GREEN INFRASTRUCTURE PLANNING GUIDE

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Abbreviation
Green Infrastructure is frequently abbreviated to as GI and Green Infrastructure Planning as GIP.

Contents

1. Introduction to the Planning Guide

The aim of this Planning Guide is to provide a method by which those interested and involved in pushing forward the development of green infrastructure planning on the ground might develop their own green infrastructure plans. The purpose of the guide is to facilitate the production of geographically-based green infrastructure plans. It is intended that this method might help to provide a more informed and systematic way to consider the competing priorities of green infrastructure within the spatial planning process. The objective is also to provide a catalyst for discussion and for the exploration of methods of green infrastructure planning – it does not aim to provide a prescriptive methodology, but a flexible technique that can be moulded to fit 'real world' requirements.

A short background to green infrastructure is provided, but the main body of this Guide is based on a step-by-step description of the use of Geographic Information Systems (GIS) in order to achieve (a) a baseline green infrastructure map, and (b) a framework whereby six major questions can be addressed in order to establish what should be conserved in the existing environment, what should be enhanced or changed and what or where new green infrastructure should be created.

It is anticipated that the majority of users of this guide are already engaged with aspects of geographical or functional based planning including: Strategists and policymakers; town & country planners engaged in local authority planning and private practice; environmental

sector professionals; landscape architects and landscape planners, regeneration specialists, consultants; research students.

2. Definition and Principles of Green Infrastructure
Green infrastructure (GI) is a term that can mean different things to different people and there are a number of definitions available. There is a significant amount of common ground within the available definitions, (a) that GI involves natural and managed green areas in both urban and rural settings (b) is about the strategic connection of open green areas and (c) that GI should provide multiple benefits for people. Stakeholders were asked to formulate a GI definition for use in the development of this guide; the result was a robust and inclusive definition:

Green infrastructure is the physical environment within and between our cities, towns and villages. It is a network of multi-functional open spaces, including formal parks, gardens, woodlands, green corridors, waterways, street trees and open countryside. It comprises all environmental resources, and thus a green infrastructure approach also contributes towards sustainable resource management.

3. Context and Functions of Green Infrastructure
At a general level five broad sets of interests in GI can be identified:
1. Sustainable resource management – particularly relating to the role of GI in the sustainable management of land and water resources, including production (e.g. energy and food crops), pollution control, climatic amelioration and increased porosity of land cover.
2. Biodiversity – particularly relating to the importance of connectivity of habitats at a variety of landscape scales;
3. Recreation – particularly relating to greenways and the use of non-car routes to address public health and quality of life issues;
4. Landscape – examining resources such as green spaces and corridors from aesthetic, experiential
   and functional points of view;
5. Regional development and promotion – particularly relating to sustainable communities issues relating to overall environmental quality and quality of life.

5. The Typology of Green Infrastructure as developed by stakeholders

Stakeholders in the North East of England formulated a GI typology to be used in planning guide:

Arable
Horticulture
Stock grazing
Energy crops
Orchards
Set-aside and fallow
Amenity woodland
Conservation woodland
Productive woodland
Biomass woodland
Active and disused mineral workings and quarries
Public Parks and Gardens
Public Amenity Green space
Public provision for children and young people (e.g. play areas)
Outdoor sports facilities
Allotments, community gardens and urban farms
PRoWs

Permissive RoW
Greenways (off-road)
Quiet Lanes (on-road)
Defined Cycle Routes
Canals
Cemeteries, disused churchyards and other burial grounds
Domestic Gardens
Residential Institution Grounds
Hospital Grounds
Places of Worship Grounds
School & College Grounds
Restricted access green spaces (e.g. retail park settings)
Controlled access green spaces (e.g. airports and military training land)
Land identified for development
Other vacant land
Contaminated Land
Other Derelict Land
Rivers and Streams
Lakes & Ponds
Reservoirs
Wetlands
Inter tidal zone
Beaches & Dunes
Scrub land
Heathland & Bog

6. Helpful History

It has been suggested that green infrastructure, a concept that is has come to the fore since 2000, is in fact 'old wine in new bottles'. A more positive view might be that green infrastructure has its roots in thinking that goes back several decades. The most significant antecedents are:

Basic connectivity studies in Geography which used links, segments and nodes to describe networks, a language now commonly used in Geographical Information Systems (GIS).

The Tradition of Urban Parks: The human-centred thinking related to improving health, increasing access to wildlife, and providing scenic settings led to the establishment of urban parks and then later to the idea of linked green spaces and 'nature-like' landscapes in residential areas. The emphasis here was on providing a green structure based on ecological principles.

Urban Forestry: Urban forestry is a broad term which is sometimes used to refer to street trees and wooded areas in urban parks, but also now covers the interest in natural processes of establishment rather than tree planting per se. It is also used to describe larger landscapes often found on urban fringes which reflect a traditional forest pattern of trees and open land, and a multitude of land uses and landscape features such as is found in Community Forests in the UK.

Landscape Ecology: a discipline that takes a multi-scaled view of human, biotic and abiotic influences on the development and planning of landscapes. There have been multiple definitions, but the consideration of interacting systems across multiple scales and both human and non-human systems (and values) are characteristic. Connectivity is a key concept in landscape ecology thinking and planning.

Ecological Networks: the literature on ecological networks is extensive (for example Jongman and Pungetti, 2004). Ideas sprang from the need to reduce the isolation of species in human-dominated landscapes, and to understand the importance of spatial scale and provide for the migration and dispersal of species as well as the protection of large core areas such as ancient woodlands.

Greenways and Green corridors: these two concepts are often treated effectively as one, as they are both focused on the provision of opportunities and linear routes with a wide range of characteristics and uses particularly relating to recreation and commuting. Local use of greenways has emerged as a particularly important characteristic with resonance to GI thinking relating to the importance of spatial targeting of green investments where social as well as environmental needs are high. Greenways have been allied with ecological corridors because as they are both based on concepts of connectivity. But although greenways (with a recreational emphasis) and ecological networks (with a habitat and species conservation emphasis) may, at a very basic level, seem similar – they are linear features dominated by vegetation rather than hard human developments – in reality they may be largely mutually exclusive in their detailed prescriptions, especially where species are disturbance-sensitive. Ecological footprints: The ecological footprint is a measure of how sustainable our life-styles are (Wackernagel and Rees, 1995). It is a concept that has recently attracted increased attention (e.g. www.myfootprint.org and WWF Northern, 2005 and WWF, 2005), not least because it is an effective way to encourage people to visualise the environmental impacts of their lifestyles.

Sustainable development: although this is not directly an antecedent to green infrastructure but the language of sustainable development sets the context for environmental planning. Green infrastructure should be seen in the context of initiatives that aim to render current land use patterns and practices more sustainable.

Multi-functionality: The Countryside In and Around Towns (CIAT) vision (Countryside Agency and Groundwork UK, 2004) focuses on multi-functionality and identifies a wider set of potential functions for development and enhancement in the urban fringe and areas of land that link urban and rural areas.

These include:

- A bridge to the country
- A gateway to the town
- A health centre
- A classroom
- A recycling centre
- A power plant
- A productive landscape
- A place to live sustainably
- An engine for regeneration
- A nature reserve
- A heritage resource

Many of these concur with green infrastructure thinking. Green infrastructure can therefore be seen as a key delivery mechanism for multi-functionality. A range of commonalities can be identified:

1. Aesthetics: developments should be appropriate and of a high quality
2. Enjoyment: ideally 'people will wish to linger rather than move through and exit as rapidly as possible' (Gallent et al., 2004, p.iv)

3. Partnership: defining and realising objectives must be done in partnership with local communities and other interest groups
4. Balance: potential conflicts must be identified and cumulative impacts managed
5. Linkages: physical linkages lie at the heart of green infrastructure but linkages between dimensions of sustainability, quality of life and policy areas must also be identified and fostered
6. Functionality: the CIAT is not, and should not be, a museum
7. Meaning: developments that have little resonance or relevance for local communities are not sustainable
8. Opportunity: opportunity is the precursor to use and it relates to access
9. Image: how things look is important, both internally and externally
10. Viability: this relates closely to meaning and functionality, but developments have to be sustainable in practice as well as attractive in principle
11. Vision: green infrastructure is more than the sum of its parts and multi-functionality goes beyond coexistence, to consider integration, interaction and inclusion.

Community Forests: Green infrastructure is the logical extension of the concepts underpinning the development of Community Forests in urban fringe environments. These are based on a multifunctional approach to the management of the countryside in and around towns and based upon delivery through as partnership led approach. In some cases existing Community Forest partnerships are an obvious structure on which to deliver green infrastructure plans.

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