also considers its association with the National Park.

Sites at the north of the Western Arc can usefully provide recreation destinations as an alternative to using the National Parks. The significance of providing alternative sites to the New Forest in particular relates to potential HRA mitigation that might be sought by neighbouring local authorities including for example New Forest District Council, Southampton City Council and Test Valley Borough Council. This of course remains to be explored through the HRA processes undertaken by the respective local planning authorities. Sites along the southern strip of the Western Arc will provide local recreational destinations for the communities in this area. Strategic GI Architecture features in Area 3 are depicted in **Figure 5.6** (**section 5.9.3**).

5.2.4 Area 4: The Urban Realm and its Setting

This area is formed of major settlements and their setting including the accessible countryside in the green gaps which separate the settlements. As with the other areas, all GI Themes are relevant, with Themes I, VI and VIII being especially relevant to the urban realm as they are closely related to where people live, work and how they keep themselves healthy. The area includes the two cities, the settlements at Fareham, Havant, Locks Heath and Eastleigh, as well as the two SDAs (Hedge End and North Fareham).

The focus of GI in this area will be generally of a local nature ensuring that existing greenspace deficits are addressed, street trees are encouraged to green the environment and combat climate change effects, and that sustainable urban drainage is widespread. The provision of allotments and maximising use of existing allotments are further key components of green infrastructure in this area. These considerations apply to new and existing development locations. Smaller areas of countryside on the urban fringe can help prevent coalescence and provide greenspace for local people. Strategic GI Architecture features in Area 4 are depicted in **Figure 5.1** and are also represented in **Figure 5.7** in the proposed projects for Area 4 (**section 5.9.4**).

5.3 Sub-regional initiatives

Proposals are identified to provide a schedule of activity according to the GI Framework. This is presented in the form of strategic sub-regional initiatives (**sections 5.4 to 5.8**) and proposed projects (see **section 5.9**). Together, they represent the way in which the GI Architecture comes to life and functions as a fully operational and integrated green network. Sub-regional initiatives reflect the sub-regional scale (see **section 5.1.2**); proposed projects represent the city/town and local scales. In each case, proposals are made according to how they meet the aspirations of the GI Framework and how they fit into the GI Architecture.

The nature and size of sub-regional initiatives means that they often cover large parts of the sub-region, sometimes covering an entire Area of the GI Architecture and occasionally crossing Area boundaries. This means that proposed projects sometimes, but not always, sit within them as part of their delivery. **Table E.1** in **Appendix E** provides an indication of whether or not a proposed project is related to a sub-regional initiative.

Sub-regional initiatives and their relationship to GI Objectives are presented in **Table 5.1.** The key to the Objectives in **Table 5.1** is as follows:

- A white box with a bold number indicates that the initiative will deliver against this Objective.
- A black box with a white number indicates that the initiative will partly deliver against this Objective.
- A black box indicates that there is no relationship between the initiative and the GI Objective.

It should be noted that Objective 17 relating to the promotion of the health and well-being aspects of GI applies to all sub-regional initiatives and is not shown in the table below.

Table 5.1: *Recommended sub-regional initiatives and their relationship to GI Objectives.*

No.	Sub-regional initiative	Objectives*	Justification
1	The Green Grid	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	This initiative establishes a GI network of linear features and provide connectivity between GI assets which perform a variety of functions. It includes rivers, roads, recreational routes, hedges and other corridors.
2	Coast for People, Wildlife and Improved Water	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	This initiative applies mainly to Area 1 of the GI Architecture and is driven by HRA requirements. Sea level rise and associated habitat creation, and recreational issues at coastal locations are the main considerations.
3	The Forest of Bere Land Management Initiative	2 3 4 5 6 7 8 9 10 12 13 14 15 16	This initiative could take a comprehensive and integrated approach to the creation and management of various GI assets in the area. This would yield multifunctional features to support sustainable food, fibre and fuel production, opportunities for open air recreation and biodiversity.
4	Country Parks and Woodlands	2 3 4 5 8 12 13 14 15 16	This initiative seeks to identify robust GI sites in the form of country parks and woodland sites that between them form the core of larger scale multifunctional GI assets.
5	Greener Urban Design	1 6 8 9 10 11 12 13 15 16	This initiative aims to concentrate on local level GI assets in the built environment. It is likely to manifest itself as a series of smaller scale, local projects that adhere to the principles of the GI Framework and seek to address GI deficit, opportunity and need.

*** Objective 17** applies to all sub-regional initiatives. See **Chapter 4** for details of all GI Objectives.

5.4 The Green Grid

5.4.1 Aim

The aim of this initiative is to provide a network of green and blue interconnected corridors which provide various GI benefits in line with aspects of all of the GI Themes, I - VIII.

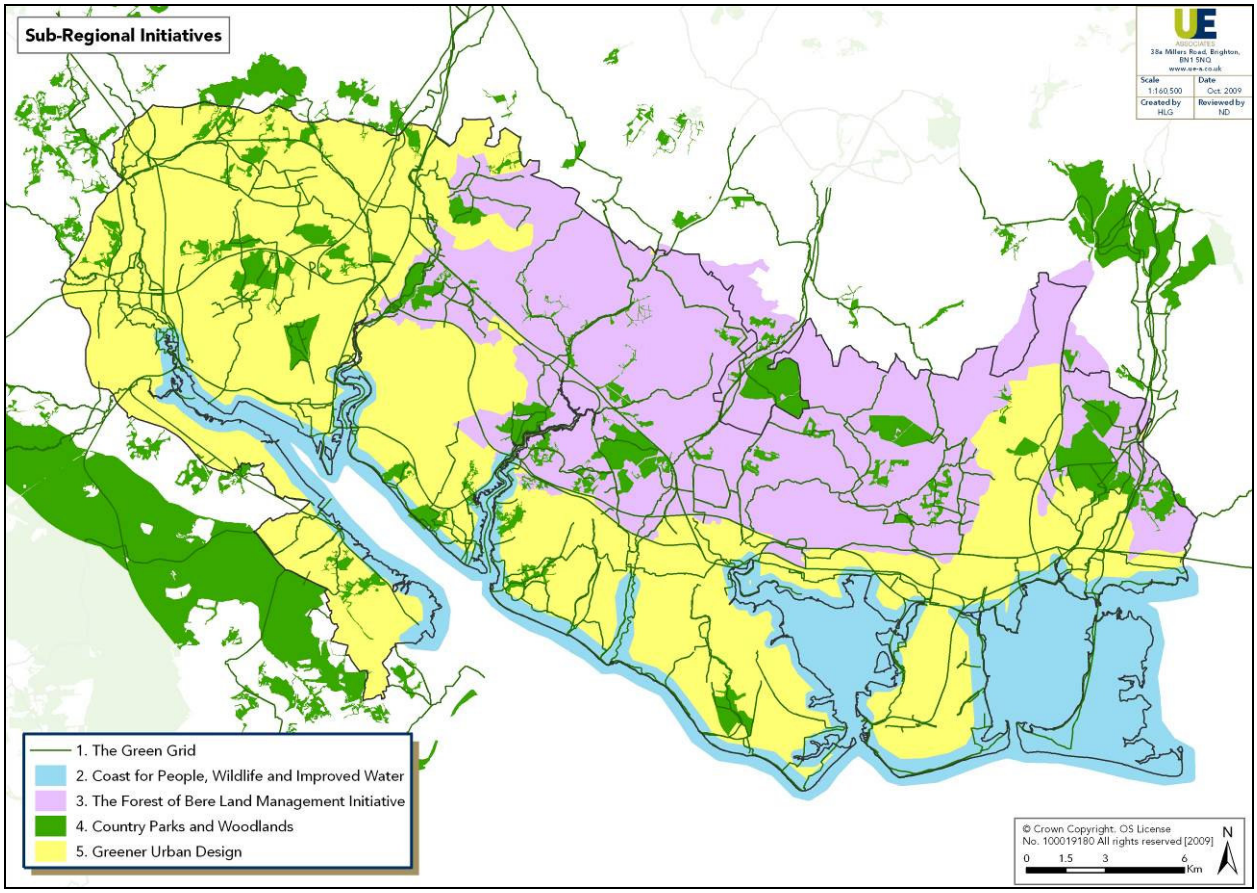

Figure 5.3: *Proposed sub-regional initiatives*

5.4.2 Context

Connectivity of sites using existing corridors and proposing new ones enables movement between green spaces by people and wildlife. Many corridors which presently provide one or maybe two GI functions can be revisited to explore ways in which they can expand their multifunctionality. Corridors exist at a range of scales in the sub-region, and the interconnectivity of corridors (i.e. where different corridors intersect or cross over) is vital. For example, roads are sometimes culverted over streams and rivers restricting use of the corridor for movement. Green infrastructure planning and management should seek to reduce these effects.

Hampshire County Council has already done considerable work planning and preparing potential routes to encourage non-motorised travel around the sub-region. Routes are based on the existing Public Right of Way (PROW) network where possible, and new sections should be considered where necessary. Multifunctional routes are green corridors; this initiative concentrates on users and the links between workplaces, homes and the wider environment. All types of non-motorised route, facilitated by the wider PROW network, especially

bridleways, can benefit from connectivity that avoids crossing busy and dangerous roads. The enhancement of horse riding and cycle routes and their respective wider sub-regional networks should be a central component of this initiative.

Safeguarding or reinstating streams, rivers and flood plains through towns provides green infrastructure as well as space for flood water storage and conveyance (a natural fluvial process) which in turn reduces flood risk. It can provide linear green corridors through urban areas which have a multitude of benefits to people, towns, the economy and ecosystems. The value of the tidal and inland waters as a recreational resource should not be under-estimated in this respect.

New development should use dry valleys as green infrastructure corridors. In addition to benefits such as providing open space near to people and homes, ecosystem continuity, cycle ways and footpaths, they will enable excess surface water run-off, which will increase with climate change, to drain away to established streams or rivers and recharge groundwater. This approach enables natural land drainage as opposed to agricultural land drainage.

5.4.3 Opportunities

- River restoration and deculverting watercourses to meet Water Framework Directive requirements. River corridor improvement works apply to River Wallington, River Hamble, Brownwich Stream, River Alver, Tanners Brook, Sholing Common Stream, West Common Stream, Butlocks Heath Stream, Hook Lake, Monk's Brook, Hermitage Steam, River Ems, River Meon, River Itchen and River Test. **Figure D.7** in **Appendix D** illustrates the main potential river restoration locations in the sub-region.

- Tree planting along existing grey infrastructure such as streets, roads, motorways and railways; and

- Introduction of new greenways, enhancement of existing footpaths and 'upgrading' to produce more multi-user routes.

5.5 Coast for People, Wildlife and Improved Water

5.5.1 Aim

The aim of this initiative is to focus on the sub-region's coastal environment with a view to using green infrastructure to assist with addressing anticipated recreational demands, the likely increase in sea level rise and the importance of various statutorily protected European sites of nature conservation importance. The initiative will help to deliver Themes II, IV and VI.

5.5.2 Context

The coast is a very important feature of the sub-region's natural and semi-natural environment. It provides several vital ecosystem services. Planned growth in the sub-region is likely to increase recreational pressure along the coast, including water-based activity, which may lead to conflicts with the conservation objectives of the Europeans sites which lie on and around the coast (see **Figure 2.2**). The North Solent Shoreline Management Plan and other ongoing research is likely to provide a useful supporting plan for this initiative by providing comprehensive data about dynamic coastal processes. This GI Initiative should draw on this

information and combine it with HRA findings from LDF work across the sub-region to inform the identification and planning of green infrastructure. Several GI projects which support this initiative are identified and recommended (see **Table E.1 in Appendix E)**.

5.5.3 Opportunities

- Provision of suitable alternative natural greenspace which can assist with HRA mitigation requirements.

- The initiative introduces the opportunity to draw on the findings from, and work together as part of, the various coastal initiatives (RHCP, SDMP and SMP) taking place in the sub-region with a focus on the tripartite challenge of managing the coast for the benefit of people, wildlife and water.

5.6 The Forest of Bere Land Management Initiative

5.6.1 Aim

This initiative seeks to take a comprehensive and integrated approach to the creation and management of a variety of GI assets in the area. This would yield multifunctional features to support sustainable food, fibre and fuel production, opportunities for open air recreation and biodiversity. The initiative will help to deliver aspects of all of the GI Themes, I – VIII.

5.6.2 Context

The Forest of Bere is the nearest and most accessible countryside for many of the residents of south Hampshire. Without hard boundaries, it is an area of approximately 260 square kilometres (100 square miles) stretching from Eastleigh to the border of West Sussex. It is currently a mixture of woodland, open space, heathland, farmland and downland and offers walking and cycling opportunities within the forest. There are over 1,000km (660 miles) of public rights of way, two major country parks, four large areas of Forestry Commission land with significant access, and numerous smaller countryside sites and nature reserves. The delivery of such an initiative is recognised as complex and ambitious, involving many key partners and individuals, especially the goodwill and support of the farming and landowning communities within the Forest of Bere. Primarily, the initiative would be designed to serve local people living throughout the sub-region.

5.6.3 Opportunities

- Providing a contiguous area of non-motorised recreational opportunities in robust accessible greenspace will deliver GI benefits across the sub-region. Recreational activities can include riding, cycling, walking, in the form of linear and, where appropriate, area access, all of which can improve physical and mental well-being. This would provide an alternative destination for local residents depending on the National Parks for their outdoor 'big country' recreational experiences.

- Acting on the Biodiversity Opportunity Area recommendations, this initiative can conserve ancient woodland, increase the amount of lowland heathland and concentrate on whole farm planning which is based on sensitive farming techniques, leading to biodiversity and

landscape benefits. The Forest of Bere can also provide opportunities to educate local people about biodiversity conservation and enhancement.

- Landscape protection at the Forest of Bere will provide a buffer between urban parts of south Hampshire and the South Downs National Park. River corridor management, in particular along the River Meon, could be promoted to provide multifunctional benefits for recreation, landscape and biodiversity. Changes in agricultural practices could have positive effects on water corridors, for example by reducing the likelihood of eutrophication.

- Enhancing and introducing new areas of woodlands in the Forest of Bere could provide climate change mitigation in the form of carbon sequestration, and adaptation through resilience to flooding.

- The initiative offers an opportunity for promoting woodfuels, wood fibre (timber) and coppicing, and for planting more broad-leaved sustainable woodland, supporting species such as the small-leaved lime (*Tilia cordata*).

- The initiative could be used to help market the area as a visitor destination by providing GI for recreational, cultural and landscape orientated tourism although, in the shadow of two National Parks, this is likely to be a longer term ambition. Increased tourism opportunities will benefit the local economy.

- There is an opportunity to address misuse of the area (such as fly-tipping and vandalism) by encouraging managed access with education to achieve behavioural change.

5.7 Country Parks and Woodlands

5.7.1 Aim

The aim of this initiative is to focus on green infrastructure hubs. Hubs are identified as significant pieces of the green infrastructure jigsaw and are generally large, robust sites regularly used by various different visitors. The initiative will help to deliver aspects of all of the GI Themes, I - VIII.

5.7.2 Context

Country parks and some of the larger woodlands already provide important multifunctional GI benefits. They are recommended as an initiative in their own right to focus attention at a strategic scale to enable interconnected management and spatial integration as part of the green infrastructure network. The initiative introduces the opportunity to explore minimum standards and targets in relation to Country Parks and Woodlands. The proposed projects provide examples of some of the woods which could be included as part of this initiative. The list is not, however, exhaustive and the initiative will need to consider the identification and inclusion of further woodlands as part of early feasibility work.

5.7.3 Opportunities

- This initiative provides the opportunity to consider self-funding models for the provision of green infrastructure from across the GI hubs (Country Park and Woodlands).

- The suite of Country Parks and Woodlands form a core set of GI hubs which introduce sub-regional multifunctional GI benefits. When approached as a family of sites, emphasis can be placed on some GI Framework Objectives in favour of others according to location and priority.

- The sub-regional family of Country Parks and Woodlands needs to integrate with and complement other GI hubs outside, but near to, the PUSH boundary such as Queen Elizabeth Country Park and Havant Thicket/Staunton Country Park.

- To provide new woodlands and increase the size and capacity of existing sites to provide Green Infrastructure.

5.8 Greener Urban Design

5.8.1 Aim

This initiative is included to represent smaller scale, local green infrastructure delivery in and around the built environment. The initiative is targeted in particular at the SDAs, MDAs and other planned new development. It will help to deliver Themes I, V and VI.

5.8.2 Context

The existing built environment and planned new growth in homes and employment sites may lead to the reduction of green infrastructure assets and is likely to introduce impacts that could have adverse environmental effects. Whilst these will be addressed through the development management process, this GI initiative sets about planning for the delivery of green infrastructure in the urban realm over the next twenty years.

This initiative would promote features within the design of the urban environment which adapt to climate change, minimise environmental effects and add to the network of green infrastructure features at the local level. The initiative is not exclusive to new development and existing settlements or workplaces may benefit from introducing the same GI features that new developments will be encouraged to consider.

Spatial planning is invariably restricting the spread of new development into green fields. This is often for a number of reasons such as seeking to avoid coalescence of settlements and to maintain the intrinsic landscape characteristics of a particular location. As a result, land which is needed for green infrastructure in new developments is potentially similarly restricted. The planning of new development in the sub-region needs to consider this issue as Core Strategies are prepared and GI requirements are considered. Allowing new development to spread a little more into green fields in order to provide green infrastructure within developed areas does not necessarily equate to the loss of green space; it can instead lead to a redistribution of resources to better effect, for the benefit of people, wildlife and natural land drainage processes.

5.8.3 Opportunities

- One output of this initiative could be a sub-region wide GI design guide for developers to use as a code of practice.

- Such a guide could recommend that development proposals for new employment sites maximise porosity, utilise green walls, green roofs, SuDS and include a significant balance of other green infrastructure features such as trees, ponds and indigenous vegetation.

- Increase the level of street tree planting to adapt to climate change, enhance local neighbourhoods, improve air quality and increase biodiversity.

- This initiative also lends itself to community focused activities and should actively seek to raise awareness of GI and include green infrastructure recognition within Sustainable Community Strategies, school activities and neighbourhood schemes.

- The sympathetic management of playing pitches and recreation grounds can have various GI benefits including those of foraging areas for Brent Geese.

5.9 Proposed City/Town scale and Local scale projects

The following forty six projects are allocated to the GI Areas in accordance with the nature of the project proposal. Some will contribute directly to the sub-regional initiatives whilst others will not (see **Table E.1** in **Appendix E** which illustrates how project proposals relate to the sub-regional initiatives). It is very important to note that these are suggestions for PUSH to consider once the Strategy and various operational plans are in place. They have not been tested for their feasibility, nor is it an exhaustive list. It is expected that many other projects and initiatives will come forward as the strategy moves towards implementation, and that some of those indicated may not be feasible. An indication of scale is provided to encourage the idea that green infrastructure operates at a range of scales which need to inter-relate. For full details of each proposed project, see **Appendix E**.

The following information is given as part of each project proposal in Appendix E:

- **Project name:** A name helps give the project some identity and is also designed to provide the reader with an idea of the project's nature;

- **Project number:** A number provides a quick unique alpha-numeric reference for the project (for cross-referring between project profiles and the Area maps provided) and also shows how many projects there are in the list of proposals for the area in question;

- **Project description:** The description sets out a brief resume of the project proposal;

- **Scale:** States whether the project is sub-regional, city/town or local scale;

- **GI Form:** This refers to which aspect of the GI Architecture the project relates to: a corridor, a site, or an area feature (or more than one feature);

- **GI Framework:** Identifies which GI Objectives will be delivered as part of the project;

- **Justification:** This provides the reasoning for selection of the project, whether it fills an identified GI deficit (e.g. introducing more local green space and enhancing ANGSt

availability, or fulfilling a PPG17 requirement), contributes to a BOA, helps with identified HRA mitigation, or supports identified health areas (see **section 2.4.2**);

- **Local Authority area(s):** Administrative area within which the project is proposed.

The proposed projects are intended to provide the necessary enhancements to, and introductions of, new green infrastructure across the sub-region. Some of the projects are already in existence in one form or another and already have natural "champions". For example, the Environment Agency are progressing various river restoration initiatives. The purpose of the GI Strategy is to harness existing work to enable quick wins. Secondly, and more importantly, it raises awareness of green infrastructure and establishes a structured standalone approach to delivery.

This approach must be integrated and capable of delivering a holistic green infrastructure network which facilitates the planned changes, and growth, of the sub-region (see **section 2.2**); it does so on the assumption that partnership working will be possible (see **section 6.2**). Such partnership working reflects the multifunctional nature of green infrastructure. It should be noted that the list of supporting information for each project proposal does not identify a "champion or sponsor", as these details should be considered once projects have been agreed and the strategic delivery mechanism for the Strategy has been established.

Recommended actions are made at all scales. They represent suggested proposals which need to be reviewed and considered as part of the first steps of the Strategy's implementation. They are not directly related to each other meaning that projects may be taken forward or altered as necessary. It should be noted that the process of identifying city/town scale projects has been led by the GI Architecture and not the sub-regional initiatives. This is crucial for the following reasons:

1. Sub-regional initiatives are subject to consultation and change during delivery of the GI Strategy, meaning that if a family of smaller scale projects were affiliated to a sub-regional initiative in question, they too would be dropped or reconsidered.

2. The GI Architecture (which should be stable and therefore unlikely to change) is the structure within which common GI themes are found. It is the basis for guiding particular types of project, not sub-regional initiative proposals.

The Brief for this Strategy was to identify sub-regional scale projects, however, it is appropriate that projects at all scales are suggested to provide greater depth to the Strategy. The Strategy has therefore identified sub-regional initiatives and smaller scale (city/town and local scale) proposed projects. It is felt that the benefits of this are to demonstrate the levels at which the Strategy needs to consider the delivery of green infrastructure. The variety of projects show why some of the delivery proposals in **Chapter 6** have been made. It may be necessary to undertake feasibility studies to consider, in more detail, whether the projects can proceed as proposed.

It is important to stress that it is not possible to provide extensive details of each initiative or project at this stage in the planning of green infrastructure for the sub-region. It is suggested

that firstly projects should be considered for inclusion as the GI Strategy is adopted (or agreed), then (if appropriate) feasibility studies are undertaken, and finally the projects be worked up into a definitive shape and format by PUSH (or the Joint Advisory Committee; see **section 6.2**).

The identification of headline sub-regional initiatives is important to provide an easily recognisable set of projects that can be effectively explained when marketing the Strategy (see **section 6.5**).

5.9.1 Proposed city/town scale and local scale Projects in Area 1, the Coastal Zone

Table 5.2 provides a summary of proposed projects for this area. **Figure 5.4** illustrates broad locations of each project. Scale is indicated by **C** (city) and **L** (local). All proposed projects will need to account of the Habitat Regulations and the North Solent Shoreline Management Plan.

Table 5.2: *Summary of recommended projects for the Coastal Zone (Area 1)*

Project code	Project name	Scale
C1	**Hythe Managed Retreat** Seek to use this site for managed retreat in order to meet the habitat creation aspirations.	L
C2	**Marine and Coastal Access Act Initiative** Continuous linear access around the coast.	C
C3	**Royal Victoria Country Park** Enhanced recreational capacity to ensure that nature conservation and recreational considerations are managed in an integrated manner.	C
C4	**Hook Lake, Hamble Estuary** Seek to create an intertidal compensation habitat as part of the Solent Dynamic Coast Project and Regional Habitat Creation Programme.	L
C5	**Chilling Farmland** Seek to enhance access, biodiversity and rural landscape character through countryside stewardship schemes.	L
C6	**Lower Meon Valley** Seek to conserve and enhance this area to ensure continued contribution to sense of place, climate change adaptation, providing open space close to urban areas for recreation and tourism.	L
C7	**Alver Valley Country Park** Creating a woodland park. Seek to create habitat corridors which connect adjacent sites and which strengthen the area's wildlife network.	L
C8	**Gosport Ranges** Seek to enhance biodiversity through Programmes or Stewardship Schemes. Scope to extend biodiversity and public recreational opportunities at the existing open space north of the Vector Aerospace (Fleetlands) site.	L
C9	**Wallington Estuary, Portchester** Seek to conserve and enhance the biodiversity value of this area, retaining its character and the contribution it makes to the setting and sense of place of adjacent urban areas.	C

C10	**Portsmouth Seafront** Enhance Southsea Common and reinforce links with local seafront features including the various scheduled ancient monuments and listed buildings, the historic dockyard, the Gunwharf, Spinnaker Tower and western waterfront.	C
C11	**Project Deleted**	
C12	**Hayling Island, Habitat Creation** Potential for habitat creation at Northney Farm, West Northney and North Common.	C

Figure 5.4: *Broad locations of each project in Area 1, the Coastal Zone.*

5.9.2 Proposed city/town scale and local scale Projects in Area 2, the Forest of Bere

Table 5.3 provides a summary of proposed projects for this area. **Figure 5.5** illustrates broad locations of each project.

Table 5.3: *Summary of recommended projects for the Forest of Bere (Area 2)*

Project code	Project name	Scale
F1	**Connecting and enhancing woodlands** Enhance linkages between woodlands in the Area, encourage active woodland management and create new woodlands.	C
F2	**Enhancing Catherington Down SSSI** Opportunities to manage access around the SSSI in combination with habitat creation/restoration to provide an enhanced GI resource.	L
F3	**Creating and enhancing links around Portsdown Hill** Seek to create an historical Themed route around Portchester and linking Fort Nelson, Fort Southwick and Nelson's Monument on Portsdown Hill. Opportunities to increase the extent of calcareous grassland along the M27 corridor.	C
F4	**River Meon and River Hamble Corridors** Seek to conserve and enhance these corridors as semi-natural refuges through the creation of wooded stepping stones to connect woodland habitats, enhance biodiversity and reinforce local landscape character	C
F5	**Improving recreational spaces in settlements** Seek to enhance existing provision and develop new recreation spaces in order to improve quality of recreation experience and address deficits.	C
F6	**Enhancing the River Wallington Corridor** Seek to enhance the corridor's biodiversity value and develop circular routes connecting historic sites and points of interest with local settlements and North of Fareham SDA	C
F7	**Manor Farm Country Park** Manor Farm is an established GI asset with potential to expand.	C
F8	**Horndean and Clanfield Green Gap** To maintain and enhance the green gap between Horndean and Clanfield.	L
F9	**NE Clanfield Greenway** Seek to create a greenway through the proposed development at Green Lane within which new recreational space and allotments can be provided.	L
F10	**Havant Thicket Reservoir** An opportunity to create sustainable accessible natural greenspace which will be a significant recreational attraction.	C

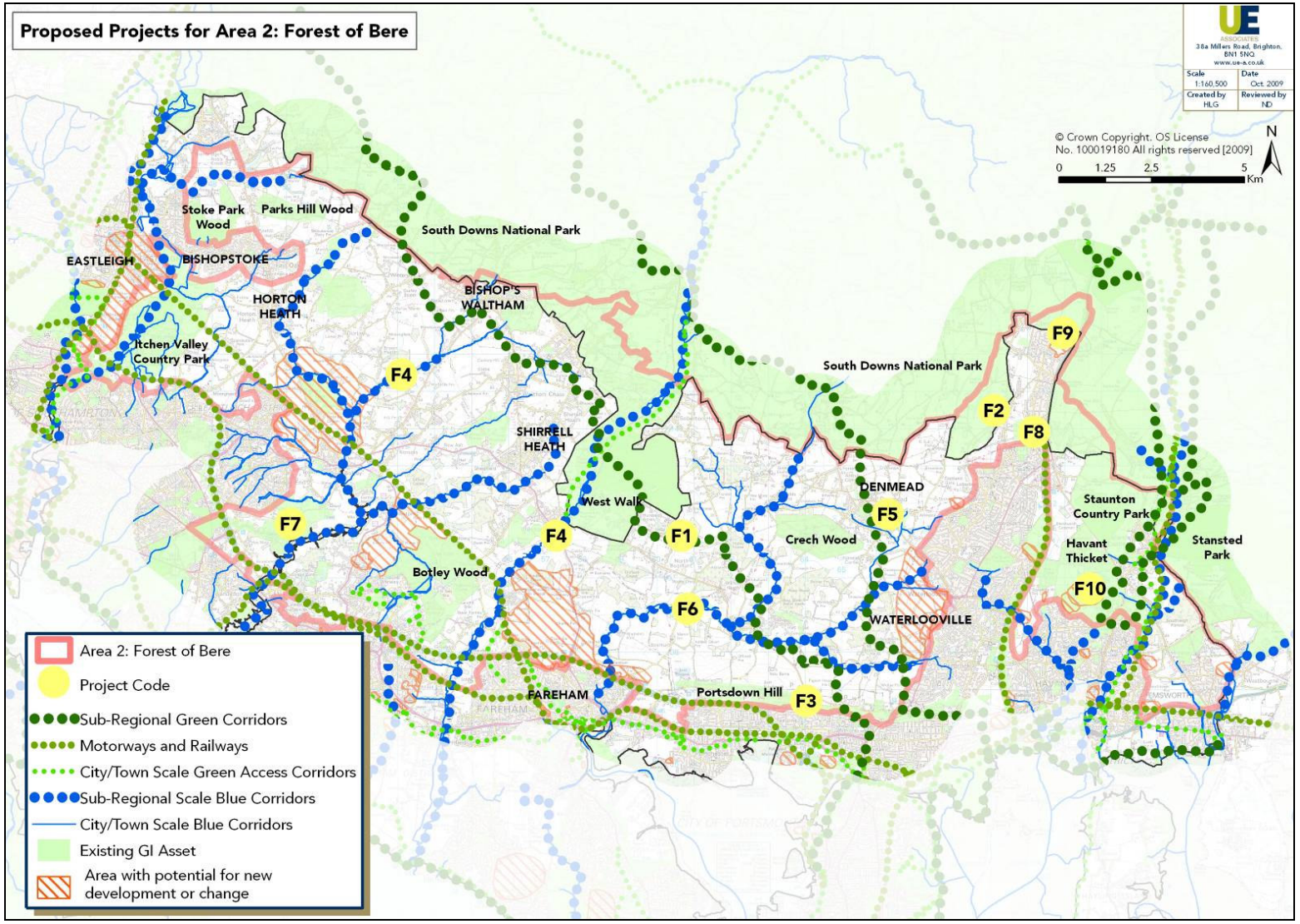

Figure 5.5: *Broad locations of each project in Area 2, the Forest of Bere.*

5.9.3 Proposed city/town scale and local scale Projects in Area 3, the Western Arc

Table 5.4 provides a summary of proposed projects for this area. **Figure 5.6** illustrates broad locations of each project.

Table 5.4: *Summary of recommended projects for the Western Arc (Area 3)*

Project code	Project name	Scale
W1	**Forest Park** Creation of a Forest Park, to link up the woodlands of Lords Wood, Hut Wood, Rownhams Wood and Toot Hill, and associated open spaces. To include the creation of new footpaths, mountain bike trails, signposting, information boards and car parks.	C
W2	**Project deleted**	
W3	**Project deleted**	
W4	**A strategy for watercourse enhancement and cycle/footpath improvements in Totton** Explore opportunities to enhance watercourse corridors through deculverting, creation of green corridors, and improvement of footpaths and cycleways.	C
W5	**Safeguarding the setting of West Totton** Land around Hanger Farm should continue to provide for recreation and community uses and allow the wider countryside to penetrate the urban form.	L
W6	**GI wedge at Hounsdown** Seek to convert some areas of open farmland to recreational use along Jacob's Gutter Lane, and create greenways along stream corridors.	L
W7	**Linking accessible woodland / Knellers Lane as a corridor for enhancement** Seek to plant appropriately located native woodland in order to ameliorate noise pollution and link existing woodland habitats.	L
W8	**Emer Bog SAC** Habitat creation scheme to restore heathland/acid grassland and provide a sustainable extensive grazing unit.	L
W9	**Enhancing watercourses in Marchwood** Investigate opportunities to de-culvert watercourses where feasible and provide access routes for recreation.	C

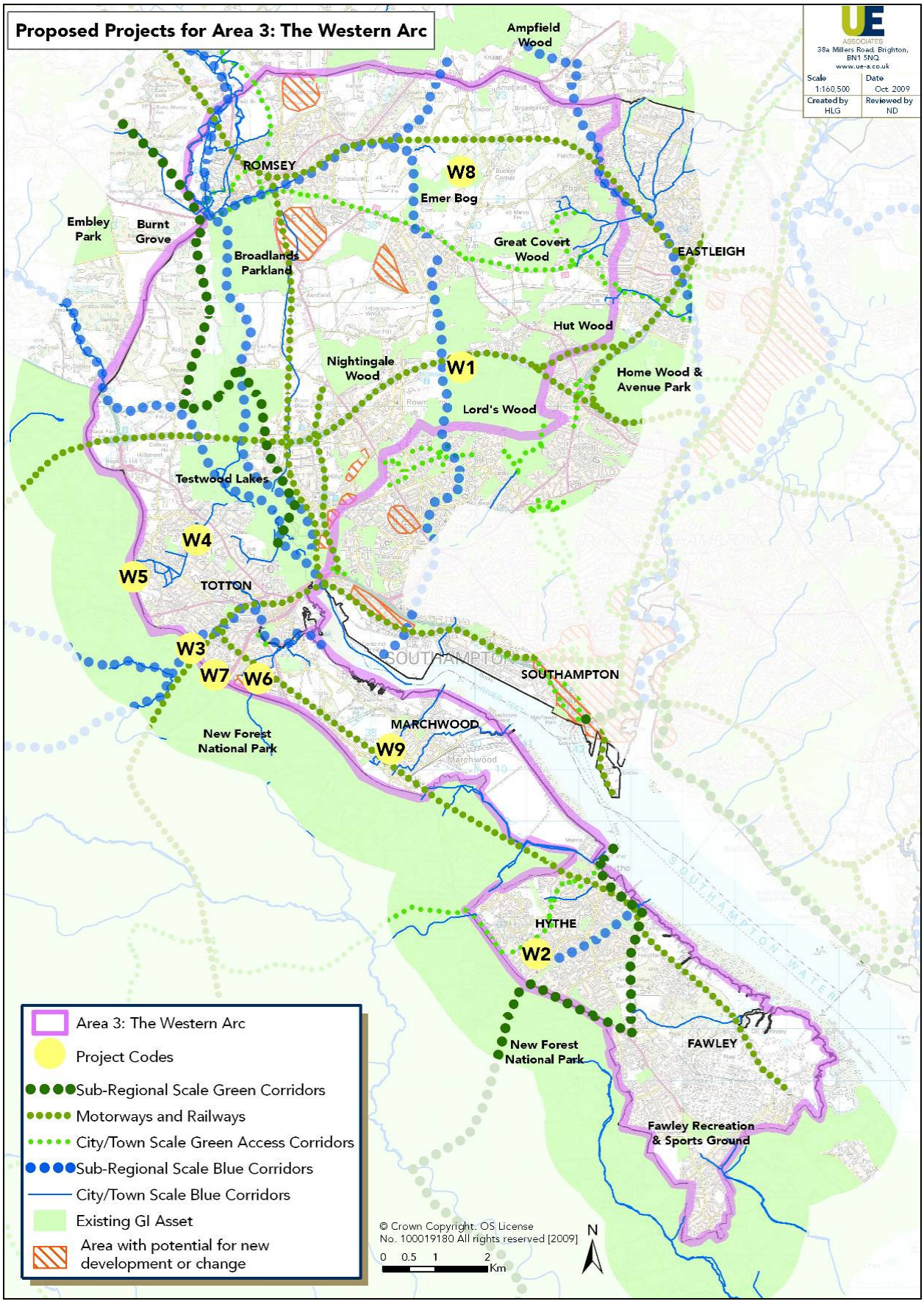

Figure 5.6: *Broad locations of each project in Area 3, the Western Arc.*

5.9.4 Proposed city/town scale and local scale Projects in Area 4, the Urban Realm and Its Setting **Table 5.5** provides a summary of proposed projects for this area. **Figure 5.7** illustrates broad locations of each project.

Table 5.5: *Summary of recommended projects for the Urban Realm and its Setting (Area 4)*

Project code	Project name	Scale
U1	**Monks Brook** Seek to provide local biodiversity and landscape enhancements along the water corridor. Increased access for different users could be achieved if a riverside greenway was introduced.	C
U2	**Southampton & Eastleigh Strategic Green Gap** Improved recreational and biodiversity links between Lakeside Country Park and the proposed Forest Park at Lords Wood. A sense of 'openness' should be retained.	C
U3	**Shoreburs Greenway** Seek to increase tree planting to augment the existing woodland areas, increase allotment space and establish Miller's Pond as an integral feature of the greenway.	C
U4	**Lordsdale Greenway** Opportunities to increase the number of ponds should be explored. Woodland enhancement and increased tree planting can be achieved along the greenway.	C
U5	**River Itchen corridor** Landscape enhancements at this location will enhance biodiversity and quality of life value.	C
U6	**Locks Heath Greenway** Seek to ameliorate this route through clear pavement routes, community art features and tree planting.	C
U7	**Park Lane Recreation Ground** Seek to enhance this open space and develop its function as an urban park.	L
U8	**HMS Sultan site recreational / heritage route** Open up forts to the public, linking up 'Fort Brockhurst' in the north east and 'Fort Gilkicker on the coast, as well as enabling a strategic GI link across the centre of Gosport and the Alver Valley.	C
U9	**Foot/Cycle Network for Portsmouth to Key GI assets** Seek to create a network of cycle and footpath routes which link to Portsmouth's key GI assets.	C
U10	**A Country Park for Portsmouth** Seek to create an informal 'country park', to overcome the deficit of public open space for Portsmouth's residents.	C
U11	**Pocket Parks for Portsmouth** Establish and promote an improved network of pocket parks with better linkages across Portsmouth.	C
U12	**Horndean business and industrial estates GI Improvements** Enhance open space and streets within estates through tree planting and management. Create cycle and footpath links into adjoining residential areas.	L

U13	**Strengthening north-south connections along transport corridors (A3M)** The multifunctional benefits of this transport corridor should be utilised by enhancing its biodiversity potential.	C
U14	**Multifunctional Stream enhancements** Resurfacing the existing corridor or providing new foot/cycle paths along the stream corridors at Leigh Park and West Leigh.	L
U15	**Gosport Waterfront (Haslar to Priddy's Hard)** A series of linked projects to improve recreation, habitat management and protection of historic features.	C

Figure 5.7: *Broad locations of each project in Area 4, the Urban Realm and its Setting.*

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6 Delivery: Action Plan and Recommendations

6.1 About this chapter

This chapter focuses on practical delivery of the GI Strategy. The way forward is dependent on a number of factors. Firstly, it is of the utmost importance that the Strategy is ratified by the various partners who currently work on a range of important existing green infrastructure related initiatives and that political support is rapidly established at the appropriate levels. Secondly, funding needs to be directed towards strategic initiatives and proposed projects and new funds secured. Finally, the spirit of the Strategy, its language, Framework and key messages must be distributed widely amongst a diverse audience. This is so that people, whatever role or background they may have, understand that green infrastructure is designed and intended to contribute to a positive way of life amongst the communities of south Hampshire and become part of ongoing daily awareness.

This chapter begins by considering delivery issues, including risk management. It goes on to address governance and management before considering how the Strategy might be funded. The importance of measuring progress through monitoring is discussed, and finally, how the Strategy should be marketed to the various audiences without whom the Strategy will not survive.

This Strategy is scheduled to run up to 2026 but the intention is that green infrastructure should be a permanent and ongoing feature of the sub-region's forward planning and management of environmental resources.

6.2 Delivery issues and options

Delivery of the Strategy is dependant on:

- who is appointed to take ownership of the Strategy;
- how the Strategy is accepted and promoted politically;
- the level of funding that is made available;
- the strength of the Strategy as a policy driver;
- its ability to be easily translated into action; and
- wider appreciation and understanding of the GI Themes and Objectives.

Hampshire as a whole (including various partner organisations as well as individuals) already has an excellent pedigree in relation to its responsibilities for environmental stewardship. The quality and diversity of its many green infrastructure assets reveal a sound basis for delivering this Strategy. Sitting as it does between two National Parks, and lying alongside an Area of

Outstanding Natural Beauty and various internationally important sites of nature conservation, and considering further the various organisations which already manage a suite of GI assets including country parks, woodlands, other public open space and public rights of way, the sub-region has a ready-made team of expertise with which to deliver the Strategy.

The Strategy has not offered prescribed or recommended implementation proposals. This is due to the fact that implementation of the strategic initiatives and proposed projects can be done in various different ways. Delivery and implementation relies on consideration of budgets, priorities and governance. Above all it is dependent on the commitment of those organisations and developers involved with the planned growth of the sub-region.

The Strategy has been carefully prepared with inputs from a wide range of organisations that have helped shape and review the Strategy. Besides the comprehensive GI Framework, the Strategy has identified five sub-regional initiatives and forty six proposed projects. The sub-regional initiatives reflect a strategic collection of activities which can form the backbone of GI in the sub-region. Within them, the Strategy has identified project proposals that represent a suite of projects that are illustrative of the types of actions that will help to provide green infrastructure functions at particular locations, delivering the various aspirations and intentions of the GI Framework.

It should be recognised that this is a sub-regional strategy with recommended sub-regional initiatives and proposed projects. These have not been prioritised because the Strategy needs to be reviewed and ratified and the way forward needs to be decided by those organisations that are best placed to deliver it; the GI Steering Group resisted allocating 'owners' to projects. Importantly, it should be realised that this Strategy has identified the existing GI Architecture and has recommended initiatives and projects that form a strategic support mechanism that helps introduce a sub-regional GI function.

The projects are not the only GI projects that could be taken forward; there are many others, several at a local scale the likes of which have not been incorporated into this Strategy because it has sought to retain a sub-regional focus. LPAs now need to decide if they wish to take forward the projects as proposed in their respective authority area, and start considering how to integrate the other local GI components that need to be carefully stitched together to form a robust local GI plan (at district or borough level) to enable planned growth in the sub-region. Authorities have different mechanisms with which to do this: DPD, SPD or perhaps as a separate initiative. As LPAs finalise their Core Strategies, the requisite green infrastructure plan needs to be ready to respond to planning applications as they are submitted, while offering benefits to other aspects of work such as potential HRA mitigation requirements.

6.2.1 Governance

At its meeting in June 2010 the Joint Committee considered a recommendation from the consultants to form a Joint Advisory Committee (JAC) to oversee delivery of GI. The Joint Committee resolved that the overview function can be provided effectively by the Sustainability and Community Infrastructure Delivery Panel, which includes elected members, officers and representatives from non-local authority organisations. A GI Forum could also be established and working groups set up to consider delivery of sub-regional initiatives.

Other delivery options are available, and green infrastructure strategies are being delivered in different styles around the country. Some are setting up Community Interest Companies (such as the River Nene Regional Park) and most have a strong public sector influence amongst the board or committee (e.g. Glasgow and Clyde, Cambridge and Tees Valley), whereas others have set up trusts. The above delivery route is suggested on the basis that PUSH already demonstrates successful partnership working, bringing together the various expertise that would be required to delivery the GI Strategy.

Green infrastructure is multi-faceted and represents various, sometimes conflicting factors which require careful consideration and support. As the recommended sub-regional initiatives (see **Chapter 5**) illustrate, cross-boundary working will be essential to the successful delivery of the Strategy. Likewise, competing interests amongst some of the GI disciplines require concerted joint working to make progress and find solutions.

6.2.2 Planning policy group

The need for a Green Infrastructure Strategy, and the driving force behind its conception, is the forthcoming development changes and planned growth in the sub-region. To this end, it needs to have a strong bearing on the forward planning process. In other words it needs to become embedded in the LDF process and form a cornerstone of each Development Plan Document. During the preparation of this document various discussions have taken place to establish the best planning policy mechanism to engage with green infrastructure.

Different planning policy options are available to make sure that green infrastructure enjoys a firm, ideally statutory, grounding in LDF documents as new development proposals come forward. Support for GI demonstrates that there is already goodwill amongst the various LPAs. The crucial matter is that of early effective action to engage with the proposals in the Strategy. There is a strong role for the Housing and Planning Delivery Panel in achieving this.

In the short term, all planning authorities should consider incorporating a generic GI policy in their Core Strategies as a matter of high priority. It is understood that several LPAs are already in the process of doing this. It is suggested that the planning policy group discuss and draw up a draft GI policy that suits everyone once the GI Strategy is up and running. To assist with this process, a model GI policy is presented in **Box 6**.

Box 6: Model Green Infrastructure Planning Policy

Development proposals will provide and protect green infrastructure based on an analysis of existing assets, informed by the PUSH Green Infrastructure Strategy [*insert District/Borough GI Strategy if one has been prepared*]. Development must enable the conservation, improvement and management of Green Infrastructure in order to deliver the objectives of the PUSH Green Infrastructure Strategy and contribute to a high quality of life for all. The strategic Green Infrastructure network will be safeguarded and enhanced by:

- Not permitting development that compromises its integrity and that of the overall green infrastructure framework;
- Using developer contributions to facilitate improvements to its quality, connectivity, multi-functionality and robustness; and
- Investing in enhancement and restoration where opportunities exist and the creation of new resources where necessary, such as linking green infrastructure to other forms of infrastructure.

6.2.3 Management

Day to day management of GI assets in the sub-region will remain high amongst priorities for the Strategy's success. It must be remembered that the Strategy seeks to recognise and raise awareness of existing GI as well as consider the diversification and expansion of the network to facilitate the GI Framework for the region. In this respect it is important not to isolate any of the good work currently in progress and to harness ongoing practical expertise to lead the way with managing GI assets. This is considered to be an essential practical function of the way in which GI can be successfully delivered.

6.3 Assessment of risks to delivery of GI

Table 6.1 presents a risk analysis of delivering green infrastructure in the sub-region. It considers existing green infrastructure, policy influences and prevailing strategic factors. It is likely that similar issues could face local level implementation of green infrastructure initiatives. It is strongly recommended that the risk assessment is revisited at that stage.

6.4 Funding

A number of different funding streams exist for securing multifunctional Green Infrastructure. Although local authority funding is the traditional source, it has limited potential, alone, to secure the design, implementation and management of high quality green infrastructure, as identified in the South East Green Infrastructure Framework (South East Green Infrastructure Partnership, 2009). The South East GI Framework notes that, typically, a combination of funding models will need to be followed, and that involvement of appropriate partners at the concept stage is a key to success. The framework sets out some appropriate alternatives for funding which are highlighted below.

Table 6.1: *Analysis of risks to delivery of GI*

Risk	Potential project risk level	Mitigation	Residual risk level
Political support for sub-regional commitments fails to materialise; the GI Strategy is delivered on a piece meal scale with inconsistent standards of quality and coverage.	Medium/Low	Continued close working. Adoption of a Multi-Area Agreement (MAA).	Medium/Low
Over reliance on the GI Strategy to supply Habitats Regulations Assessments mitigation proposals. It should be recognised that the GI Strategy assists with HRA issues but does not replace the need to undertake HRA assessments of plans.	Medium	The GI Strategy has sought to increase accessible natural greenspace although it has not been possible to quantify total amounts at this stage. The Coastal Zone Sub-regional Initiative (see **section 5.5**) will enable a strategic approach to the management of the coast and help to incorporate the requirements for HRA mitigation on the basis of flexibility and the findings of additional research (RHCP, SDMP, etc.).	Low
Funding for GI proposals is not forthcoming; proposals do not get delivered.	Medium	Proposed funding for GI seeks revenues from a range of sources. Projects could be staged to enable time to prepare and raise funds.	Low
The GI Strategy has not properly identified the right level and coverage of green infrastructure.	Medium/Low	The GI Strategy has drawn on a wide range of data and has been developed in close consultation with PUSH LPAs and the statutory conservation agencies.	Low
Monitoring proposals are not followed up; progress and measurements of green infrastructure implementation are difficult to achieve.	Medium	The proposed initiatives and subsequent adopted version of the Strategy must be monitored to measure progress and provide a platform for evaluation and review. If recommendations for monitoring (see **section 6.5**) are followed this risk will be low.	Low
Too much emphasis is placed on developer contributions without funding contingency plans.	Medium	Funding needs to be carefully planned out and considered. If the proposals suggested in **section 6.4** are followed, funding should be a lower risk. Prevailing economic conditions are of concern.	Medium/Low
Existing GI (and proposed new areas) is not managed and maintained properly; quality of green infrastructure is not fully understood.	Medium	Quality standards should be introduced and quality of green infrastructure should be monitored.	Medium/Low

Risk	Potential project risk level	Mitigation	Residual risk level
Failure to ensure that GI is financially sustainable	Medium	Ensure the majority of GI provision is productive and multifunctional.	Low
The GI Strategy is not effectively translated into LDFs.	Medium	All Core Strategies should include a GI policy and commitment to effective green infrastructure planning. A model policy is provided (see **section 6.2.2**).	Low
PUSH spend too long debating the finer details of the Strategy; which could prove costly in terms of delaying LDF timetables.	Medium	Previous PUSH GI work took longer than planned. The latest approach is focused on sub-regional initiatives, proposed projects and recommendations for local level delivery.	Low

6.4.1 Multi agency public sector grant funding

This funding can come from a range of government departments and public agencies and is based on the policy objectives supported or delivered by green infrastructure. Multifunctionality in green infrastructure is key to this approach. Examples of multi agency public sector grant funding include:

- Safer and Stronger Communities Fund (SSCF)
- Heritage Lottery Fund (HLF) and Big Lottery Fund (BLF)
- Environmental Stewardship schemes administered by Natural England
- English Woodland Grant Scheme administered by the Forestry Commission
- Aggregates Levy Sustainability Fund administered by Natural England
- Landfill Communities Fund (LCF)

6.4.2 Tax initiatives

- **Ring-fencing of local taxes** - This can fund delivery and management of greenspace expecting an increase in visitor and customer numbers or 'liveability' for residents and workers.
- **Business Improvement Districts (BIDs)** - The BID Regulations allow local businesses to vote for a levy on their rates bill to fund investment in the local trading environment. Key business needs from BIDs include environmental improvement, crime and safety, and attracting more visitors.

6.4.3 Planning and development opportunities

The following funding models involve the collection of contributions from developers.

- **Planning conditions** - Local authorities can require restoration, enhancement or creation of greenspace as part of the conditions of planning consent for a particular development. Planning conditions can be used in combination with the Community Infrastructure Levy (CIL) under the latest consultation proposals (DCLG, 2009).

- **Planning obligations** (Section 106 agreements) - The developer agrees with the local authority to fund provision and management of greenspace required by a specific development. Planning obligations can be used in combination with CIL however conditions are preferred to obligations under the latest consultation proposals (DCLG, 2009).

- **Roof taxes** – This approach has been used in the Milton Keynes Growth Area. The local planning authority requires the developer to pay a standard tariff per new dwelling to fund essential supporting infrastructure, including green infrastructure. It should be noted that latest Community Infrastructure Levy CIL consultation (DCLG, 2009) suggests that CIL would not pursue a roof tax approach and would instead introduce a fixed developer contribution per square metre of development.

- **Community Infrastructure Levy** - 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).

- **Regional Infrastructure Fund** - This supports delivery of essential infrastructure for large developments within a Growth Area or Growth Point.

- **Growth Point funding** - Supporting delivery of infrastructure in named Growth Points, through the Housing Growth Fund. Local authorities are required to set out their infrastructure spending requirements (which includes green infrastructure).

- **Private management charges** - 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.

6.4.4 Bonds and commercial finance

The ability of local authorities to raise finance for capital expenditure from any source (provided that they can afford to service the debt without Government support) 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, and revenue generating uses within the greenspaces.

6.4.5 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 - Revenue may be generated from the private sector or the general public in return for benefits they receive from greenspace; 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.

6.4.6 Endowments

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. Endowments can also be generated through the development process, both for initial capital investment and for subsequent management.

6.4.7 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.

6.4.8 Local Authorities

Local authorities can provide funding either directly through their own budgets or indirectly through supplying staff who, as part of their day to day work, undertake, for example, countryside management duties. There is likely to be scope for various existing staff posts from different local authorities in the sub-region to contribute to green infrastructure delivery in this way.

6.5 Monitoring

The Strategy as a whole needs to be monitored. The proposed initiatives and projects (see **Chapter 5** and **Appendix E**) are, as things stand, part of a suite of recommendations which can form a starting point for the Sustainability and Community Infrastructure Delivery Panel to consider. Any projects should be developed with their own rigorous monitoring targets so that they can be measured and used to demonstrate that progress is being made. The National Indicator set may provide useful universal indicators which may be easily adopted to measure progress. Alternatively, indicators of GI in general may be established. Monitoring should not be the responsibility of the Delivery Panel although it should be instrumental in agreeing a relevant monitoring framework. Ideally, monitoring would be undertaken on an independent basis to form an audit of progress. The benefits of this are threefold: (i) independent monitoring will ensure that this important aspect is not overtaken by other priorities, (ii) independent monitoring provides valuable unbiased information on progress and success, or otherwise, and (iii) it introduces external supervision of progress with the Strategy. The Solent Forum or a local University might be able to perform this function.

6.6 Marketing

As with any new product, the GI Strategy should be promoted and marketed to target audiences in order that it has the best chance of becoming a success. Target audiences for the Strategy include:

- Local Planning Authority members and officers;
- The public and local press;
- Land managers;
- Property developers;
- The Government Office and other regional bodies such as the Regional Development Agency (SEEDA) and the South East England Partnership Board;
- Government Agencies such as Natural England, Environment Agency, English Heritage and the Forestry Commission;
- Non Governmental Organisations such as the RSPB, National Trust and Wildlife Trusts;
- Businesses and the private sector including the local Business Link and Tourism South East;
- National Parks;
- Educational institutions including schools, colleges and universities; and
- The wider UK GI network.

Marketing should begin with the development of a GI brand for the sub-region which is easily recognisable and user-friendly. This should ideally be simple and straight forward. A suggested brand could be the "South Hampshire Green Network". An appropriate logo should also be developed.

A dedicated website is also an important and useful marketing tool to provide information about the GI Strategy. Depending on which of the proposed recommendations are taken forward by PUSH, the website could be used to provide information about GI in the sub-region, partners, best practice, planning, monitoring results and other aspects of the wider GI Strategy.

Before either of these two marketing mechanisms take place, the Strategy concepts need to be marketed to politicians and other influential decision makers in the sub-region whose commitment to the Strategy will be required. To this end the Strategy must be distilled into a convenient neat package which is readily explained and demonstrates the objectives, need and benefits of taking forward a strategic GI network for the sub-region.

6.7 Summary and next steps

Delivery of the Strategy is now a key consideration. The Partnership for Urban South Hampshire has done an excellent job in guiding the creation and development of this Strategy. The next steps are to consider:

- A formal, operational governance structure;
- Incorporation of GI into the LDF process (via DPDs, SPDs or action plans; as a minimum, GI policies, and ideally indicative GI maps, should be developed in Core Strategies);
- Preparation of GI strategies at the local level. Districts/boroughs could usefully audit GI information and data, which in turn can inform monitoring schemes to provide an ongoing picture of the sub-regional GI resource in the region;
- Development of a detailed implementation plan in partnership with key organisations;
- Research and establish standards for GI in the sub-region to inform further work at the local and sub-regional level;
- Commitments to delivery;
- Funding arrangements; and
- A timetable for action.

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Glossary

Allotment	Allotments consist of numerous land parcels assigned to individuals or families for the purpose of sowing, growing, cultivating and harvesting vegetables. They also have wildlife, social and relaxation functions.
ANGSt	Accessible natural greenspace standard (ANGSt) is a national assessment framework, developed by Natural England, to plan and prioritise the quantity and accessibility of natural green space for the benefits it brings to people's quality of life.
Biodiversity	Biodiversity includes all species of plants, animals and fish, their habitats, and the complex ecosystems and interactions that sustain them. Biodiversity provides food, medicines, water, and oxygen.
Community garden	These are community-managed projects which can be tiny plots of land, gardens on roofs, school gardens, private or open to the public. They are often created in response to lack of available green space.
Country park	An area designated for people to visit and enjoy recreation in a countryside environment.
GI hub	Hubs are the anchors in GI networks. Typically large areas of land of high recreational or biodiversity value, which are vital to maintaining the sub-region's recreational or ecological functions. They could provide habitat for native plants and animals, protect water quality and soils, regulate climate or offer recreational opportunities.
Eco-town	Small new towns of at least 5-20,000 homes. They are intended to exploit the potential to create a complete new settlement to achieve zero carbon development and more sustainable living using the best new design and architecture (CLG, 2007).
Green bridge	A green bridge can be used to provide connectivity between habitats and reduce habitat fragmentation. They are usually, but not always, part of the transportation network. Bridges are deliberately engineered and designed to support living vegetation.
Greenway	Largely car free off road routes connecting people to facilities and open spaces in and around towns, cities and to the countryside; for use by people of all abilities on foot, bike or horseback, for car free commuting, play or leisure (Countryside Agency).
Groundwater Protection Zones	Developed by the Environment Agency, ground water protection zones show the risk of contamination from any activities that might cause pollution in the area.
Local Area Agreement	Local Area Agreements (LAA) are three-year action plans for achieving better outcomes, developed by councils with their partners in local strategic partnerships (LSP). LAAs for 2008-11 have been agreed with central government for all 150 first-tier local authority areas in England. Each one has been negotiated with the relevant regional Government Office (GO),

	and includes a mix of national and local priorities and targets, relevant to the area.
Multi-Area Agreement	A Multi-Area Agreement is an English political framework that aims to encourage cross boundary partnership working at the regional and sub-regional levels. They are defined by the Department for Communities and Local Government as a voluntary agreement between two or more top tier or unitary local authorities, their partners and the government to work collectively to improve local economic prosperity.
Multifunctional	The ability to provide multiple cross-cutting functions, by integrating different activities and land usage, on individual sites and across a whole green infrastructure network.
PUSH	The Partnership for Urban South Hampshire consists of eleven local authorities dedicated to sustainable, economic-led growth and improving prosperity and the quality of life for everyone who lives, works and spends their leisure time in South Hampshire.
Street trees	Tree planting along streets which soften the street scene while creating visual interest, improving microclimate and providing valuable habitats.
SuDS	Sustainable Drainage Systems is an approach to drainage which seeks to decrease the amount of surface runoff, decrease the velocity of surface runoff, or divert it for other useful purposes, thereby reducing the contribution it makes to sewer discharge and flooding. It takes account of the quantity and quality of runoff, and the amenity value of surface water in the urban environment (CIWEM, 2009).
Sustrans	A British charity which promotes sustainable transport, to give people the choice of 'travelling in ways that benefit their health and the environment' (Sustrans, 2005). They have created thousands of miles of signed cycle routes across the country.

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