Interim West Oxfordshire Green Infrastructure Study

June 2011

Introduction

Green spaces and natural features are important components of sustainable communities. Establishing connected networks of accessible multi-functional green space will be an integral part of the future planning of West Oxfordshire, both through identifying and then protecting those areas we already have and through encouraging improvements to the network.

> **Definition of green infrastructure (GI)**
> Green infrastructure comprises networks of green spaces and natural features which can include: parks and gardens; woodlands; rivers and lakes; commons; playing fields; and allotments.
> Established green spaces and new sites should thread through and surround the built environment and connect urban areas to their wider rural hinterland.
> Planning for GI involves the active design, protection and management of strategic networks of open space to provide a wide range of environmental, economic and social benefits in both rural and urban areas including flood water storage, sustainable drainage, shady outdoor space, habitats for wildlife and areas for recreation.

Purpose of study

There are four main purposes of this study:

i. At a District-level, to identify the existing components of West Oxfordshire's GI
ii. To map these components
iii. To ensure that new development takes account of existing GI and augments this where possible
iv. To provide the basis for future work on the planning and management of the network (for example feeding into the District's Local Development Framework and, if necessary, through the production of a GI Strategy for West Oxfordshire)

(The Methodology section below addresses in more detail items i. and ii. The final section of the study looks at items iii. and iv.)

Benefits of GI

West Oxfordshire has long been recognised for its high quality countryside and attractive built environment. Two of the key priorities for the District's Sustainable Community Strategy (Shaping Futures) are: to keep the area clean and beautiful while protecting the environment and trying hard to reduce the causes and effects of climate change; and to maintain and improve the health and well-being of all residents in West Oxfordshire. The protection and management of green infrastructure has a fundamental part to play in achieving these priorities.

The emerging Core Strategy for West Oxfordshire is underpinned by the Sustainable Community Strategy, giving emphasis to the conservation and enhancement of the District's diverse landscape, biodiversity and geological conservation interests, and its local cultural, heritage, recreational and environmental assets. A policy to protect and enhance GI is included (Policy CS23). To help in this protection and enhancement, it is crucial to identify the important elements of GI, especially to recognise the multi-functionality it performs and the significance of its networks.

Green infrastructure can deliver significant and wide ranging environmental, social, economic and quality of life benefits for local communities, including:

- The protection, enhancement and reinforcement of biodiversity resources, with an emphasis on the need to improve the condition, extent and connectivity of wildlife habitats. Overcoming habitat fragmentation increases the ability of the natural environment to adapt to climate change and may enhance their ability to adsorb carbon. Creating buffers and links can also help to safeguard designated sites
- The conservation and enhancement of cultural, historic and landscape assets, including reflecting the area's locally distinctive character and creating a sense of place, identity and local pride
- Providing a landscape setting and context for development
- Building communities, by fostering community life and local involvement, eg through friends groups, community activities and volunteering, such as 'green gyms'
- Enhancing the self sufficiency of communities through providing recreational areas, sources for renewable energy (eg wood fuel) and local food production (reducing food-miles)
- Supporting healthier lifestyles by providing, for example: green routes for walking and cycling; green spaces for exercise and play and the development of children's sense of adventure and independence; and attractive and accessible places for people to enjoy direct and regular contact with the natural environment (giving positive physical and mental health benefits)
- Reducing the perception of crime through enhanced permeability and accessibility
- Helping to deliver sustainable water management and reduce the risk of flooding. A network of green spaces reduces the likelihood of flooding by allowing water to permeate through the ground and can also act as a flood storage area, reducing the volume and rate of run-off and recharging groundwater supplies. Trees and woodland can be particularly useful in reducing floods by absorbing and delaying water. Green spaces can play a key role in sustainable drainage.

- Creating green and resilient communities which assists with adaptation to and mitigation of the effects of climate change, including reducing the urban heat effect. Trees provide shade. Evapo-transpiration cools leaves and the surrounding air. Studies have shown that parks are cooler than surrounding built-up areas and that the affects extend some distance beyond the park. GI also locks up carbon.
- Promoting sustainable transport through green routes for walking and cycling
- Providing a resource for education and learning, eg outdoor classrooms and learning new life-skills
- Creating places where people want to live, work and visit, and in so doing contributing to an area's economic prosperity, both directly and indirectly. For example, through an increase in labour productivity, increased visitor spending, the developing of the 'green economy' and the reduction in economic and insurance risk eg in light of enhanced water resource management.
- Improving air quality (eg trees and other vegetation remove large numbers of airborne particles; honeydew traps dust and particles, helping to reduce airborne pollution) and reducing water pollution (eg through exploiting the natural processes of sedimentation, filtration and biodegradation to remove pollutants)

Methodology

What to include as green infrastructure

Different settings have their own, often very different, make-up and there are many types of Green Infrastructure. This is evident across West Oxfordshire where, by virtue of its rural nature, the District has a wide variety of green space, albeit not all publicly accessible. Similarly, most identified sites have varying characteristics and uses – a common element of GI is its multi-functionality. An area of amenity green space can provide, for example: a landscape setting and context for a settlement; habitat provision; an area for recreation and leisure; an area for access and movement; and space for flood attenuation. In identifying different areas by typology, our study has endeavoured to use the area's primary purpose.

In devising the typologies most appropriate for this study, an assessment of data availability, acquisition and typology mapping was undertaken. Green infrastructure resources were primarily collated through an examination of national and countywide datasets, supplemented by locally specific datasets, taking in particular the typologies used in the Council's existing PPG17 Assessment (2006) and Public Open Space Audit (2008) as a starting point. This ensures consistency both with national guidance (PPG17) and existing local assessments.

A large amount of data already exists relating to open space, not least the Council's PPG17 Assessment. However, such studies are subtly different to a green infrastructure study; the PPG17 study evaluates open space provision in relation to condition, access and quality of sites, whereas a green infrastructure study goes beyond site specifics to consider the 'big picture', such as landscape context, as well as strategic links. Therefore, whilst the PPG17 typologies can form a basis for the

study, these spaces are only one important constituent of a green infrastructure network.

Green Infrastructure also relates to the rural environment. In the wider countryside, green infrastructure is often viewed at a larger scale, encompassing country estates, extensive habitats, major landscape features such as river corridors and flood meadows landscapes, and the identification of wide green corridors and ecological networks. Green infrastructure at this scale can provide the wider framework and context for planning green infrastructure at a more local level. An invaluable source of data comes from the Thames Valley Environmental Records Centre (TVERC) which collects, collates and makes available information about the natural environment.

Table 1: Key sources of data on green infrastructure

Dataset	Source	URL
Wildlife and geological sites	Thames Valley Environmental Record Centre (TVERC) Natural England	www.tverc.org www.natureonthemap.org.uk
Landscape	Natural England Oxfordshire Wildlife and Landscape Study Cotswolds Area of Outstanding Natural Beauty (AONB)	www.magic.gov.uk http://www.owls.oxfordshire.gov.uk www.cotswoldsaonb.org.uk
Public Rights of Way, Countryside and Rights of Way Act open access land	MAGIC Oxfordshire County Council	www.magic.gov.uk www.oxfordshire.gov.uk
Woodland	Woodland Trust Forestry Commission Berkshire, Buckingham and Oxfordshire Wildlife Trust (BBOWT)	www.woodland-trust.org.uk www.forestry.gov.uk www.bbowt.org.uk www.sylva.org.uk/myforest/
Agricultural Land Classification	MAGIC	www.magic.gov.uk
Flood risk zones	Environment Agency	www.environment-agency.gov.uk
Agri-environment schemes	Defra	www.defra.gov.uk
Recreation open space	PPG17 Assessment	www.westoxon.gov.uk
Public open space	Public Open Space Audit	www.westoxon.gov.uk

Table 2: Main types of green infrastructure included in the West Oxfordshire GI Study

Parks and gardens: (see Map GI1)	Including village greens, country estates, urban parks, Country Parks and formal gardens. For example, Shilton Park Country Park and Blenheim Palace World Heritage Site
Semi natural sites: (see Map GI2)	Woodlands, commons, open water, Scheduled Ancient Monuments, Ancient Woodlands (2ha+) and ecological sites (eg grassland, scrub and wetland). For example, Stonesfield Common and Pinsley Wood
Amenity greenspace:	Including village greens, informal recreation spaces and strategic housing amenity green space
Green corridors: (see Map GI3)	Rivers and waterways including their banks, road and rail corridors, cycleways, pedestrian paths and rights of way eg Thames Path, Cotswold Line and Sustran routes
Sports grounds:	Outdoor sports facilities such as sports pitches, golf courses, school and other institutional playing fields
Cemeteries and churchyards	
Allotments	

GI in West Oxfordshire

Maps GI 1-3, in the attached Appendix, show the distribution of some of the key elements of GI within West Oxfordshire. Additional maps are being compiled and will be added to subsequent drafts of this document, along with areas such as important green space and Green Areas designated through the emerging Localism Bill and Natural Environment White Paper.

Delivery of GI

West Oxfordshire has a diverse range of existing GI. While this study has not undertaken a detailed assessment of existing deficiencies and future needs in relation to GI, previous research (eg on Accessible Natural Greenspace and recreational open space) has shown that, despite this diversity, there are qualitative and quantitative limitations locally. Not only does existing GI need to be protected, the network needs to be augmented and enhanced in general wherever feasible, but especially in areas of new development and where existing projects are already under way or emerging, such as the Lower Windrush Valley Project, the Wychwood Project and Conservation Target Areas.

Improvements to the GI network can be delivered through:

- The protection, restoration and enhancement of existing GI, increasing functionality
- The creation of new GI
- The linking of GI assets

There are some basic principles to be considered/addressed as part of GI delivery:

Understanding existing networks

An understanding is needed of the existing GI networks, including their landscape and environmental role and sensitivities. Mapping of these assets aids the understanding of the character of the area and can be used to identify GI deficiencies and future needs.

In terms of new development proposals, an understanding of GI provides environmental opportunities and constraints and can be an 'integrating medium'. Early integration of GI can ensure that it is properly planned in advance of development or delivered alongside development on a phased basis, enhancing its value as a community asset

Reflect local character

GI should be designed to reflect, complement and enhance the area's locally distinctive character, including landscape, habitats, vernacular and sense of place.

Enhancement and restoration

Focus on improvements to the quality and robustness of GI, especially where opportunities already exist, and create new resources to enhance the networks' integrity

Multi-functionality

Wherever possible GI should be designed and managed as a multifunctional resource, delivering the widest range of linked environmental and social benefits.

Enhancement/provision of linkages

New sites and habitats should be created for people and wildlife to dove-tail with existing projects and green spaces. This helps to strengthen and reinforce networks, enhancing connectivity. Providing green linkages can also promote public access to green space and should contribute to sustainable modes of travel.

Make most of retro-fitting opportunities

Opportunities for retro-fitting should be investigated, eg green roofs and walls, swales integrated as part of traffic calming and streetscape, new tree planting, de-canalisation of river corridors.

Highlight key relevant partners in the process of delivery and long-term management

Where new development is taking place, new GI will primarily be funded through developer contributions. Many of the opportunities to deliver improved or extended GI will lie not with the local planning authority or developers but with other partners. For example, providing cycle routes within green links could help to meet objectives within a Local Transport Strategy for more sustainable travel and objectives within a health strategy to increase the amount of exercise taken by local people.

GI planning and management provides opportunities for partnership working, not only with other statutory bodies but local communities and voluntary organisations too, fostering ownership and involvement.

Use of a variety of funding mechanisms

Delivery of GI will be dependant on successful partnership working and the availability of appropriate funding, ranging, for example, from EU funded agri-environment schemes to area based projects, such as the Wychwoods Project or BBOWT's Chimney Meadows Living Landscape Project.

GI delivery – the approach to biodiversity
West Oxfordshire is a predominantly rural area with a rich variety of habitats, supporting a wide range of wildlife. An effective way to conserve and enhance this biodiversity is to use GI to create an ecological network that extends and links existing areas of high biodiversity value, facilitating the colonisation of new areas in response to new opportunities or changing conditions. The creation of habitat corridors using native hedgerows and species-rich margins alongside green links can provide invaluable corridors of movement.

In Oxfordshire, an important component to the conservation and enhancement of biodiversity is to focus on Conservation Target Areas. (CTAs are areas that have been identified by taking into account: existing concentrations of Biodiversity Action Plan priority habitats and important areas for priority species; archaeological interest; public access; the potential for habitat restoration; and where targeted conservation action will have the greatest benefit.) Delivery of CTA aims is co-ordinated by the Oxfordshire Nature Conservation Forum (ONCF).

Conclusion

GI has an important role as a 'life support system', is able to deliver multiple environmental, social and economic functions, and to play a key part in adapting to and mitigating climate change. This study shows the richness of the existing GI in West Oxfordshire. We must not, however, be complacent. These assets need to be protected and enhanced in order to maximise their function, especially in areas of change and where new development is taking place.

The promotion and delivery of GI is embedded within the emerging West Oxfordshire Core Strategy through a number of policies (eg on landscape, flood risk, biodiversity and open space), as well as an overarching policy: Policy CS23.

Policy CS23: Green Infrastructure*
The existing green infrastructure assets of West Oxfordshire will be protected and enhanced and new multi-functional areas of green space will be created where improvements to the network can be achieved (through extending areas and/or better management), particularly in areas of new development and/or where stakeholder/partnership projects already exist or are emerging.

* From **West Oxfordshire: Our local strategy**
Draft Core Strategy (January 2011)

The Localism Agenda means that there are fundamental changes taking place affecting local authorities, including their funding and their planning role. This study is not a GI Strategy – further work and clarification is needed, for example, on existing deficiencies, identifying opportunities, setting GI standards (eg on accessibility, quantity and quality), who will provide GI, its costs, sources of funding, timescales for delivery and who will look after it. The study will, therefore, be kept under review, especially in light of any additional areas identified as important by our communities through the neighbourhood planning and partnership working of the emerging localism agenda.

APPENDIX

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Map GI1	Parks and Gardens (and areas where nature conservation work is focussed)
Map GI2	Semi-natural sites
Map GI3	Green corridors

NB These maps show the distribution of some of the key elements of GI within West Oxfordshire. Additional maps are being compiled and will be added to subsequent drafts of this document