



Green Infrastructure Framework 3: Access and Recreation

May 2013

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Chapter 1: Introduction

Preparation of this Green Infrastructure Framework Document 3 Access and Recreation has been led by the County Council's Strategic Planning and Environmental Policy team. The framework has been endorsed by the Worcestershire Green Infrastructure Partnership.

Partnership members include the Worcestershire Wildlife Trust, Natural England, Environment Agency, Forestry Commission, English Heritage, the County and District Councils and the Voluntary Sector.

Background to the Framework

The Green Infrastructure partnership is producing a series of 'framework documents' which provide the evidence base for the development of the GI Strategy.

Framework Document 1 is an introduction to the concept of Green Infrastructure (GI) and also identified the need for the strategic planning of GI and the policy drivers that support the planning of GI at differing spatial scales.

Framework Document 2 is an introduction to the natural environment landscape, biodiversity and historic environment datasets and developed the concept of GI Environmental Character Areas based on the quality and quantity of the natural environment assets.

Framework Document 4 will investigate the socio-economic role of GI including climate change, economy, health and well being.

The 4 frameworks documents will form the detailed evidence base for the Worcestershire Green Infrastructure Strategy, which sets out the vision and opportunities for multi-functional green infrastructure in the county.

Note:

Green Infrastructure framework documents have benefited from scrutiny and input from stakeholders. The framework documents and the Strategy are non-statutory and hold the status of guidance to provide a framework for the planning of a comprehensive multifunctional green infrastructure throughout Worcestershire.

Purpose of the study

GI presents an alternative approach to planning that is proactive, multi-scale and multi-functional. GI presents a co-ordinated interdisciplinary approach to environmental planning and regeneration, comparable to that used in built or 'grey' infrastructure planning. GI can deliver benefits to the environment and can also contribute to the development of better places in which to live, work and invest.

This paper is the third in a series of framework documents to inform the development of a Worcestershire GI Strategy that cuts across local authority administrative boundaries and will enable the strategic planning, co-ordination, delivery and management of existing and future green spaces.

Framework Document 3 explores informal access and recreation provision and demands in the county and will:

1. Assess the current provision of strategic informal recreational space in the county
2. Assess the current and future demands on this strategic greenspace
3. Discuss potential need for an increase in informal recreation provision
4. Identify broad areas of search for new sites

The Audience

This paper is intended to support Local Planning Authorities (LPAs) and other organisations involved in the development of plans and strategies and to promote the inclusion and delivery of GI in developments. This paper will also be of interest to the development industry, utility companies, the Local Economic Partnership and Local Nature Partnership and anybody with an interest in how to plan for GI in Worcestershire.

The paper intends to be a useful tool to policy makers but does not diminish the need for the reader to be alert to both existing and emerging GI evidence and policy.

Scope of Framework Document 3

The intention of this paper is to identify the functionality and supply of strategic recreational assets in Worcestershire and the potential of these assets to support further recreational demand. It will explore the potential need for new recreational assets, identify areas of search and potential funding mechanisms for new facilities.

Chapter 2: Context

The concept of GI has been developing as an important environment-led planning tool and is now being increasingly and successfully integrated into national and local policies and actions.

GI is often described as 'multifunctional', providing a range of environmental and social and economic services or 'ecosystem services'.

The ecosystems approach is essentially about shifting the focus of policy-making and delivery away from looking at natural environment policies in separate 'silos' - e.g. air, water, soil, biodiversity - and towards a more holistic or integrated approach based on the whole ecosystems¹ and the benefits which are derived from the natural environment.

Ecosystem services are the benefits that a healthy environment provides for people, either directly or indirectly, and four broad types of ecosystem service are usually recognised:

- **Provisioning services** - products obtained from ecosystems, including food, timber, woodfuel, fresh water, biodiversity, genetic resources, biochemicals, natural medicines and pharmaceuticals.
- **Regulating services** - benefits obtained from the regulation of natural processes, including: the regulation of air quality, climate, flooding and erosion; water purification; disease and pest control; pollination; and buffering pollution.
- **Cultural services** - the non-material benefits people obtain through spiritual enrichment, cognitive development, reflection, recreation and aesthetic enjoyment.
- **Supporting services** - the services that are necessary for the production of all other ecosystem services, including soil formation, photosynthesis, primary production, nutrient cycling and water cycling.

The ecosystem approach means recognising that we derive numerous benefits from the natural environment systems and process, many of which we are reliant on for the continued functioning of the natural environment and our interactions with it.

Both ecosystem services and green infrastructure approaches recognise that most areas of land have the potential to deliver a very wide range of services (such as flood management, biodiversity, or recreation) and it is important that the diversity of these services is recognised in policy and decision making. There may, however, be a limit to the extent that multifunctionality can be pursued without impairing the delivery of one or more of the services involved. For example, there may be trade-offs to be made between archaeology and diversity of wildlife or flood management.

The development of a green infrastructure framework for the county allows consideration of issues and a relationships at a greater than local level exploring wider connections

¹ Defra (2007) - Securing a healthy natural environment: An action plan for embedding an ecosystems approach.

and connectivity. A co-ordinated response to planning for green infrastructure will be of value in locations where growth is proposed, particularly where this crosses administrative boundaries, where there is an existing resource, or where there is potential for creation or expansion.

The data identified in Framework Document 1, which underpins the Green Infrastructure approach in Worcestershire and includes biodiversity, landscape and historic environment, is available at a range of spatial scales and/or geographical features, e.g. river catchments or strategic sites. The use of GIS can bring together data from a range of different scales and themes. These data sets, however, require manipulation to enable their integration with other data across the varying geographical scales and boundaries. Combining the various tiers of data allows for an assessment of how the numerous factors interact and how their combined potential contribution to GI can vary.

The Framework Documents form the evidence base and assessment of Green Infrastructure in the county, which is then explored further in the Worcestershire Green Infrastructure strategy which brings the individual evidence based together to advocate a cohesive approach for the whole county.

The sub-regional framework and strategy will be accompanied by more detailed site-level 'Concept Statements' and 'Concept Plans' for strategic growth locations. The 'Concept Statements' and 'Concept Plans' will set out and prioritise the respective GI requirements for individual sites and is an approach that could be adopted for growth locations and/or any project involving significant land-use change such as forestry, across the county.

The framework should not just be viewed as purely a planning document. Green space issues cut across most local authority functions and a sound framework will help achieve corporate objectives for improvement to the environment, recreation, leisure and social regeneration. Strategic joined-up thinking about green space benefits everyone².

The Worcestershire GI strategy will create a comprehensive policy framework for the protection, creation, enhancement and accessibility of green infrastructure. It can also provide a framework for resource allocation that maximises funding to support improvements from internal revenue budgets and external funding opportunities such as developer contributions. The development of a shared vision by politicians, officers, key partners, stakeholders and communities can generate political and inter-departmental support for green infrastructure.

² Green Space Strategies – A Good Practice Guide. CABE Space (2004)

Chapter 3: Informal Recreation Provision in Worcestershire

Access and recreation provision is one of the underpinning elements of Green Infrastructure, and plays a key role in the social, economic and environmental well being of Worcestershire's communities and residents.

Access and recreation can take many forms, in many different locations, bringing quantifiable and qualitative benefits to residents and visitors alike.

The focus of this paper is on informal recreation in the natural and semi-natural environment where recreation is most likely to complement other aspects of GI including biodiversity, historic environment and landscape. Other strategies, plans and programmes provide direction and local action planning for formal recreation including playing pitch strategies and play strategies.

This framework document will:

5. Assess the current provision of strategic informal recreational space in the county
6. Assess the current and future demands on this strategic greenspace
7. Discuss potential need for an increase in informal recreation provision
8. Identify broad areas of search for new sites

Overview of Recreation in Worcestershire

Recreation can be defined as an *"activity done for enjoyment when one is not working."* (Oxford Dictionary, 2012)

This wide definition of recreation covers a variety of recreational pursuits. However, in terms of green infrastructure the greatest area of interest is in outdoor recreational activity, in particular informal recreation.

Informal recreation is characterised by use of and access to the natural environment and it refers to wide range of activities including walking, cycling, fishing and horse riding.

This study has been informed by the Access and Informal Recreation Strategy produced by the Worcestershire Parks and Countryside Task Group in 2009, which identified the issues and sets the policy direction for access and informal recreation in the county.

Access and recreation plays a key role in the continued social, environmental and economic well-being of the county. In the 2009 Worcestershire Viewpoint survey, 93% of residents classed parks and open spaces as either *"important"* or *"very important"*. It is estimated that 10 million visitors came to Worcestershire in 2004, with the natural environment being one of the county's main attractions and contributors to the visitor economy, particularly through high-profile areas such as the Malvern Hills.

In addition to the resident population of 555,400, approximately 3 million people live within 1 hour's drive of the county and may choose to visit the county for recreation and take advantage of the range of facilities on offer.³

³ Parks and Countryside Task Group (2009) Worcestershire Access and Informal Recreation Strategy 2009-2019

Current Provision

Within the county, there is a range of existing provision of natural open space which delivers a wide range of recreational opportunities.

These include:

1. Publicly and privately owned and managed countryside sites such as country parks, picnic sites and countryside visitor attractions, which offer facilities and services to users
2. Public parks which offer informal open space as well as play equipment, sports pitches and formal gardens
3. Recreational routes including short and long distance walking and cycling routes
4. Public rights of way network
5. Permissive rights of way network
6. Rivers, canals and water bodies offering opportunities for canoeing, sailing and riding.

A 2001 audit of accessible greenspace provision identified over 5,500 hectares of land as available for recreation in Worcestershire⁴. This is made up of sites such as Country Parks, formal parks, nature reserves, picnic places and Registered Commons. It is now thought that this figure is likely to under-represent the area available for recreation, as more sites have become accessible in recent years through legislation such as the Countryside and Rights of Way Act 2000 and through agri-environment schemes, development and planning applications.

Given the multiplicity of sites, it is not surprising that there is great variation in their size and facilities on offer, from small sites which provide for local provision to the large scale assets which attract visits from the county and beyond. To identify the sub-regional assets for this study, a three-stage methodology was developed. The initial phase was based on Natural England's Accessible Natural Greenspace Standard (ANGSt) Model.⁵ ANGSt uses distance thresholds to define the maximum distance that any resident should have to travel from their home to reach accessible natural or semi-natural greenspace which is freely accessible. It is divided into four tiers:

Table 1: Green Infrastructure distance thresholds

1.	Sub-regional provision	Sites or habitats over 500ha	Within 10km
2.	County scale provision	Sites or habitats over 100ha	Within 5 km
3.	District scale provision	Sites or habitats over 20ha	Within 2km
4.	Neighbourhood scale provision	Sites or habitats over 2ha	Within 300m

⁴ Parks and Countryside Task Group (2009) Worcestershire Access and Informal Recreation Strategy 2009-2019

⁵ English Nature (2003) "Accessible Natural Greenspace Standards in towns and Cities: A review and Toolkit for Implementation".

Criteria 1 and 2 were used to identify a long-list of sub-regional assets drawn from the following data sets:

- Access Land (under the Countryside and Rights of Way Act 2000)
- Registered Common Land
- Section 15 land (S.15 of the Countryside and Rights of Way Act 2000 – pre-existing public rights of access that on CROW land apply instead of CROW rights)
- Section 16 land (land voluntarily dedicated for public access under the Countryside and Rights of Way Act)
- Special Areas of Conservation (SAC)
- Sites of Special Scientific Interest (SSSI)
- National Nature Reserves
- Local Nature Reserves
- Country Parks
- Parks and Gardens
- National Trust sites
- Royal Society for the Protection of Birds (RSPB) Reserves
- Local Wildlife Sites
- Worcestershire Recreational Routes
- Woodlands for People
- Worcestershire Local Parks
- PPG17 audits from District Councils.

The resulting list was filtered to remove sites which did not meet the ANGSt criteria, or did not have a significant recreational role, or did not provide public access.

The second phase of the methodology was to identify linear recreation assets within the 10km and 5km buffer zones including canals, main rivers, long-distance walking and cycling routes of national, regional and county importance. Clusters of sites that are a part of the same complex, and collectively are over 100ha, were also identified.

The final phase of the methodology was undertaken through a workshop with the members of the GI partnership and recreation colleagues from the Parks and Countryside Task Group. Members identified further sites which, although failing to meet the ANGSt size criteria, still provided county or sub-regional recreational resources.⁶

The 10km search radius identified a series of linear assets, including 20 canals and 10 national cycle routes. This was further refined to reflect the length of linear asset falling within the 10km search radius; small lengths of linear assets were excluded from the study as they did not make a significant contribution to the sub-regional GI assets.

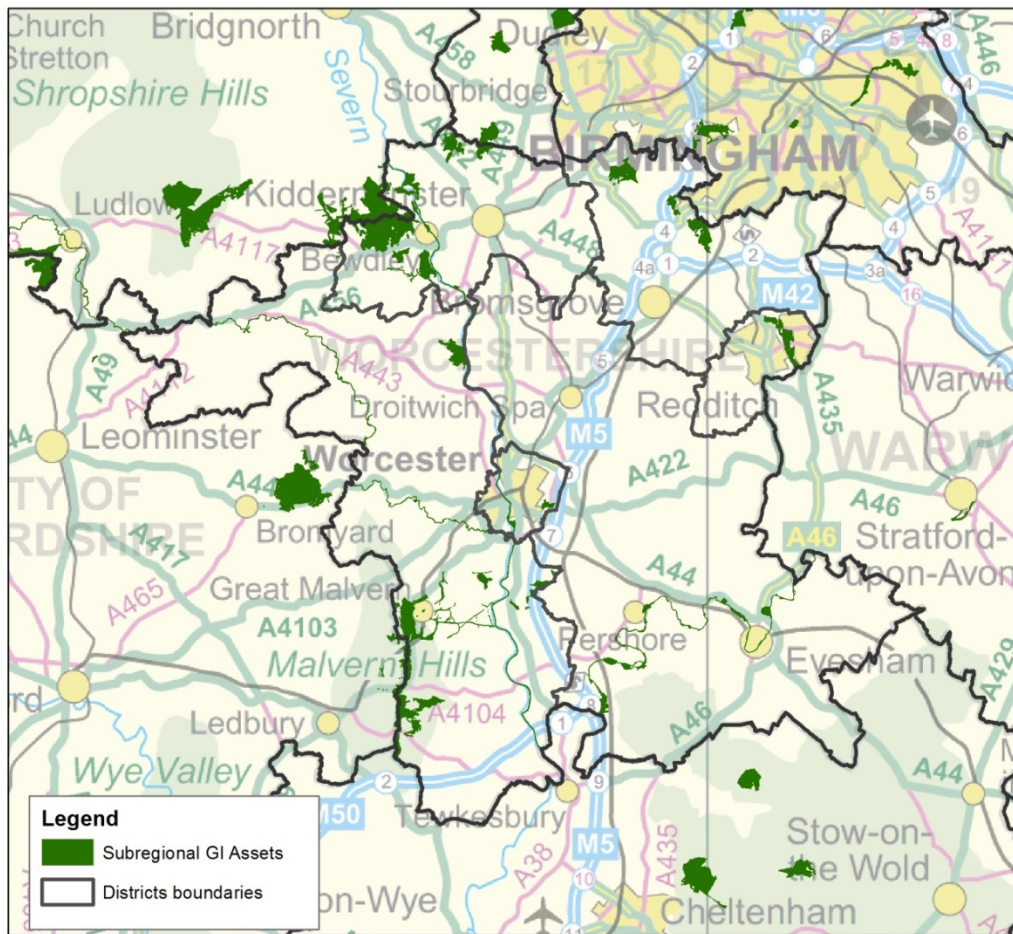
This sifting process left a total of six canals which offer significant recreational opportunity for the county, namely the Droitwich, Grand Union, Worcester and Birmingham, Stratford Upon Avon, Dudley No 2 and Staffordshire and Worcestershire Canals.

⁶ A full list of sites is included as Appendix 1.

Main rivers within the county were also identified as sub-regional GI assets, although their recreation role may be limited to paths alongside the river, or access to the water for water-based recreation such as canoeing.⁷

The standard ANGSt methodology (and the methodology used for this report), identifies only those sites which are free to access. This means that there is no charge for entering the site (although there may be a car parking charge) and that the site is accessible to all. Some National Trust sites, for example, such as Croome Park, were excluded as there is an entrance fee for the site.

Figure 1: Map of Sub-regional Assets



Subregional Green Infrastructure Assets

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⁷ A full list of linear assets is included as Appendix 2.

Analysis of assets

ANGSt analysis in Worcestershire

The ANGSt methodology developed by Natural England includes a target that all households should live within 5km of a 100ha site and 10km of a 500ha site. A detailed description of ANGSt is provided in Appendix 5.

The results for Worcestershire are:

Table 2: ANGST analysis in Worcestershire

District	Total number of households* ⁸	% of households	
		Within 5km of 100ha+ site	Within 10km of 500ha+ site
Bromsgrove	39,112	76.4	0.0
Malvern Hills	32,866	65.9	84.0
Redditch	35,558	99.0	0.0
Worcester City	42,943	0.0	15.6
Wychavon	50,942	19.8	2.4
Wyre Forest	43,818	88.1	97.0
Worcestershire	245,239	55.2	31.8

None of the districts within the county meet accessibility criteria as set out within this standard. Wyre Forest district scores well for accessibility of both 100ha and 500ha sites and Malvern Hills district also records over 50% of households able to access 100ha and 500ha sites. Redditch has 99% of households within 5 km of a 100ha site, but records a zero return on access to 500ha sites. Similarly, Bromsgrove also has zero accessibility to 500ha sites.

Within the county, there is 55% accessibility to 100ha sites, but only 32% accessibility to 500ha sites, reflecting a scarcity of very large sites within the county and the surrounding area.

Spatial analysis

The distribution of recreational assets in the county is not uniform. Spatial analysis of sites across the county highlights clusters of sites in the northern districts, extending to the Birmingham and Black Country conurbation, Staffordshire and Shropshire.

A second cluster can be identified along the western edge of the county to include the Malvern Hills, extending into Herefordshire. The eastern fringe of the county, extending into Warwickshire, has very few accessible sites, as reflected in the low ANGSt scores for Worcester City and Wychavon district.

Delivery of GI functionality/ecosystem services

The concept of multi-functionality is key to green infrastructure. One way in which this can be expressed is through the ecosystems services approach⁹. Recreation is

⁸ 2009 Mid-term population estimates

customarily classed as a cultural service, providing opportunities for physical exercise, spiritual development, cognitive development and aesthetic enjoyment. However, sites will also provide a range of other ecosystems functions. The functions provided will vary between sites, dependent on their size, habitats, location and connections to other areas of GI importance. The following chart outlines the ecosystem services provided by four different sub-regional GI sites.

Table 3: Ecosystem services provided by sub-regional green infrastructure sites in Worcestershire

Site	Site description	Ecosystem Services			
		Provisioning	Regulating	Cultural	Supporting
Lickey Hills	Country park; woodland and heathland.	Wood fuel, timber, biodiversity, genetic resources	Air quality, pollination, pollution buffering	Spiritual enrichment, cognitive development, reflection, recreation, aesthetic enjoyment	Soil formation, photosynthesis primary production, nutrient cycling, water cycling
Arrow Valley Country Park	Country park; river, woodland and grassland	Wood fuel, timber, biodiversity, genetic resources	Air quality, pollination, pollution buffering, flooding, erosion	Spiritual enrichment, cognitive development, reflection, recreation, aesthetic enjoyment	Soil formation, photosynthesis primary production, nutrient cycling, water cycling
Worcester and Birmingham Canal	Canal; linear water feature	Biodiversity, genetic resources	Climate and flood regulation	Spiritual enrichment, cognitive development, reflection, recreation, aesthetic enjoyment	Water cycling
Regional cycle route 55	On and off road cycle route	Biodiversity (off road, green route)		Spiritual enrichment, cognitive development, reflection, recreation, aesthetic enjoyment	Photosynthesis

⁹ Ecosystems services are the benefits that a healthy environment provides for people either directly or indirectly. Four categories of ecosystem services are customarily recognised: provisioning, regulating, cultural and supporting.

Detailed ANGSt Analysis by District

Worcestershire County Council carried out an Analysis of Accessible Natural Greenspace provision (ANGSt) in April 2011. The analysis followed Natural England's ANGSt model and formed part of the wider analysis of Green Infrastructure that has been undertaken in Worcestershire.

Accessible natural greenspace coverage for the whole county is 11,771 hectares, equivalent to 6.8% of the county's area. The distribution of this is extremely variable across the Worcestershire districts, with Wyre Forest and Redditch having 13% accessible natural greenspace, and Wychavon only 3.6%.

Table 4: Summary of ANGSt Analysis by District¹⁰

District	Total number of households*	% of households					
		Within 300m of 2ha+ site	Within 2km of 20ha+ site	Within 5km of 100ha+ site	Within 10km of 500ha+ site	Meeting all ANGSt requirements	Meeting none of the ANGSt requirements
Bromsgrove	39,112	22.3	44.2	76.4	0.0	0.0	13.6
Malvern Hills	32,866	56.8	88.1	65.9	84.0	41.4	4.6
Redditch	35,558	75.9	100.0	99.0	0.0	0.0	0.0
Worcester City	42,943	50.1	95.7	0.0	15.6	0.0	0.6
Wychavon	50,942	26.6	49.0	19.8	2.4	0.3	34.5
Wyre Forest	43,818	47.0	98.1	88.1	97.0	40.5	0.1
Worcestershire	245,239	44.9	77.8	55.2	31.8	12.8	10.1

*Estimate from AddressPoint 2010.

In terms of access to larger areas of accessible natural greenspace, 55% of households in Worcestershire have access to a site of at least 100ha within 5km, whilst only 32% of households within Worcestershire have access to a site of at least 500ha within 10 km. Worcestershire has just two sites, the Wyre Forest and Malvern Hills, which are of 500ha or more.

The majority of households in Malvern Hills and Wyre Forest districts are within 5km of 100ha+ sites and 10km of 500ha+ sites (66% & 84%, and 88% & 97% respectively). Whilst households in Bromsgrove district and Redditch borough both have fairly good access to 100ha+ sites (76% and 99% respectively) none of the households are within 10km of 500ha+ sites.

Households in Worcester City have no access to accessible natural greenspace of 100ha+ in size within 5km and only 15.6% of households have access to 500ha+ sites within 10km. Households in Wychavon also have poor access, with only 20% of households within 5km of 100ha+sites and 2% of households within 10km of 500ha+ sites.

The conclusion from this ANGSt analysis is that:

No districts in the county have 100% access to sites of 100ha or more within a 5km threshold, although 99% of Redditch households do meet this criteria;

¹⁰ Table 4 reproduced from "Analysis of Accessible Natural Greenspace in Worcestershire" (April 2011)

No districts in the county have 100% access to sites of 500ha or more within a 10km threshold. Bromsgrove and Redditch have no access, whilst Malvern Hills and Wyre Forest both score well at 84% and 97% respectively

None of the districts meet all the ANGSt requirements with none of the households in Redditch, Bromsgrove and Worcester City meeting any of the requirements.

No districts have scored 100% in any of the categories, indicating that sites are needed in all of the districts in a variety of sizes.

Limitations of ANGSt

ANGSt was designed specifically to provide a set of benchmarks for ensuring access to places near to where people live so whilst ANGSt provides a useful measure of the amount of accessible natural greenspace in an area it does have some limitations. Therefore further interpretation of results and analysis of GI in the sub-region is needed. Some of the limitations and areas for further consideration are described below and explored in the following chapters.

Carrying Capacity & Visitor Pressure

The ANGSt model is based on distance and size thresholds for individual sites and does not take into account the impact of visitor numbers either on the site itself or on the visitor experience. Hence, a relatively small site could be experiencing intense visitor pressure from a large community, which may have a negative impact on GI functionality and the visitor experience.

Furthermore, ANGSt does not take into account the effects of site visits by non-residential populations. As ANGSt is designed primarily as a local model, in many instances this would not be an issue. However, the focus of this study on larger sub-regional sites means that this limitation needs to be taken into consideration as, for some sites in the sub-region (such as the Malvern Hills), this makes a significant contribution to visitor pressure.

Quality and Accessibility of Greenspace

A population may appear to have sufficient provision of accessible natural greenspace according to ANGSt measurements, but the actual greenspace may be difficult to reach, may provide widely differing levels of facilities, may be of poor quality or may even be unknown to local populations. Therefore, if a site lies on a main public transport corridor with a regular service, it may serve households over 10km away better than a site that is only 4 km away with no public transport. The majority of visits to strategic recreational facilities are by private transport.

ANGSt works on linear buffers and does not take into account any obstacles which may reduce accessibility. This is particularly an issue with local sites, where barriers such as main roads or railway lines can prevent a site being accessed by communities if bridging and crossing points are not readily available. With larger sites, traffic flows can be determined by the quality of roads and by natural barriers such as rivers and their crossing points.

Achievability

ANGSt sets a high standard and the level of accessibility required can be very hard to achieve in some areas. This can discourage those responsible for delivering GI but can also shift the emphasis away from providing high quality accessible natural greenspaces that are viable in the long term, to a focus on purely the quantity of accessible natural greenspace provided. The provision of a few very high quality greenspaces can be more beneficial for a community than a large number of low quality greenspaces that are rarely used.

Applicability to Rural Communities

The ANGSt standard was primarily designed as a local-level model for the urban context. Whilst it can provide useful insights into deficiencies that rural communities experience, it does not provide a very complete or entirely accurate picture of need when looking at rural communities. Rights of way networks, extensive networks of natural features such as hedgerows and views across open countryside mean that householders in rural areas enjoy many of the benefits of natural greenspace even when it is not publicly accessible and, importantly, they will have the perception that they have access to greenspace even if their actual ability to freely access whole sites is limited. Householders in rural areas therefore get many of the benefits of access to natural greenspace through being surrounded by natural areas and a perception of wider access, even if access is actually restricted to footpaths or roads.

Woodland Access Standard

There are a number of other standards by which access to natural greenspace can be measured. To analyse access to woodlands, The Woodland Trust use the Woodland Access Standard which aspires to the following:

That no person should live more than 500m from at least one area of accessible woodland of no less than 2ha in size

There should also be at least one area of accessible woodland of no less than 20ha within 4km (8km round trip) of people's homes

The Woodland Trust undertook an analysis of Worcestershire based on the Woodland Access Standard in 2010.¹¹

¹¹ Woodland Trust; Space for People, 2010.

The results for Worcestershire are:

Table 5: Woodland Access Standard in Worcestershire

Standard	Worcestershire	England
Percentage of population with access to a 2ha+ woodland within 500m	11.5	14.5
Percentage of population with access to a 20ha+ woodland within 4km	70.0	63
Percentage of extra population with access to a 2ha+ wood within 500m if existing woods opened	25.9	23.2
Percentage of extra population with access to a 20ha+ wood within 4km if existing woods opened	23.9	206
Percentage of population requiring new woodland for access to a 2ha+ wood within 500m	62.7	62.3
Minimum area of new woodland planting required for 2ha+woods within 500m	408	28614

Although this analysis is restricted to woodland, it further illustrates that there is a deficit of informal recreation sites in the county. It also highlights the opportunity to increase recreational opportunity in existing woodlands. The analysis did not include additional research into the issues and barriers for woodland owners in encouraging informal access, but this may be a useful future area of study.

Chapter 4: Carrying Capacity of GI Assets

The previous chapters of this report examined the provision of GI assets in the county, and compared this against national standards. This section of the report examines the current recreational pressures on sites, their potential to absorb increasing pressure, and potential measures to increase their capacity. This analysis will assist in assessing the likely future need for further recreational sites within the county.

There are many different ways in which the carrying capacity of a site can be explored, including visitor perception, number of visitors and environmental designations.

In order to help build up a picture of which GI assets in the county are below or near to recreational carrying capacity in a simple and robust way, the environmental vulnerability of assets was identified and the socio-economic need for additional sub-regional assets was examined. A stakeholder workshop then looked at each sub-regional asset in turn and, using specialist local stakeholder knowledge, to determine which assets were either below or nearing capacity, and how this picture might assist in identifying future needs and pressures.

Visitor Numbers

Although we do not have access to visitor number information for all of the sites within this study, the Worcestershire Access and Informal Recreation Strategy (AIRS) includes visitor number information on the following sites:¹²

Table 6: Visitor numbers for the recreation sites in Worcestershire

Site	Numbers per year
Malvern Hills	>1 250 000
Clent Hills	500 000
Lickey Hills Country Park	500 000
Worcester Woods Country Park	400 000
Waseley Hills Country Park	250 000
Kingsford Forest Park	250 000
Wyre Forest Visitor Centre	200 000
Hartlebury Common	150 000
Evesham Country Park	100 000

The accuracy of visitor number information does vary on a site by site basis, depending on how the information was calculated and the spread of visitors through the site, throughout the day and the year.

For example, there are multiple access points to the Wyre Forest and a number of car parks. Using the numbers from the visitor centre provides a guide to visitor numbers, but is not definitive. Conversely, although there are a number of pedestrian access points to Waseley Hills Country Park, there is a single car park and, as a smaller site, it is easier to assess visitor numbers.

¹² Parks and Countryside Task Group (2009) Worcestershire Access and Informal Recreation Strategy 2009-2019

Visitor numbers are not available for many of the sites within the study, or for the linear sites (including rivers and canals). However, it has been estimated that the newly-restored Droitwich Canals receive an additional 322,000 visitors days per year.¹³ Given the paucity of visitor number information for sites, and to provide additional data, a series of proxy indicators were developed:

1. Site habitats
2. Site designations for biodiversity
3. Soil resilience
4. Perception of visitor pressure
5. Recreational use

The indicators are explained in more detail below:

1. Site habitats

The resistance of a habitat to visitor pressure is determined by its resilience, management techniques and the nature of the recreational use. For example, grassland and heathland habitats have low resilience to visitor pressure, as they are easily damaged by trampling, erosion, etc., which can result in changes to the composition and structure of vegetation in affected areas. Woodlands, by comparison, are highly resilient habitats, with scrub and tree canopies rarely damaged by trampling. Ground flora and regeneration, though, can both be easily damaged by visitors, in particular where they do not stay on defined paths¹⁴.

The effects of recreational pressure can also be exacerbated by seasonality and the type of recreation. For example, horse riding and cycling can both damage grassland habitats and increase areas of bare ground or unsurfaced paths. This is exacerbated in wet conditions where the ground can become rutted, pitted and compacted, making it difficult for vegetation to re-establish.

2. Designated sites

Sites with natural or historic environment designations (Sites of Special Scientific Interest, Local Geological Sites, Scheduled Ancient Monuments and Local Nature Reserves, etc.) may have a lower carrying capacity for recreation, as too many visitors may adversely impact the designation or the quality of the asset. This also applies where there is a more general natural or historic environment interest.

3. Soil resilience

Soil erosion rates are determined by a number of factors, including water and wind. Recreation can exacerbate the rate of erosion as it can result in bare earth which is more prone to erosion through the action of wind and water. Vulnerable habitats on erosion-prone or thin soils are more likely to be damaged by recreation.

4. Perception of visitor pressure

The perception of visitor pressure can be influenced by a number of factors, including habitats, terrain, size, parking provision, etc. Sites which appear to have a low ability to cope with large number of visitors include flat grassland sites, whereas woodlands of varying terrain appear to be able to cope with a greater number of visitors. This appears to be related to our ability to see large numbers of visitors, versus the feeling of being

¹³ www.Halcrow.com Waterways Renaissance Awards, 2012.

¹⁴ Natural England, "Access and Nature Conservation Reconciliation, Supplementary Guidance for England", 2009.

alone; some habitats and sites are better able to absorb visitors and create the feeling of being quiet and isolated¹⁵.

5. Recreational Use

Perhaps one of the greatest influences on the recreational carrying capacity of a site and its perceived and actual ability to absorb visitors, is the nature of the recreational activity. Activities such as horse riding, cycling, and dog walking have a greater impact on site infrastructure, with higher maintenance requirements and more visual intrusion, than lower-impact activities such as walking bird watching, etc. This effect is exacerbated by activities such as BMX scrambling, for which informal tracks can sometimes be created which alter the look and feel of the recreational site. Most mechanised forms of recreation are seen as highly intrusive and are often in conflict with informal recreational environments.

The effects of water-based recreation are more difficult to determine, particularly with regard to perception and visual intrusion. Activities such as canoeing and sailing have a potentially lower impact on the environment and the water body. However, motorised boat traffic can cause damage to biodiversity and habitats through increasing the turbidity of the water, increasing bankside erosion through backwash, and pollution of the water through discharges and exhaust fumes.

Analysis of the vulnerability of sites to sub-regional recreational pressure was undertaken in two phases.

Phase 1

Sites were classified according to indicators 2 and 3 (biodiversity designation and vulnerable soils). The results of the analysis are shown in **Figure 2**.

Phase 2

The second phase of analysis was undertaken at a workshop in July 2011. The participants accessed sites against criteria 1, 4 and 5, using the base map (see Figure 2) which had already assessed the sites against criteria 2 and 3.

This aspect of the work includes a degree of subjectivity and is also influenced by the participants' familiarity with the site (and, on large sites, which areas of the site they themselves visit) and their tolerance/perception of recreational pressure.

The results of this analysis are shown in **Figure 3** below, which divides the sites into 3 categories:

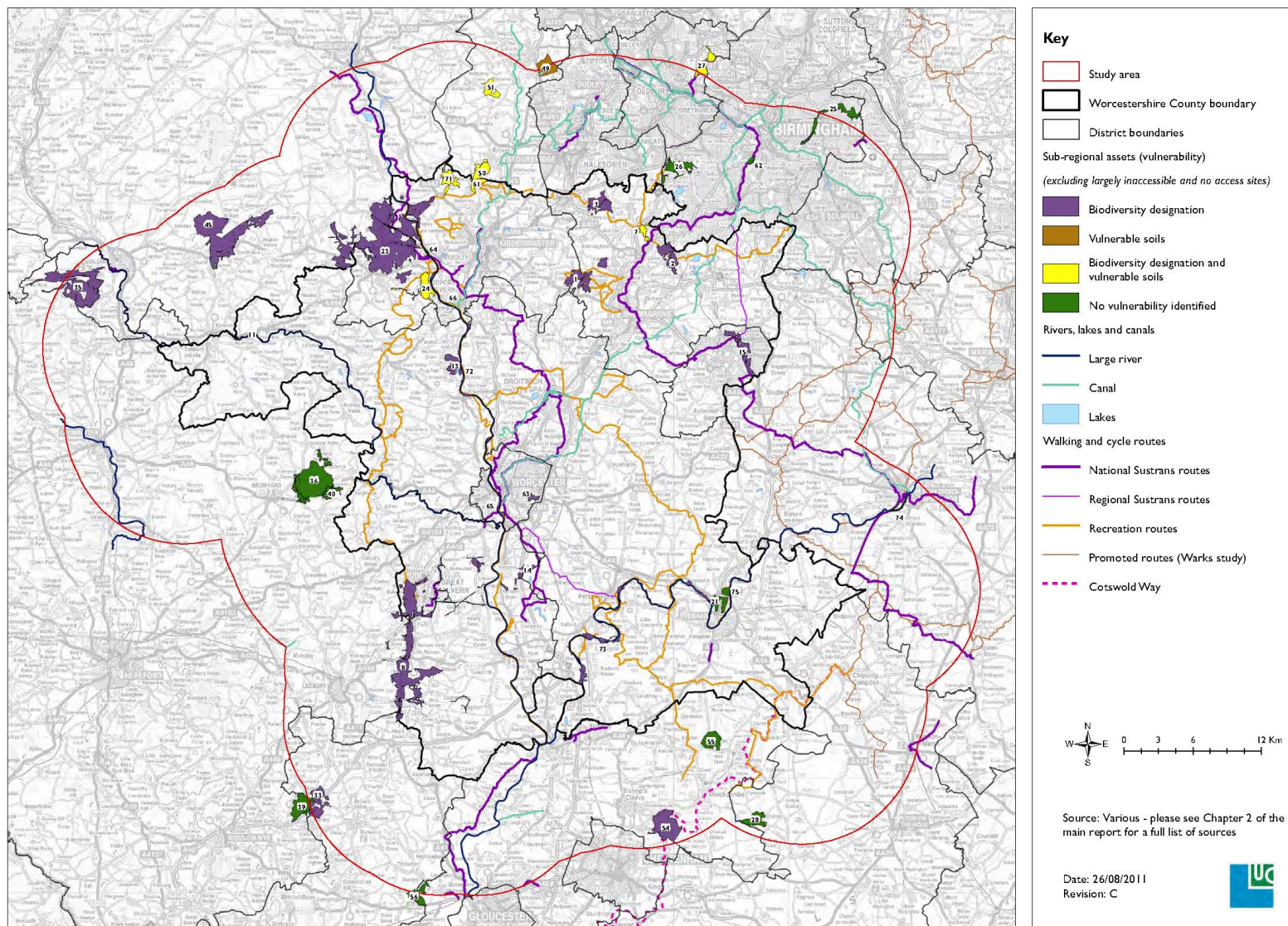
Blue = Those assets that are currently near, at or over capacity.

Yellow = Those assets that are currently thought to be able to cope with current levels of access and recreation and have capacity to increase capacity through changes to management

Green = No vulnerability identified

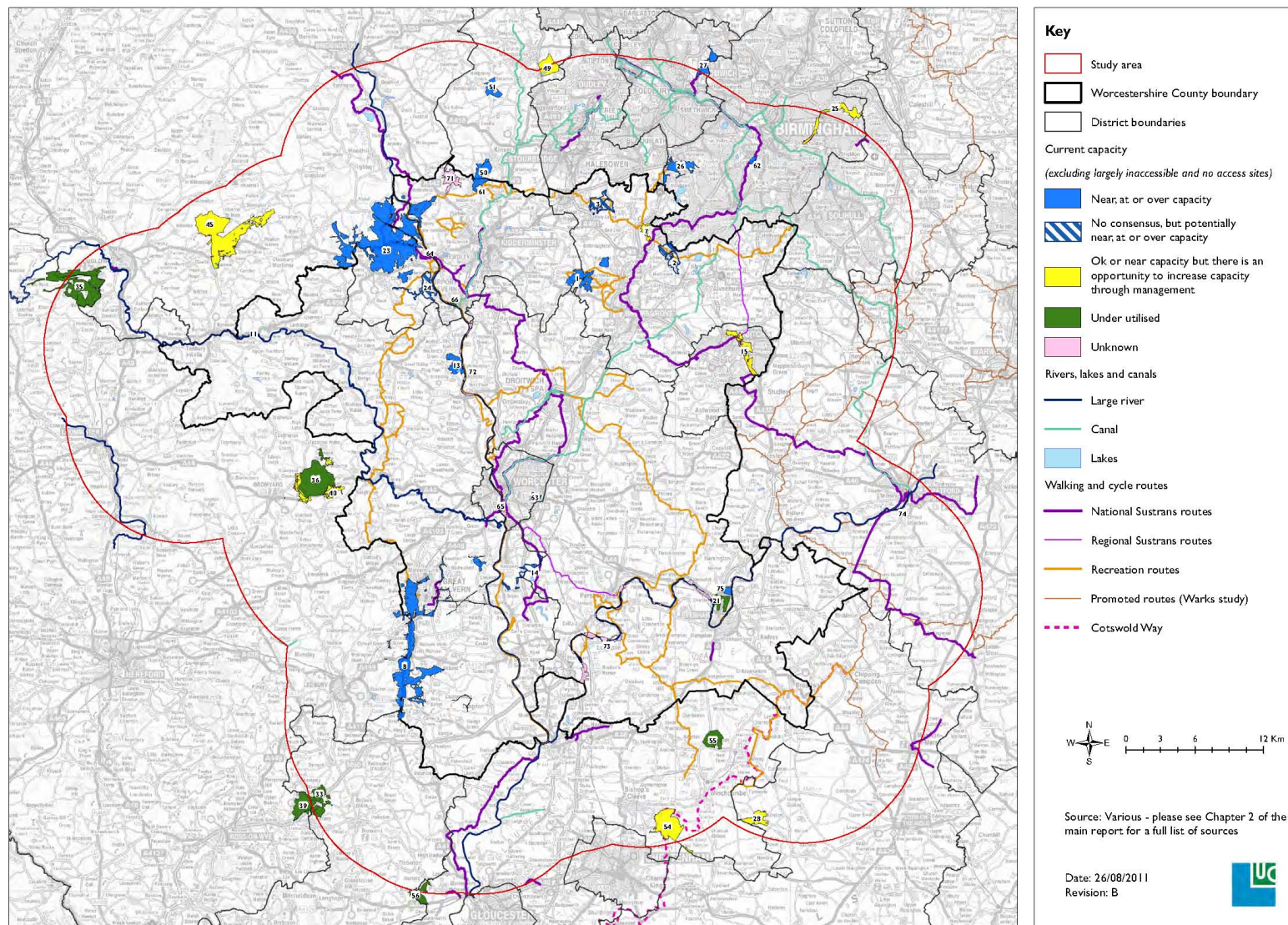
¹⁵ Natural England, "Access and Nature Conservation Reconciliation, Supplementary Guidance for England", 2009

Figure 2: Map of sub-regional GI assets showing categories of vulnerability from recreational pressure.



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Figure 3: Perceptions of visitor pressure on sub-regional recreational sites in Worcestershire.



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Table 7: Sites currently near, at or over capacity

Site	Location
The Malvern Hills	Malvern Hills
The Wyre Forest	Wyre Forest
Worcester Woods Country Park	Worcester City
Evesham Country Park	Wychavon
Highgate Common	Staffordshire
Worcester Riverside	Worcester City
Canon Hill Park	Birmingham
Kinver Edge	Staffordshire
Woodgate Valley	Birmingham
Kempsey Common	Wychavon
Ribbesford (Arley) Wood	Wyre Forest
Bewdley Riverside	Wyre Forest
Stourport Riverside meadows	Wyre Forest
Shrawley Wood	Wyre Forest

Table 8: Sites at or near capacity but which may have the opportunity to increase capacity through management

Site	Location
Guiting Wood	Wychavon
Kingfisher Country Park	Birmingham
Sandwell Valley Country Park	Sandwell
Cleeve Hill / Cleeve Common	Tewkesbury
Bromyard Downs	Herefordshire
Clee Hill and Common	Shropshire
Arrow Valley Country Park	Redditch
Himley Hall	Dudley

Table 9: No consensus (further capacity may be available on these sites, workshop unable to agree when sites judged against the set criteria)

Site	District/Unitary area
Clent Hills	Bromsgrove
Lickey Hills	Bromsgrove

Table 10: Capacity currently under-utilised (ability to accommodate more visits)

Site	Location
Highnam Woods RSPB Reserve	Gloucestershire
Queenswood Country Park	Herefordshire
Dymock Woods	Gloucestershire
Brockhampton Estate	Herefordshire
Whitcliff Wood	Herefordshire
Evesham Riverside	Wychavon

Table 11: Capacity Unknown

Site	Location
Arley Birch and Coldridge Wood	Wyre Forest
Stratford upon Avon Greenway and Fields	Stratford on Avon

Table 12: Sites included in the consultant's report but subsequently removed

Site	Location	Reason for removal
Eckington Wharf picnic site	Wychavon	Small site; not a regional asset
Toddington Manor	Gloucestershire	Private property; not appropriate to include as a GI asset
Shrawley Picnic Site	Wyre Forest	Small picnic site, not a regional asset.
Feckenham Forest	Bromsgrove	Forest of Feckenham is not a single site, and should not be included within this listing. It is a focus area for biodiversity enhancements.

The majority of the sites which are near, at or over capacity are to the centre and north of the county, closest to the greatest population densities within both the county and the Birmingham and Black Country conurbation.

The Malvern Hills are also thought to be under considerable recreational pressure, experiencing over 1 million visits per year. The Malvern Hills are a recreational asset not only for Worcestershire, but also for the wider region and beyond. As such they attract significant visitors from a wide area, contributing to the significant recreational pressure but also to the tourist economy of the Malvern area.

Those sites which have greater capacity to absorb greater visitor numbers either through changes in management or because they are under-utilised tend to be to the west or south of the county. These sites are more remote from the main centres of population in the county, and residents will have to travel a greater distance or travel for longer due to the quality of roads or their accessibility to visit them. It may also be that the sites'

recreational offer is more limited or not as appealing as nearer sites, which again will reduce their attractiveness to the majority of visitors.

There are also a few sites to the north of the study area which are classified as at or near capacity. However, there was a degree of debate in the workshop as to what extent the residents of Worcestershire will travel to sites which are in or beyond the Birmingham and Black Country conurbation. Most of the participants felt that use of these sites by Worcestershire residents will be limited unless they have strong family or cultural reasons for visiting them.

Further work needs to be undertaken with site managers to assess the impact of recreation on sites, and to judge the capacity of sites to cope with increased demand through management, etc.

Chapter 5: Green Infrastructure Assets and Indices of Multiple Deprivation

The Indices of Multiple Deprivation cover a range of **socio-economic measures** including:

1. Economic factors including household income, employment rates
2. Health factors including life expectancy, disability and morbidity, mental health issues and risk of premature death
3. Education, skills and training including attainment at levels 2, 3 and 4 and higher education
4. Housing including homelessness and overcrowding
5. Crime including violent crime, burglary, theft and criminal damage
6. Housing environment including poor quality housing, air quality, and road traffic accidents.

These factors are combined to form the indices which are used to indicate the relative level of deprivation in an area based on a national ranking.

Access to quality green infrastructure will primarily contribute to addressing the health factors within the indices. The most **significant benefits from GI** have been seen in the following categories:

1. Increased life expectancy and reduced health inequality
2. Improvements in levels of physical activity and health
3. Promotion of psychological health and mental well being.

Proximity to greenspace is generally associated with increased levels of physical activity. This effect is particularly marked in the under 25s who are more likely to be obese if they do not have access to greenspace. Regular participation in physical activities has been shown to improve physical and mental health.¹⁶ A more detailed analysis of the health benefits of green infrastructure is considered in Framework Document 4 (Socio economic Impacts of Green Infrastructure).

In addition, green infrastructure can make a positive contribution to improving the quality of the housing environment, in particular through addressing air quality issues. Trees and woodland habitats reduce the concentration of some airborne particulates which contribute to poor air quality, including ozone and nitrogen dioxide.

Within the region, Birmingham has the most substantial areas of deprivation, but there are also smaller pockets of deprivation in Redditch, Kidderminster, Worcester and Great Malvern. Many of the sub-regional GI assets in or surrounding Birmingham are easily accessible but fairly small in size. Worcester has a lack of sub-regional GI assets in close proximity or within easy reach by public transport.

The importance of households' close proximity and easy access to GI Assets through high quality public transport is vital in areas with substantial levels of deprivation, where

¹⁶ Forest Research (2010) Benefits of Green Infrastructure.

access to private transport and disposable income to visit natural greenspace will be much reduced.

Analysis by District

Wyre Forest District

Kidderminster, Stourport on Severn and Bewdley are the three main settlements at the heart of Wyre Forest District. The district has an ageing population, with the percentage of over-60s residing in Wyre Forest above the average for the county, whilst the proportion of under-20s is lower than average.

The median household income for residents of Wyre Forest, at £27,801, is below the county average (£30,483).

Average house prices are also lower than the county average. The average house price in Wyre Forest is £180,368 compared to the county average of £203,688. The employment rate in Wyre Forest is 70.6%, with the average for the county being 72.9%.¹⁷

The district has some significant areas of deprivation, concentrated in the east of the district along with some areas of Kidderminster and Stourport on Severn.

Accessible natural greenspace covers 13.8% of the land area of the district, which is the highest percentage in the sub-region. The ANGSt analysis carried out by Worcestershire County Council shows that households in the district have good access to most sizes of accessible natural greenspace, with the poorest access being to sites of 2ha+ within 300m, where only 47% of households reach this standard. 88% of households in Wyre Forest district are within 5km of 100ha+ sites and 97% of households are within 10km of 500ha+ sites. The majority of this access is concentrated in the Wyre Forest itself.

The District has six sub-regional GI assets:

- The Wyre Forest
- Ribbesford Wood
- Stourport-on-Severn Riverside Meadows
- Bewdley Riverside Meadows
- Kingsford Country Park
- Arley Birch and Coldridge Wood

The River Severn and the Staffordshire and Worcestershire Canal both flow through the district and there are also two Sustrans Routes; 54 which will run from Stourport to Derby and 45 which runs between Salisbury and Cheshire and cuts through the middle of the Wyre Forest.

Visitor pressure on the sub-regional assets in the district is quite mixed. The Wyre Forest and Kingsford Forest Park are both felt to be under significant visitor pressure, with only limited capacity to accommodate visitor increases. In a large site such as the Wyre

¹⁷ Worcestershire County Council; District Profiles accessed at <http://atlas.worcestershire.gov.uk/IAS/profiles/profile?profileId=36&geoTypeId=16&geolds=47UB>

Forest, visitor demand does vary greatly across the site, with areas close to car parks and offering visitor facilities experiencing the greatest pressures.

Other recreational assets within the districts are not under such severe visitor pressure and could accommodate an increase in visitors. Such sites include Ribbesford Wood, and Stourport-on-Severn are underutilised and Bewdley Riverside Meadows .

In Wyre Forest district, the areas of greatest deprivation are in the east of the district in Kidderminster and Stourport and are more geographically remote from the principal GI assets such as the Wyre Forest. Communities who are experiencing higher levels of multiple deprivation are also more reliant on public transport. This will make accessing some areas of green infrastructure both difficult and potentially expensive for families. The bus route which connects Kidderminster to Wyre Forest Discovery Centre, for example, operates only every 2 hours and does not operate on Sundays or Bank Holidays.

Conclusions for Wyre Forest District

The additional development planned for the District of approximately 2500 homes will put increased pressure on the existing sub-regional GI assets. Whilst this is concerning for those assets that are already at capacity, such as the Wyre Forest. There is potential for some of the existing assets to at least partially absorb the additional visitor pressure that will be created by this population growth. Efforts should therefore focus on managing existing assets to allow them to adapt to increased visitor numbers without causing harm to the landscape and biodiversity. However, in the case of Ribbesford Wood especially, investment also needs to be made to ensure that the visitor offer is good enough to attract visitors to them and away from well-known and popular assets such as the Wyre Forest. The district's sub-regional assets are particularly popular with visitors from Birmingham and the Black Country, so growth in these areas beyond the district will also have an impact; ensuring alternative provision of sub-regional scale accessible natural greenspace for the populations of Birmingham and the Black Country will be key to safeguarding the district's sub-regional assets.

Only 47% of the borough's households are within 300m of a 2ha plus site. This may also indicate that there is a need for increased provision of district assets to cater for local needs.

Redditch Borough

Redditch is one of the smallest boroughs in the sub-region and one of the most urbanised. The town was designated a new town in 1964, and experienced substantial growth which resulted in a doubling of the population.

The town has a young age profile, with a slightly higher than average percentage of young people under the age of 20, and a significantly lower percentage of older people, compared to Worcestershire.

The median household income for Redditch is £30,272, which is in line with the county average of £30,483. However, the average house price in Redditch, at £162,789, is significantly lower than the Worcestershire average of £203,688.

The employment rate in the town is 73.3%, slightly above the county average of 72.9%.¹⁸

As a result of Redditch's designation as a new town and its rapid growth post-1964, its character is significantly different from some of the older towns, not least because of its significant provision of open space. This helps to explain the ANGSt analysis findings that 13% of the borough's land area is accessible natural greenspace and households have very good access to small and medium sized accessible natural greenspace, with 99% of households having access to 100ha+ sites and 100% of households having a 20ha site within 2km. The two ANGSt categories in which the borough does not score so highly are the provision at neighbourhood and sub-regional scale. 75% of households are within 300m of a 2ha site. This is the highest score for access to neighbourhood sites in the county, but indicates that 25% of households are lacking access to informal greenspace. Although the borough has one sub-regional site in the Arrow Valley Country Park, there are no 500ha sites within 10km of the borough, indicating a lack of large sub-regional assets. The country park is already very popular, but due to its size it still offers a variety of recreation experiences including walking, cycling and sailing, as well as more formal play areas and sports pitches.

There are no households within Redditch borough which meet the requirements for all the ANGSt categories.

Deprivation in Redditch is concentrated in the north of the borough in a band from east to west, with a further concentration of deprivation to the south. Given the relatively high scores for ANGSt in the 20ha and 100ha categories, the role of neighbourhood sites at 2ha or greater needs further examination to determine how well these sites are being utilised and whether there are additional issues such as quality or connectivity to nearby areas which need to be considered. It may also be that it is difficult to access some of the larger sites such as Arrow Valley Country Park, due to poor public transport or separation from the site by main road or rail corridors.

The borough has two Sustrans routes, 5 and the 55. Route number 5 takes in Arrow Valley Country Park.

¹⁸ Worcestershire County Council; District Profiles accessed at <http://atlas.worcestershire.gov.uk/IAS/profiles/profile?profileId=36&geoTypeId=16&geoids=47UB>

The borough is currently in the process of preparing a Local Plan, with pre-submission consultation in late 2013. It is proposed that a total of around 3000 houses will be provided between 2006 and 2026 in Redditch district.

Conclusions for Redditch Borough

Given the expected increase in population in the borough, investment in management and/or new facilities at Arrow Valley Country Park should be a priority to ensure it can absorb additional visitors. The provision of a new large 500ha+ area of accessible natural greenspace which is easily accessible to the populations of Redditch and Bromsgrove should also be explored, given the predicted population growth rates in Redditch itself and in neighbouring districts including Bromsgrove and Stratford on Avon.

There is also the potential to investigate further how the small neighbourhood ANGSt sites are used and if there are barriers to their use.

Bromsgrove District

Bromsgrove district is situated in North Worcestershire and is predominantly rural in character beyond the town itself.

The district is only 14 miles from the centre of Birmingham and its northern boundary is shared with the city. There are small pockets of deprivation within Bromsgrove town and significant areas of deprivation to the south of Birmingham.

The population profile of the district is in line with that of the county, with no significant variations. The median household income, at £34,467, is above the Worcestershire average of £30,483. Similarly, the average house price is higher for the district than the county, at £229,048 compared to £203,688. Bromsgrove district has a significant number of residents who commute out of the county into Birmingham for work, or who work elsewhere in the county.¹⁹

Accessible natural greenspace covers 6.7% of the land area of the district. 13.6% of households in the district meet none of the ANGSt requirements. Access to small and large sites is low, with only 22% of households living within 300m of a 2ha site and no households in the district having access to a 500ha+ site within 10km. The highest category of provision is access to 100ha+sites within 5km, with 76.4% of households in the district meeting this standard.

Deprivation in the district is concentrated in Bromsgrove itself, whilst the sub-regional assets are beyond the town to the north and west and are poorly served by public transport from Bromsgrove.

The district has three sub-regional assets:

- Lickey Hills Country Park
- Clent Hills
- Waseley Hills Country Park

The district has two canals that pass through it, the Stratford-upon-Avon Canal and the Worcester and Birmingham Canal. Two Sustrans routes, 5 and the 55, also pass through the centre of the district.

Both the Lickey and the Clent Hills already experience considerable visitor pressure, from within the district and county, and also from the neighbouring Birmingham and Black Country conurbation. Although both sites do offer the potential for quiet, informal recreational experiences, visitor pressure is concentrated around the visitor centre, car parks and formal recreation facilities.

The Waseley Hills do not experience such intense visitor pressure, in part because, although they are located close to the conurbation and easily accessible, they do not have the same cultural associations and traditions which link both the Lickey and Clent Hills to the Birmingham conurbation.

The district is currently in the process of preparing a District Plan with a pre-submission document being subject to consultation in late 2013. The majority of development will be

¹⁹ Worcestershire County Council; District Profiles accessed at <http://atlas.worcestershire.gov.uk/IAS/profiles/profile?profileId=36&geoTypeId=16&geolds=47UB>

located on the western and north western edge of Bromsgrove with smaller developments to the east of Hagley and also at Barnt Green, Catshill and Wythall. The new development at Longbridge on the south western edge of Birmingham will also lead to 10,000 new jobs being created and at least 1450 homes built increasing the pressure on nearby open space such as the Lickey Hills.

Conclusions for Bromsgrove District

An increase in visitor pressure from development within the district and also from population increases in Birmingham and the Black Country could cause significant damage to the district's sub-regional assets that are already at capacity. Investment in and promotion of Waseley Hills Country Park is therefore needed to ensure it is able to accommodate more visitors.

The provision of a new large 500ha+ area of accessible natural greenspace which is easily accessible to the populations of Redditch and Bromsgrove should also be explored, given the predicted population growth rates in Bromsgrove itself and in the neighbouring districts including Redditch and Stratford on Avon.

There is also a need for further investment in neighbourhood sites in the district, to address the poor access to 2ha sites within 300m of households.

Worcester City

Worcester City has a population of approximately 95,000 and is the county town and administrative centre for Worcestershire. Its influence in terms of employment and the provision of services extends far beyond the city boundary to the many villages in the surrounding countryside. The central and north-eastern parts of the city experience the highest levels of deprivation.

The city has a lower than average percentage of older people than the county, at 20.9% of the population compared to 26.5%. The percentage of the young people in the city, however, is comparable to the county average.

The median income in the city, at £29,077, is just below the county average of £30,483. The average cost of a house within the city is £174,612 compared to the county average of £203,688.²⁰

The ANGSt analysis carried out by Worcestershire County Council identifies Worcester City as having 325ha of accessible natural greenspace, which is 9.8% of the city's land area. Although Worcester has a number of smaller-scale GI assets, provision of larger GI assets is poor, with no households in the city having access to accessible natural greenspace of 100ha+ in size within 5km and only 15.6% of households having access to 500ha+ sites within 10km. However, 96% of households are within 2km of a 20ha site.

Given its urban nature, it is not surprising that there are only two sub-regional assets in Worcester City. These are:

Worcester Woods Country Park

Worcester Riverside (River Severn)

Worcester also includes significant linear GI assets including the Rivers Severn and Teme and the Worcester and Birmingham Canal. Sustrans Route 44 (Worcester to Pershore) and Route 46 (between Droitwich Spa and Newport) also pass through the city.

Worcester Woods Country Park is heavily used, offering a variety of facilities such as a visitor centre and café as well as children's play areas and informal recreation opportunities. The catchment area for visitors to the country park includes the whole city and nearby communities.

Worcester Riverside offers a range of recreational opportunities in the heart of the city. In recent years considerable investment has been made in this area, increasing recreation opportunity and increasing its attractiveness for visitors. This investment has included the Sustrans cycling route along the river, and the associated Diglis Bridge.

Worcester City, Wychavon District Council and Malvern Hills District Council are working together to produce a joint planning document to guide future development of South Worcestershire up until 2030. The South Worcestershire Local Plan began its examination in public in 2013.

²⁰ Worcestershire County Council; District Profiles accessed at <http://atlas.worcestershire.gov.uk/IAS/profiles/profile?profileId=36&geoTypeId=16&geolds=47UB>

The SWDP Preferred Options document identifies Worcester City as the principle settlement with the greatest employment and housing needs. Within the existing urban area 1176 new dwellings and 36 ha of employment land will be provided whilst four new urban extensions around the city will provide 2450 new dwellings and 20ha of employment land to the south, 975 new dwellings and 5ha of employment land to the west, 300 new dwellings to the East and 300 new dwellings to the North.

Recommendations for Worcester City

Given the level of new development in Worcester, visitor pressure on the two sub-regional assets within the city and those in surrounding districts is likely to increase substantially. This is especially concerning for Worcester Woods Country Park, which is already near capacity, and highlights the need to prioritise new management measures at Worcester Riverside to allow it to absorb additional visitors without damaging the landscape and biodiversity. In addition a new sub-regional GI asset will be needed, which is easily accessible for households in the south of the city, to cater for the large new population in this areas as well as the existing population.

New development needs to invest in on-site provision of GI including semi-natural greenspace to increase provision for neighbourhoods and to help to alleviate pressure on existing provision both in Worcester and in neighbouring districts.

Wychavon District

Wychavon is the largest district in Worcestershire and is mainly rural in character. Evesham and Pershore to the south of the district and Droitwich Spa to the north are the main settlements, with the central area of the district being sparsely populated. However, the surrounding settlements of Redditch, Bromsgrove and Worcester all have a significant influence on Wychavon's major greenspaces. These surrounding settlements all experience pockets of deprivation, whilst the majority of the district itself has fairly low levels of deprivation (with the exception of Evesham, where there is some deprivation to the north of the town).

Wychavon has a slightly lower than average percentage of young people, at 22%, and a higher percentage of older people, at 29%, than the county average.

Median wages in Wychavon are slightly higher than the county average at, £31,637 compared to £30,483. The average house price within the district is £233,224, which is £29,500 higher than the county average.²¹

The ANGST analysis carried out by Worcestershire County Council identifies Wychavon district as having the lowest proportion of accessible natural greenspace in the county, at only 3.6%. Even given its sparsely populated nature, households in Wychavon have poor access to sub-regional scale accessible natural greenspace, with only 20% of households within 5km of 100ha+ sites and 2% of households within 10km of 500ha+ sites.

The rural nature of the district means that provision is needed both at a neighbourhood level for communities, as well as at main settlements through providing larger assets.

The district has 3 sub-regional assets:

Evesham Country Park

Evesham Battlefield

Bredon Hill

The Droitwich Canals, the Worcester and Birmingham Canal and the Rivers Severn and Avon all run through the district and are linear GI assets. Four national Sustrans Routes also run (or are planned) within the district, although all are largely on the western edge. These are routes 46, 45, 44 and 41.

Evesham Country Park is a privately owned country park on the edge of Evesham. The County Park offers a range of facilities for informal recreation alongside the river Avon, with formal recreation facilities including a garden centre, restaurants and shops. There are also plans to expand the Country Park and the facilities on offer.

Bredon Hill is classified as one of the outliers to the Cotswolds. It is in the south of the county and is used primarily for informal recreation using the network of footpaths on the site. It is also a Special Area of Conservation and a National Nature Reserve, with the result that the site is very sensitive to visitor pressure.

²¹ Worcestershire County Council; District Profiles accessed at <http://atlas.worcestershire.gov.uk/IAS/profiles/profile?profileId=36&geoTypeId=16&geoids=47UB>

Evesham Battlefield does not currently experience high levels of visitor pressure and has been identified as an underused site. Although the site is free to access, the primary access to the site is via the Battlefield Trail, which crosses the site and covers the principal areas of interest from the Battle of Evesham. This is not a site with unrestricted access and its primary focus will be for tourism associated with the battlefield and for walkers. There is currently not a wider recreational offer on the site. Its potential to offer enhanced recreational experiences and to accommodate further visitors is dependant on the whole site being managed as a recreational facility with associated visitor provision.

Additionally, there are striking deficiencies in opportunities for access and recreation in this area, particularly in the Vale of Evesham. Here the Rights of Way network is less dense than in any other area of the county. There is also an absence of sites such as Country Parks, picnic places and Registered Commons. Few nature reserves exist, although there are a number of smaller community sites such as Village Greens and Millennium Greens. With the proposed housing growth in Evesham, Pershore and some larger villages, a greater provision of accessible greenspace is required.

The South Worcestershire Local Plan (prepared jointly with Worcester City and Malvern Hills District Council) proposes a number of housing and employment sites both for the three main towns and for the more sustainable rural settlements. Housing development is proposed in Droitwich, Pershore and Evesham and an urban extension for Worcester city.

Recommendations for Wychavon District

Given the level and location of new growth expected in and bordering the district, all of the existing sub-regional GI assets are likely to come under additional visitor pressure. This is especially concerning for Evesham Country Park and Bredon Hill, which are already near or at capacity in terms of visitor numbers. Efforts should be made to increase the visitor facilities and attractions at Evesham Battlefield as this site is currently underutilised and could cope with additional visitors. In addition, however, a new sub-regional GI asset may be needed in or bordering the district to absorb visitors in the Droitwich – Worcester area.

Provision is also required at a neighbourhood level, within towns and villages, to address natural greenspace needs within rural communities. This should be a requirement of development and other options should be explored for existing communities, such as stewardship agreements.

Malvern Hills District

Malvern Hills district is largely rural, including a significant part of the Malvern Hills AONB. Malvern's urban area is formed from the settlements of Great Malvern, Malvern Link, Barnards Green, West Malvern, and Malvern Wells. The urban area contains a population of over 33,600²². The district has relatively low levels of deprivation, although pockets of deprivation appear in Great Malvern and high levels exist in the rural area to the east of Great Malvern.

Malvern Hills district is characterised by having an ageing population. Although the percentage of under 20 year olds is comparable with the county average, the percentage of over-60s is significantly higher than the county average, at 32%.

The median income for the district is £30,169, in line with the county median income of £30,483. The average house price in the borough is £244,000, above the county average at £242,353. This is also £12,000 higher than the national average house price of £231,858.²³

Malvern Hills district has 4,212ha of accessible natural greenspace, which is 7.3% of the total area of the district. There is a good spread of different sizes of accessible natural greenspace assets across the district and the presence of the Malvern Hills AONB along the western edge of the district means that access to larger assets is good, with 84% of households in the Malvern Hills being within 10km of 500ha+ sites and 66% of households being within 5km of 100ha+ sites.

The district has three sub-regional GI assets:

- The Malvern Hills
- Shrawley Wood
- Kempsey Common

The Rivers Severn and Teme run through the district and form significant GI assets. Land-based recreation along the Teme is limited, although the river itself offers the potential for recreational opportunities.

Malvern Hills district enjoys a dense rights of way network, linking a network of small sites and commons which fall outside of the regional assets but, combined together, offer significant recreational opportunity.

National Sustrans Routes 46 and 44 also pass through the district, although limited to fairly short sections.

The Malvern Hills are under significant visitor pressure and attract visitors from beyond the sub-region as a result of the recreational opportunities they offer. The Malvern Hills AONB also extends westwards into Herefordshire and south into Gloucestershire.

The other significant GI assets in the district, Shrawley Wood and Kempsey Common, are also under significant visitor pressure, primarily arising from the sub-region.

²² 2009 Mid-Term Population Estimates

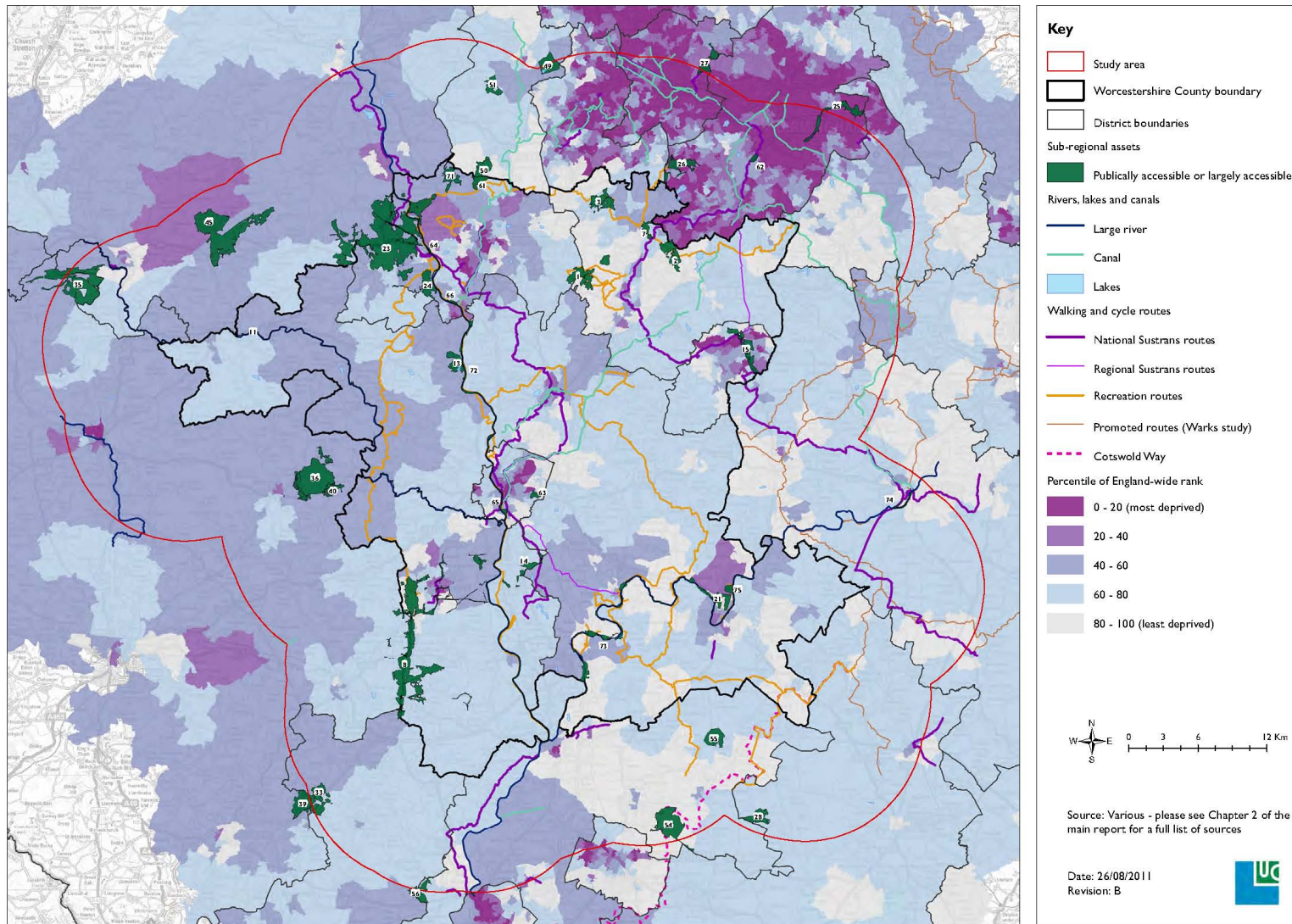
²³ Worcestershire County Council; District Profiles accessed at <http://atlas.worcestershire.gov.uk/IAS/profiles/profile?profileId=36&geoTypeId=16&geolds=47UB>

The South Worcestershire Local Plan (being prepared jointly with Worcester City and Wychavon District Council) proposes substantial additional housing and employment development in the District, with new dwellings in the existing Malvern urban area, a potential urban extension and employment land identified at QuinetiQ. Significant new development in Gloucester, Cheltenham and Tewkesbury is also likely to put pressure on GI assets within the District.

Recommendations for Malvern Hills District

Given that the main sub-regional assets in the district are currently near, at or over capacity in terms of visitor pressure, the increase in population in the District is likely to have a significant adverse effect on these sub-regional assets. The Malvern Hills are particularly vulnerable as their status as an AONB means they attract visitors from a much wider area and will therefore also be put under pressure from growth in surrounding sub-regions. Increased development in Gloucester, Cheltenham and Tewkesbury is likely to exacerbate existing issues. Provision of a new sub-regional GI asset in the district is needed to help relieve pressure on existing resources and to make provision for the district's expected growth in population.

Figure 4: Map of sub-regional GI assets showing their relationship to areas of multiple deprivation



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Chapter 6: Pressure from Development

The final part of the research into recreational pressures was to develop a greater understanding of the potential impact of development on existing sub-regional assets, to contribute to the debate on whether new sites are required, and to identify potential areas of search for sites if a need is identified.

The analysis in Chapter 4 identified that most of the sub-regional sites in the county are near, at or over capacity for recreation. Arrow Valley Country Park and Guiting Wood were the only exceptions to this. These two sites were identified as having the capacity to absorb greater visitor numbers through management changes. This will need to be verified through more detailed investigations at the sites themselves, as there may be good reasons for not wanting to attract further visitors to particular parts of sites (for example to protect the natural or historic environment or to retain quiet areas of tranquillity, or to set aside areas for major events or more intrusive sports away from the majority of visitors).

Although not identified as a potential opportunity in this study, changes to management and promotion may also offer an opportunity to increase the recreational potential of other sites (particularly the larger sites such as Wyre Forest, and more urban sites), through improved connectivity to other attractions. The Grow with Wyre programme, together with Wyre Forest District Council, has identified the potential for a growth in visitor numbers in the Wyre Forest, linked to sustainable development of the forest as a contributor to the visitor and rural economy, and enhancement of the forest skills network. Similarly, opportunities have been identified for improving the recreation offer in Stourport and Bewdley through promotion and investment in links to the town centres and facilities²⁴.

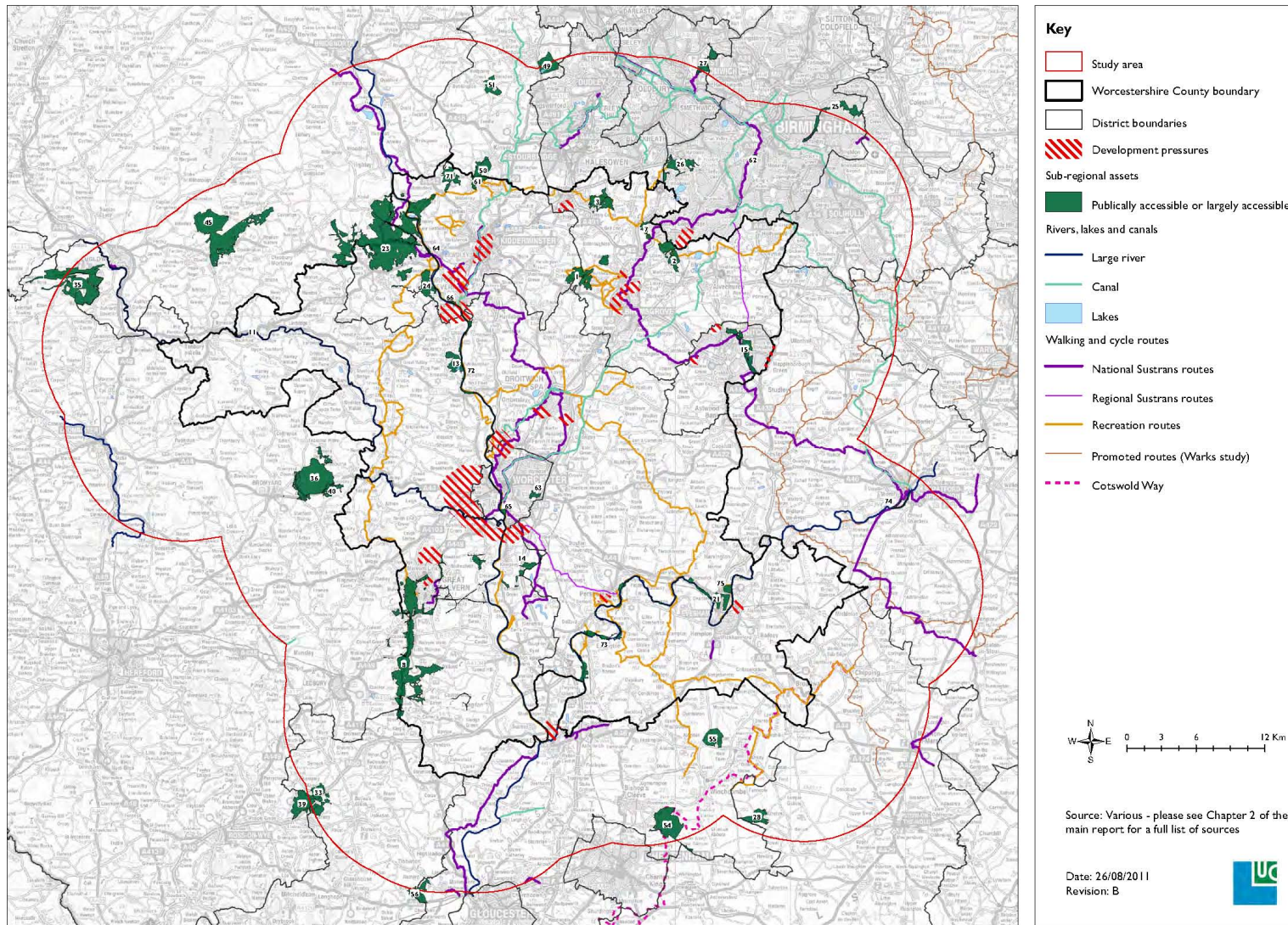
Development pressures

Significant development is planned for the county over the next 20 years. A full list of strategic development sites (which total 18,500 new homes for the county) can be found in Appendix 4. These sites have been mapped against the existing provision of recreational assets and presented on Figure 5 below.

Growth has been identified around the majority of the county's urban areas, in particular around Worcester, Kidderminster, Bromsgrove and the fringes of Redditch. This growth could have a considerable impact on some sites which are already under recreational pressure. With this in mind, some initial work was undertaken to identify areas of search for potential new recreational sites in the county. This is considered in the final chapter of this framework document.

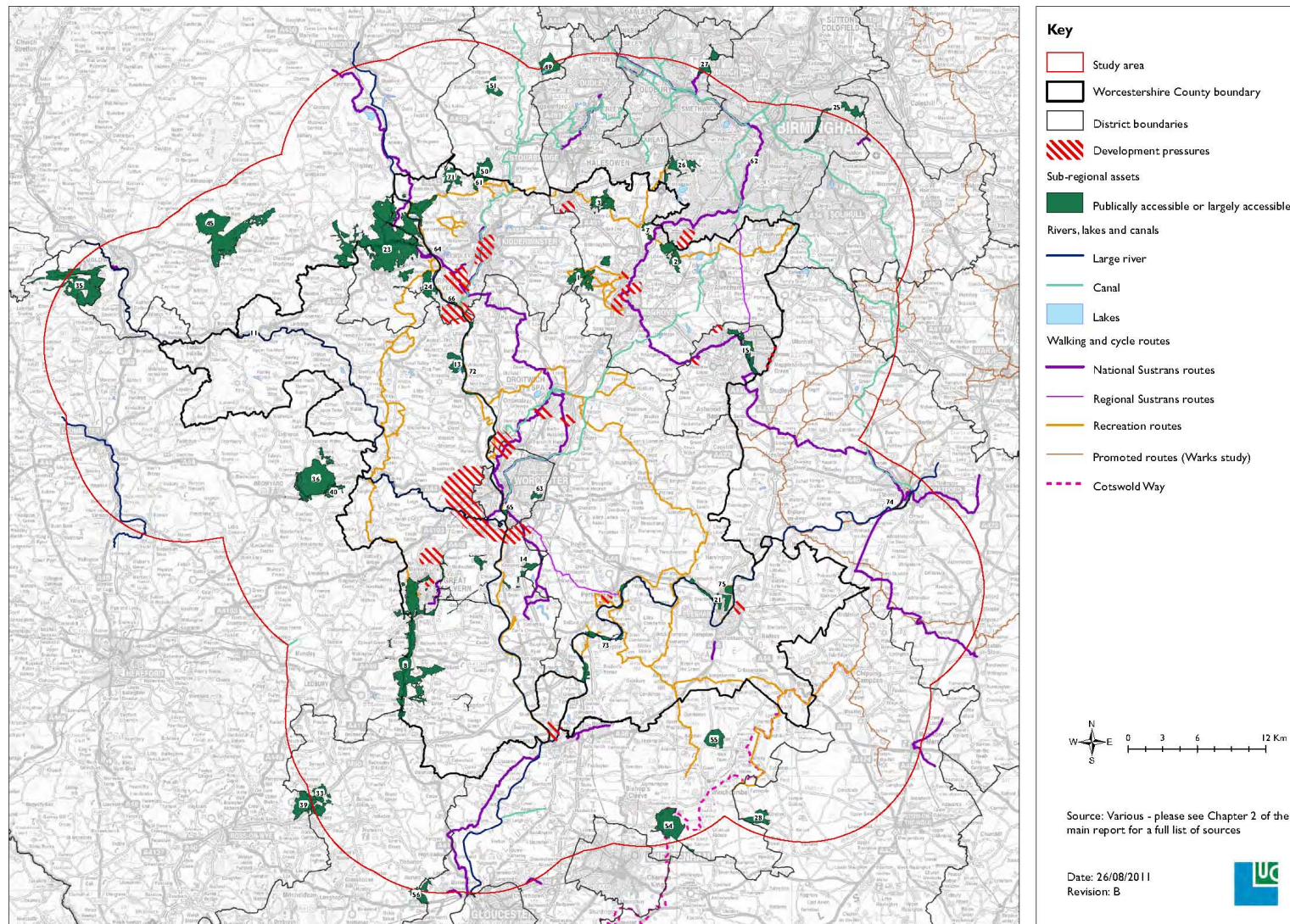
²⁴ Wyre Forest Core Strategy, 2006-2026. Adopted December, 2010.

Figure 5: Strategic development sites and sub-regional GI assets



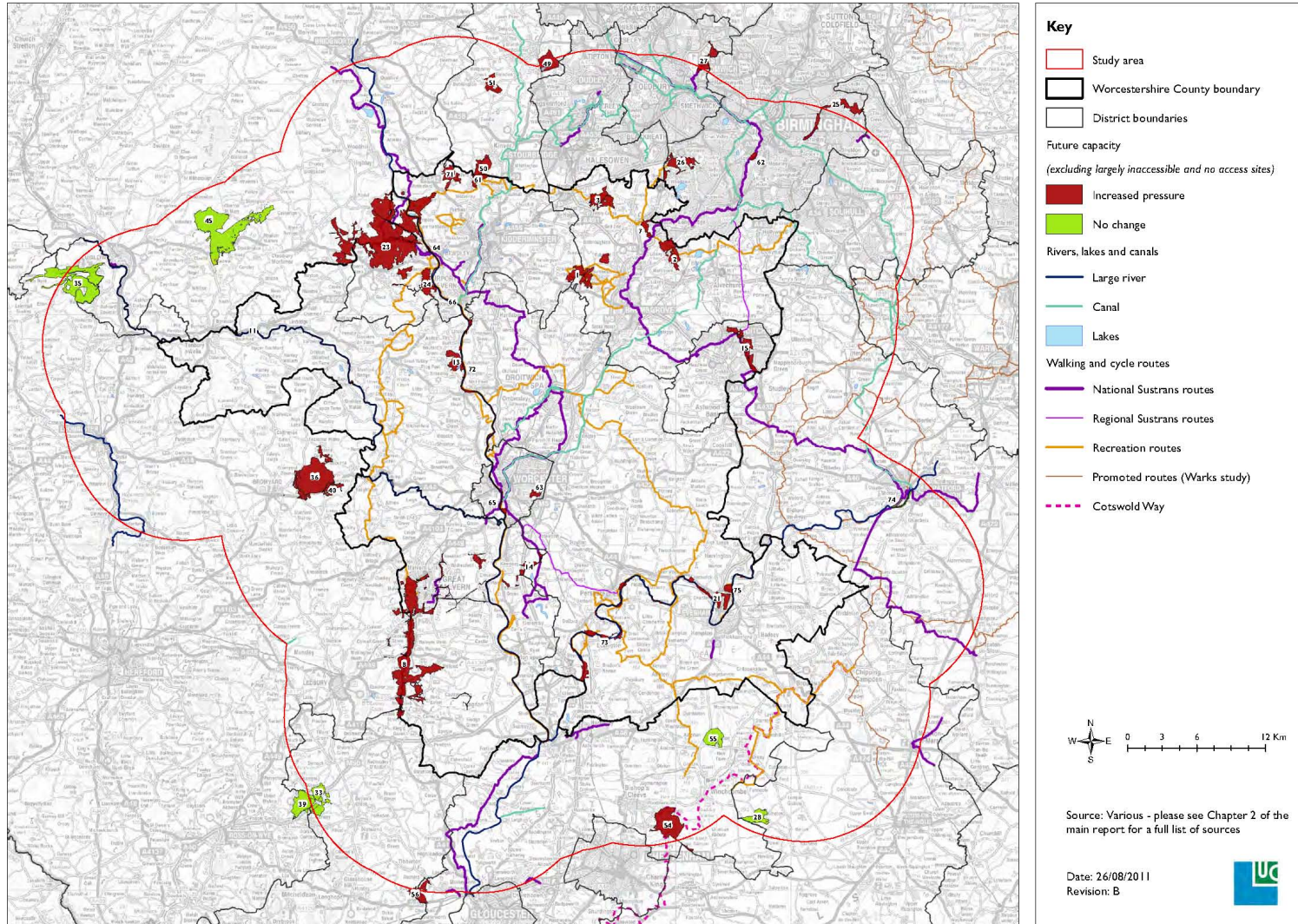
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Figure 6: Map of sub-regional GI assets relative to main areas of development pressure



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Figure 7. Map of sub-regional GI assets showing assumption of future capacity for recreational provision



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Chapter 7: Future Needs and Opportunities

The analysis in this report identifies increasing demand for informal recreation in the county, and two different ways in which this can be met:

1. Changes to site management,
2. Creating new sites.

Changes to site management

Of the sites which were identified as having the capacity to accept an increase in visitor numbers, only two are in Worcestershire; Guiting Wood and Arrow Valley Country Park. Arrow Valley is owned by Redditch Borough Council and the next step of this work is to investigate these findings with the council to identify the catchment area for visitors and to identify future opportunities on the site.

Guiting Wood is in private ownership. In addition to this individual site, the Woodland Trust identified that a further 14.4% of the Worcestershire population could have access to a 2ha or more woodland within 500m of their homes if existing woodlands were accessible. The majority of these woodlands will be in private ownership. Further research is required into opportunities to secure greater access to these sites, and the opportunities they may offer for informal recreation.

Creating new sites

Given the apparent limited opportunity to expand existing informal recreation sites, consideration has also been given to identifying areas of search for new sites.

Five areas of search for new GI assets in the county were identified. The main functions that the assets could perform, along with the spatial deficits that they could help to address, are outlined in the charts below.

Whilst geographical locations have been broadly identified (Figure 5 and indicative close-up maps in Figures 7.1 to 7.5), this is for illustrative purposes only. These are suggested areas of search, where it may be appropriate to undertake further detailed work to either identify potential recreational sites, or to remove them from further consideration if deemed unsuitable.

These illustrative areas, which are described in sequence in the rest of this chapter, are as follows:

Wyre Forest Extension

Lickey Hills Extension, including enhancement of the canal to Worcester

Clifton Water Park south of Kempsey

Worcester – Droitwich Park

Hallow Riverside Park

The areas of search were selected on the following criteria:

1. Proximity to areas of expected population growth through new development and areas of existing recreational pressure;

2. Proximity to areas of existing or potential recreational interest around which the site can be anchored, such as the river Severn or a country park;
3. Located near to a major transport link such as a road.

Size was not used as a category, as these are only areas of search, but all are large enough to accommodate a sub-regional site of 500 ha plus.

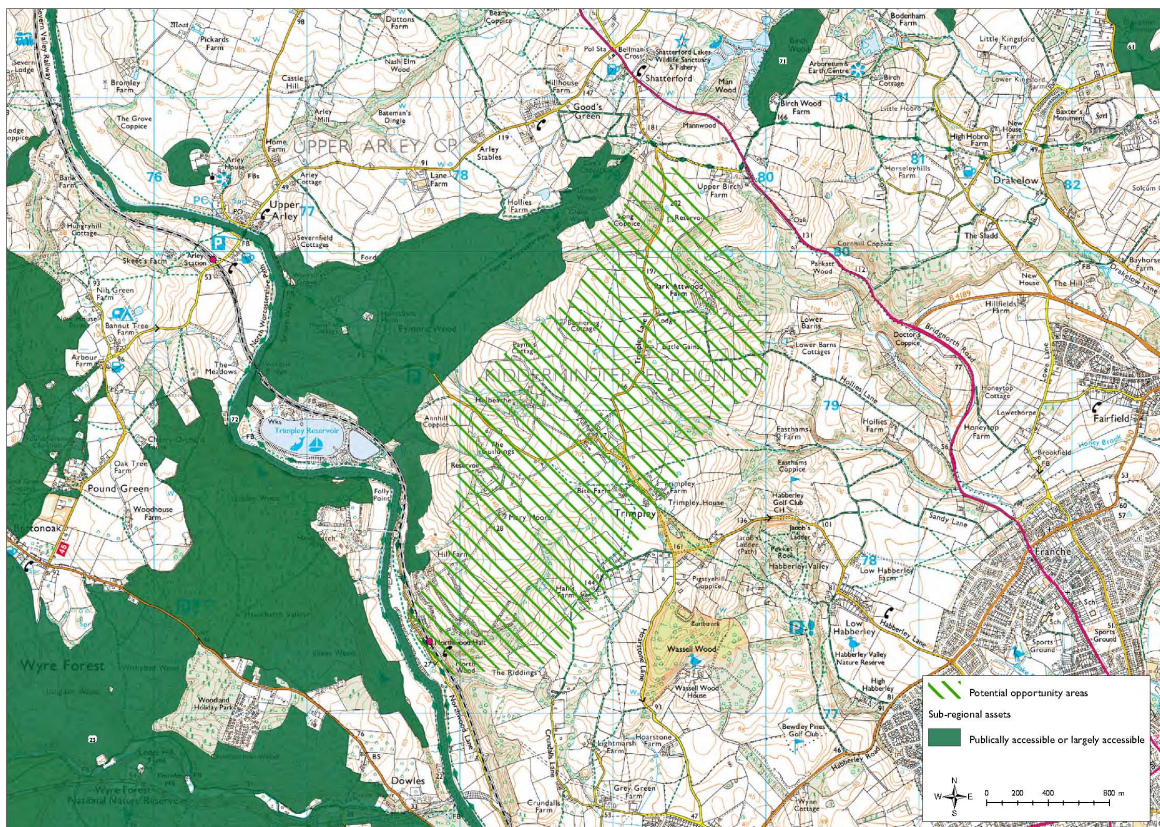
The areas of search are described in more detail below:

Wyre Forest Extension

The location of the Wyre Forest, close to the conurbations of Kidderminster, Stourport-on-Severn and Birmingham, means that it is currently heavily used, and additional population growth in these settlements is likely to result in increased pressure in the future. Creating a new publicly-accessible area and extending the forest cover to the east around Holbeach towards Kidderminster will not only help to provide additional recreation resources, taking the pressure off other areas of the Wyre Forest, but will also help to meet other landscape objectives. The Worcestershire County Council and Forestry Commission report *“Trees and Woodlands in Worcestershire: Biodiversity and Landscape Guidelines for their Planting and Management”* (November 2010) identifies that the area characterised as Principal Timbered Farmland, which is at the centre of the area proposed for the extension, has significant potential for new woodland planting, especially adjacent to existing woodland. The report also identifies the need to halt the decline of hedgerow trees and streamside cover. Moving east and south towards Kidderminster, the character changes and is defined as Sandstone Estatelands and Enclosed Commons, which has significant potential for larger scale woodland planting of a more mixed nature, and the restoration and creation of new tree belts along hedgerows and water courses.

In order to provide visitor interest and ensure the area does provide a viable alternative to existing areas of the Wyre Forest, significant public access and facilities will need to be provided, including walking and cycling routes, and provision may be needed for some activities, such as mountain biking, that are causing user conflict in the existing Wyre Forest.

Figure 8: Wyre Forest Extension Area of Search

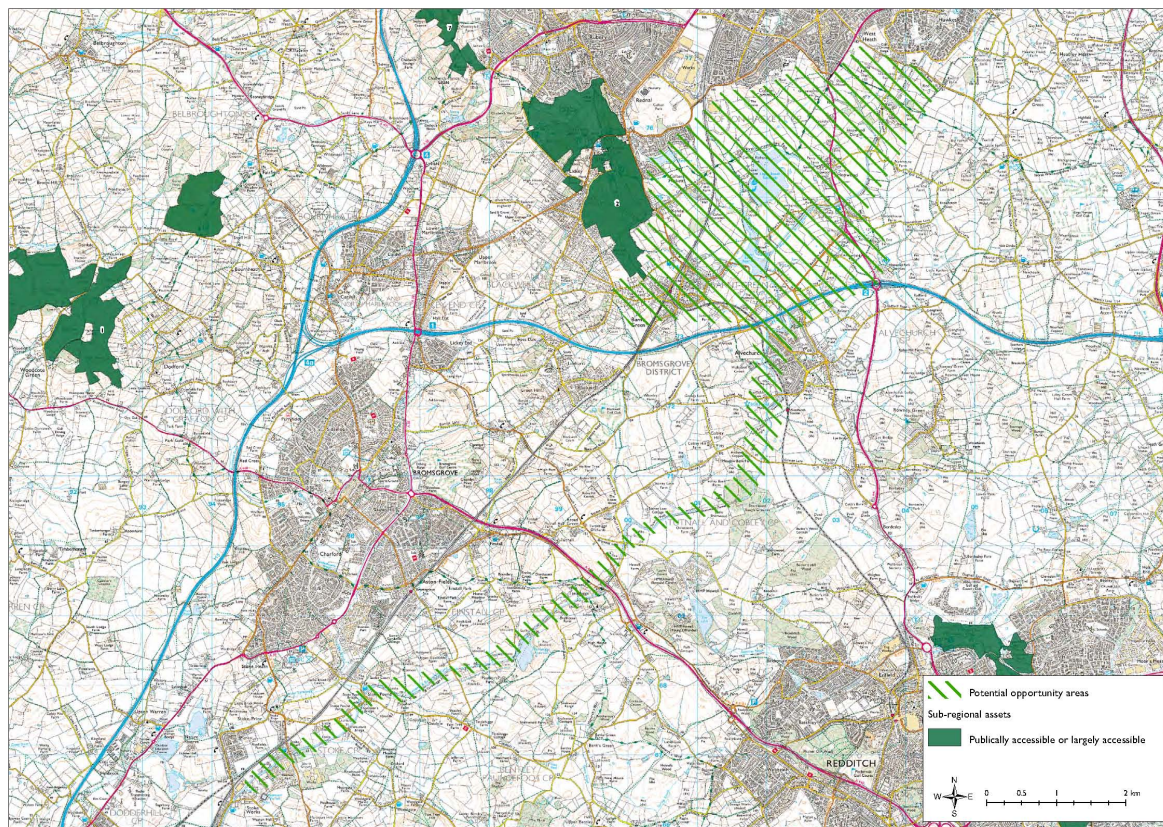


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Lickey Hills Extension with a Canal enhancement link to Worcester

The location of the Lickey Hills on the south west edge of Birmingham means it is heavily used and likely to come under increased pressure as growth in Birmingham (such as at Longbridge) and in Bromsgrove district increases visitor numbers. Waseley Hills Country Park and the Lickey Hills form a green skirt around the urban area between Frankley and Longbridge. Extending this green corridor and the publicly-accessible open space east of the Lickey Hills to encompass the Upper and Lower Bittell reservoirs will help reduce existing pressure on the Lickey Hills, whilst providing additional space to absorb the increased visitors, especially from the new development at Longbridge. Centring the open space on Upper and Lower Bittell reservoirs and the Worcester and Birmingham Canal will provide a sufficiently different visitor experience to the Lickey Hills in order to make it an attractive alternative for visitors. Enhancing the areas surrounding the Worcester and Birmingham Canal south to Worcester will add another dimension to this area, creating a starting and finishing point to longer distance walking, cycling and boating activities.

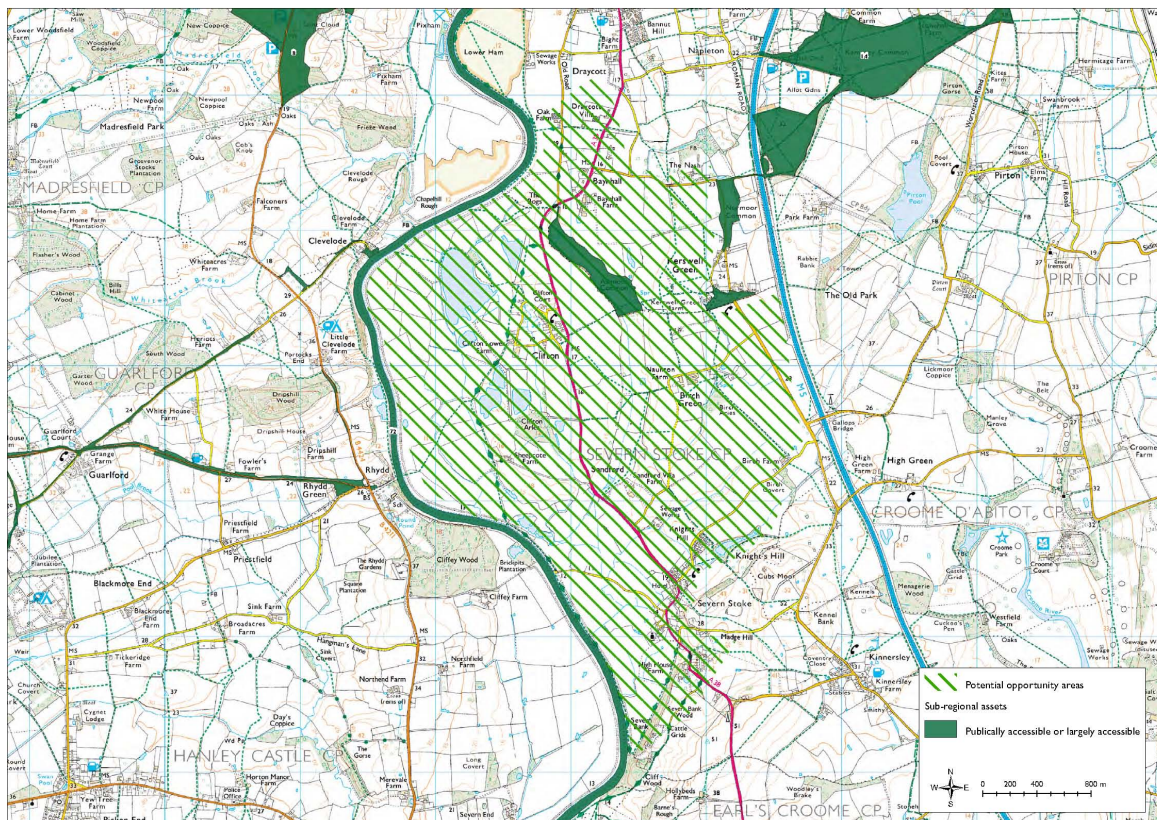
Figure 9: Lickey Hills Extension Area of Search



Clifton Water Park

The old gravel pits around Sandford, by the edge of the River Severn just south of Kempsey, provide a significant opportunity to create an alternative destination for visitors to the Malvern Hills (potentially reducing the number of car journeys to the Hills) and an additional resource to serve the significant developments planned for the south of Worcester and north of Great Malvern. The water park will need to provide visitor facilities, including provision for a number of different activities, as well as enhancing biodiversity in order to create a visitor experience that is distinctive and attractive enough to take pressure away from the Malvern Hills.

Figure 10: Clifton Water Park Area of Search

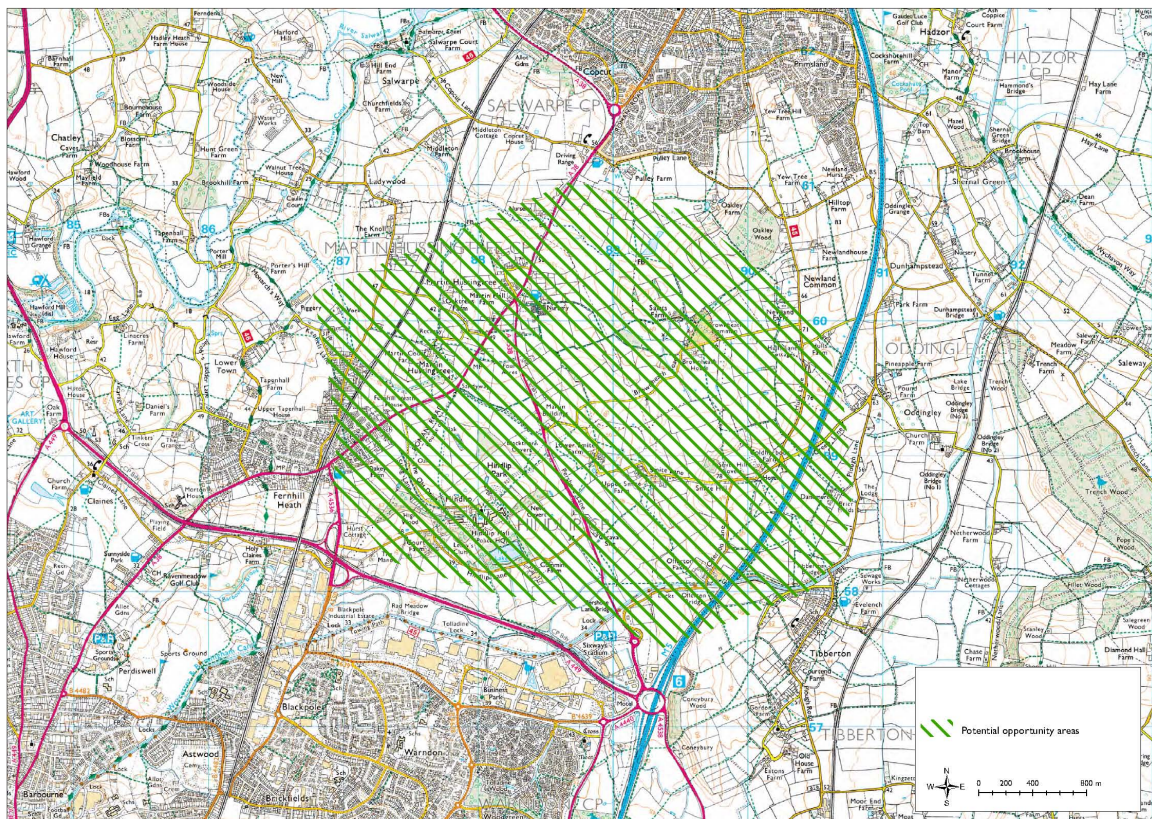


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Worcester – Droitwich Park (North Worcester Option A)

The area around Worcester has few sub-regional assets close by and yet significant new housing growth is planned to the south, north and west of Worcester and the south of Droitwich. The Green Belt between Worcester and Droitwich provides an opportunity to create a significant new recreational resource for the sub-region, which enhances the biodiversity and landscape value of the green belt and provides easily accessible recreational space for people from across the sub-region. There may be other opportunities on former landfill sites in the area to provide GI, such as Bilford Road or Hanbury Wharf, subject to their suitability for public access, ownership and health and safety considerations.

Figure 21: Worcester - Droitwich Park Area of Search

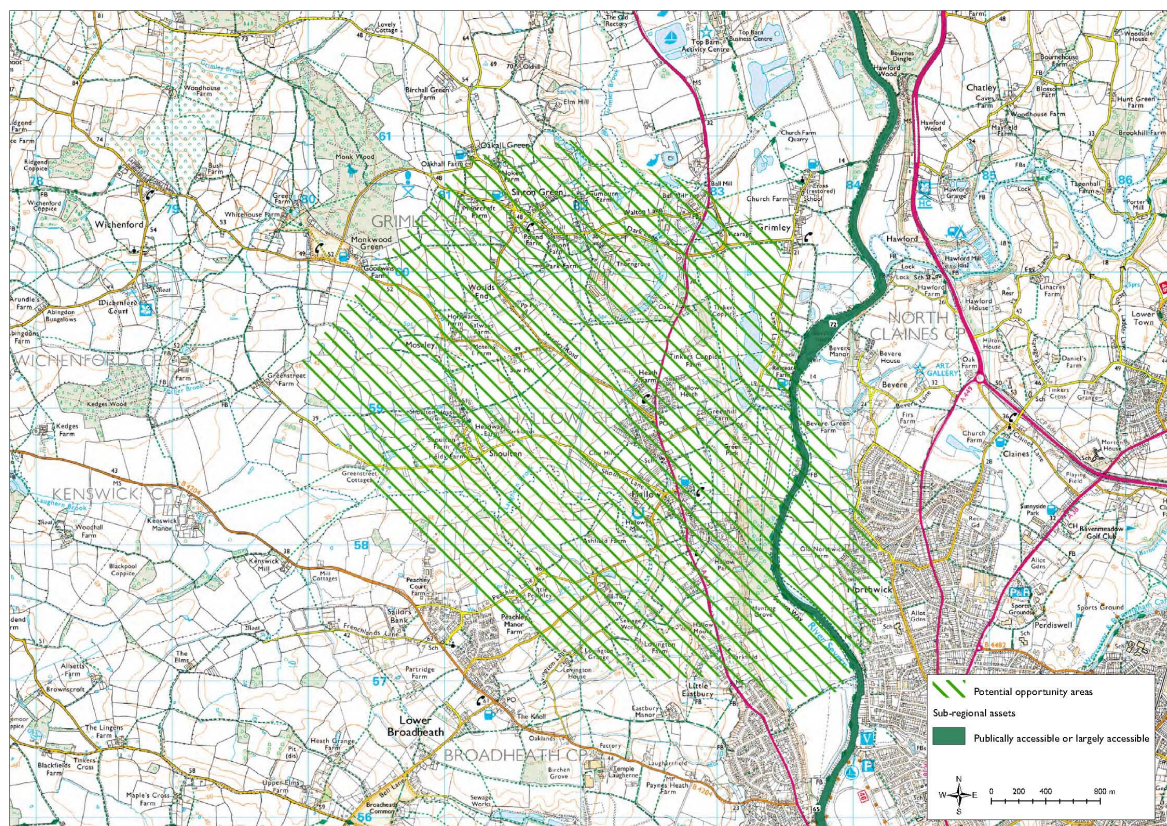


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Hallow Riverside Park (North Worcester Option B)

The areas adjoining the River Severn to the north of Worcester, surrounding the villages of Hallow and Grimley, contains many water courses and flooded former gravel pits. This area provides an opportunity to create an additional resource that both enhances biodiversity and helps to provide flood storage. Provision of new recreational opportunities would also be important as the area around Worcester currently has few sub-regional assets close by and yet significant new housing growth is likely to be seen to the south, north and west of Worcester. Its location close to Worcester may also persuade people to not drive for long distances for recreation to areas such as the Malvern Hills.

Figure 32: Hallow Riverside Park Area of Search



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Assessment of areas of search against key GI themes.

The table below considers the areas of search against the key themes for GI within the county. Any new recreational asset will be required to perform a number of GI functions in addition to its role for access and recreation.

Table 13: Areas of search against the key GI themes

Area of search	Environmental character area	Intervention	BAP priority area 2015	Biodiversity base map (existing biodiversity interest)	Landscape Types	Landscape condition for GI	Principal Worcestershire settlements
Wyre Forest Extension	Teme Valley and Wyre Forest	Protect and Enhance	Wyre Forest, acid and heaths	High	Wooded hills and farmlands	Good / moderate	Kidderminster, Bewdley, Stourport,
Lickey Hills Extension	North Worcestershire Hills	Protect and Enhance	n/a	High / moderate	Wooded hills and farmlands, principal timbered farmlands, wooded estate lands	Good / moderate	Bromsgrove, Redditch
Clifton Water Park	Kempsey Plain	Protect and Restore	Severn (upper) Severn and Avon Vales and Longdon Marsh	Moderate	Principal settled farmlands, settled farmlands on river terrace	Moderate	Worcester, Malvern
Worcester-Droitwich Park	Mid-Worcestershire Corridor	Protect and Restore	n/a	Moderate plus/ good	Principal timbered farmlands, principal settled farmlands	Moderate	Worcester, Droitwich
Hallow River side Park	Mid-Worcestershire Corridor	Protect and Restore	Severn (upper) Severn and Avon Vales and Longdon Marsh	Moderate / moderate plus	Principal timbered farmlands, settled farmlands on river terrace	Poor /moderate	Worcester

Potential Delivery Mechanisms

The creation of new or enhancement of existing GI assets will need to be supported by additional capital funding (for the development phase) and also by revenue funding for the ongoing maintenance of the asset. A series of potential sources of funding are outlined below.

Local Authorities: Although currently under significant pressure as a result of reduced central government funding, many Local Authorities have provided significant resources directly and, to a lesser extent, through grant aid funding to other bodies. Opportunities for direct local authority funding are likely to be severely limited in the future.

Central Government Departments: Local Authorities have access to specific streams of funding such as the Regional Growth Fund, which is operated by the Department for Business, Innovation and Skills, and Growth Point Funding (from the Homes and Communities Agency). Other funding is more widely available (for instance to community organisations), such as that from Sport England (for sports facilities).

Developer contributions are secured as a condition of planning permission. In the past these were obtained through Section 106 of the Town and Country Planning Act 1990, for revenue spending that mitigated an impact of the development. The recently introduced Community Infrastructure Levy (CIL) allows Local Authorities to set tariffs that apply to all qualifying development, for use more widely in the area in which it is generated.

Hypothecated taxes: refers to the dedication of the revenue from a specific tax for a particular expenditure purpose, an example of which is landfill tax. The Landfill Community Fund (allocated money from the Landfill Tax) is administered through waste companies and other bodies including the Wildlife Trusts but is not available for revenue expenditure.

The European Union (with matched UK exchequer funding): Agri-environment schemes on farmland and woodland are delivered through the Rural Development Programme for England (RDPE) which is part of the Common Agricultural Policy. Transnational 'INTERREG' funding may also be available for specific projects. The EU Life+ fund is directed to innovative projects with nature conservation objectives.

The National Lottery: The two most relevant funding streams generated by the National Lottery are the Big Lottery (for community projects including acquisition and establishment of public open space) and the Heritage Lottery Fund (HLF). The HLF operates a number of funds, including the large scale Landscape Partnership programme to the more site-based Parks for People programme.

Financial markets may provide fixed term loans for capital or revenue funding in the form of bonds. These are most likely to be suitable where there is a secure revenue stream to finance the loan.

Private sector endowments: Certain sites may lend themselves to acquiring endowments from individuals, businesses or communities. However, these are likely to be site specific and unpredictable at a sub-regional level.

Funding in kind: Voluntary and not-for-profit groups can be a significant source of labour and expertise, usually more appropriate for revenue than capital projects.

Additionally such groups may have access to funds that local authorities are unable to access.

Agri-environment schemes: There are opportunities to use funding from agri-environment schemes to support the development and maintenance of GI assets in Worcestershire, including the two current schemes of Environmental Stewardship and the England Woodland Grant Scheme which run until 2013. There may also be potential opportunities for support from successor schemes.

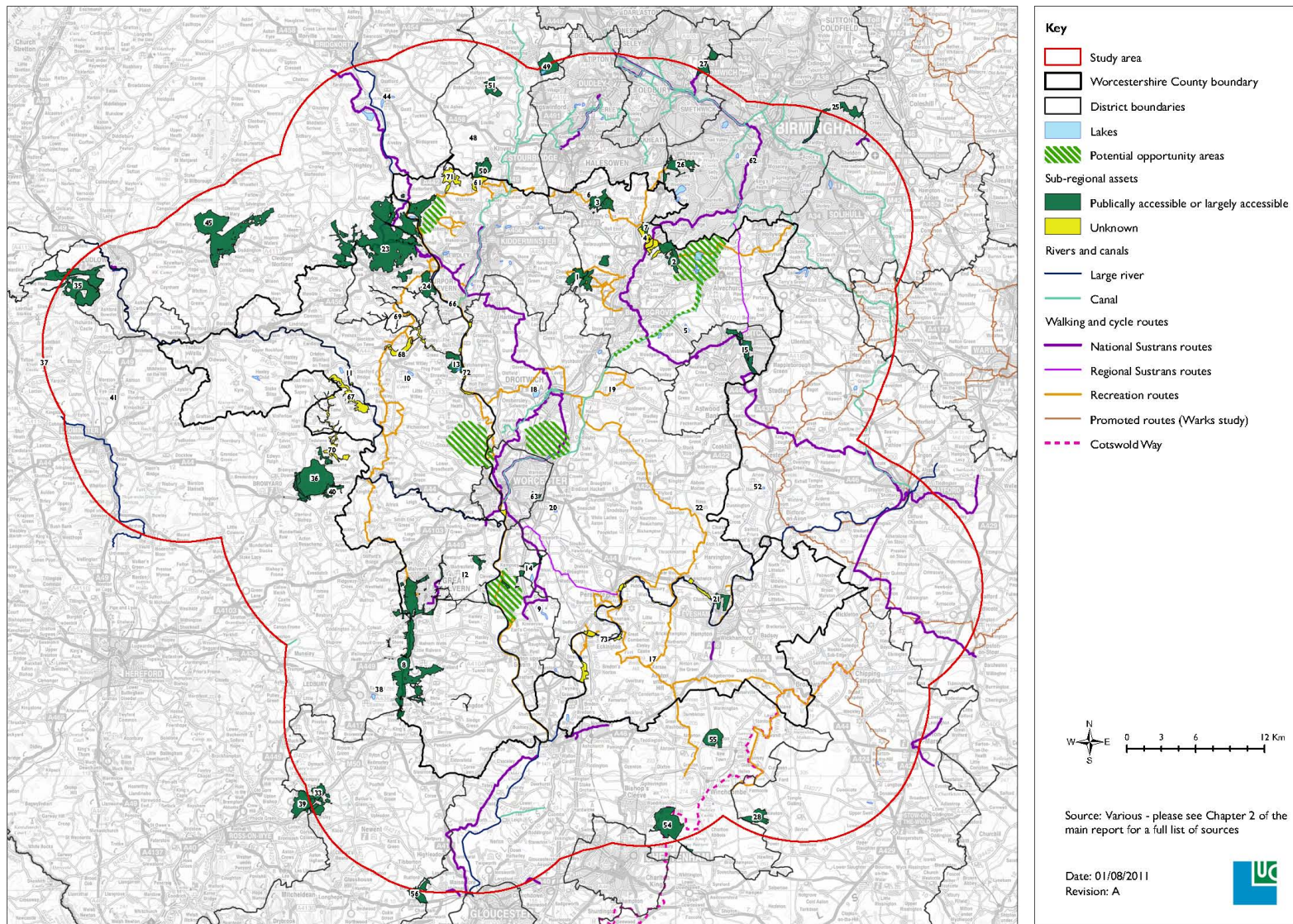
New Homes Bonus Scheme: and the **CIL** make provision for a proportion of funds to be returned to local communities for expenditure.

Local Transport Capital Settlement: The Integrated Transport Block is capital funding used by local transport authorities for small transport improvement schemes costing less than £5 million. Schemes can include walking and cycling schemes.

Local Sustainable Transport Fund: Separate funding has also been set aside by the Department for Transport for the Local Sustainable Transport Fund. The government has set aside £560 million for the fund over a 4 year period to 2014-15. The guidance supporting this fund invites local transport authorities to apply for funding to support the cost of a range of sustainable travel measures and can include measures that promote walking and cycling.

The Flood and Water Management Act: The Flood and Water Management Act encourages the use of sustainable drainage in new developments and re-developments and will require drainage systems to be approved, against a set of National Standards before building can commence and a connection to the sewer can be allowed (if needed). The Act establishes County Councils as the Lead Local Flood Authorities (LLFA).

Figure 4: Map of sub-regional GI assets and areas of potential opportunity for creation of new GI



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Chapter 8: Summary and Conclusions

This report recommends that, given the predicted growth in population in Worcestershire and its neighbouring counties, further capacity is needed for informal recreation in the county.

Formative work has indicated some areas of search for future site development, and the next step will be to explore these options in greater detail through considering feasibility, deliverability, and funding.

In more detail, the next steps for this document are:

1. Identification of opportunities

This report identifies that further informal recreational capacity is required, to be delivered either through changes to management of the existing sites or through the creation of new sites.

The chosen approaches need to be embedded within both the GI strategy and the local planning authorities' planning policy and frameworks through engagement with the relevant organisations and development of the evidence base.

2. Confirm the areas of search

The areas of search need to be confirmed, against their deliverability and the range of GI functions which sites can contribute to. The work will need to explore the areas of search to identify where sites could be located within them and what can be delivered. Land ownership also needs to be explored.

3. Identify funding sources and prepare the detailed business case for the site

Initial work has identified the range of funding sources which may be available for GI. Detailed work is required to identify sources which can support delivery of an access and recreation asset, with a funding plan developed.

The requirements for access and recreation will form a part of the GI strategy and implementation plan, which will determine the priorities for GI development in the county and identify strategic GI projects.

Appendix 1: Sub-regional assets covered by the study

Site name	District/ Unitary authority	Area (ha)	Access category
Wyre Forest (incl Earnwood, Maxfields, Eyemore Copses, Woodlands for People and Section 16 land)	Wyre Forest	2,400.8	Largely accessible
The Malvern Hills (incl Malvern Common, North Hill, Sugar Loaf Hill and Worcestershire Beacon, Castlemorton Common, Coombe Green, Hollybed, Shadybank Commons)	Malvern Hills	1,373.3	Publicly accessible
Area 7 Access Layer (Clee Hill Common, Clee Hill Common and Titterstone Clee)	Shropshire	1,129.2	Publicly accessible
Whitcliff Wood (and surrounding Section 16 land)	Herefordshire	866.3	Publicly accessible
Brockhampton Estate	Herefordshire	680.0	Largely accessible
Cleeve Common or Cleeve Hill	Tewkesbury	489.0	Largely accessible
River Avon	Wychavon	415.9	Publicly accessible
River Severn	Malvern Hills	374.7	Publicly accessible
River Teme	Malvern Hills	305.7	Publicly accessible
Queenswood	Herefordshire	258.5	Publicly accessible
Dymock Woods	Forest of Dean	255.7	Publicly accessible
Bromyard Downs.	Herefordshire	234.6	Publicly accessible
Arrow Valley Country Park	Redditch	223.0	Publicly accessible
Lickey Hills	Bromsgrove	215.2	Publicly accessible
Himley Hall	South Staffordshire	214.5	Publicly accessible
Clent Hills	Bromsgrove	209.8	Publicly accessible
Kingfisher Country Park	Birmingham	199.9	Publicly accessible
Ribbesford Wood also known as Arley Wood	Wyre Forest	194.8	Publicly accessible
Toddington Manor	Tewkesbury	194.4	Largely accessible

Woodgate Valley	Birmingham	192.4	Publicly accessible
Kinver Edge	South Staffordshire	161.1	Publicly accessible
Shrawley Wood	Malvern Hills	157.9	Publicly accessible
Guiting Wood	Cotswold	157.2	Publicly accessible
Corseleas Brake and Highnam Woods RSPB Reserve	Tewkesbury	153.6	Publicly accessible
Arley Birch and Coldridge Wood	Wyre Forest	151.6	Largely accessible
Sandwell Valley	Birmingham	144.7	Publicly accessible
Highgate Common	South Staffordshire	124.0	Largely accessible
Kempsey Common	Malvern Hills	103.3	Publicly accessible
Kingsford Forest Park	Wyre Forest	81.0	Publically accessible
Waseley Hills Country Park	Bromsgrove	60.9	Publicly accessible
Worcester Woods Country Park	Worcester City	33.8	Publicly accessible
Cannon Hill Park	Birmingham	26.9	Publicly accessible
Riverside Meadows (Stourport-on-Severn)	Wyre Forest	10.1	Publically accessible
Bewdley Riverside Corridor	Wyre Forest	8.0	Publically accessible
Stratford Upon Avon Greenway and Fields	Stratford-on-Avon	31.1	Publically accessible
Worcester Riverside	Worcester City	6.3	Publically accessible
Evesham Country Park	Wychavon	39.8	Largely accessible

Appendix 2: Linear sub-regional GI assets

Type of asset	Name/Description	Route No (where relevant)	Approx. length in area of interest (km)
Canal	Droitwich Canals		11.4
Canal	Dudley No 2 Canal		10.8
Canal	Grand Union Canal		28.9
Canal	Staffordshire & Worcestershire Canal		31.8
Canal	Stratford-upon-Avon Canal		38.4
Canal	Worcester & Birmingham Canal		44.3
Large river	River Avon		72.4
Large river	River Lugg		20.7
Large river	River Severn		96.7
Large river	River Teme		70.6
National	Long distance route that will connect Bristol to Rugby via Evesham	National Sustrans Route 41	19.4
National	Will connect Droitwich Spa to Newport (Gwent) or Neath via Worcester and Malvern.	National Sustrans Route 46	22.3
National	Will connect Salisbury to Chester via Worcester, Droitwich and Kidderminster.	National Sustrans Route 45	106.9
National	Will connect Reading to Holyhead via Redditch and Bromsgrove.	National Sustrans Route 5	108.2
National	Will run from Stourport to Derby via Kidderminster.	National Sustrans Route 54	18.7
Regional	Birmingham to Redditch	Regional Route 55	12.5
Regional	The Pershore to Worcester Cycle Route	Regional Route 44	13.8

The length of linear assets included in this study only covers the area which is of interest in Worcestershire, and the buffer zone, and not the entirety of the asset itself.

Appendix 3: Accessible Natural Greenspace Standard

Worcestershire's sub-regional recreational assets are only one set of recreational assets on offer in the county; there are additional assets available at district and neighbourhood level. These vary in size, function and use, and also serve a range of green infrastructure functions, contributing to ecosystems services, and forming part of the daily recreational activities of the local community for informal recreation, etc.

To try to analyse the quantity of recreational assets in the county, and to determine the quantity available against recommended standards, an ANGSt analysis of recreational provision in the county was undertaken.

ANGSt is the accessible natural greenspace standard developed by Natural England in the early 1990s to:

1. Improve access to green space
2. Improve the naturalness of greenspace
3. Improve the connectivity of greenspace

The standard can be applied to:

1. Protection, enhancement and management of existing greenspace
2. Planning new space
3. Protecting vulnerable spaces

The guidance sets a series of standards for distance and size thresholds of households to access natural greenspace. The ANGSt standards are:

Everyone, wherever they live, should have an accessible natural greenspace:

1. Of at least 2ha in size, no more than 300m (5 minute walk) from home;
2. At least one accessible 20ha site within 2km of home;
3. One accessible 100ha site within 5km of home;
4. One accessible 500ha site within 10km of home; plus
5. A minimum of one hectare of statutory local nature reserve per thousand population.

Appendix 4: Proposed Housing Development Sites in the County

District	Settlement	Site	Dwellings
Worcester	Worcester	West Worcester	1,000
Worcester	Worcester	South Worcester	2,425
Worcester	Worcester	Kilbury Drive	300
Worcester	Worcester	Gwilliams Farm	300
Worcester	Worcester	Former Ronkswood Hospital Site	200
Worcester	Worcester	Shrub Hill Opportunity Zone	200
Worcester	Worcester	Gregory's Bank	140
Worcester	Worcester	Government Offices	120
Worcester	Worcester	Blockhouse/Carden Street Opportunity Zone	120
Worcester	Worcester	Land South of Lyppard Hill	100
Worcester	Worcester	Small sites inside city boundary	296
Worcester	Windfall	Small sites inside city boundary	204
Worcester Developments Total			5,405
District	Settlement	Site	Dwellings
Malvern Hills	Malvern	Newland	700
Malvern Hills	Malvern	QinetiQ Site	250
Malvern Hills	Malvern	Small sites inside town boundary	201
Malvern Hills	Kempsey	Small sites	139
Malvern Hills	Powick	Small sites	60
Malvern Hills	Lower Broadheath	Small sites	67
Malvern Hills	Tenbury	Small sites	60
Malvern Hills	Upton upon Severn	Small sites	55
Malvern Hills	Village Allocations	Small sites	353
Malvern Hills	Windfall	Small sites	360
Malvern Developments Total			2,245
District	Settlement	Site	Dwellings
Wychavon	Droitwich	Copcut Lane	740
Wychavon	Pershore	Station Road/Wyre Road	600
Wychavon	Evesham	Cheltenham Road	257
Wychavon	Evesham	Pershore Road Hampton	223
Wychavon	Evesham	Abbey Road	400
Wychavon	Droitwich	Small sites inside town boundary	464
Wychavon	Evesham	Small sites inside town boundary	292
Wychavon	Pershore	Small sites inside town boundary	79
Wychavon	Broadway (Cat 1)	Small sites	131
Wychavon	Hartlebury (Cat 1)	Small sites	100
Wychavon	Honeybourne (Cat 1)	Small sites	100

Wychavon	Inkberrow (Cat 1)	Small sites	90
Wychavon	Offenham (Cat 1)	Small sites	79
Wychavon	Fernhill Heath (Cat 2)	Small sites	120
Wychavon	Other Category 1 Village Allocations	Small sites	118
Wychavon	Other Category 2 Village Allocations	Small sites	285
Wychavon	Other Category 3 Village Allocations	Small sites	172
Wychavon	Windfall	Small sites	1,080
Wychavon Developments Total			5,330
District	Settlement	Site	Dwellings
Bromsgrove	Alvechurch	Land adj Crown Meadow, Alvechurch	27
Bromsgrove	Alvechurch	Land fronting Birmingham Road, Alvechurch	27
Bromsgrove	Barnt Green	Kendal End Road, Barnt Green	88
Bromsgrove	Bromsgrove	Perryfields Road, Bromsgrove	1,300
Bromsgrove	Bromsgrove	Whitford Road, Bromsgrove	500
Bromsgrove	Bromsgrove	Norton Farm, Bromsgrove	318
Bromsgrove	Bromsgrove	Land adjacent Wagon Works, Bromsgrove	212
Bromsgrove	Bromsgrove	Church Road, Catshill	80
Bromsgrove	Frankley	Egghill Lane, Frankley	66
Bromsgrove	Hagley	Kidderminster & Stourbridge Road, Hagley	200
Bromsgrove	Hagley	Strathearn, Western Road, Hagley	40
Bromsgrove	Hagley	Land at Algoa House, Western Road, Hagley	18
Bromsgrove	Hagley	Rose & Thicknall Cottage, Western Road, Hagley	15
Bromsgrove	Wythall	Bleakhouse Farm, Station Road, Wythall	150
Bromsgrove	Wythall	Selsdon Close, Wythall	76
Bromsgrove Developments Total			3,117
District	Settlement	Site	Dwellings
Redditch	Redditch	Webheath ADR	600
Redditch	Redditch	Brockhill ADR (part pp)	577
Redditch	Redditch	Brockhill Green Belt	400
Redditch	Redditch	New first school required at Brockhill as part of overall development	
Redditch	Redditch	A435	261
Redditch	Redditch	Dingleside Middle School (pp)	220
Redditch	Redditch	Foxlydiate Green Belt	150
Redditch	Redditch	Rear of the Hospital	145
Redditch	Redditch	Marfield farm School (pp)	79
Redditch	Redditch	Prospect Hill	61
Redditch	Redditch	Widney House, Bromsgrove Road	58

Redditch	Redditch	Church Hill District Centre (pp)	51
Redditch	Redditch	Former Dorothy Terry House (pp)	41
Redditch	Redditch	Windsor Road Gas Works (pp)	37
Redditch	Redditch	Former Claybrook School	36
Redditch	Redditch	Fire Station & Millfields	35
Redditch	Redditch	Land south of Scout Hut	32
Redditch	Redditch	Former Ipsley School Playing Field	31
Redditch	Redditch	Rear of 144-162 Easemore Road	24
Redditch	Redditch	Mayfields Works (pp)	23
Redditch	Redditch	St Stephens Playing Field	22
Redditch	Redditch	Birchfield Road	22
Redditch	Redditch	Matchborough District Centre	17
Redditch	Redditch	Land adjacent to Castleditch Ln/ Pheasant Ln	16
Redditch	Redditch	Wirehill Drive (pp)	15
Redditch	Redditch	Tanhouse Lane (pp)	14
Redditch	Redditch	Brockhill East (pp)	14
Redditch	Redditch	Loxley Close	10
Redditch	Redditch	Sandycroft	10
Redditch	Redditch	Rear of Sandygate Close	8
Redditch	Redditch	Wellington Works (pp)	7
Redditch	Redditch	Land off Torrs Close	6
Redditch	Redditch	Clifton Close	6
Redditch	Redditch	High Trees, Dark Lane (pp)	5
Redditch	Redditch	Adj. Saltways Cheshire Home (pp)	5
Redditch	Redditch	Brush Factory Evesham Road (pp)	4
Redditch Developments Total			3,042
District	Settlement	Site	Dwellings
Wyre Forest	Kidderminster	Former British Sugar Site, Stourport Road, Kidderminster	320
Wyre Forest	Kidderminster	Oasis Arts and Craft and Reilloc Chain, Stourport Road, Kidderminster	100
Wyre Forest	Kidderminster	Blakebrook School & County Buildings	50
Wyre Forest	Kidderminster	Northumberland Avenue Surgery	10
Wyre Forest	Kidderminster	Chester Road South Service Station	20
Wyre Forest	Kidderminster	Broadwaters Community Centre	10
Wyre Forest	Kidderminster	Rifle Range Shops & Musketeer PH	23
Wyre Forest	Stourport	Bridge Street Basins Link	40
Wyre Forest	Stourport	Tan Lane	20
Wyre Forest	Stourport	County Buildings	20
Wyre Forest	Stourport	Civic Centre	20
Wyre Forest	Stourport	Swan Hotel & Working Mens Club	20
Wyre Forest	Stourport	Carpets of Worth	159
Wyre Forest	Stourport	Cheapside	60
Wyre Forest	Stourport	Former Parsons Chain	150

Wyre Forest	Stourport	Worcester Road Car Garage	30
Wyre Forest	Stourport	Baldwin Road Redevelopment Area	50
Wyre Forest	Stourport	Morgan Technical Ceramics & MIP	200
Wyre Forest	Stourport	Former Lucy Baldwin Unit	40
Wyre Forest	Stourport	Queens Road Shops	15
Wyre Forest	Stourport	Robbins Depot	12
Wyre Forest	Bewdley	Load Street Redevelopment Area	16
Wyre Forest	Blakedown	Blakedown Nurseries	42
Wyre Forest	Clows Top	The Terrace Clows Top	30
Wyre Forest		Sebright Road	10
Wyre Forest	Kidderminster	Phase 1 –Grasmere Close	97
Wyre Forest	Kidderminster	Phase 2a – Former Georgian Carpets Stoney Lane	223
Wyre Forest	Kidderminster	Phase 2b – Former Sladen School	20
Wyre Forest	Kidderminster	Phase 3a – Churchfields Business Park	200
Wyre Forest	Kidderminster	Phase 3b – Lime Kiln Bridge	120
Wyre Forest	Kidderminster	Comberton Hill Area – Comberton Place Inc. Kidderminster Market Auction	25
Wyre Forest	Kidderminster	Phase 1 – Bromsgrove Street	30
Wyre Forest	Kidderminster	Phase 2 – Worcester Street Retail Development	10
Wyre Forest	Kidderminster	Phase 3 – Lion Street	10
Wyre Forest		Waterloo Street Area	55
Wyre Forest		Park St Industrial Est. & Rock Works	70
Wyre Forest		Park Lane Canalside	30
Wyre Forest		MCF Complex	25
Wyre Forest	Kidderminster	Tram Street	25
Wyre Forest		Mill Street Mixed Use Area	30
Wyre Forest		Frank Stone	25
Wyre Forest Developments Total			2,462