A Green Infrastructure Strategy for Newark & Sherwood

February 2010

NEWARK & SHERWOOD DISTRICT COUNCIL

A Green Infrastructure Strategy for Newark & Sherwood

DRAFT

CONTENTS

Glossary of Terms

AONB	Area of Outstanding Natural Beauty
CLG	(Department for) Communities & Local Government
Green Infrastructure / GI	A term encompassing all physical resources and natural systems, including ecological, geological and historical assets
Green Gyms	Fitness trails set up along footpaths in natural settings such as parks or woodlands to encourage outdoor exercise
Growth Agenda	The Government's agenda for substantially increased house building across England
Growth Points	Specific areas that have been identified as a focus for increased house building under the Growth Agenda
IMD	Indices of (Multiple) Deprivation: a measure of deprivation across 7 domains – income; employment; health & disability; education, skills & training; barriers to housing & services; crime; the living environment. Produced by CLG in 2004 and revised in 2007
LNR	Local Nature Reserve
NNR	National Nature Reserve
PBRS	Public Benefit Recording System: a GIS based tool that gathers together several different datasets to help guide the strategic decision making process
Public benefits	Social, economic and environmental goals acting in combination
RSS	Regional Spatial Strategy: sets out regional spatial priorities and interventions (including proposals under the Growth Agenda)
SAC	Special Area of Conservation
SPD	Supplementary Planning Document
SuDS	Sustainable Drainage Systems
Sustainable prosperity	Economic growth achieved alongside social inclusion and environmental enhancement

Chapter 1: Introduction

This Green Infrastructure Strategy has been produced for Newark and Sherwood District Council, responding to the need to plan for predicted growth, to enhance quality of life and to ensure environmental sustainability in the District for generations to come.

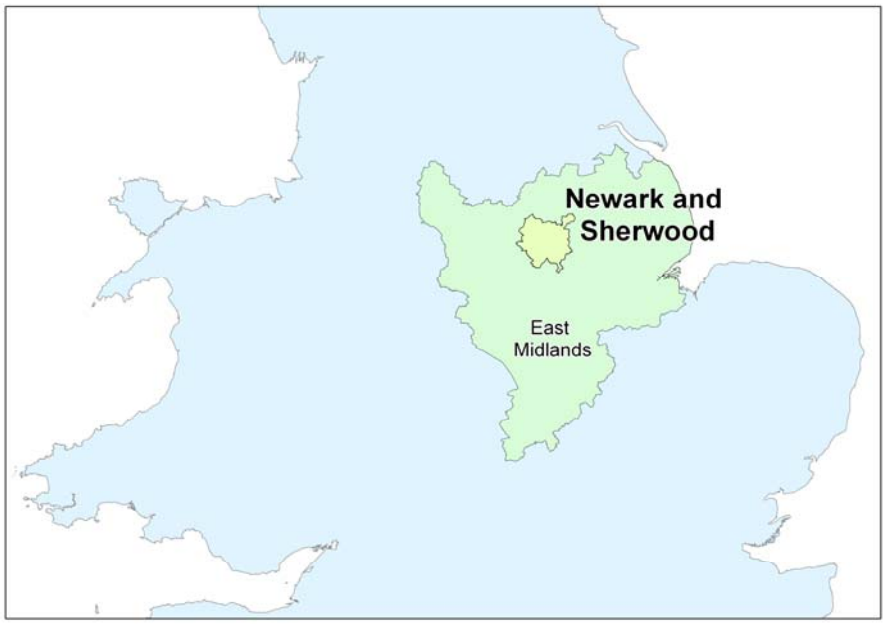
This Strategy will allow for the expansion of settlements whilst ensuring that the District, its assets and landscapes suffer no negative effects and instead prosper from new development. Whilst new development is the main driver, the need for a high level of environmental quality, provision of recreational opportunities and access to green space, and the need to respond to the threats and challenges of climate change for communities and wildlife has also shaped the Strategy's development.

Newark and Sherwood

Newark and Sherwood is located in Nottinghamshire in the East Midlands Region. To the west of the district adjacent to the Sherwood area is Mansfield, to the south west Nottingham and Lincoln to the north east.

The District covers an area of over 250 square miles and is distinctive in terms of character, landscape and natural resources. The central part of the District is predominantly rural. Newark on Trent is the main population centre in the District (35,000 people[1]), and is a focus for much of Newark and Sherwood's facilities and service provision. Other larger settlements include the towns of Ollerton and Boughton and Southwell and the villages of Rainworth and Clipstone which are recognised as 'Service Centres' for their local populations and the wider areas. Outside of these locations are a number of larger 'Principal Villages' which have a range of facilities for day to day living. These villages are identified as Blidworth, Bilsthorpe, Collingham, Edwinstowe, Farnsfield, Lowdham and Sutton on Trent.

Figure 1.1 Newark and Sherwood District Location



[1] State of the District Report (2009) Newark and Sherwood District Council

The District contains one of the world's most famous historical natural assets in the form of Sherwood Forest as well as the River Trent: one of England's largest river systems. The District is rich in history from the Neolithic, Roman, Mediaeval and English Civil War periods. In addition to this the River Trent has played a large part in the District's development during the industrial revolution and the waterways are now an important heritage feature with a wealth of cultural and natural history.
There are several initiatives in and around the District that are underpinned by or contribute to green infrastructure, including Sherwood Forest and the Sherwood Forest Regional Park proposals, Maun Valley, the On-Trent and Trent Vale projects and the 6Cs Growth Area green infrastructure programme. This Strategy will support these programmes and associated projects and will seek to protect and enhance the District's green infrastructure resource that lies outside of those programmes.

Why a Green Infrastructure Strategy for Newark and Sherwood?

The District Council Draft Core Strategy and the District's Green Space Strategy have already set the scene for a green infrastructure strategy in the District. They identify a range of features and areas that in combination would form the backbone for green infrastructure proposals in the District, including recreational spaces and areas of environmental protection (including green belt, countryside and ecological designations).

Protecting and improving the environment is one of five strategic priorities included in Newark and Sherwood District Council's Draft Core Strategy, both to protect existing assets and to enhance quality of place for visitors and residents alike. Similarly, it is a key aim of the District's Community Plan[2] to "maintain and enhance the local natural and built environment and biodiversity".

The Green Infrastructure Strategy for Newark and Sherwood has these policy principles at its foundation, setting out priorities for the creation of assets and mapping the District's green infrastructure, its functions and the potential benefits it can bring.

This Strategy:

- Identifies existing networks of green and blue spaces and corridors within and between the urban areas, other settlements and the surrounding countryside to form the basis for developing a green infrastructure spatial plan
- Provides an approach for the conservation, protection and enhancement of green spaces, access networks and environmental assets of Newark and Sherwood, taking growth projections into consideration
- Articulates clear objectives to meet the District's needs and opportunities for development, nature conservation and community benefit
- Identifies policy and deliverability issues, including possible funding, delivery mechanisms and main actors for implementing green infrastructure in the District (i.e. the Strategy is grounded in deliverability)

Developing a Green Infrastructure Strategy: Methodology

The brief for this work required the production of a Green Infrastructure Strategy for Newark and Sherwood that would form the basis for conserving, enhancing and

[2] Raising Aspirations Improving Accessibility 2006-2016: The 2nd Community Plan for Newark and Sherwood (2006) Newark and Sherwood Local Strategic Partnership

extending the green infrastructure of the District and provide an evidence baseline for incorporating into the Draft Core Strategy. This would then be an integral element of planning for the sustainable development of the District.

A robust and objective means of developing a targeted GI strategy that could be adopted into Local Development Documents and other Corporate Strategies was developed, built on three key principles – in that the GI Strategy must:

- Respond to specific local needs, which may differ markedly across the District
- Safeguard and enhance core sites and networks and improve human connections with their neighbourhood environments
- Be capable of informing development control decisions and targeting funds and activity.

The approach considers green infrastructure resources and assets, current and future demands and opportunities and the potential benefits a multifunctional greenspace network can deliver, particularly in relation to proposed growth and development, delivered over the following stages of work:

- *Workstream 1: Identifying the Green Infrastructure Resource*
  - Identify actual and potential GI assets
  - Considering social, economic and environmental needs and opportunities in a public benefit assessment
  - Identifying networks of strategic spaces, and any gaps and barriers
  - Analysing existing green infrastructure and the need for green infrastructure benefits both now and in the future
  - Reviewing policies, strategies and initiatives
- *Workstream 2: Stakeholder Consultation and Engagement*
  - Initial interviews with key stakeholders
  - Questionnaire consultation with the broader stakeholder group
  - Stakeholder Workshop
- *Workstream 3: Green Infrastructure Strategy*
  - Developing a Green Infrastructure Strategy for Newark and Sherwood that is distinctive, safeguards key assets, supports existing policies and programmes, enhances quality
  - Identifying key areas and priority actions
  - Looking forward to next steps, implementation and delivery

These steps add to the process outlined in the best practice approach for local / urban scale green infrastructure as laid out in the East Midlands' 'Creating Successful Green Infrastructure Plans' document[3].

[3] Creating Successful Green Infrastructure Plans: Best Practice from the East Midlands and the River Nene Regional Park (September 2007) RNRP, Natural England, CABE Space, EMRA

Chapter 2: What is Green Infrastructure?

Green infrastructure (GI) describes the network of greenspaces, landscapes and natural elements that intersperse and connect our cities, towns and villages. More than this, it is a holistic approach to viewing the natural and historic environment which acknowledges the *multiple benefits* and *vital functions* it provides for the economy, wildlife, local people and communities alike.

Green infrastructure should also be seen as part of the life-support system of an area: providing functions and environmental services to a community such as employment, recreation, physical health and mental well being, social interaction, contact with nature, drainage and flood management, climate change adaptation and pollution mitigation. It may be considered the essence of local character and sense of place.

This is encompassed in the definition of green infrastructure given in the East Midlands Regional Plan[1]:

> *"Networks of multi-functional green space which sit within and contribute to, the type of high quality natural and built environment required to deliver sustainable communities. Delivering, protecting and enhancing these networks requires the creation of new assets to link with river corridors, woodlands, nature reserves, urban green spaces, historic sites and other existing assets."*

Green infrastructure planning is about identifying, protecting, conserving, enhancing and extending healthy environments, and is an essential element in planning for sustainable development, healthy lifestyles and our adaptation to a changing climate and global resource shortages. It is also a technique for planning greenspace throughout a period of change, ensuring that development includes multi-functional open spaces linked to existing and enhanced green spaces and greenways.

The Benefits of Green Infrastructure

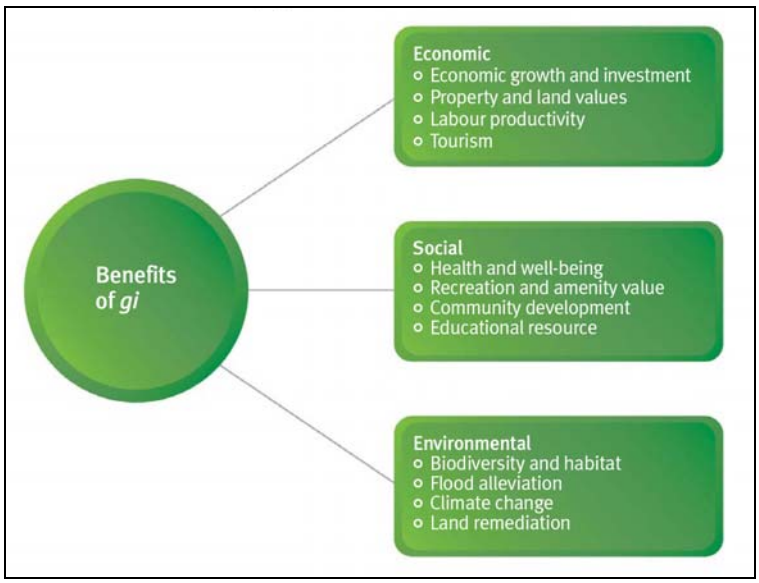
Green infrastructure encompasses the environmental, community, access, agricultural, natural and biodiversity assets within our landscapes. As such it can deliver many functions which contribute to our quality of life and our physical and mental well-being – across traditional political or administrative boundaries.

The multifunctional nature of green infrastructure means that it can provide a wide range of environmental or socio-economic benefits, such as biodiversity enhancement, local distinctiveness, public health, sport and recreation, flood management, climate change adaptation, social inclusion, community cohesion, tourism, water quality management and many others. The public value of investment in green infrastructure has been confirmed in an independent economic appraisal[2], which suggests that the returns to society are worth several times the initial investment in green infrastructure.

The recently published EMDA GI Toolkit[3] describes the benefits that a well-planned green infrastructure network of spaces and corridors can provide across economic, social and environmental categories:

[1] East Midlands Regional Plan (2009) Government Office for the East Midlands
[2] Economic Analysis of Forest Policy in England (2003) CJC Consulting
[3] A Guide & Toolkit: Green Infrastructure (2009) EMDA

Figure 2.1: Benefits of Green Infrastructure



Whilst the range of green infrastructure benefits is presented across three distinct categories, many of these benefits are in fact cross cutting and can deliver economic, social and environmental outcomes. For example, 'health and well-being' benefits can also be economic in nature since improved health reduces health authority expenditure. Equally there are significant economic and social benefits from flood alleviation and reducing the effects of a changing climate such as the urban 'heat island' effect.

Generally multi-functionality is desirable as it suggests an efficient and sustainable use of land, especially where pressures on land are acute. However some assets have single functions of over-riding importance which might be compromised by multi-functional use – for example assets of nature or landscape conservation value may be damaged by insensitive access. This Strategy responds to the need to manage these key assets for their single purpose, intrinsic value (often in the face of unintended or inappropriate multifunctional use) by re-evaluating perhaps previously underused areas to meet functional needs, and promoting and providing a wider range of green infrastructure assets.

Green Infrastructure Policy

Green infrastructure has risen up the political agenda in recent years and has evolved in both process and definition and an essential part of sustainable development. At the national level Planning Policy Statement 12 (PPS12) describes green infrastructure as:

> "*a network of multi-functional green space, both new and existing, both rural and urban, which supports the natural and ecological processes and is integral to the health and quality of life of sustainable communities*."

This is in turn supported at the regional level by the East Midlands Region Plan which provides specific policy support[4] and guidance for green infrastructure policy within local development frameworks.

[4] Policy 29: Regional Priorities for Environmental and Green Infrastructure. East Midlands Regional Plan (2009) Government Office for the East Midlands

Green infrastructure can also help achieve policy objectives across the range of benefits or functions it can provide as shown in figure 2.2, which illustrates the relationship between policies/strategies/plans and the benefits derived from green infrastructure.

A planned approach to green infrastructure can therefore help a variety of stakeholders achieve their aims and deliver upon their individual remits such as Public Service Agreements (PSA). Natural England, Environment Agency, Forestry Commission, CABE (Commission for Architecture and the Built Environment), The Wildlife Trusts, Woodland Trust and the East Midlands Development Agency are amongst the many organisations that are supportive of a planned approach to green infrastructure and recognise the many benefits it provides.

A full list of the relevant international, national, regional, sub-regional and local programmes/policies that have a direct relationship to green infrastructure and a brief synopsis of each can be found in Appendix 1.

Green Infrastructure Planning in Newark and Sherwood

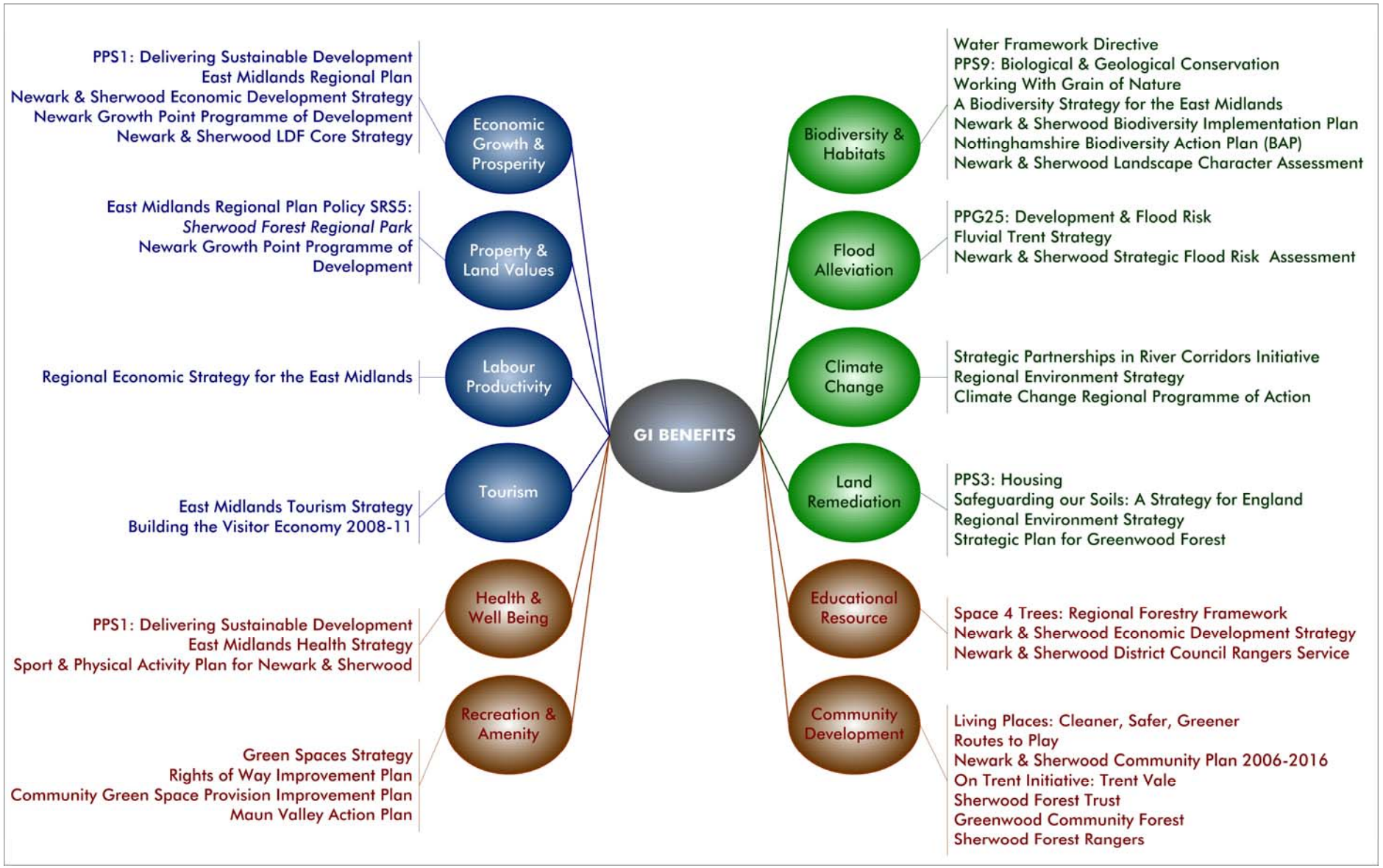
The quality of the environment is an essential component in providing a quality of place for living, working and relaxing. Newark and Sherwood has some outstanding urban and rural landscapes, but the District is required by the East Midlands Plan[5] to deliver 14,800 additional homes between 2006 and 2026 (including a target of 500 homes per annum over the period 2006-2016 as part of the Growth Point Initiative) and associated built 'grey' infrastructure facilities. Over time the District will also become increasingly under threat from the implications of a changing climate, including increased flooding.

Green infrastructure should be considered as an organising framework for integrating the District's physical resources and natural systems with historical, geological, ecological and cultural assets. Bringing together socio-economic evidence with policy orientations regarding environmental protection and urban and rural development is central in assessing needs and opportunities for protecting, enhancing and extending green areas and access networks.

Planning for green infrastructure will inform the development of Newark and Sherwood District Council's local planning documents and strategies including the Core Strategy Development Plan Document (DPD), the Site Allocation and Polices and Development Management Policies DPD and the wider Local Development Framework. In addition planning for Green Infrastructure will also assist in the implementation of those plans by providing baseline evidence and information for policy formation and project development and delivery.

[5] East Midlands Regional Plan (2009) GOEM

Figure 2.2: Benefits of Green Infrastructure & Policy Links



Chapter 3: Green Infrastructure in Newark and Sherwood

Newark and Sherwood District has a variety of formal and natural green and open spaces. To understand the spatial relationships between these spaces and the District's communities a variety of existing datasets and sources of information have been used to identify and map the distribution of assets in the District, including:

- Designated sites such as Local Nature Reserves (LNR) and Sites of Special Scientific Interest (SSSI)
- Green space assets without designation, such as pocket parks, amenity grassland, non designated nature reserves etc.
- Water courses and water bodies
- Land under Environmental Stewardship and/or management regimes
- Parks & Gardens and heritage features such as Scheduled Monuments and historic buildings
- Recreation facilities
- Access networks, including footpaths, bridleways, cycle routes, Multi-User Routes (MURs) and by-ways.

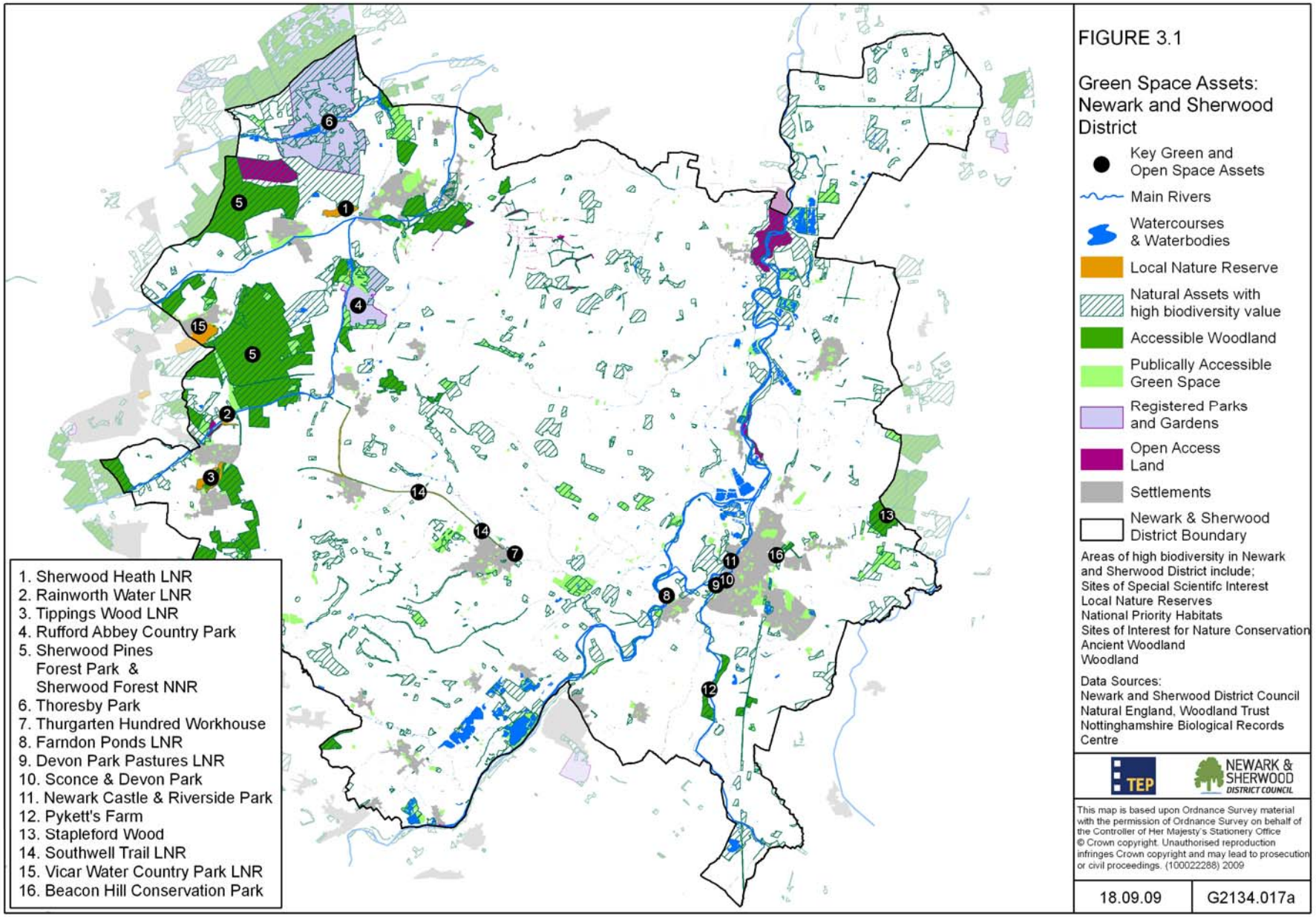
Figure 3.1 shows the distribution of green spaces of both a formal and natural nature across the District. There are clear patterns to green space distribution with quite distinct areas defined by the landscape character and types of natural habitats (figure 3.2).

The northwest of the district (figure 3.3) has a large amount of woodland, much of which is publicly accessible, and includes the large parks of Thoresby and Rufford Abbey. Edwinstowe, Boughton, Ollerton, Walesby and part of the Mansfield urban area are close to this concentration of green infrastructure assets.

The central area is dominated by the agricultural landscape and is punctuated with small blocks of more isolated woodland many of which are nationally important semi-natural ancient woodland. These blocks of woodland have been identified through the consultation process as important landscape and biodiversity assets in need of protection and enhancement. Public access to these wooded areas is limited although the footpath network passes close by and they form distinctive landscape features due to their hilltop locations. In the south of the central area around Southwell, woodland is sparse, although Southwell itself is well-wooded.

The eastern part of the District (figure 3.4) is dominated by the River Trent and the Trent Navigation and many still-water bodies. These water bodies are a major leisure asset for angling, sailing, wildlife watching and walking. Accessible woodland in this part of the District is restricted to Stapleford Wood to the east and Pykett's Farm to the south of the Newark Urban Area.

Accessible green space assets are mainly within Newark Urban Area and reflect the specific needs of populated areas, with a range of different types of green and open spaces such as parks and allotments. Newark and Southwell also have areas designated as Green Wedges within the old Local Plan.


1. Sherwood Heath LNR
2. Rainworth Water LNR
3. Tippings Wood LNR
4. Rufford Abbey Country Park
5. Sherwood Pines Forest Park & Sherwood Forest NNR
6. Thoresby Park
7. Thurgarten Hundred Workhouse
8. Farndon Ponds LNR
9. Devon Park Pastures LNR
10. Sconce & Devon Park
11. Newark Castle & Riverside Park
12. Pykett's Farm
13. Stapleford Wood
14. Southwell Trail LNR
15. Vicar Water Country Park LNR
16. Beacon Hill Conservation Park
FIGURE 3.1
Green Space Assets: Newark and Sherwood District
Key Green and Open Space Assets
Main Rivers
Watercourses & Waterbodies
Local Nature Reserve
Natural Assets with high biodiversity value
Accessible Woodland
Publically Accessible Green Space
Registered Parks and Gardens
Open Access Land
Settlements
Newark & Sherwood District Boundary
Areas of high biodiversity in Newark and Sherwood District include;
Sites of Special Scientifc Interest
Local Nature Reserves
National Priority Habitats
Sites of Interest for Nature Conservation
Ancient Woodland
Woodland
Data Sources:
Newark and Sherwood District Council
Natural England, Woodland Trust
Nottinghamshire Biological Records Centre
TEP
NEWARK & SHERWOOD DISTRICT COUNCIL
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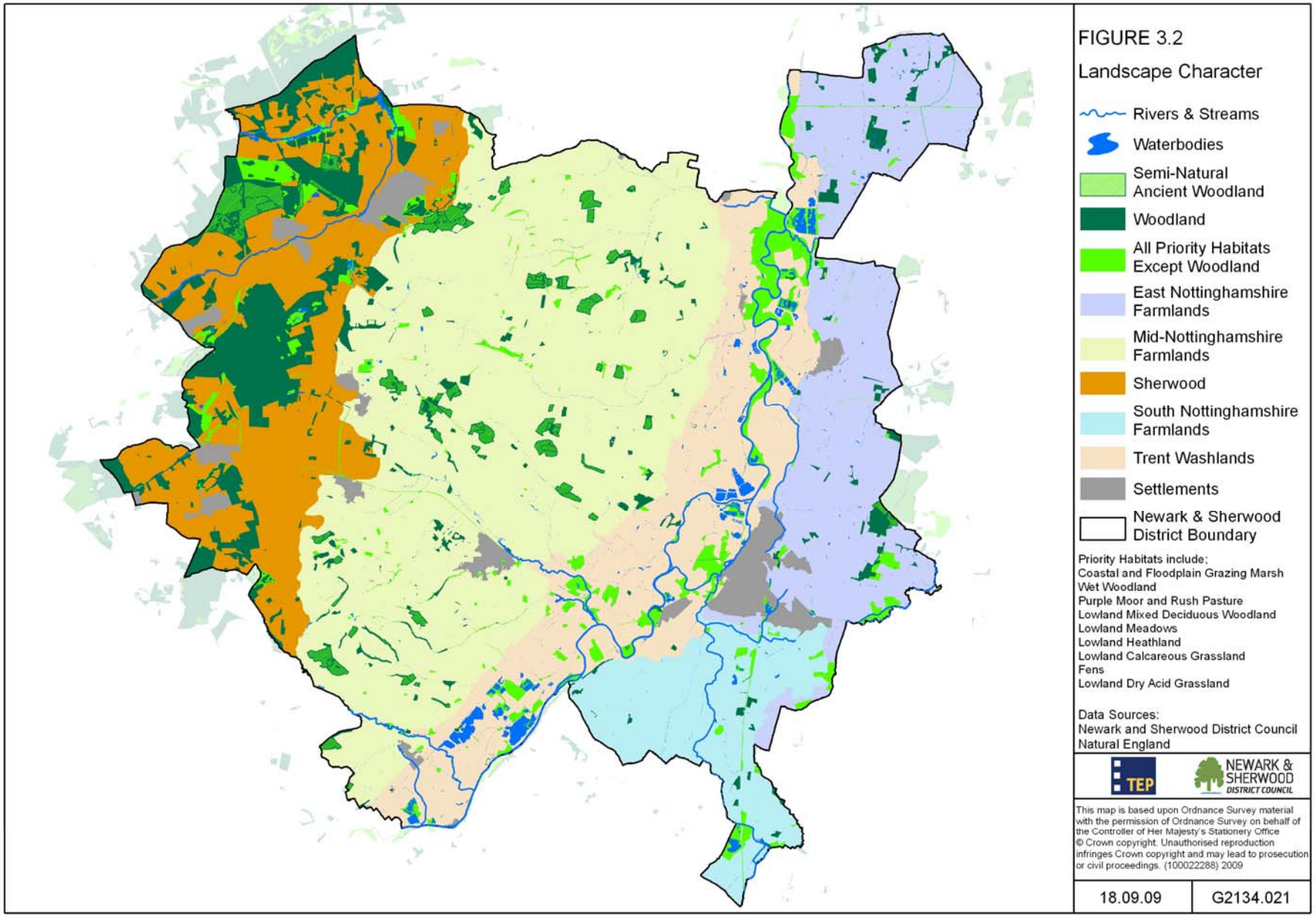
FIGURE 3.2
Landscape Character
Rivers & Streams
Waterbodies
Semi-Natural Ancient Woodland
Woodland
All Priority Habitats Except Woodland
East Nottinghamshire Farmlands
Mid-Nottinghamshire Farmlands
Sherwood
South Nottinghamshire Farmlands
Trent Washlands
Settlements
Newark & Sherwood District Boundary
Priority Habitats include;
Coastal and Floodplain Grazing Marsh
Wet Woodland
Purple Moor and Rush Pasture
Lowland Mixed Deciduous Woodland
Lowland Meadows
Lowland Heathland
Lowland Calcareous Grassland
Fens
Lowland Dry Acid Grassland
Data Sources:
Newark and Sherwood District Council
Natural England
TEP
NEWARK & SHERWOOD DISTRICT COUNCIL
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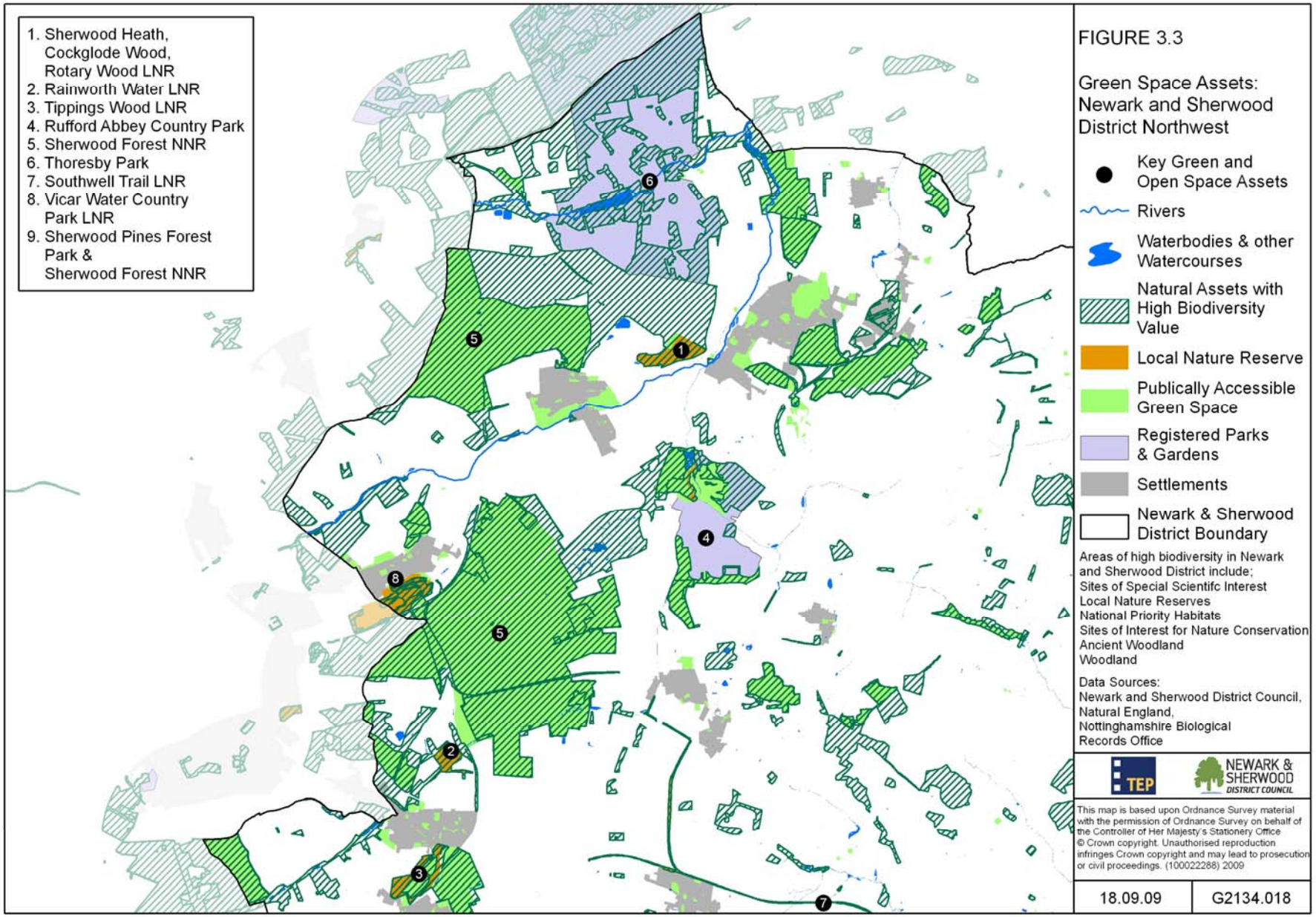
1. Sherwood Heath, Cockglode Wood, Rotary Wood LNR
2. Rainworth Water LNR
3. Tippings Wood LNR
4. Rufford Abbey Country Park
5. Sherwood Forest NNR
6. Thoresby Park
7. Southwell Trail LNR
8. Vicar Water Country Park LNR
9. Sherwood Pines Forest Park & Sherwood Forest NNR
FIGURE 3.3
Green Space Assets: Newark and Sherwood District Northwest
Key Green and Open Space Assets
Rivers
Waterbodies & other Watercourses
Natural Assets with High Biodiversity Value
Local Nature Reserve
Publically Accessible Green Space
Registered Parks & Gardens
Settlements
Newark & Sherwood District Boundary
Areas of high biodiversity in Newark and Sherwood District include;
Sites of Special Scientifc Interest
Local Nature Reserves
National Priority Habitats
Sites of Interest for Nature Conservation
Ancient Woodland
Woodland
Data Sources:
Newark and Sherwood District Council,
Natural England,
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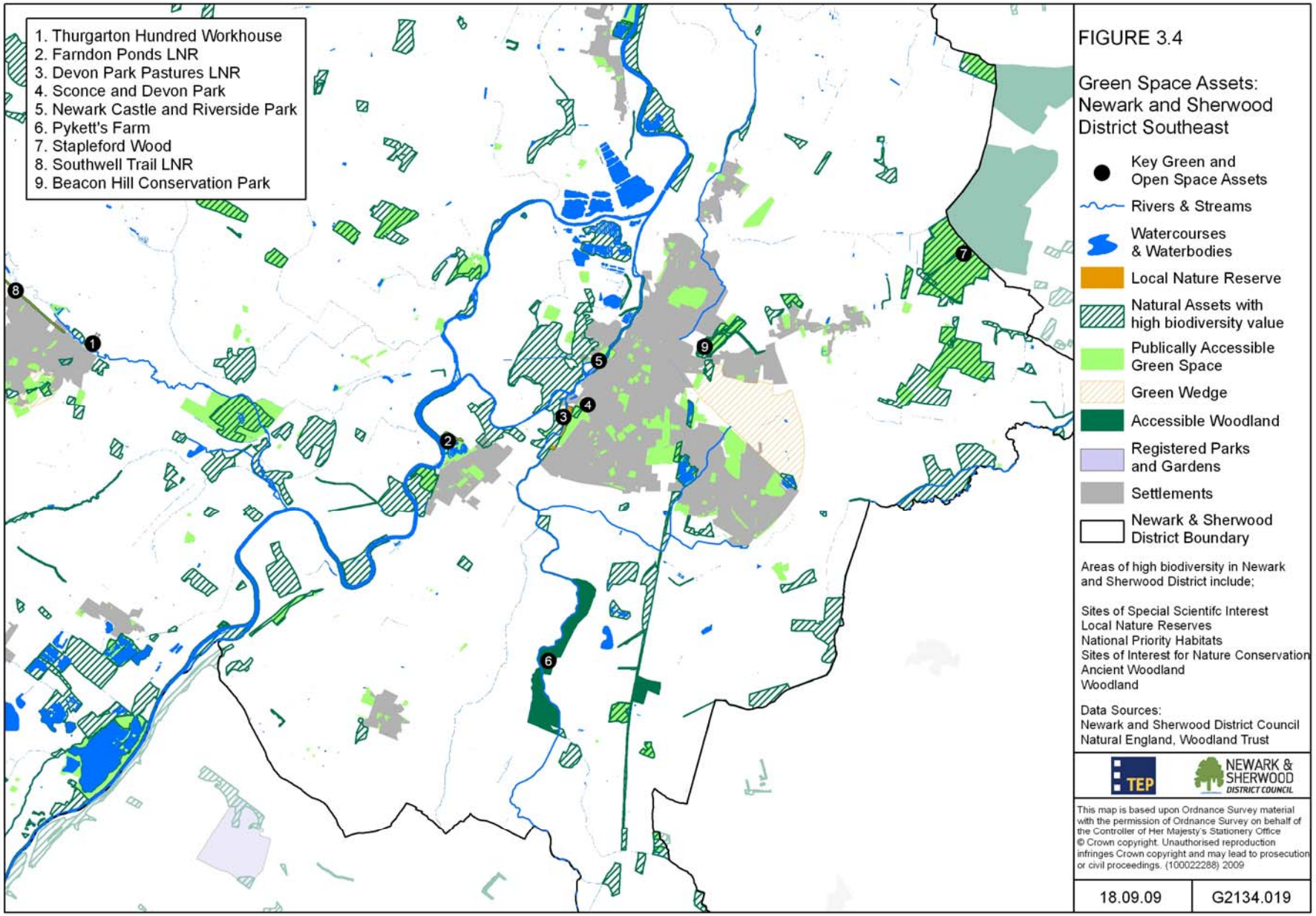
1. Thurgarton Hundred Workhouse
2. Farndon Ponds LNR
3. Devon Park Pastures LNR
4. Sconce and Devon Park
5. Newark Castle and Riverside Park
6. Pykett's Farm
7. Stapleford Wood
8. Southwell Trail LNR
9. Beacon Hill Conservation Park
FIGURE 3.4
Green Space Assets: Newark and Sherwood District Southeast
Key Green and Open Space Assets
Rivers & Streams
Watercourses & Waterbodies
Local Nature Reserve
Natural Assets with high biodiversity value
Publically Accessible Green Space
Green Wedge
Accessible Woodland
Registered Parks and Gardens
Settlements
Newark & Sherwood District Boundary
Areas of high biodiversity in Newark and Sherwood District include;
Sites of Special Scientifc Interest
Local Nature Reserves
National Priority Habitats
Sites of Interest for Nature Conservation
Ancient Woodland
Woodland
Data Sources:
Newark and Sherwood District Council
Natural England, Woodland Trust
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Access

The access network in the District is comprehensive with two National Cycle Network routes, the Robin Hood Way promoted path and most of the settlements being well served by the Public Rights of Way (PROW) network (figure 3.5). There are however several areas where access is limited: there are few public rights of way to the north of Southwell, between the two parts of the Sherwood Pines Forest Park, south of Edwinstowe and southwest and northwest of the Newark Urban Area.

Although the River Trent is the key green infrastructure asset in the east of the District access to and along its banks is limited. The Trent Vale Project has a programme of access improvements which will improve this situation. Public access in the centre of the District is also limited, although this is relatively less important because of the absence of settlements in this area. The Trent Valley Way travels along the valley and the River, although in some places the path departs from the main river.

Southwell Trail LNR is an important access asset in centre of the District and provides traffic free cycle and pedestrian access between Southwell, Farnsfield, Kirklington and Bilsthorpe.

Open access land and accessible woodland is concentrated in the west of the District in the Sherwood Forest area, although Stapleford Wood and Pykett's Farm/The Grange provide accessible woodland closer to the Newark Urban Area. Along the River Trent close to Sutton on Trent there is a large area of open access land which provides access to a semi-natural area of priority habitat.

Biodiversity

The biodiversity in the District is varied and can be divided in to three general areas, which are closely though not exactly aligned with the landscape characters of the District. .

The western area is dominated by large wooded areas interspersed with heathland, agricultural land and urban fringe. The main natural corridor in this area is the Maun Valley, which is subject to project work concentrating on access and land management.

As described earlier, the central area is home to isolated patches of semi-natural ancient woodland many of which contain important indicator species. These patches are isolated within an open agricultural matrix, and although in places hedgerows act as a connecting feature, there is also opportunity in this area to expand upon the length of hedgerows to increase the connectivity within the landscape.

The Trent provides the main element of biodiversity value/potential in the east of the District. Along its length there are several still waters of high biodiversity value including some that are multifunctional in nature (providing a recreational function in addition to the wildlife value). Other important habitats along the Trent corridor include grazing marsh, lowland meadows, dry acid grassland and heathland and wet woodland. Woodland cover along the Trent River corridor is minimal and could be increased to improve its connectivity function. In the west of the District colliery spoil heaps have been restored to woodland increasing the woodland cover close to the Sherwood Forest area.

Newark and Sherwood contains several nationally important habitats including:

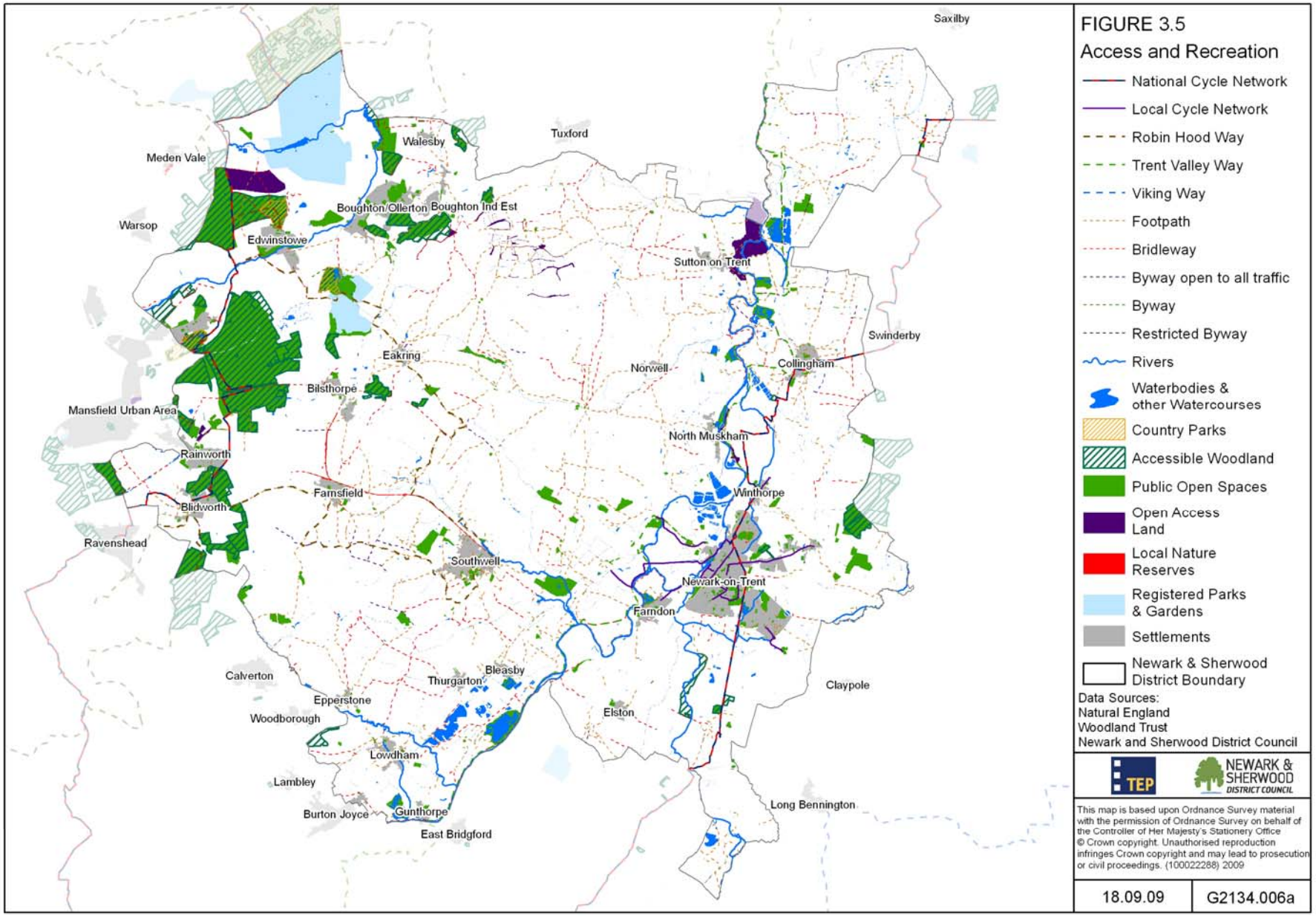
- Floodplain Grazing Marsh
- Fens (small amount)
- Lowland Calcareous Grassland
- Lowland Dry Acid Grassland
- Lowland Heath
- Lowland Meadows
- Lowland Mixed Deciduous Woodland
- Purple Moor Grass/Rush Pasture
- Reed Beds
- Wet Woodland

The District is also home to several nationally important species including the Bullfinch (*Pyrrhula pyrrhula*), Great Created Newt (*Triturus cristatus*), Otter (*Lutra lutra*), Water Vole (*Arvicola terrestris*), Woodlark (*Lullula arborea*) and Nightjar (*Caprimulgus europaeus*). Table 3.1 shows an example of species found in the District and their relation ship to national and local BAPs.

Table 3.1 Species found in Newark and Sherwood District

Species	UKBAP	Nottinghamshire BAP
Water Vole (*Arvicola terrestris*)	✓	✓
Brown Hare (*Lepus europaeus*)	✓	
Bullfinch (*Pyrrhula pyrrhula*)	✓	
Great Crested Newt (*Triturus cristatus*)	✓	
Nightjar (*Caprimulgus europaeus*)	✓	✓
Barn Owl (*Tyto Alba*)		✓
European Otter (*Lutra lutra*)	✓	✓
Reed Bunting (*Emberiza schoeniclus*)	✓	
Woodlark (*Lullula arborea*)	✓	

Large parts of the north-western habitat extent are designated as Sites of Special Scientific Interest (SSSIs) and contains the Birklands and Bilhaugh Special Area of Conservation (SAC) (figure 3.6). In all, the District has over 1,381ha of land designated as SSSI. The condition of the District's SSSIs is varied when compared to the national average (Table 3.2). Although the District's SSSI resource has less areas in favourable condition those that are poor, are improving. The national amount of favourable habitat is somewhat skewed due to the large amount of upland and coastal (mudflat) sites that exist across the country. Within the Sherwood Forest area there is also the Sherwood Forest National Nature Reserve covering some 423ha, much of which is publically accessible.


Saxilby
Tuxford
Walesby
Meden Vale
Boughton/Ollerton
Boughton Ind Est
Warsop
Edwinstowe
Sutton on Trent
Swinderby
Eakring
Norwell
Collingham
Bilsthorpe
Mansfield Urban Area
North Muskham
Rainworth
Farnsfield
Winthorpe
Blidworth
Ravenshead
Southwell
Newark-on-Trent
Farndon
Calverton
Bleasby
Thurgarton
Claypole
Epperstone
Woodborough
Elston
Lowdham
Lambley
Long Bennington
Burton Joyce
Gunthorpe
East Bridgford
FIGURE 3.5
Access and Recreation
National Cycle Network
Local Cycle Network
Robin Hood Way
Trent Valley Way
Viking Way
Footpath
Bridleway
Byway open to all traffic
Byway
Restricted Byway
Rivers
Waterbodies & other Watercourses
Country Parks
Accessible Woodland
Public Open Spaces
Open Access Land
Local Nature Reserves
Registered Parks & Gardens
Settlements
Newark & Sherwood District Boundary
Data Sources:
Natural England
Woodland Trust
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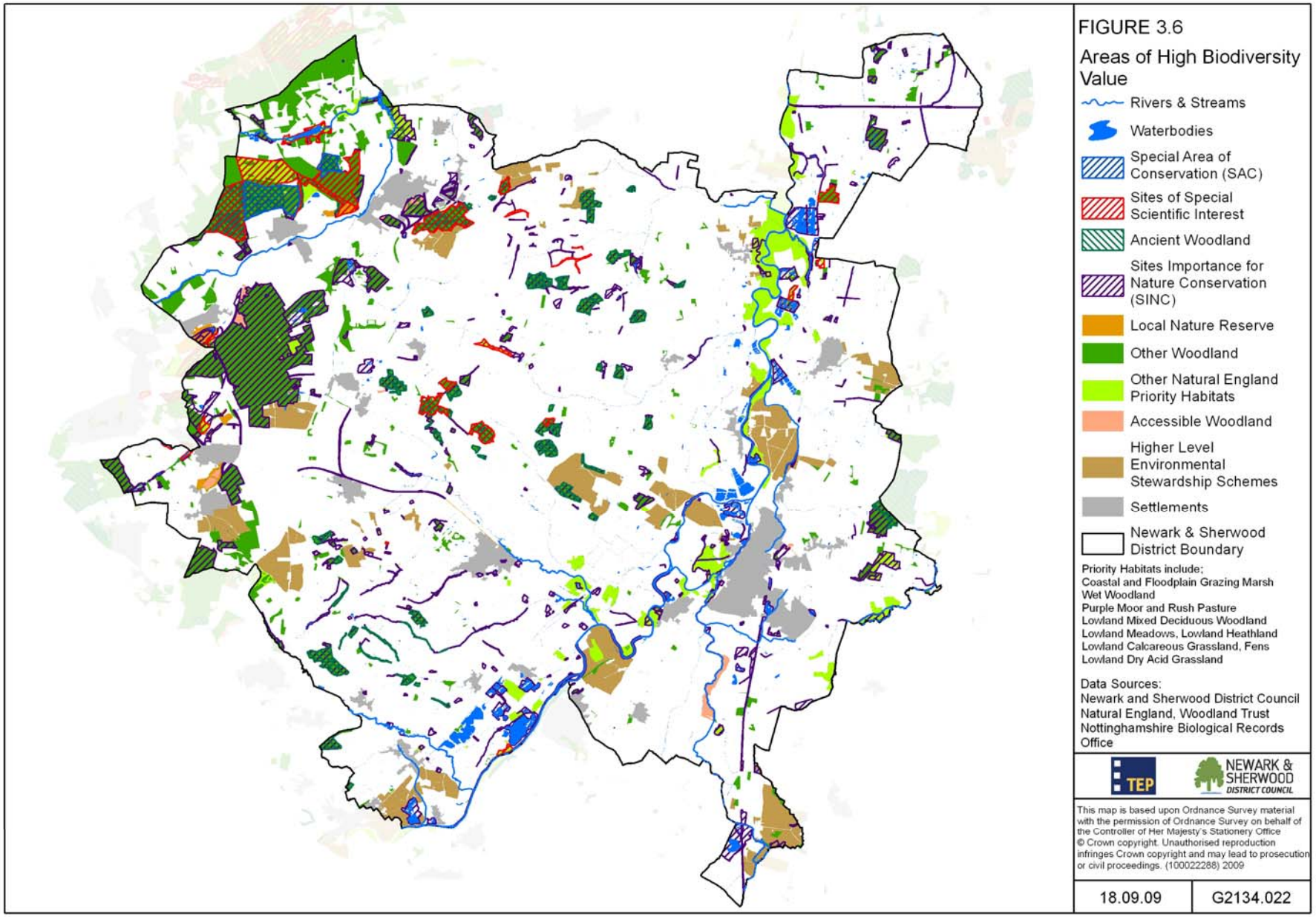
FIGURE 3.6
Areas of High Biodiversity Value
Rivers & Streams
Waterbodies
Special Area of Conservation (SAC)
Sites of Special Scientific Interest
Ancient Woodland
Sites Importance for Nature Conservation (SINC)
Local Nature Reserve
Other Woodland
Other Natural England Priority Habitats
Accessible Woodland
Higher Level Environmental Stewardship Schemes
Settlements
Newark & Sherwood District Boundary
Priority Habitats include;
Coastal and Floodplain Grazing Marsh
Wet Woodland
Purple Moor and Rush Pasture
Lowland Mixed Deciduous Woodland
Lowland Meadows, Lowland Heathland
Lowland Calcareous Grassland, Fens
Lowland Dry Acid Grassland
Data Sources:
Newark and Sherwood District Council
Natural England, Woodland Trust
Nottinghamshire Biological Records Office
TEP
NEWARK & SHERWOOD DISTRICT COUNCIL
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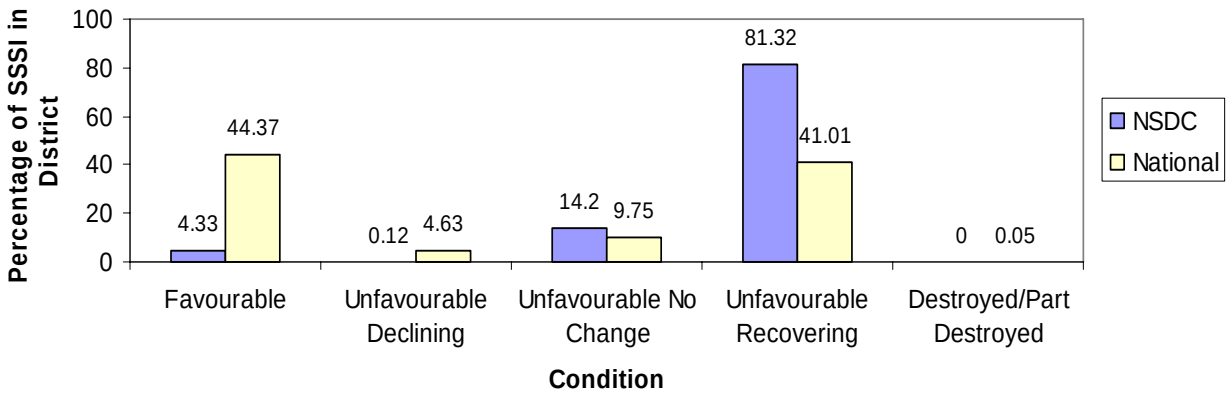
Table 3.2 Condition of SSSI in Newark and Sherwood District



The Sherwood Forest National Nature Reserve (NNR) is the only NNR in the District and encompasses 423ha of woodland and heath. The District has nine Local Nature Reserves (LNRs) totalling over 172ha (Vicars Water Country Park has 48ha within the District), including Farndon Pond and Devon Park Pastures close to the Newark Urban Area and the Southwell Trail, a disused railway line leading from Southwell to Bilsthorpe.

In addition the District has many Sites of Interest for Nature Conservation (SINCs) which total 4,662ha (not including those within SSSI sites) and cover a wide variety of habitat sites. SINCS are places that are of at least county level importance for the wildlife they hold. Nottinghamshire's SINCS are home to many rare and scarce species, and some are the last fragments of habitats that were once widespread and typical of the Nottinghamshire landscape. Collectively, they form an essential network of corridors and stepping stones, allowing the dispersal of species. The survival of these sites is vital to safeguard wildlife from the pressures of migration and development, agricultural change and climate change. Site boundaries and the reasons for site designations are provided to Local Authorities so that these important wildlife sites can be taken into account in the planning system, as required by national policy (Planning Policy Statement 9 - Biodiversity and Geological Conservation, in which they are referred to as 'local sites').

Heritage and Tourism

The heritage and tourism assets within the District are for the most part associated with green infrastructure assets such as the Trent and Sherwood Forest Area. Much of the historical interest around Newark Urban Area is related to the English Civil War period. The Sconce and Devon Park is a good example of this, combining rich heritage with a multifunctional park. The District's history is well represented by its scheduled monuments which age from the prehistoric through to the Roman and Mediaeval periods.


Southwell Minster

Other examples of heritage/historic assets include the Laxton Field System, a field strip system dating from the medieval period. Environmental Stewardship Schemes from Natural England have been used to help preserve this important landscape and improve access to it. The Workhouse in Southwell is an important visitor asset in the centre of the District and is supported by the architectural distinctive character of the town and the Southwell Minster. The District has several areas that are considered to be mature landscapes with a concentration of these around Southwell.

The River Trent itself is a key visitor and heritage asset, as a waterway, angling venue, wildlife area, walking route and industrial heritage. The Trent Vale Programme (see below) will help reinforce this significant asset. With the refurbishment of the Sconce and Devon Park and the improvements highlighted in the Trent Vale Programme, the Trent corridor can become a major connecting feature in the landscape, for people and wildlife.

Existing Green Infrastructure Initiatives

There are already several initiatives within Newark and Sherwood which contribute to and/or benefit from green infrastructure (figure 3.7). The most developed of these is the Trent Vale Programme which has recently received support from the Heritage Lottery Fund (HLF) and is expected to commence early 2010. This programme brings together biodiversity improvements, access/recreation enhancement and the protection of special and heritage landscape features in collaboration with local communities.

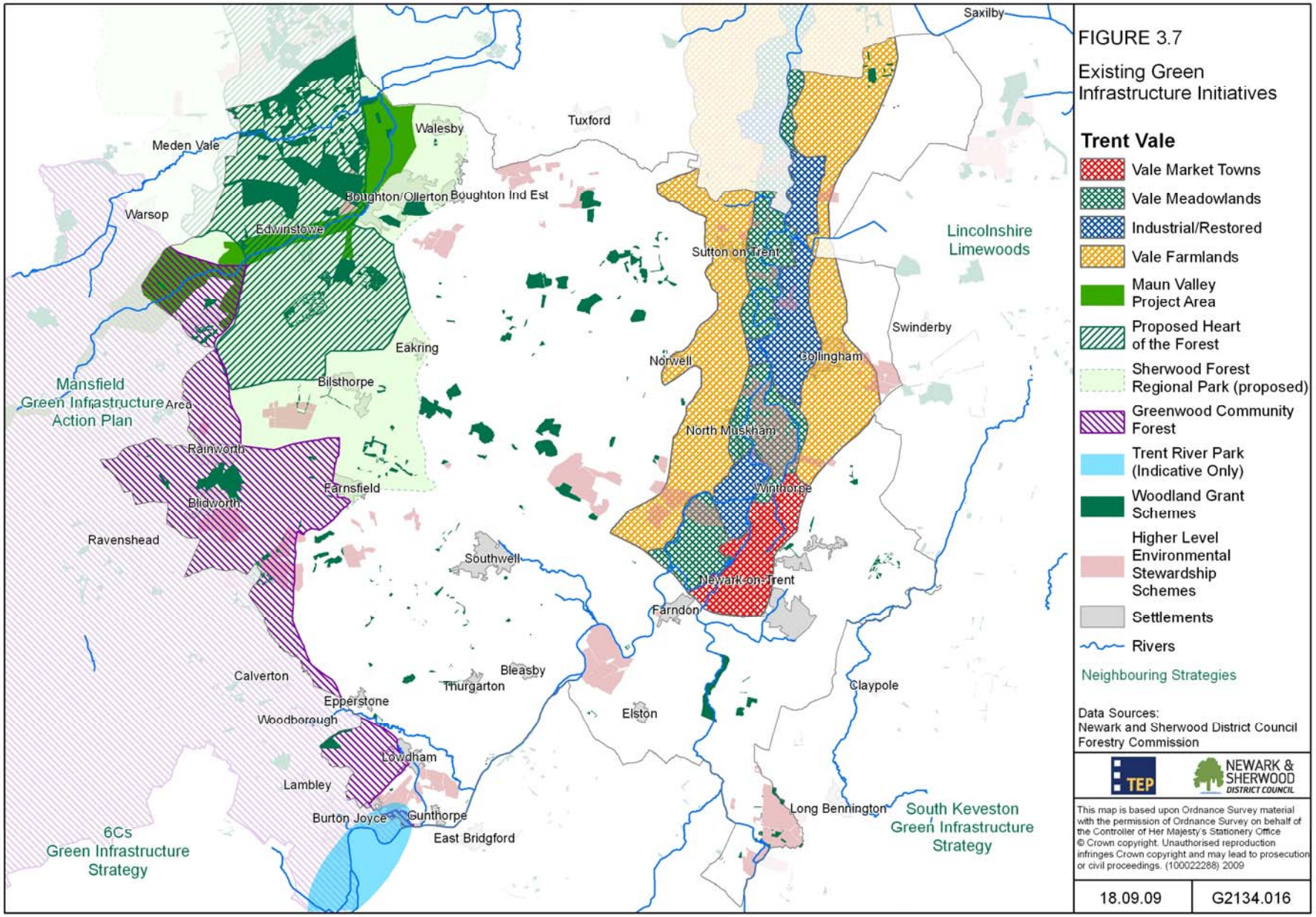
The Maun Valley Project in the northwest of the District aims to provide a co-ordinated approach to improving the watercourse and recognises the value of the river corridor for wildlife, communities and landscape quality. Habitat management, access improvement and reducing pollution are key objectives of the project. The concentration of green infrastructure assets such as the Maun Valley, Sherwood Forest area, Thoresby Park and Rufford Abbey means that green infrastructure provision in this area is advanced and most probably some of the best in the country.

At the wider level the proposed Sherwood Forest Regional Park relies on the existing green infrastructure assets in the area to attract investment, assist in regeneration and sustain the visitor economy. Improvements and increases in the green infrastructure resource will not only serve to strengthen the Sherwood Forest 'brand' outside of the Park, but help create and maintain a good quality of life for existing and potential residents.

The consultation draft of the 6Cs green infrastructure strategy[1] has highlighted several key green infrastructure networks in the District that form part of the wider sub-regional network of assets and corridors. These will provide a baseline and guide for the production of the Newark and Sherwood Green Infrastructure Strategy. Ongoing work by Natural England is examining the level of public access within the landscape as part of the 6Cs programme. Opportunities for reconnecting priority habitats are also being examined.

The Greenwood Community Forest extends into the west of the District. It encompasses around 19% of Nottinghamshire and is home to over a million people. The Forest aims to have 30% woodland cover and is seen as being important in contributing towards long term sustainable development in the region. Improved access and biodiversity, community involvement and ownership, supporting agriculture and the remediation of derelict land are key aspects of Greenwood's overall strategy.

[1] Towards a GI Strategy for the 6Cs Growth Point: Sub Regional Strategic Framework (Consultation Draft, September 2009) CBA for the 6Cs Strategic Green Infrastructure Project Board


Saxilby
Tuxford
Walesby
Meden Vale
Boughton/Ollerton
Boughton Ind Est
Warsop
Edwinstowe
Lincolnshire Limewoods
Sutton on Trent
Swinderby
Eakring
Norwell
Collingham
Mansfield Green Infrastructure Action Plan Area
Bilsthorpe
North Muskham
Rainworth
Farnsfield
Winthorpe
Blidworth
Ravenshead
Southwell
Newark-on-Trent
Farndon
Calverton
Bleasby
Thurgarton
Claypole
Epperstone
Elston
Woodborough
Lowdham
Lambley
Long Bennington
Burton Joyce
Gunthorpe
East Bridgford
6Cs Green Infrastructure Strategy
South Keveston Green Infrastructure Strategy
FIGURE 3.7
Existing Green Infrastructure Initiatives
Trent Vale
Vale Market Towns
Vale Meadowlands
Industrial/Restored
Vale Farmlands
Maun Valley Project Area
Proposed Heart of the Forest
Sherwood Forest Regional Park (proposed)
Greenwood Community Forest
Trent River Park (Indicative Only)
Woodland Grant Schemes
Higher Level Environmental Stewardship Schemes
Settlements
Rivers
Neighbouring Strategies
Data Sources:
Newark and Sherwood District Council
Forestry Commission
TEP
NEWARK & SHERWOOD DISTRICT COUNCIL
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Chapter 4: Drivers for Change

This chapter examines the issues that affect Newark and Sherwood's green infrastructure resources to determine the drivers for change in the District, within the context of national, regional, sub-regional and District wide policies and in light of the findings from a range of research studies and initiatives as well as feedback from the stakeholder consultation. A full list of those documents considered in the assessment is provided in Appendix 2, and a report on the stakeholder consultation in Appendix 3.

Issues Affecting Newark and Sherwood

The assessment has revealed a range of issues which may affect the provision, delivery and protection of Newark and Sherwood's green infrastructure resources.

- Growth and development
- Climate change and flooding
- Biodiversity
- Tourism
- Access, recreation and community need for green space
- Socio-economics
- Land use and environmental quality

- **Growth and Development** (Figure 4.1)

Over the next sixteen years Newark and Sherwood District will be subject to growth and change through its designation as a regional Growth Point. The District is required to provide 14,800[1] dwellings between 2006 and 2026, an annual delivery of some 827 dwellings (4,136 over a 5 year period). This will require flexibility due to land availability and other external factors. The limited amount of brownfield sites and infill opportunities will mean that these homes will be delivered through sustainable urban extensions to the District's towns and villages: the western and southern sub-areas of the District are expected to provide some additional housing, however the majority of the growth will be located in the Newark Urban Area as the sub regional centre for the District.

The Core Strategy options report also recognises that more land may be required for employment to meet the predicted population growth and to widen the employment opportunities to reduce high levels of out-commuting[2]. Some allocated employment land in the District may or may not be located in appropriate areas (i.e. close to residential areas and sustainable transport routes). For a sustainable set of employment options it may be necessary to de-allocate some employment land in parts of the District and make up the shortfall in more suitable areas closer to employees (i.e. residential areas) and to the transport network. The lack of quality employment sites was also identified as a weakness in the review of the District's Economic Development Strategy[3].

[1] East Midlands Regional Plan (2009) Government Office East Midlands
[2] Newark and Sherwood Core Strategy Options Report (2009) Newark and Sherwood District Council
[3] Economic Development Strategy: Partnerships for Growth (2008 Review) Newark & Sherwood District Council

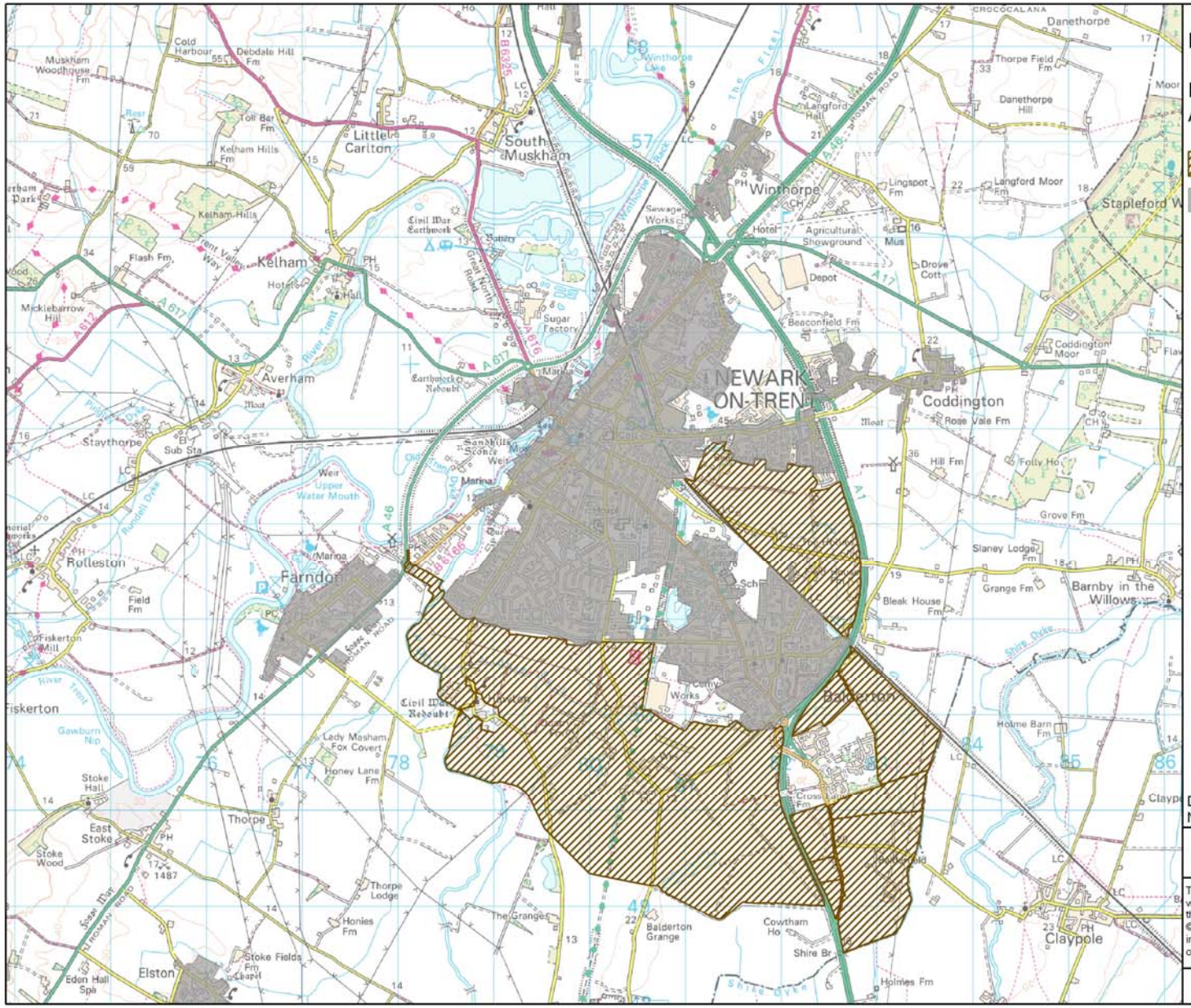


FIGURE 4.1

Potential Development Areas - Newark

Potential Development Areas in Newark

Settlements

In order to meet the need for extra housing land three strategic sites have been identified as having the potential for sustainable urban extensions:

- 'Land South of Newark' (in land between Newark and Hawton and Balderton and the A1)
- 'Land around Fernwood' (around the new community of Fernwood)
- 'Land East of Newark' (between Beacon Hill Road and the East Coast Main Line)

The Strategic sites will also feature local services and employment allocations.
This potential large increase in housing and population requires measures to ensure that existing areas and neighbourhoods are not impacted upon and that a high quality of life is available to existing and potential residents. Wherever development takes place, it will have an impact on communities, wildlife, landscapes and the wider environmental functions such as air and water quality which are essential elements of providing quality of life (at work and at home) and quality of place.

Development on green field sites raises issues regarding the landscape, biodiversity, community access and environmental functions of the site. Any development on green field sites will alter the hydrology and rainfall interception capability of the ground. Sealing surfaces for roads, paving or the footprint of a house will increase the rate rainfall run-off enters the waste water system. This has implications in regard to localised surface flood risk and the release of untreated waste at water processing plants due to overload during high levels of rainfall.

Design guides for new development can help reduce the rate of run-off by ensuring rainfall interception methods are used in the design and layout of new development. Sustainable Drainage Systems (SuDS), interception and storage ponds are all vital in reducing run-off, and can also provide habitat for wildlife within residential areas and form part of an access network.

Other aspects of green field development include the potential loss of landscape character elements such as hedge lines, ponds and trees. These elements are not only an important part of an area's character but also provide valuable habitat and linkages between habitats in what is essentially an open agricultural landscape. Retaining such elements within design will help new development retain or adopt the landscape character of an area, making it more attractive to potential residents whilst maintaining a biodiversity function.

Maintaining human connectivity is also a vital part of delivering sustainable development, and a network that meets local needs and is fit for purpose will be a key aspect of creating sustainable and healthy communities. Parts of the existing footpath network have been used for generations and are an essential part of the heritage and cultural history of local areas. Keeping and where necessary improving these important routes within new development is therefore essential in maintaining access for communities. As landscapes and settlement structures change, there may be a case for switching investment from obsolete or redundant paths to secure more strategic and appropriate access arrangements where previously there were none.

High value biodiversity areas such as Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) are sensitive to user pressures and uses such as dog walking, mountain-biking and other activities. Any increase in population is likely to exert pressure on these important resources and must therefore be compensated for. Sustainable Accessible Natural Greenspace (SANG) are recommended by Natural

England as a way of reducing user pressure on more sensitive sites that allow public access. For Newark and Sherwood the predicated increase in population through both natural growth and additional housing means that there will be extra pressure on those resources and alternative destination sites are likely to be needed. In the west of the District there is potentially a new Special Protection Area being created which will also need to be protected from over-use in the future.

- **Climate Change and Flooding**

Changes in our climate will affect everybody over the coming decades, including increased risk of flooding from more intense rainfall and greater river flow rate[4] in addition to the increased temperatures and reduced rainfall in the summer months. This will require behavioural changes to combat the onset of climate change and changes to the way land is used and managed to mitigate against its negative effects.

Reducing the causes and effects of climate change are Core Objectives in the East Midlands Regional Plan[5], which sets out through its policies how climate change can be addressed in areas such as transport, development design, flood risk and managing water resources amongst others. Reducing the heat island effect and creating sustainable drainage and carbon sinks are seen as key aspects of new development design and control.

Rainfall and Flooding (Figure 4.2)

Current predictions about rainfall patterns show reduced rainfall in the summer months and heavier rainfall during winter. In terms of land use and development there are several issues raised by these changing patterns:

– Urban Run-off

Areas with a high percentage of sealed surfaces create excessive run-off, creating problems for wastewater treatment and possible diffuse pollution entering the river network. With many of the District's settlements located on the river network increased run-off also increases the risk of downstream flooding.

– Agricultural Run-off

Intensification of agricultural land in the 20th Century has contributed to a faster and higher rate of surface run-off[6]. Excessive rainfall can create a situation where fertilisers, pesticide and soils can find their way into the river network with the potential to damage the economic and environmental value of the fisheries (freshwater and marine).

– Sealed Surfaces

In addition to creating run-off, sealed surfaces deny the opportunity for water to enter the water table naturally (groundwater recharge). This creates a situation where during the dryer summer months, rivers and connecting brook/stream networks have reduced flow rates or indeed can cease to flow at all. Combined with excessive run-off during wet weather this negatively impacts on the biodiversity inhabiting these water courses.

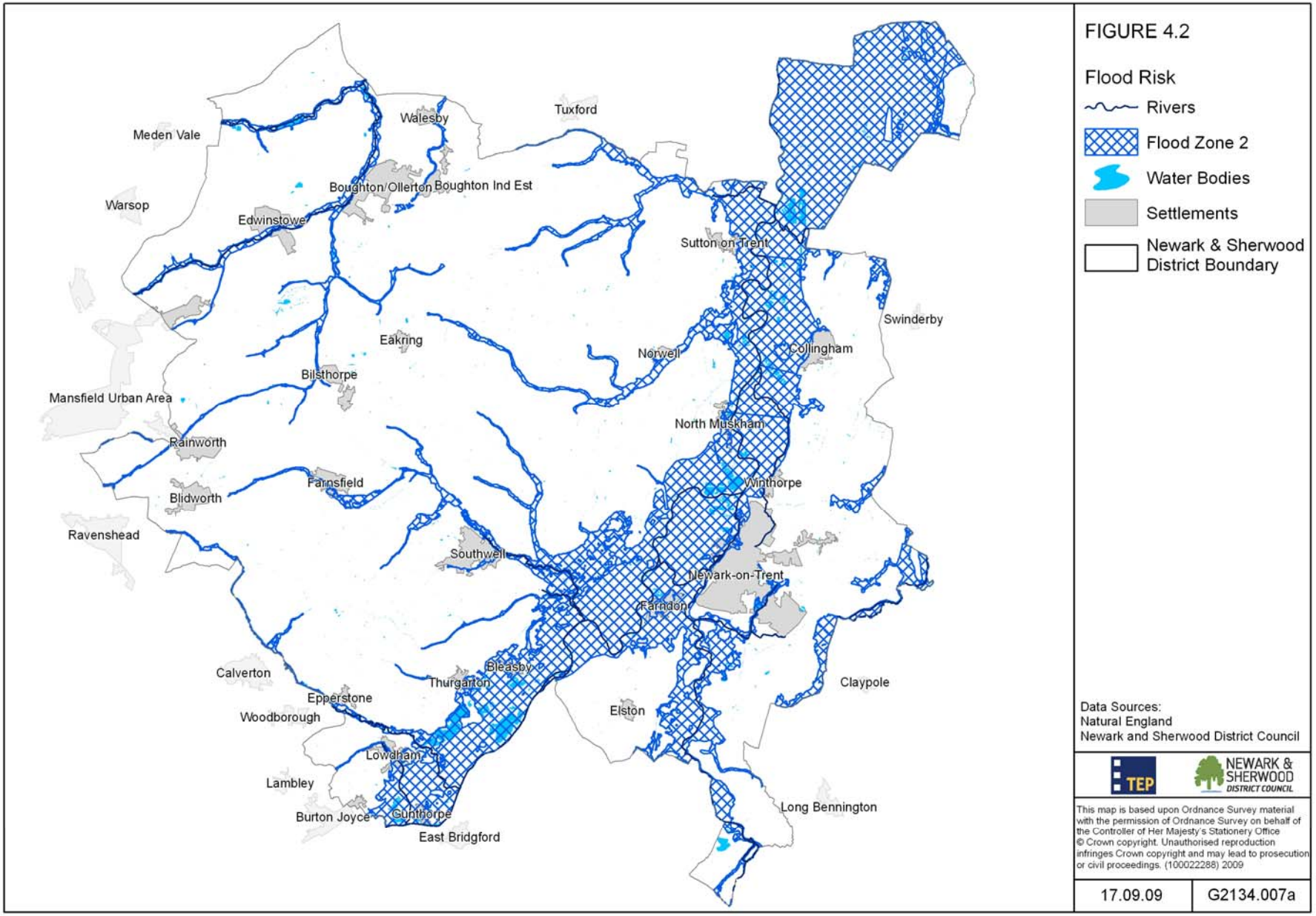
– Water Usage

Growth will increase the pressure on water resources in the domestic, industrial and agricultural sectors. Dryer summers and reduced groundwater recharge mean that water will be at a premium during these dry months.

[4] Newark and Sherwood District Council – Strategic Flood Risk Assessment – Level 1 Report (2009) WSP for Newark and Sherwood District Council

[5] East Midlands Regional Plan (2009) Government Office for the East Midlands

[6] River Trent Fluvial Strategy – Final Strategic Appraisal Report (2005) Environment Agency


Meden Vale
Walesby
Tuxford
Warsop
Boughton/Ollerton
Boughton Ind Est
Edwinstowe
Sutton on Trent
Swinderby
Eakring
Norwell
Collingham
Bilsthorpe
Mansfield Urban Area
North Muskham
Rainworth
Farnsfield
Winthorpe
Blidworth
Ravenshead
Southwell
Newark-on-Trent
Farndon
Calverton
Bleasby
Thurgarton
Claypole
Epperstone
Elston
Woodborough
Lowdham
Lambley
Long Bennington
Burton Joyce
Gunthorpe
East Bridgford
FIGURE 4.2
Flood Risk
Rivers
Flood Zone 2
Water Bodies
Settlements
Newark & Sherwood District Boundary
Data Sources:
Natural England
Newark and Sherwood District Council
TEP
NEWARK & SHERWOOD DISTRICT COUNCIL
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Run-off - already a problem in urban areas – is likely to worsen as weather patterns change and has been recognised as a national issue that the planning system must address[7]. Newark and Sherwood's planned growth has the opportunity to create housing and employment area that not only reduce run-off but allow for natural percolation into the water table, helping to sustain the stream/brook networks and groundwater abstraction. Incorporating Sustainable Drainage Systems (SuDS) and rainfall interception/storage into the layout and design of development will therefore be essential in avoiding flood risk and environmental damage and is supported by the Regional Plan. In areas where development is already established, green spaces can serve as storage areas and street trees can aid the interception of rainfall and reduce the run-off rate.

In rural and peri-urban areas flood control and storage can be achieved through allowing wetlands/washlands to be created alongside the rivers. These areas can become important refuges for wildlife, recreational areas for communities and help natural sediment deposition.

Urban Heat Island

All new development must take into account the needs of the environment and communities as our climate changes. Urban areas and settlements with poor tree cover and a high proportion of heat absorbent surfaces create a 'heat island' effect, making these areas significantly warmer than the surrounding countryside.

The predicted rise in summer temperatures will create a situation where our urban areas could become uncomfortable, with people choosing to live in the cooler suburbs, which raises issues of the sustainability of town centres and transport options. Raising temperatures also increases the effect of airborne pollution on human health, further discouraging people from moving to and indeed remaining in an area.

Higher temperatures and the negative effects of airborne pollution further reduce the quality of life available to communities in urban areas. For the more vulnerable members of society and particularly those with limited mobility (physically and financially) this is a serious issue that has been identified as a key action the Region's climate change programme of action[8].

To improve the quality of life for the District's communities it will be necessary to address identified deficiencies in green space (quality and quantity) in a way that is appropriate to local needs and provides access and connections to the wider green space network.

Energy and Sustainable Transport

As recognised in the Regional Plan there is a need to reduce the causes of climate change. There is also a need to reduce our energy consumption not only because of the need to reduce greenhouse gas emissions, but also because supply, growing global demand and finite nature of resources require that we use less, and more efficiently.

Sustainable transport is just one aspect of reducing both emissions and our reliance on motorised transport and is supported by policies within the Regional Environment

[7] Safeguarding Our Soils – A Strategy for England (2009) Defra

[8] Tackling Climate Change in the East Midlands – Regional Programme of Action 2009-2011 (2009) East Midlands Regional Climate Change Partnership

Strategy[9]. Providing alternatives to motorised transport improves health (providing opportunities for exercise and through better air quality), reduces congestion in town centres and so improves quality of place. Green infrastructure and its networks of green and open spaces and access routes provide an ideal structure and concept to aid adaptation to climate change and the need to reduce our energy consumption and emissions via sustainable transport options.

- **Biodiversity** (Figure 4.3)

The District's most biodiversity rich area is in Newark and Sherwood's northwest, with most of the larger designated wildlife areas found in this quarter of the District. The River Trent and Newark Urban Area by contrast have few nationally designated areas despite the Trent and surrounding land being nationally important BAP habitats. Country wide there has been a decline in biodiversity, particularly in the latter half of the 20th Century where farming methods, development, infrastructure and land use have all had an effect on wildlife[10].

Connectivity is important for wildlife, providing corridors for dispersal, foraging and migration. The main biodiversity resource and connecting feature in the District is the River Trent, although the Environment Agency[11] recognises that the biodiversity supported by the River is low and the connective network of streams has been severely affected by flood defence measures. In addition, the wider landscape also suffers from a lack of connectivity, with the loss and poor management of hedgerows and loss of landscape elements such as ponds. This not only has a negative effect on wildlife but also on landscape character and quality[12]. A particular example is the semi-natural ancient woodland patches that are located around the central part of the District.

The re-connection of habitats and increase in their area is therefore essential in maintaining and enhancing the District's biodiversity (consistent with the requirements of PPS9[13] and the East Midlands Biodiversity Strategy). Whilst new development can also be a threat to the District's wildlife, innovative and considerate design can minimise and in some cases increase the biodiversity carrying capacity of development areas. The provision of a network based on increased size and connectivity of habitats will enable the District's wildlife to adapt to future climatic changes and developmental pressures such as user pressure.

The potential and existing biodiversity and recreational value of river corridors is such that they should be considered as the District's key connecting features and included as such in the Green Infrastructure Strategy. Whilst the River Trent is already subject to several programmes and initiatives, the District's other rivers are also important for providing connectivity for people and wildlife. Indeed several watercourses pass through the landscape and connect the District's settlements, such as the River Greet which connects Southwell to the Trent, the River Devon south of the Newark Urban Area and the River's Maun and Meden which pass through areas rich in tourism assets.

[9] East Midlands Environment Strategy – Objectives and Policies (2002) EMRA
[10] Putting Wildlife Back on the Map: A Biodiversity Strategy for the East Midlands (2006) EMRA & East Midlands Biodiversity Forum
[11] River Trent Fluvial Strategy – Final Strategic Appraisal Report (2005) Environment Agency
[12] Greater Nottinghamshire Landscape Character Assessment (2009) TEP for Nottinghamshire County Council
[13] Planning Policy Statement 9: Biodiversity and Geological Conservation (2005) CLG

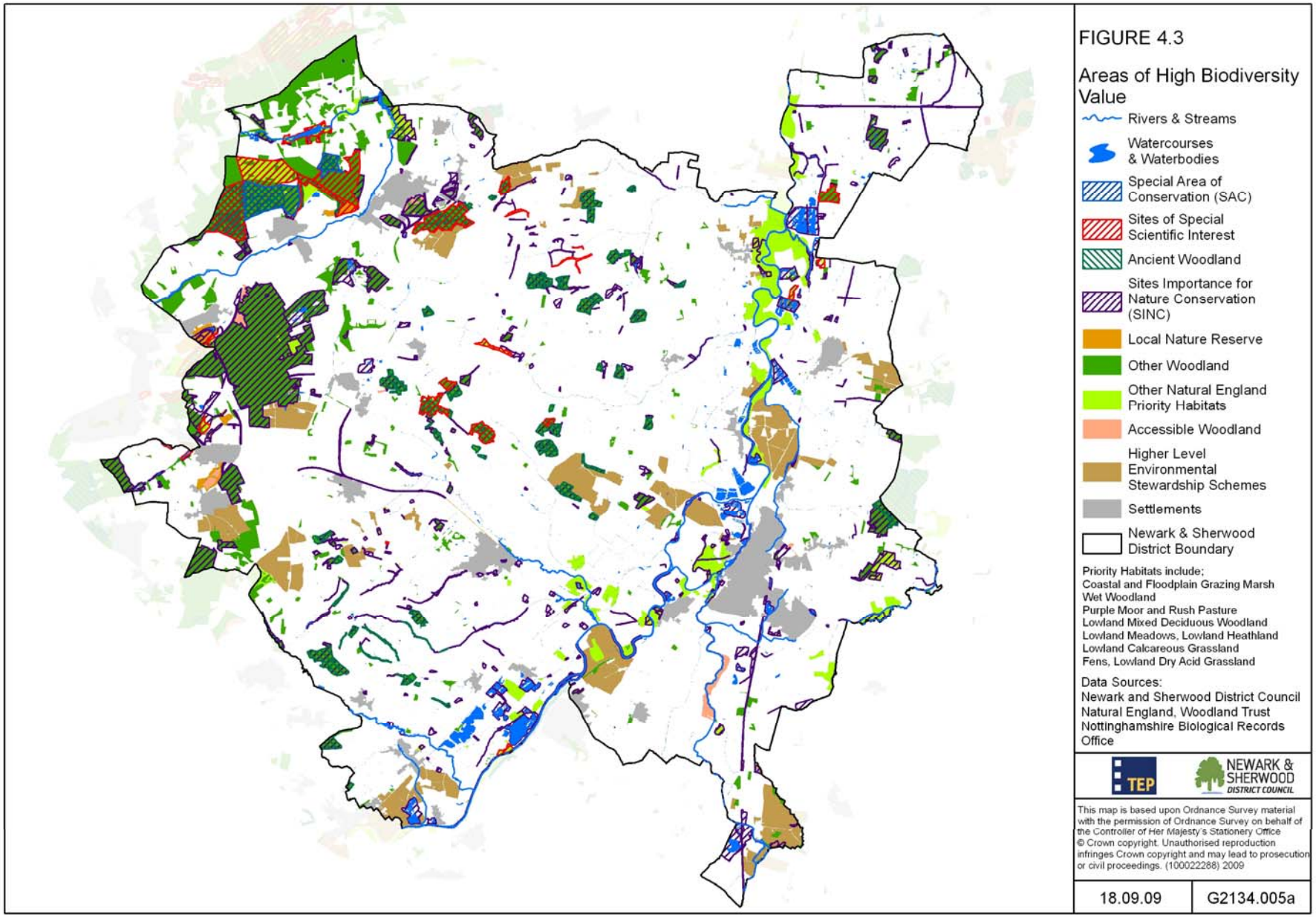
FIGURE 4.3
Areas of High Biodiversity Value
Rivers & Streams
Watercourses & Waterbodies
Special Area of Conservation (SAC)
Sites of Special Scientific Interest
Ancient Woodland
Sites Importance for Nature Conservation (SINC)
Local Nature Reserve
Other Woodland
Other Natural England Priority Habitats
Accessible Woodland
Higher Level Environmental Stewardship Schemes
Settlements
Newark & Sherwood District Boundary
Priority Habitats include;
Coastal and Floodplain Grazing Marsh
Wet Woodland
Purple Moor and Rush Pasture
Lowland Mixed Deciduous Woodland
Lowland Meadows, Lowland Heathland
Lowland Calcareous Grassland
Fens, Lowland Dry Acid Grassland
Data Sources:
Newark and Sherwood District Council
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NEWARK & SHERWOOD DISTRICT COUNCIL
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Including rivers into the network is complimentary to the Newark and Sherwood Biodiversity Implementation Plan[14] and the Biodiversity Strategy for the East Midlands. EMRA's Strategic River Corridor Survey[15] has also suggested ways in which rivers can be protected and enhanced within the Local Development Framework's Core Strategy:

Box 4.1: Suggested LDF Core Strategy Policy for Strategic Rivers

New development should maintain and enhance the strategic importance of the river corridor in terms of its:

- Existing and potential biodiversity value
- Role in sustainable flood management
- Potential for regeneration, rural diversification, tourism and new enterprise
- Cultural and historic environment assets, including archaeology
- Accessibility to and along the river
- Recreational and educational value
- Landscape character and townscape quality

The need to improve the environmental quality and function of the Trent corridor should be seen as a key element of the Green Infrastructure Strategy, providing multiple environmental public benefits as highlighted in the Public Benefit Mapping Project for the East Midlands[16].

Environmental stewardship schemes such as the Environmental Stewardship Higher Level Scheme (HLS) are also an opportunity to improve biodiversity. Many of the existing HLS areas (see figure 4.3) are in strategically important areas such as adjacent to water courses and ancient woodland. Through understanding the strategic green infrastructure needs of the District, environmental works carried out in areas such as HLS Target Areas can be directed to deliver broader green infrastructure benefits including landscape and biodiversity connectivity.

The Trent Valley to the north of the Newark Urban Area has been identified as a HLS Target Area, aimed at increasing the amount of wood-pasture and parkland, old meadows and pastures, heathland and acid grassland, grazing marsh, fens, reedbeds, wet woodland and Eutrophic waters. These habitats sustain lapwing (*Vanellus vanellus*), Yellow Wagtail (*Motacilla flava*), Corn Bunting (*Emberiza calandra*), Redshank (*Tringa totanus*) and Curlew (*Numenius arquata*), species which have become increasingly rare in our countryside. In addition to this the Sherwood HLS target area in the west of the District is also targeting the above species and habitats including rush pasture and limestone grassland. Through integration with the wider green infrastructure natural networks these HLS areas can be supported and provide space into which species can expand.

[14] Newark and Sherwood Biodiversity Implementation Plan (2003) Newark and Sherwood District Council
[15] East Midlands Strategic River Corridors Survey (2004) EMRA
[16] Green Infrastructure for the East Midlands – A Public Benefit Mapping Project (2006) TEP for EMRA

Whilst run-off (urban and agricultural), lack of connective function, groundwater abstraction[17], inappropriate management and the threat of development and growth can negatively affect the District's wildlife resource, there are opportunities to improve the current situation. The development of a Green Infrastructure Strategy will provide a link to and support other initiatives such as:

- Trent Vale – On Trent Project[18]
- Maun Valley Action Plan[19]
- Sconce and Devon Park Restoration Project
- Strategic River Corridors Initiative[20],
- A Vision for the Future of Sherwood Forest[21]
- Regional Forestry Framework[22]
- Newark and Sherwood Biodiversity Implementation Plan[23]
- Greenwood Community Forest
- Proposed Sherwood Regional Park
- Trent Holmes Project
- Nottinghamshire Local Biodiversity Action Plan
- 6Cs Green Infrastructure Strategy
- Mansfield Green Infrastructure Interim Planning Guidance

As mentioned the above growth will mean increased usage of the District natural resources, many of which should be considered sensitive. Sustainable Accessible Natural Green Space (SANGs) are an ideal way of reducing this impact and creating space for biodiversity to thrive in an accessible environment. Locating SANGs can be directed by the spatial needs identified in the strategy.

- **Tourism** (Figure 4.4)

Tourism attractions, an attractive environment, the River Trent and the District's Country Parks are seen as key strengths within the Economic Development Strategy Review[24] that are contributing to growth in the leisure economy – a priority for investment in the region[25].

The District is home to one of England's most famous tourist attractions: Sherwood Forest, offering a variety of activities within a natural setting including the Forestry Commission's Sherwood Pines Forest Park. Tourism in this area is already well established with many of the local businesses and villages using the association with the legend of Robin Hood and Sherwood Forest to their advantage, in addition to the Center Parcs complex, which has been operating successfully since 1987.

[17] Local Biodiversity Action Plan for Nottinghamshire (1998) Nottinghamshire Biodiversity Action Group and Nottinghamshire County Council
[18] Trent Vale Business Plan (2007) Trent Vale Landscape Partnership
[19] Maun Valley Action Plan (2000) Baker Shepherd Gillespie for Maun Action Plan Steering Group
[20] Strategic River Corridors Initiative (2004) EMRA
[21] A Vision for the Future of Sherwood Forest (2004) Sherwood Forest Trust
[22] Space 4 Trees: The East Midlands Regional Forestry Framework (2005) East Midlands Regional Forestry Framework Steering Group
[23] Newark and Sherwood Biodiversity Implementation Plan (2003) Baker-Shepherd-Gillespie for Newark and Sherwood District Council
[24] Economic Development Strategy – Partnerships for Growth (Review 2008) NSDC
[25] Building the Visitor Economy – Maximising the impact of Tourism and the Visitor Economy in the East Midlands- Strategic Plan 2008-2011 (2008) EMDA

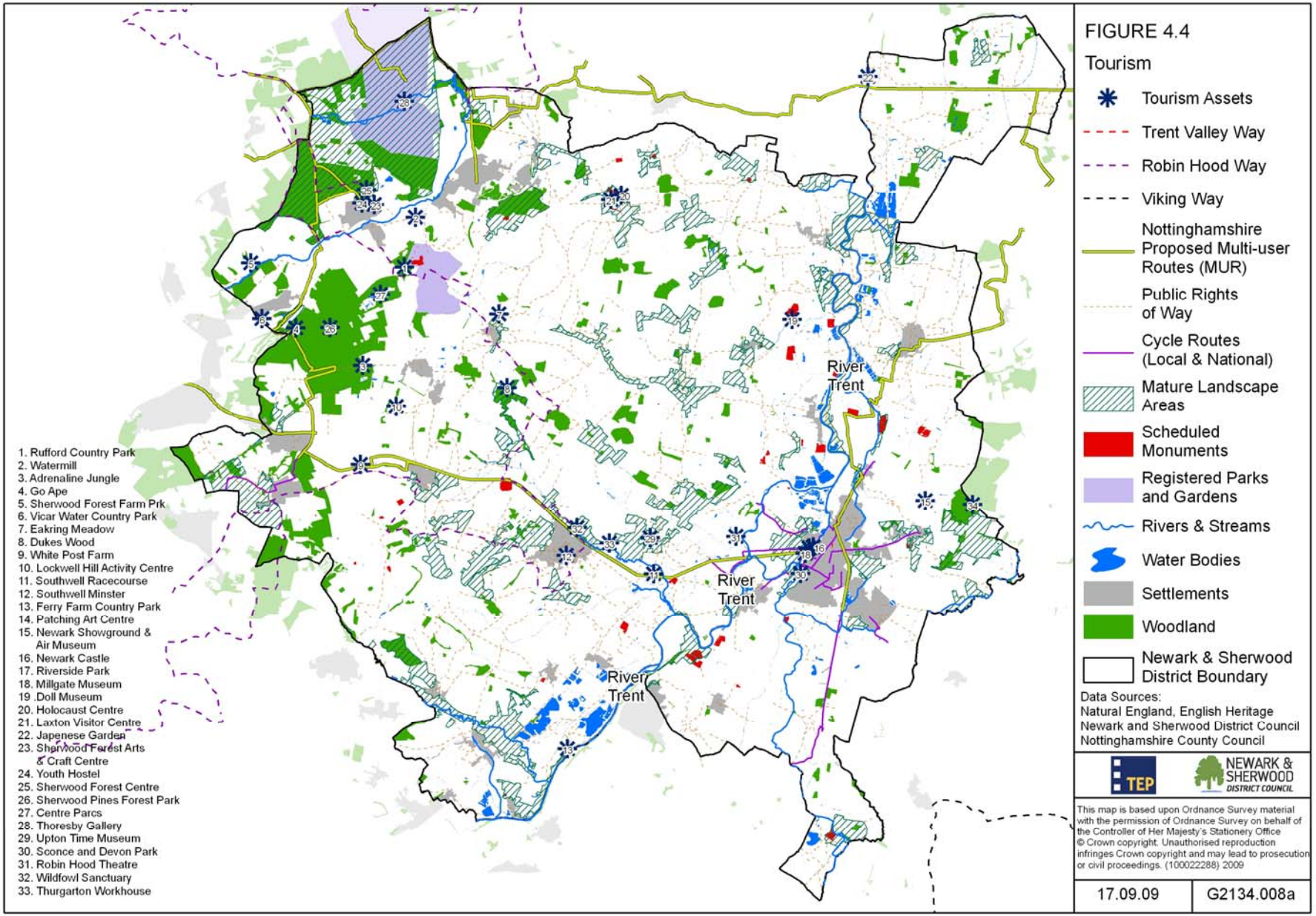
FIGURE 4.4
Tourism
Tourism Assets
Trent Valley Way
Robin Hood Way
Viking Way
Nottinghamshire Proposed Multi-user Routes (MUR)
Public Rights of Way
Cycle Routes (Local & National)
Mature Landscape Areas
Scheduled Monuments
Registered Parks and Gardens
Rivers & Streams
Water Bodies
Settlements
Woodland
Newark & Sherwood District Boundary
Data Sources:
Natural England, English Heritage
Newark and Sherwood District Council
Nottinghamshire County Council
TEP
NEWARK & SHERWOOD DISTRICT COUNCIL
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River Trent
River Trent
River Trent
1. Rufford Country Park
2. Watermill
3. Adrenaline Jungle
4. Go Ape
5. Sherwood Forest Farm Prk
6. Vicar Water Country Park
7. Eakring Meadow
8. Dukes Wood
9. White Post Farm
10. Lockwell Hill Activity Centre
11. Southwell Racecourse
12. Southwell Minster
13. Ferry Farm Country Park
14. Patching Art Centre
15. Newark Showground & Air Museum
16. Newark Castle
17. Riverside Park
18. Millgate Museum
19. Doll Museum
20. Holocaust Centre
21. Laxton Visitor Centre
22. Japenese Garden
23. Sherwood Forest Arts & Craft Centre
24. Youth Hostel
25. Sherwood Forest Centre
26. Sherwood Pines Forest Park
27. Centre Parcs
28. Thoresby Gallery
29. Upton Time Museum
30. Sconce and Devon Park
31. Robin Hood Theatre
32. Wildfowl Sanctuary
33. Thurgarton Workhouse

The 'Sherwood Forest' brand is likely to be further improved with the proposed Sherwood Forest Regional Park. It is thought that this initiative will encompass an area much larger than the existing Sherwood Forest attractions. Improving economic activity, enterprise and business are priorities for the Nottinghamshire Local Area Agreement[26]. A key aspect of the Park delivering sustainable development and economic/employment opportunities will be the inclusion of the surrounding communities, particularly those neighbourhoods displaying relatively high deprivation around Boughton and Ollerton.

The Park should also stimulate environmental regeneration of the remaining ex-industrial landscapes, further reinforcing the area's environmental qualities. Significant investment has already taken place in the area with the creation of the Sherwood Energy Village, a model of sustainable development and employment creation.

The River Trent is the key tourism and environmental asset in the eastern part of the District and passes through Newark between the Castle and Riverside Park. One issue raised within the Trent Vale Project has been the lack of mooring opportunities for boats in between Newark and Gainsborough. The creation of additional mooring sites, angling pegs, regeneration of the Sconce and Devon Park and the town's riverside heritage and transport links means that Newark, Farndon and the River have a substantial visitor offer, which can only gain from green infrastructure initiatives.

The natural environment underpins the visitor economy in the north western part of the District. With the tourism growth identified in the review this raises issues of whether or not increasing numbers of visitors could impact on the very environment to which they are attracted. With increased numbers of tourists there will likely be the need for tourism-based development, services, attractions and accommodation. Green infrastructure principles and planning will be essential in ensuring that development is located and designed appropriate to the landscape, environmental and community needs. Widening the visitor offer in the District i.e. in the eastern half would also help reduce the impact of visitors on key 'honey pot' sites and create opportunities for longer stays in the area.

- **Access, Recreation and Community Needs for Green Space** (Figures 4.5 and 4.6)

Improving access networks and access to green space are key principles of green infrastructure planning. As mentioned above access routes create opportunities for sustainable travel, to work, services and school. They allow communities to move around in safe and traffic free environments and provide recreational opportunities and associated health benefits. Importantly they connect communities to services, surrounding countryside, green space assets and each other.

Population growth and development in Newark will create a need for extra green space and connective networks. Extensions on the periphery of the town mean that transport options such as cycling and walking networks are essential to sustainable development and quality of life. There is also a need to understand the extent to which PROW meet the existing and future needs of the District's communities as stated in the County's PROW Improvement Plan[27], including those PROW leading to and within potential development areas.

[26] This Is Nottinghamshire: Nottinghamshire's Local Area Agreement 2008-2011 (2008) Nottinghamshire Partnership

[27] Nottinghamshire Rights of Way Improvement Plan 2007-2012 (2007) Nottinghamshire County Council

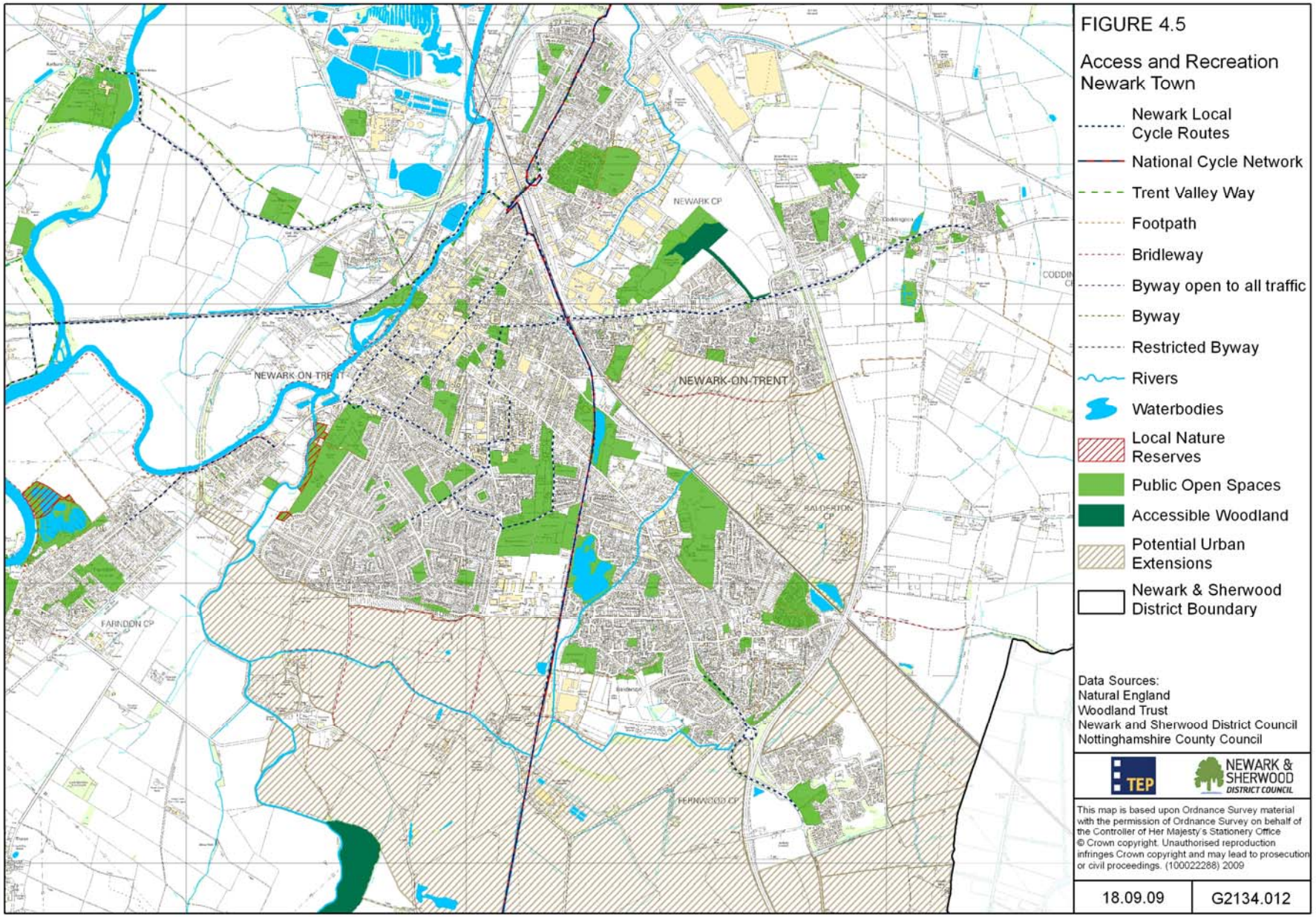

FIGURE 4.5

Access and Recreation
Newark Town

- Newark Local Cycle Routes
- National Cycle Network
- Trent Valley Way
- Footpath
- Bridleway
- Byway open to all traffic
- Byway
- Restricted Byway
- Rivers
- Waterbodies
- Local Nature Reserves
- Public Open Spaces
- Accessible Woodland
- Potential Urban Extensions
- Newark & Sherwood District Boundary

Data Sources:
Natural England
Woodland Trust
Newark and Sherwood District Council
Nottinghamshire County Council

TEP

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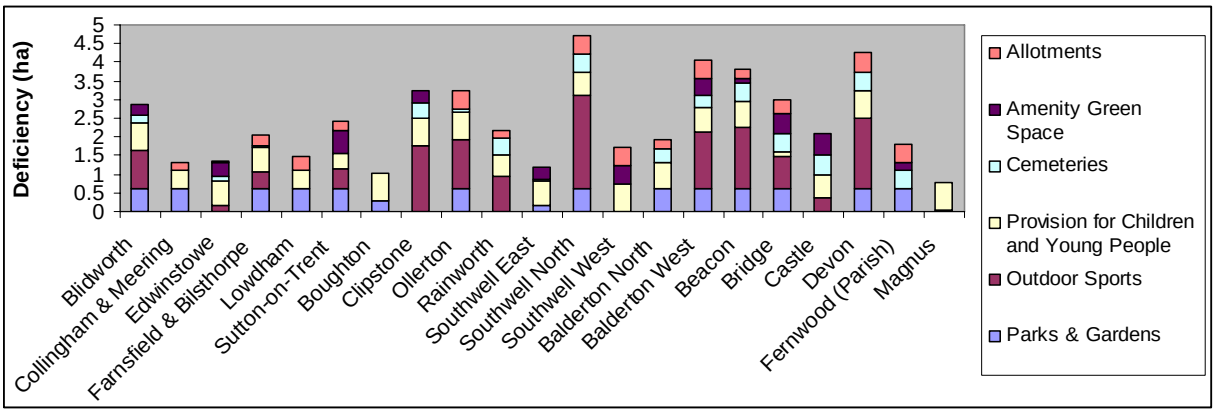
Within the newly developed areas there is a need for quality green space, not only to provide a quality of place for new residents, but also to ensure that the existing green and open spaces in the town are not over-pressured. The Draft Community Greenspace Provision Improvement Plan[28] has identified areas that are already deficient in a number of different green space types prior to any future expansion of the District's settlements and the increased pressure on green spaces that this will bring:



Adapted from the Draft Community Greenspace Provision Improvement Plan

The Improvement Plan shows that in many of the study areas there were shortfalls in provision of all types of green space across the District, however outdoor sports areas, allotments and provision for children and young people were shown as being particularly deficient. There is a correlation between the shortfall in sports provision and areas displaying high levels of health deprivation, with Ollerton, Clipstone, Rainworth, Beacon, Devon and Balderton West considered to be lacking outdoor sports provision. Provision for children and young people is also lacking in Beacon, Magnus, Devon, Ollerton, Rainworth, Farnsfield and Bilsthorpe, whilst Balderton West, Devon, Ollerton, Farnsfield and Bilsthorpe are underprovided in terms of allotments.

Importantly Devon and Balderton West are adjacent to 2 of the three strategic sites to the south and south west of Newark, and provide the opportunity to increase the provision of outdoor sports facilities for children and young people and for allotments.

The more strategic routes around the town such as the riverside paths and links to surrounding countryside will also need to be improved to not only withstand increased usage, but to ensure that the offer in Newark remains an attractive one.

Access networks link spaces together and in doing so increase access to a variety of activities. Safe, traffic-free routes encourage children to participate in activities bringing health benefits and should be key considerations in planning new development and associated green spaces[29]. Better access networks encourage activities such as walking and cycling, a priority of the District's Community Plan[30].

To the south of Newark in proposed development areas there are also some natural landscape elements, community assets and existing footpath networks that require

[28] Draft Community Greenspace Provision Improvement Plan (2009) Knight Kavanagh & Page for Newark and Sherwood District Council

[29] Routes to Play – A Guide for Local Authorities (2009) SUSTRANS

[30] The 2nd Community Plan for Newark and Sherwood: Raising Aspirations and Improving Accessibility 2006 – 2016 (2006) Newark and Sherwood Local Strategic Partnership

protection and inclusion in the design of any potential development (see figure 4.5). There is also opportunity to include flood remediation methods in this area. Improvements to both the access network and natural landscape elements in this area would provide access to natural green space for new residents and the existing residential area to the north.

In order to provide access to natural green space and support the improvements to the visitor offer, Newark and the River Trent corridor will require better access along the river bank. There are several stretches of the River Trent where access could be improved and would compliment existing green spaces and visitor assets such as the stretch downstream of Kelham Bridge (see figure 4.6).

- **Socio-Economics** (Figures 4.7 - 4.10)

Newark and Sherwood has one of the highest growth rates in the County and population is expected to grow faster than the Nottinghamshire and national averages.

Newark and Sherwood's population is aging, with nearly a fifth of the population at retirement age[31] (see figure 4.7). The percentage of people over 65 is expected to rise between 50% and 60% by the year 2029 and the percentage of people over 75 by around 70%. This has implications for green space provision and green infrastructure in that there may be increased demands for open spaces within easy walking distance and for recreational opportunities closer to home such as quiet and traffic-free access routes. Older and potentially less mobile populations are also more susceptible to the heat island effect and this will also need to be factored in to the types and composition of green space that are needed.

Conversely some neighbourhoods such as Clipstone and Southwell East have a higher than average percentage of children or young people (see figure 4.8). This means that now and in the future provision should meet their needs, although long-term predictions up until 2029 show a dramatic decrease in the numbers of people under the age of 14, by some 22% across the District.

There is a significant clustering of neighbourhoods that contain people in poor health (see figure 4.9). These are mainly located in the northwest of the District, in the old coal mining areas which also display other aspects of deprivation (figure 4.10), and in the southern wards of Newark Urban Area, close to the potential urban extensions.

There is an opportunity to address some of these health and deprivation issues through green infrastructure delivery within the new development area, such as creating usable, green and accessible space within the design. However, while there is a large amount of quality environment in this area, what is not clear is how much the surrounding communities can, or want to take advantage of it. There are already green infrastructure initiatives in the area such as the Maun Valley Project[32] with a key aim to "create, maintain and promote a network of routes…that will enable access into the countryside for all sections of the community". Over time these improvements will make a difference, not only in the health of the local communities but also perceptions of their surrounding environment.

[31] State of the District Report 2009, (2009), Newark and Sherwood District Council

[32] Maun Valley Action Plan (2000) Baker Shepherd Gillespie for Maun Action Plan Steering Group (NSDC, MDC, ADC)

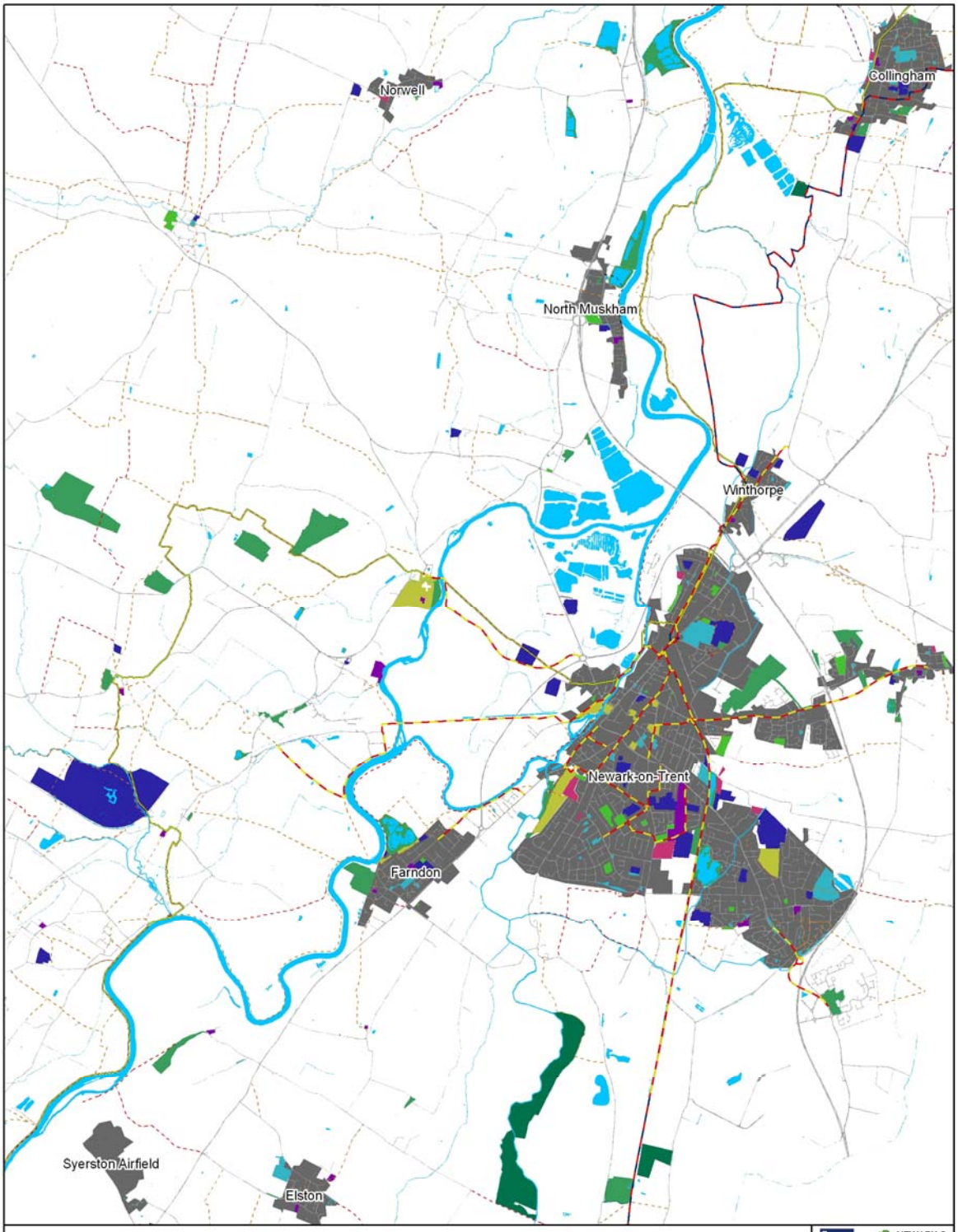


FIGURE 4.6 Access Along the River Trent

Footpath
Bridleway
Byway open to all traffic
Byway
Restricted Byway
Local Cycle Network
Rivers
National Cycle Network
Trent Valley Way
Waterbodies
Accessible Woodlands
Roads and Tracks
Settlements
Parks and Gardens
Green Space of a Natural Essence
Access/Greenway
Sports
Amenity
Play Area/Field
Allotments/Community Gardens
Churchyards/Cemeteries

Data Sources:
Newark and Sherwood District Council
Nottinghamshire County Council

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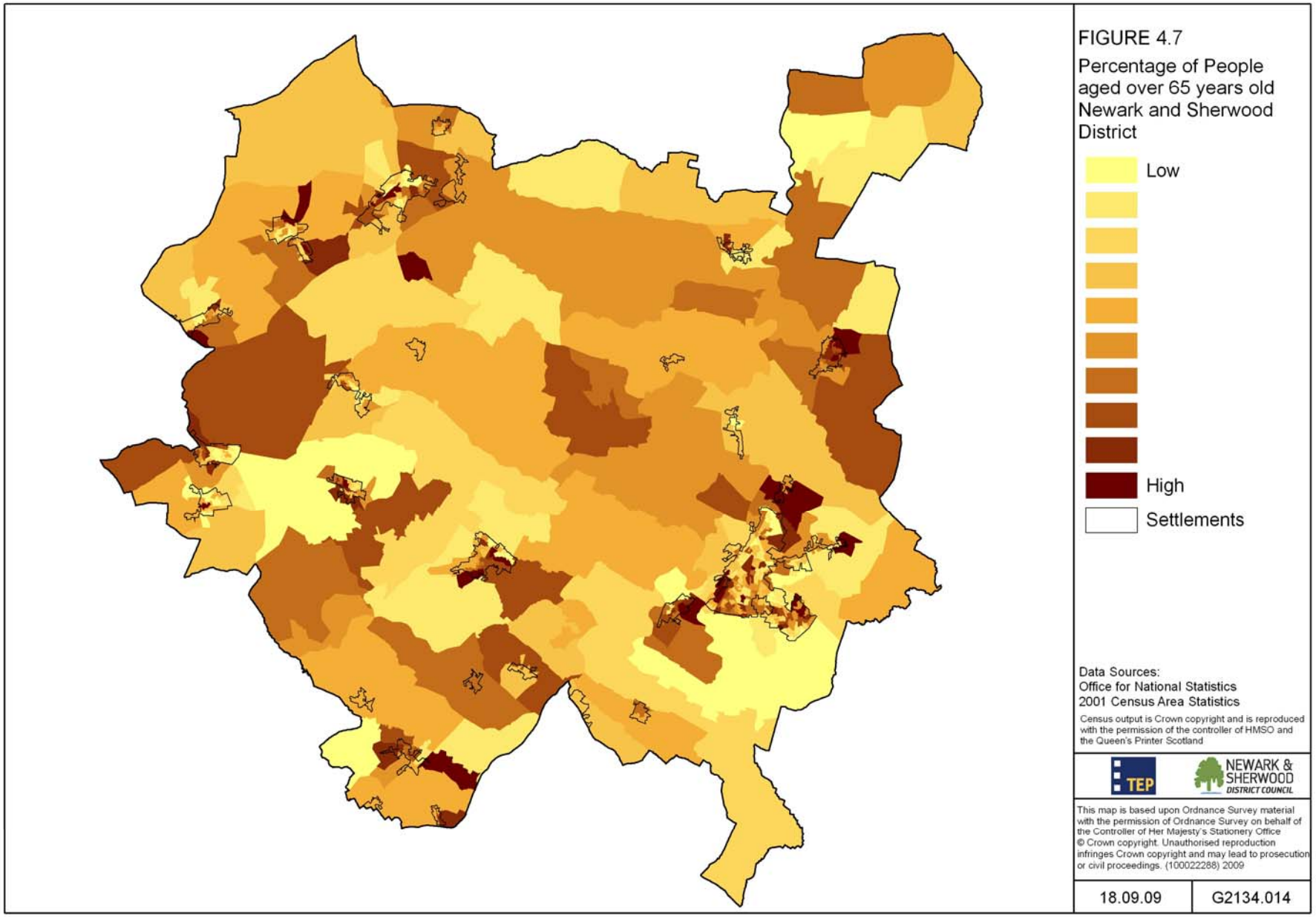
FIGURE 4.7
Percentage of People aged over 65 years old Newark and Sherwood District
Low
High
Settlements
Data Sources:
Office for National Statistics
2001 Census Area Statistics
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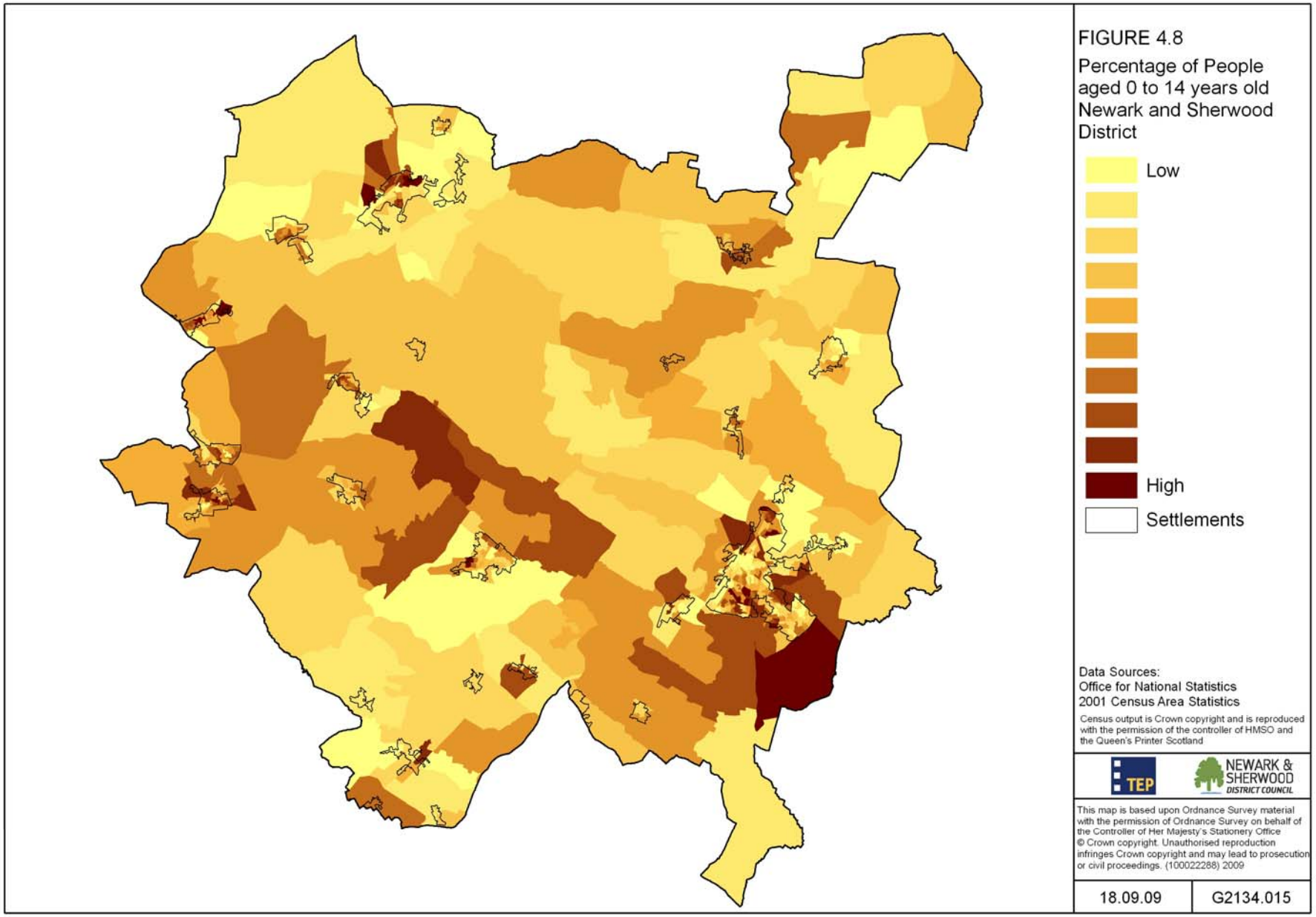
FIGURE 4.8
Percentage of People aged 0 to 14 years old Newark and Sherwood District
Low
High
Settlements
Data Sources:
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2001 Census Area Statistics
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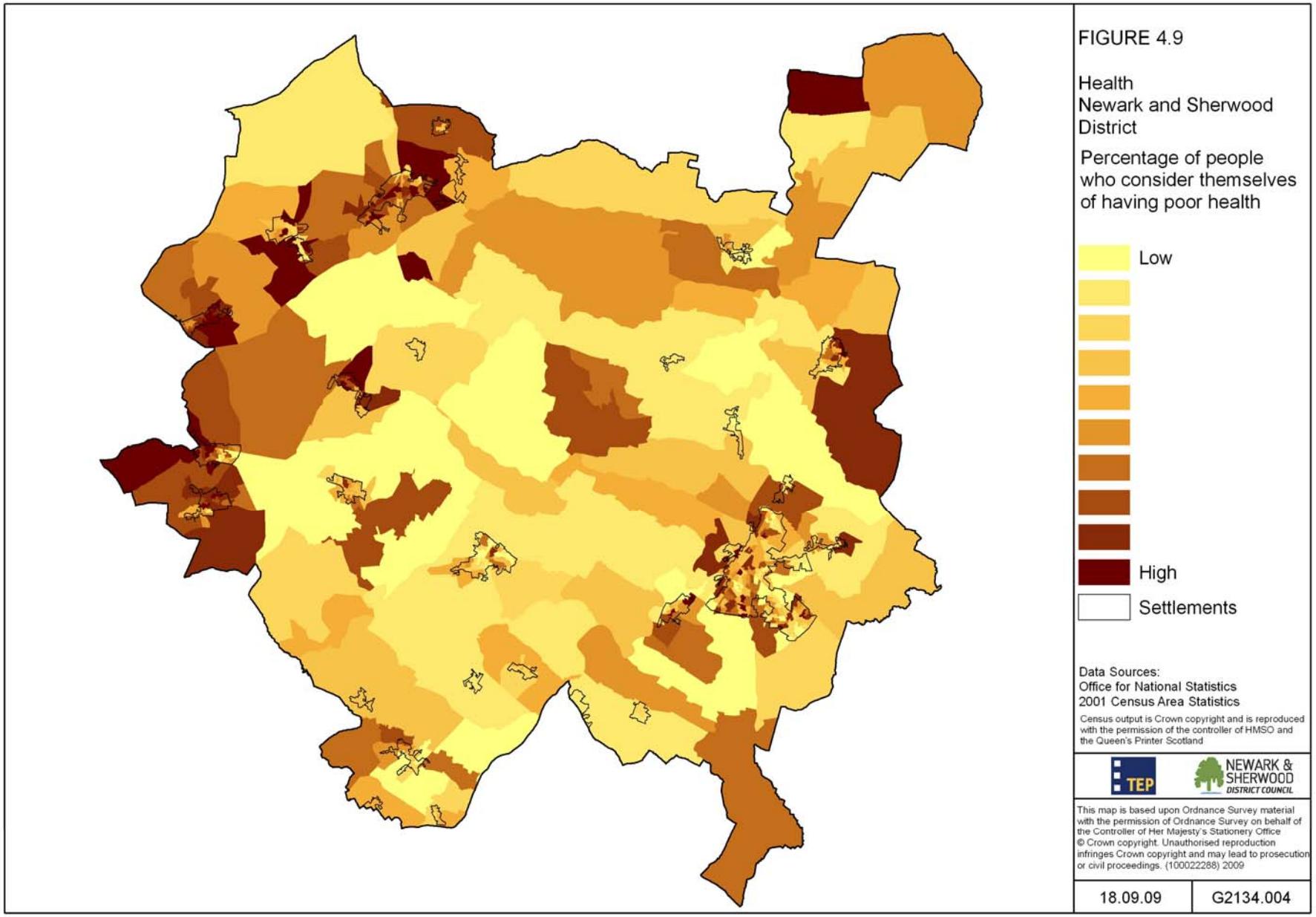
FIGURE 4.9
Health
Newark and Sherwood District
Percentage of people who consider themselves of having poor health
Low
High
Settlements
Data Sources:
Office for National Statistics
2001 Census Area Statistics
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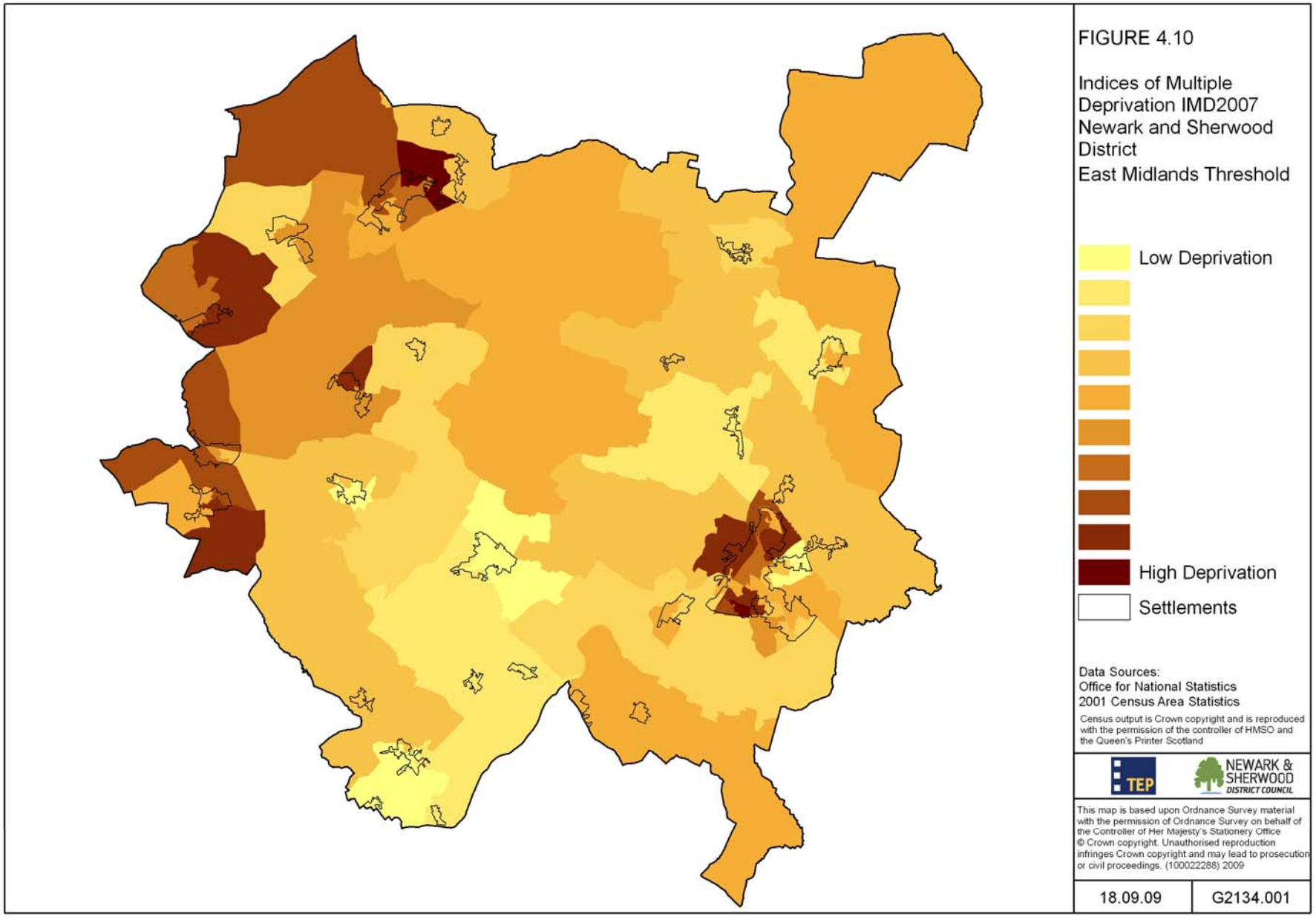
FIGURE 4.10
Indices of Multiple Deprivation IMD2007
Newark and Sherwood District
East Midlands Threshold
Low Deprivation
High Deprivation
Settlements
Data Sources:
Office for National Statistics
2001 Census Area Statistics
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Land Use and Environmental Quality

There are many issues affecting land use and environmental quality in the District including climate change, agriculture and tourism.

Climate Change

As the risk of flooding increases, there will be a greater emphasis on creating new wetlands to act as storage for excessive rainfall. Conversely some wetland/stream ecosystems could dry out during periods of drought during the summer months. As mentioned earlier excessive rainfall and the resulting run-off has the potential to wash pollutants into the watercourses, such as salt and oils from roads and agricultural pollutants such as fertiliser, pesticide and increased siltation through soil loss. In addition excessive heat in the urban areas has the potential to increase the damaging effects of airborne pollution.

Green infrastructure has the functionality to help remediate against many of these aspects. Rainfall interception such as SuDS and collection ponds can help reduce run-off and help maintain groundwater levels during those predicted periods of drought. Tree planting and greening of the urban environment can reduce the 'heat island' effect and reduce airborne particulate pollution.

Agriculture

Agriculture has always been the force behind much of England's landscape change, and can be a significant factor in forming landscape character. The need for efficiency and changing land use has resulted in the loss of some important landscape and natural elements that have both wildlife and aesthetic value. Increased field sizes and the increase in equestrian activities has seen a reduction in hedgerow and pond management and the loss of hedges and ponds that have been part of the landscape for hundreds of years.

Preserving these important landscape elements is vital to retaining the character and sense of place found in an area. As part of a wider green infrastructure network these elements not only help maintain wildlife levels but also provide a historic and cultural backdrop to the District's access network, helping to retain visitor numbers and network usage.

Other aspects include the decline in the quality of urban fringe farmland where fly-tipping, vandalism and trespass have resulted in the loss of quality in the landscape. Linking peri-urban and urban areas through a network of well designed and usable spaces and networks adds recreational and aesthetic value to these degraded landscapes.

Tourism

The number of tourists/visitors to the District is expected to increase and there is the possibility that extra services and attractions will be needed. The temptation to allow such development on the basis of pure economic gain may run the risk of disrupting important environmental functions and/or community assets.

Green infrastructure planning enables a greater understanding of the processes and networks that are in operation in the landscape. Through adopting a strategy based on environmental and community needs these processes can potentially be improved upon and possibly widened within design and layout. In addition green infrastructure elements such as natural habitats and access networks can make an area more attractive to visitors.

Chapter 5: Public Benefit Assessment

Public benefit is defined in relation to social, economic and environmental goals acting in combination, in other words within a sustainability context. Public benefits have a spatial dimension: the priorities for Newark, Ollerton and Boughton and Southwell are likely to differ from those for the smaller rural communities such as Eakring, Laxton and Thurgarten for example. It is also essential that we assess green infrastructure resources and assets in terms of the potential multiple benefit they can bring to the communities of Newark and Sherwood.

To ensure that limited resources deliver the greatest possible public benefit it is necessary to prioritise actions, investment and resource expenditure.

The public benefit assessment presented in this chapter helps to identify those areas that can deliver multiple benefits in Newark and Sherwood by:

i. Considering social, economic and environmental themes relevant to green infrastructure in an area

ii. Using a combination of indicators (datasets based on socio-economic and environmental themes) to produce a series of "multiple-benefit" maps

iii. Providing a spatial representation of those areas most in need of green infrastructure, and of those areas providing opportunities to deliver multiple benefits towards sustaining prosperity and providing a high quality of life.

i. Identifying Green Infrastructure Functions and Benefits in Newark and Sherwood

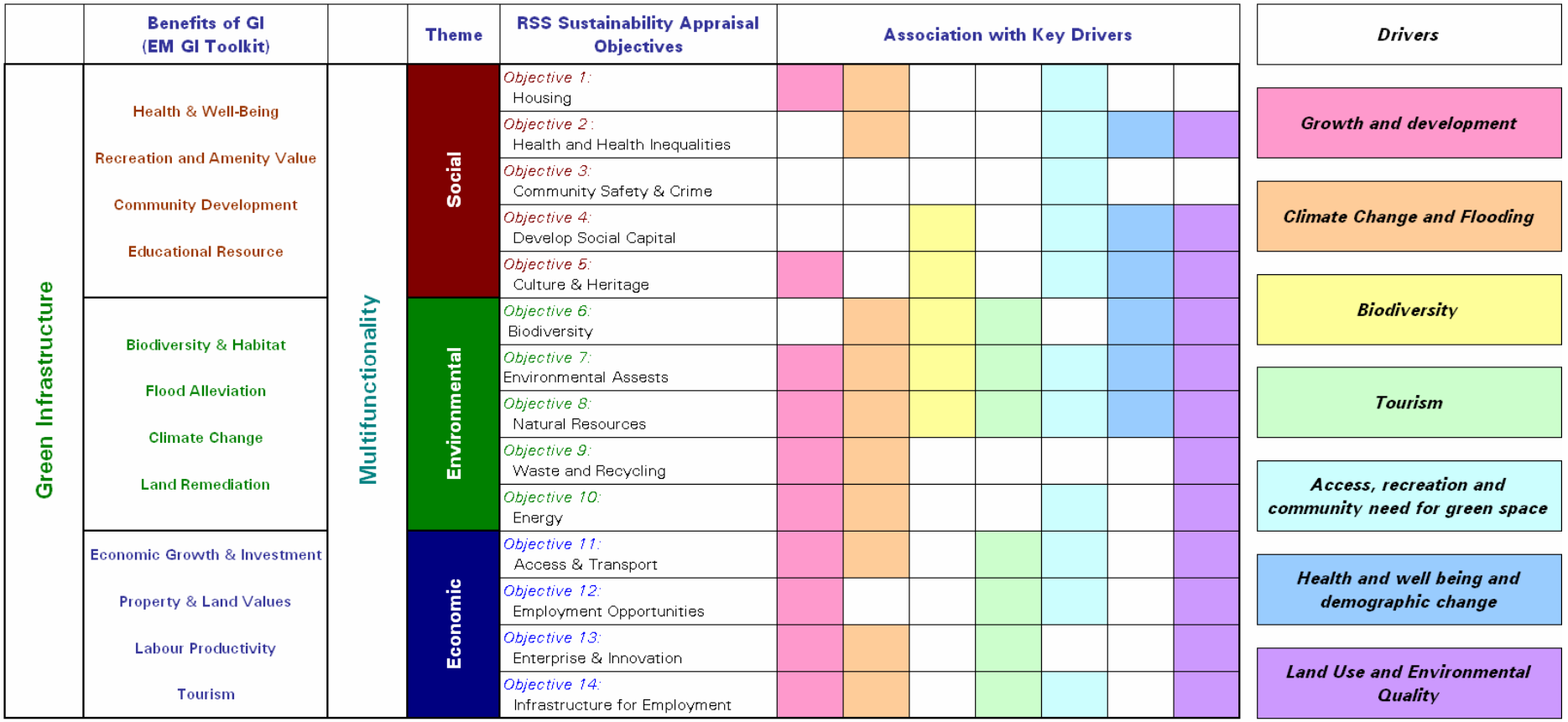
Drawing from the research so far, we feel that the drivers identified in Chapter 4 define the social, environmental and economic functions that green infrastructure provides or can provide in the District:

- Growth and development
- Climate change and flooding
- Biodiversity
- Tourism
- Community need for green space
- Health, well-being and demographic change
- Land use and environmental quality

Each of these key drivers has a direct relationship with one or more of the Regional Spatial Strategy Sustainability Appraisal Objectives[1], which in turn can be related to the 12 benefit of green infrastructure identified in the EMDA GI Toolkit (see Figure 5.1).

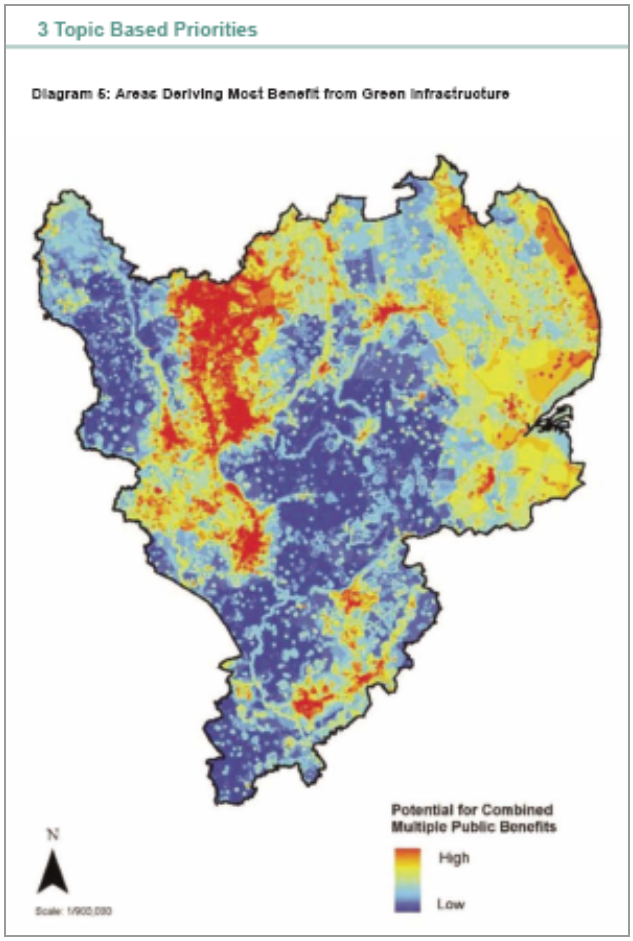
[1] East Midlands Regional Plan (2009) Government Office for the East Midlands

Figure 5.1: Associations between Benefits, Regional Plan Sustainability Appraisal Objectives and Key Drivers in Newark and Sherwood



ii. Producing Public Benefit Maps

We have used the Public Benefit Recording System (PBRS)[2] to produce the public benefit maps for analysis. This is a Geographical Information System (GIS) based aid to strategic planning and investment that assists cross-sectoral working: enabling co-operation across social, economic and environmental agendas to establish new understanding and approaches. The PBRS approach has been used at various spatial scales and in a number of programmes, with the assessment for the East Midlands region included as a key diagram in the East Midlands Regional Plan:



Source: East Midlands Regional Plan

As a decision making tool, the PBRS approach brings together social, environmental and economic datasets to present the greatest public benefit potential through a series of maps. This provides and evidence base from which, with interpretation, vision and on the ground knowledge, decision makers can make reasoned judgements as to where to invest in green infrastructure.

iii. Identifying Assets

By using a series of datasets a spatial analysis has been produced for each of the green infrastructure drivers (or 'indicators')for the District to highlight where provision and enhancement of green infrastructure can best deliver public benefits in Newark and Sherwood, considering both needs and opportunities to address those needs. Datasets and maps for each driver are provided in Appendix 4.

[2] www.pbrs.org.uk

Recognising the importance of multifunctionality, we have then grouped the maps together into two final assessments: one considering needs that green infrastructure can help address and the other illustrating where opportunities exist. These will help in identifying where co-incidences and correlations between drivers exist.

On all of the following maps, red shading indicates those areas which have the greatest potential to deliver public benefits, and blue shading indicates the lowest potential (comparatively).

Public Benefit Analysis*: Needs Assessment*

This assessment was undertaken to establish those areas in need and where green infrastructure investment will deliver the greatest public benefit, taking into account the District's socio-economic and environmental needs across four indicators:

- Health and well being – considering the combined impacts of deprivation, health, population density, air quality, proximity to the transport network
- Climate change and flood risk – highlighting those areas vulnerable to the effects of climate change and particularly flood risk
- Community needs for green space – considering accessible natural greenspace (ANGSt) deficiencies and restrictions to access to the countryside
- Environmental quality – considering the risks relating to agriculture and impacts on environmental quality

A full list of the datasets used and a description of how they were applied is included in Appendix 4 alongside a map for each indicator.

Figure 5.3 indicates that there are several areas with high needs in relation to these indicators when compared to other parts of the District, particularly Boughton, Rainworth, Bilsthorpe, Collingham and Newark, as well as the District's watercourses.

Ollerton and Boughton

Ollerton and Boughton have high levels of combined deprivation, poor air quality, are in close proximity to the main road network and a historical legacy of work related illnesses has contributed to poor health. This clear socio-economic need is compounded by the environmental needs relating to flood risk and sensitivity to nitrate pollution. The relatively high levels of sealed surface and coincidence of high concentrations of young and older people also means that populations in this area may experience increased temperatures due to the heat island effect.

Green infrastructure actions should therefore be concentrated on addressing the health needs of the communities and protecting the area's watercourses. Improved access to green spaces that are relevant and functional for the community is vital and increased street tree planting and measures to intercept run-off are also important.

The *Maun Valley Action Plan* is a key programme of delivery in this area and can help address many of the issues that affect the area such as poor health through improving access. At the larger geographical scale actions to support the Sherwood Forest Regional Park should concentrate on raising the quality of life and quality of place for those communities by providing attractive locations for business premises and contributing to a healthy workforce.

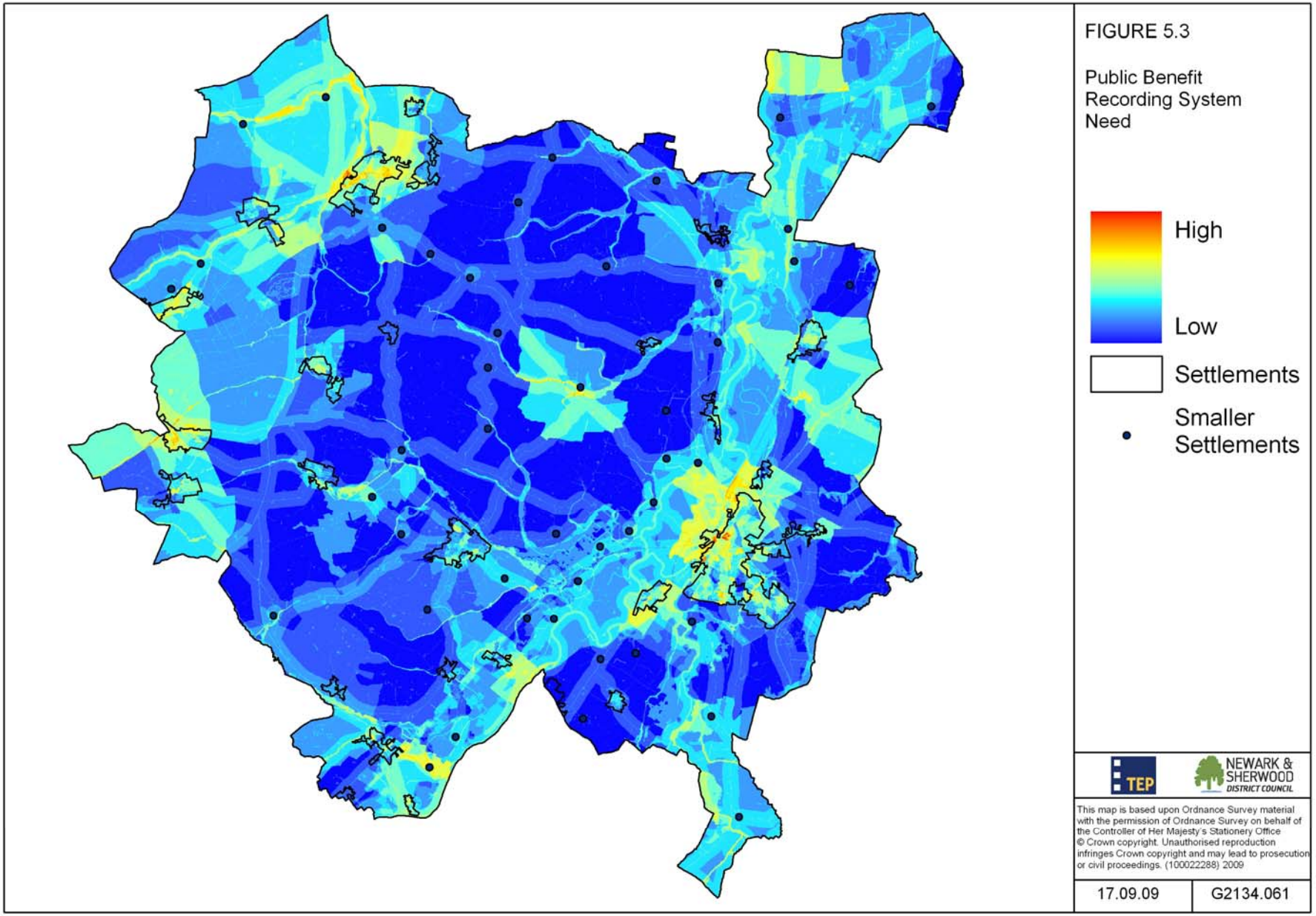


FIGURE 5.3
Public Benefit Recording System Need
High
Low
Settlements
Smaller Settlements
TEP
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Rainworth

Like Boughton, Rainworth is also subject to health and general deprivation. Its location along a main road corridor means that air quality is an issue. Green infrastructure interventions in Rainworth must therefore attempt to reduce the high incidence of poor health by providing access to new and existing green and natural spaces away from the road corridor - providing respite from poor air quality and rising summer temperatures and offering new opportunities for recreation and exercise.

Rainfall run-off from this settlement affects several watercourses and the high level of sealed impermeable surfaces means that diffuse pollution can have an effect on water quality. Tree planting along the road corridor and adjacent roads will help to reduce surface water run off into watercourses, whilst also providing shade and reducing particulate pollution levels.

The *Greenwood Community Forest* is a key deliverer of green infrastructure in the area around Rainworth and Blidworth, which shares several of the same issues. Work is already being undertaken to provide access and natural areas for the communities of the two towns, and importantly helps to connect communities to their landscape through encouraging participation and involvement in managing that landscape.

Bilsthorpe

In much the same way as Ollerton and Boughton and Rainworth, Bilsthorpe is also subject to relatively high levels of poor health and deprivation. The area drains into the Maun river system to the north; sensitivity of the land to nitrates and surface sealing mean that run-off from the Bilsthorpe area can have an effect on both flooding downstream and on water quality.

It is therefore necessary to consider the same types of green infrastructure intervention in Bilsthorpe as those needed in Ollerton and Boughton and Rainworth, for example increased tree planting for shade, interception of rainfall and improved functionality of and access to green spaces.

Collingham

Collingham is another area with pockets of poor health, high levels of sealed surface and low levels of tree cover to the east of the village. The settlement is adjacent to several drains and streams that feed into the River Trent, with a risk of poor quality water from urban and agricultural run-off entering these watercourses during heavy rainfall.

Collingham does have a green core area that connects to many of the roads and could possibly become a community space. In addition to this, remediation work being undertaken on the mineral extraction site to the south west of Collingham and the connective stream network means that the town is part of a natural network which could be exploited to provide accessible natural green space for the community. Any growth in and around Collingham should account for enhanced access to and quality of this resource and other potential sites within the village.

Newark

Figure 5.4 shows that there are high concentrations of need within Newark, notably around the Bailey Road and Cherry Holt, King Street and Parliament Street, the Museum area, Trent Bridge, Lovers Lane and North Gate.

As the District's largest urban area, it is perhaps to be expected that Newark will have pockets of poor health and deprivation. Distribution differences between demographic groups are also starker, with some areas containing particularly high numbers of younger or older people.

The town's age also means that development pressures over the years have led to a high percentage of sealed surfaces. There are several watercourses around the town including the Rivers Trent and Devon, and flooding is a major consideration for Newark and for neighbouring Farndon.

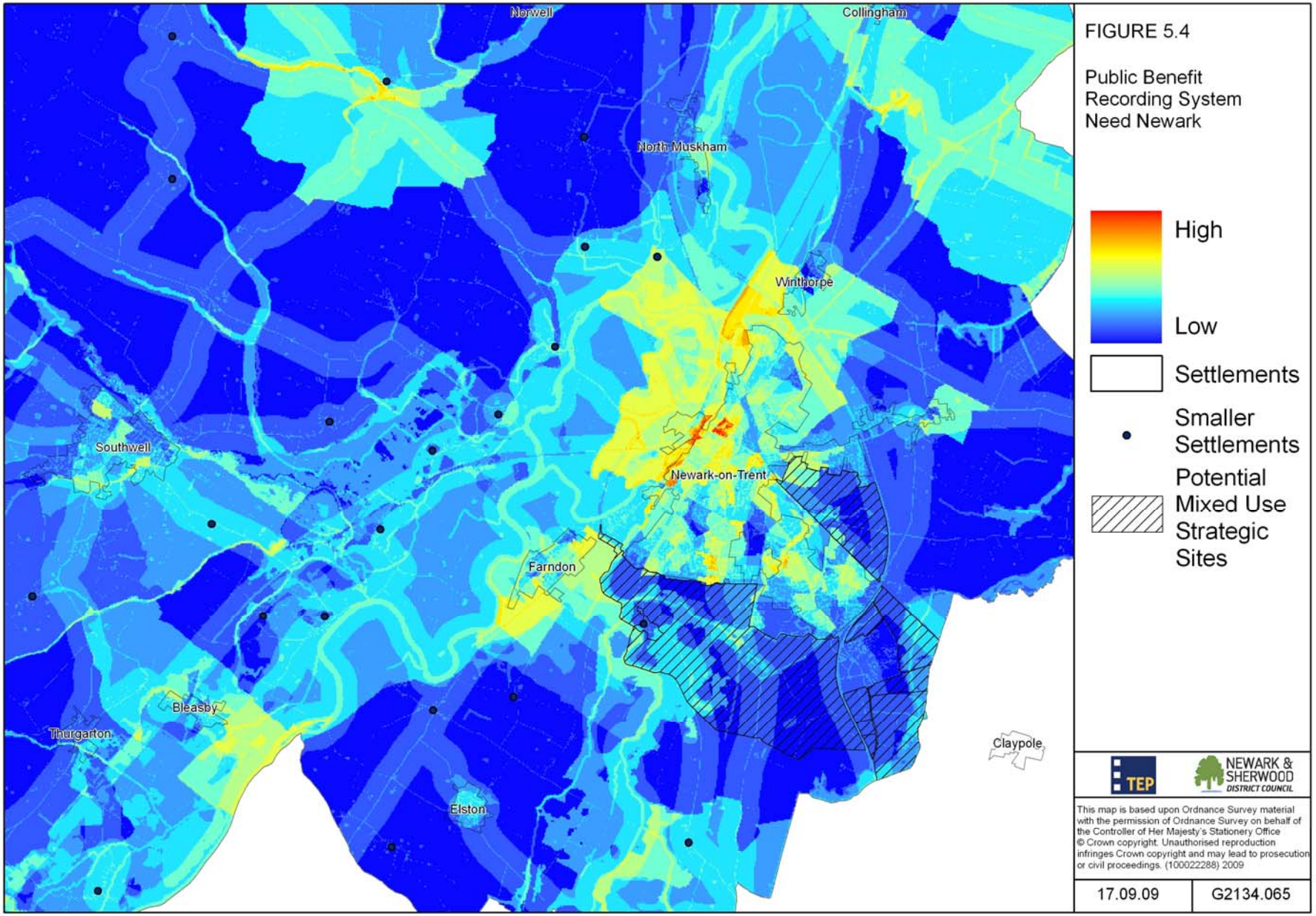
Because the final locations for growth are not yet confirmed they were not included in the public benefit assessment, yet it remains probably the most significant factor effecting the town's communities and environment. Existing green space will come under increased user pressure from greater numbers of people; additional green and open space that reflects the specific needs of local communities should be provided as part of the new developments.

New development will also affect the hydrology of the area: any increase in impermeable surface will increase run-off which is particularly an issue in the south of Newark where development is expected to take place and where flooding and the connective function of the River Devon corridor are already issues. Retaining these green infrastructure elements and their functions will be key aspects of green infrastructure provision for Newark that respond to the town's public benefit needs assessment: for environmental reasons and - as important features within new development - to provide a community function and add to the sense of place and local character.

Watercourses

District-wide the watercourses are shown as a priority; this is due to their importance as habitats and their function as wildlife corridors. Maintaining and improving the watercourses can maximise their potential benefit, particularly through areas that do not display a high biodiversity value such as the agricultural centre of the District, where the open landscape can affect the mobility of species.

Other aspects of riverside management include the need to reduce pollutants entering the river system. These pollutants are not necessarily associated with chemical use on farmland but also include organic sediment. Soil loss has implications for the productivity of the land and water quality.


Norwell
Collingham
North Muskham
Winthorpe
Southwell
Newark-on-Trent
Farndon
Bleasby
Thurgarton
Elston
Claypole
FIGURE 5.4
Public Benefit Recording System Need Newark
High
Low
Settlements
Smaller Settlements
Potential Mixed Use Strategic Sites
TEP
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Public Benefit Analysis*: Opportunity Assessment*

Understanding where opportunities for improving the green infrastructure resource are helps to direct how green infrastructure can be planned. This analysis highlights those areas where existing assets can be enhanced to improve their functionality and value. In recognising spatial relationships between footpaths, natural networks, heritage assets and settlement networks it can also help identify potential multifunctional networks in and around settlements and across the landscape.

This analysis has been based on all 6 green infrastructure drivers (indicators):

- Climate change – opportunities to reduce flooding, the heat island effect and impacts of climate change on wildlife
- Biodiversity – identifying where habitats and species can be safeguarded, enhanced and better connected
- Tourism – how the range of tourism (particularly natural tourism) assets can be enhanced to deliver a range of benefits
- Provision of access, recreation and community spaces for enjoyment, sustainable access to services
- Health and well being – considering where the range of open, accessible and/or natural assets can improve quality of life, physical health and well being
- Environmental quality – considering opportunities for land use and management as well as quality environmental assets

Figure 5.5 shows the opportunities that exist in Newark and Sherwood – including Ollerton and Boughton, Rainworth, Newark Urban Area and the watercourses which are also identified as areas in need (as described above). These areas show the greatest potential for delivering public benefits via green infrastructure: addressing the needs by taking advantage of the opportunities.

Ollerton and Boughton

These two settlements displayed a high level of need in the earlier section of the assessment, yet the opportunities assessment indicates that there are several areas which could help address some of the highlighted needs – particularly in relation to access improvements.

This will go some way to protecting the important SAC resource at Birklands and Bilhaugh alongside providing alternatives for recreation and increasing the overall biodiversity of the area through increasing the extent of natural habitats.

Rainworth and Blidworth

Improving access between Rainworth and Blidworth (west to Mansfield and east towards Farnsfield and Southwell) should be considered as key parts of green infrastructure provision in this area. This has implications for not only improving health through increased recreation opportunities but also for the provision of sustainable transport options. To the east of these two settlements there is the potential for the designation of a Special Protection Area (SPA). To ensure the viability of the SPA and reduce user pressure more resources should be given to the existing spaces around these settlements to ensure they can provide accessible and usable open space that meets the needs of the local communities.

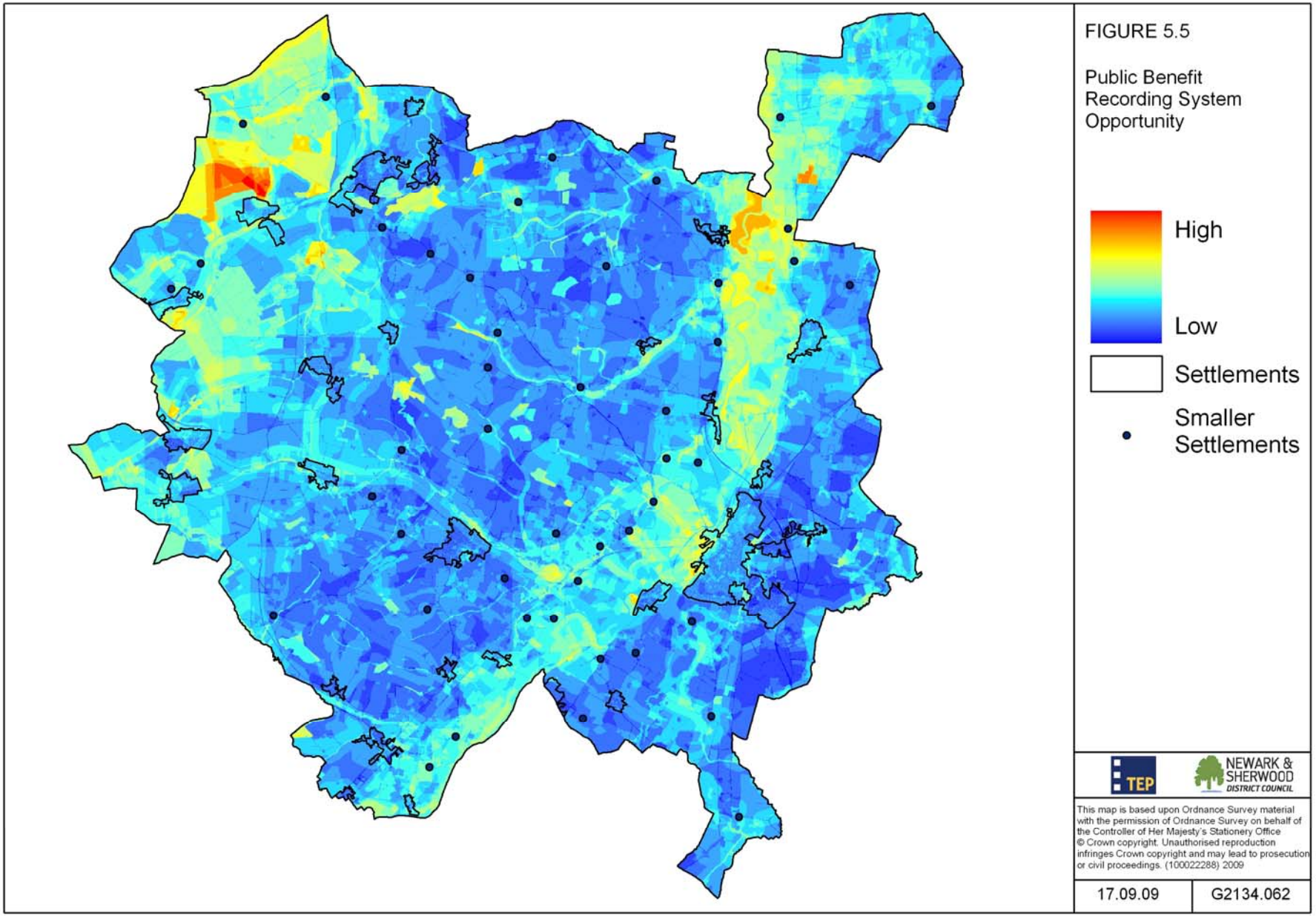
FIGURE 5.5
Public Benefit Recording System Opportunity
High
Low
Settlements
Smaller Settlements
TEP
NEWARK & SHERWOOD DISTRICT COUNCIL
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Improved sustainable transport supports the visitor industry particularly in respect of the settlements' proximity to the Sherwood Forest area, the National Cycle Network and the Southwell Trail. In addition, access to the areas of employment such as Mansfield, Centre Parcs and Sherwood Energy Village would also be improved.

Work already undertaken by the *Greenwood Community Forest* is helping to address many of the needs already mentioned and considerable effort has gone into improving the area's green infrastructure resource and its value to the local communities.

Newark

As well as the town's existing green and open spaces, most of the opportunities lie on the periphery of Newark (figure 5.6), including the area around Sconce and Devon Park, riverside, land to the south of Newark, the open areas directly to the west and a large area to the north close to North Muskham.

The land to west of Newark and that close to North Muskham is of interest because of its wildlife value, flood function and access routes and as such measures that could be taken should reflect this value and enhance those characteristics.

The land to the south has elements of green infrastructure that could provide the quality of life and place in new development as mentioned earlier. Further south and beyond the immediate area for which development is proposed, the River Devon corridor is also highlighted as being an area of opportunity part of which has already seen significant improvement to land management at The Grange/Pykett's Farm.

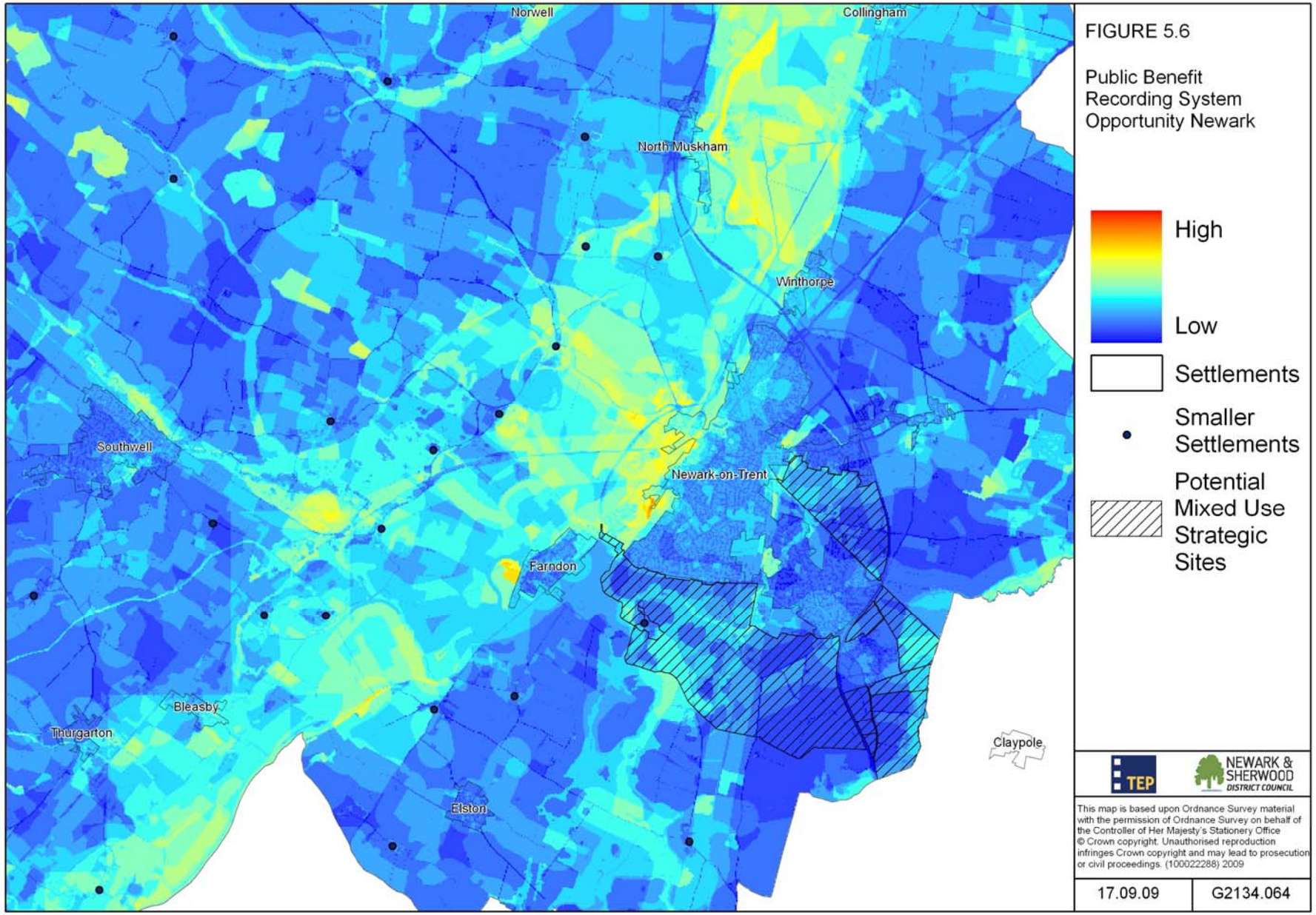
The *Sconce and Devon Park* is also an important area of opportunity for local communities as it is adjacent to areas displaying high levels of need. This park area is a truly multifunctional space, offering heritage, wildlife, recreation and environmental function. Connecting this park to the communities and the wider Trent recreational corridor will be an important part of Newark's recreational network. Connecting southwards towards the southern extension area is also necessary to maintain permeability through the urban area for people and wildlife.

The riverside area and area directly to the west displays the largest area of opportunity in Newark. Soft-land uses such as proposed and existing access routes, flood function and potential contribution to biodiversity and recreation make this large area an important part of Newark's overall green infrastructure resource.

Waterways: River Trent at Newark

The River Trent at Newark is valuable as an asset to communities and to the economy of the town and this value is expressed well in figure 5.6. Newark riverside displays a high level of opportunity because of the heritage, environmental and community functions that exist in this area. This section of the Trent is also important for tourism and contains several of the town's tourism assets.

Access is an important issue here and in several lengths along the Trent access is limited, it would therefore be expected that green infrastructure provision here should concentrate on making the most of this important asset and enhance access, not only to the River itself but also to the adjacent land. Land management to the west of Newark should be managed in a way that can improve the flood alleviation value and biodiversity function of the land.


Norwell
Collingham
North Muskham
Winthorpe
Southwell
Newark-on-Trent
Farndon
Bleasby
Thurgarton
Elston
Claypole
FIGURE 5.6
Public Benefit Recording System Opportunity Newark
High
Low
Settlements
Smaller Settlements
Potential Mixed Use Strategic Sites
TEP
NEWARK & SHERWOOD DISTRICT COUNCIL
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Waterways: River Trent

Much of the River Trent and adjacent land display high levels of opportunity, due mainly to the flood alleviation function of the land either side of the River and the high biodiversity value of several areas along its length such as the mineral extraction site south west of Collingham or the floodplain/grazing marsh east of Sutton on Trent.

Equally important are the tributaries of the Trent such as the Greet and the Fleet whose location alongside settlements makes them valuable as access routes as well as wildlife corridors.

Buffering from the agricultural matrix should also be encouraged in combination with enhanced access to create multifunctional routes that deliver a multitude of public benefits.

Work being undertaken in the *Trent Vale Project* such as the 'Vale Wetlands Trail' and 'Revealing the Riverbank' are important parts of green infrastructure provision in the District and are supported well by this public benefit analysis. The *Maun Valley Project* is also taking forward these kinds of opportunities.

Sutton on Trent

The area to the east of Sutton on Trent is shown as having a high level of opportunity, mainly due to the high wildlife value of the area, its proximity to the Trent and the fact that it is one of the District's largest areas of open access land. In addition to this the area is close to several large water bodies on the eastern bank of the Trent which also have considerable wildlife value.

The opportunity in this area is therefore the consolidation and enhancement of the existing biodiversity value. This could be achieved through specific management regimes associated with grazing marsh and/or creation of a large reserve that occupies both banks of the Trent. There are several mineral extraction points along this section of the River whose future redundancy and subsequent remediation could become a key aspect of creating a larger reserve.

Such is the number of large water bodies in this area that conflict between user groups (such as anglers and boaters) and the wildlife needs of the area can be avoided. There are many examples of places already in the area where both users and wildlife are benefitting from enlightened approaches to waterside management. The restored sand and gravel extraction sites at Girton are a good example of this success.

Central District

In the central part of the District there are opportunities for green infrastructure to deliver benefits in addition to food production based around linear routes such as the Southwell Trail, proposed Multi-User Routes (MURs) and river and stream corridors.

The extension of the Southwell Trail eastwards to Newark, westwards to Rainworth and Blidworth, northwards to Rufford Park and beyond to Ollerton and Boughton would be the key green infrastructure improvement across the centre of the District. This would deliver a multitude of benefits to communities, economy and the environment alike.

As well as these connective networks there is also opportunity to improve the connectivity of several large pockets of semi-natural ancient woodland that exist in two distinct bands across the hilltops in the centre of the District.

Public Benefit, Drivers for Change and the Green Infrastructure Strategy

The next chapter will consider the District's green infrastructure assets, the drivers for change, the public benefit assessment and findings from the stakeholders' consultations to set out a strategic response to green infrastructure for Newark and Sherwood.

Drawing on and interpreting the evidence gathered, the response sets out the value and importance of the District's key sites within the context of the entire green infrastructure resource for the District in a strategic spatial plan, and considers the range of socio-economic and environmental issues, needs and opportunities to produce a range of recommended actions and interventions that will protect, enhance and extend the District's green infrastructure into the future.

Chapter 6: A Green Infrastructure Strategy for Newark and Sherwood

This strategy has been built upon three principles outlined in Chapter 1, i.e. that it must:

- Respond to specific local needs, which may differ markedly across the District
- Safeguard and enhance core sites and networks and improve human connections with their neighbourhood environments
- Be capable of informing development control decisions and targeting funds and activity.

With these core principles in mind, we have set out a strategy in three parts that caters for the differing needs, threats and opportunities that exist in Newark and Sherwood District:

- A set of core principles which govern all green infrastructure planning and interventions across the District
- A District-wide strategic plan, setting out the overall spatial framework for green infrastructure in Newark and Sherwood District
- Two separate plans for Newark Urban Area and the Western half of the District, based on the specific and distinctive needs of these two areas.

Together, these form a green infrastructure strategy for Newark and Sherwood that responds appropriately and specifically to the particular circumstances experienced across the District and so provide green infrastructure functions and benefits within the context of growth, environmental protection and sustainable prosperity.

The recommended actions are summarised in Appendix 5.

Core Green Infrastructure Principles for Newark and Sherwood

The overarching principles below are instrumental in achieving the protection, enhancement and expansion of the District's green infrastructure resource to deliver maximum social, economic and environmental benefit. These set the framework for all strategic recommendations and will need to be followed for the successful delivery of the Newark and Sherwood Green Infrastructure Strategy:

- Local planning decisions will incorporate recommendations set out in the spatial framework for green infrastructure in the design and distribution of new developments, minimising impacts and maximising opportunities for green infrastructure provision in the District as a whole.
- Green infrastructure interventions will be planned and managed to provide a series of adaptable and multifunctional networks of green spaces that can combat the impacts of a changing climate on people, places and wildlife.
- Interventions will use the evidence presented in this report to respond to specific local needs and opportunities, and so ensure delivery of the wider benefits of green infrastructure that respond to community demands now and in the future.
- Activities across the District will take account of the spatial framework for green infrastructure to create a network of natural/semi-natural habitats that encompasses natural and man-made existing and potential landscape corridors and guides the reversal of habitat fragmentation to increase the District's biodiversity holding capacity.

- LAAs will use the findings and recommendations within this Strategy to promote the multifunctionality and wider relevance of green infrastructure to a broad, cross-sectoral audience that will work with Newark and Sherwood District Council to produce mutually beneficial outcomes.
- Wherever practicable, landowners and managers will be encouraged to open up and improve the quality, provision and safety of access routes and to provide accessible and high quality green/natural spaces.

Newark and Sherwood District Strategic Green Infrastructure Plan

With reference to the above over-arching principles and considering the range of evidence gathered throughout this report including the public benefit assessment, this plan sets out the District-wide response to green infrastructure, providing a broad strategic approach of spatial policy initiatives across the District within with the more localised recommendations are set.

Figure 6.1 provides the spatial illustration of the plan and its key strategic recommendations.

Key Strategic Routes

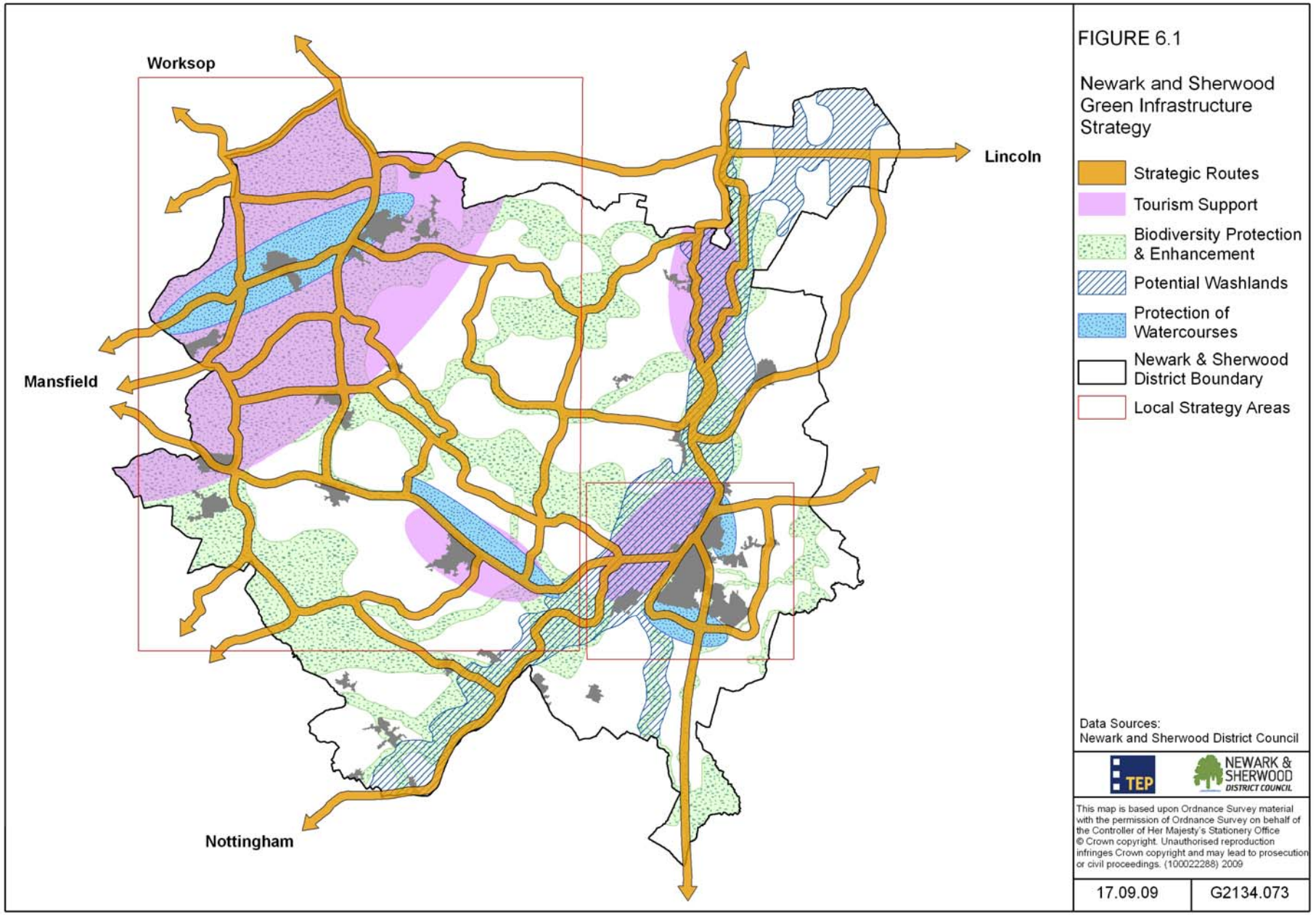
Several existing strategic routes pass through Newark and Sherwood, including two National Cycle Network routes, the Trent Valley Way and the Robin Hood Way, and several important routes exist within the District, notably the Southwell Trail. In addition a set of new Multi-User Routes (MURs) are being developed across Nottinghamshire, two of which pass through Newark and Sherwood. The proposed access network (Figure 6.2) has been designed to make use of these existing routes and pass through the District's settlements and its natural and heritage assets.

The wealth of well known tourism assets in the north west of the District and the growth in visitor numbers means that there is an opportunity to 'tap in' to the visitor economy and widen the number of options and activities for people coming to Newark and Sherwood. Key visitor hubs such as Sherwood Pines Forest Park, Sherwood Visitor Centre and Centre Parcs already have infrastructure in place for cyclists, and establishing/enhancing sustainable connections to these areas will be an essential part of creating a successful District-wide network as well as complimenting the creation of the Sherwood Forest Regional Park.

As part of a sustainable transport network these routes should connect up to railway stations, such as the connection between Southwell and Rolleston. This not only enables visitors to travel into the District by train but also allows resident communities to have sustainable transport options to employment centres in Mansfield, Lincoln and Nottingham either on bicycle or in combination with the railways.

Suggested interventions include:

- Improved surface conditions, allowing multi user access where appropriate
- Creation of new paths
- Directional signage with distance/time/destinations
- Biodiversity enhancements alongside the route corridors where appropriate
- Development proposals that abut or cross the network should include provision for enhancement or extension of access routes and their use as above
- Investigation into the potential for extending the access network via disused but not dismantled railways


Worksop
Lincoln
Mansfield
Nottingham
FIGURE 6.1
Newark and Sherwood Green Infrastructure Strategy
Strategic Routes
Tourism Support
Biodiversity Protection & Enhancement
Potential Washlands
Protection of Watercourses
Newark & Sherwood District Boundary
Local Strategy Areas
Data Sources:
Newark and Sherwood District Council
TEP
NEWARK & SHERWOOD DISTRICT COUNCIL
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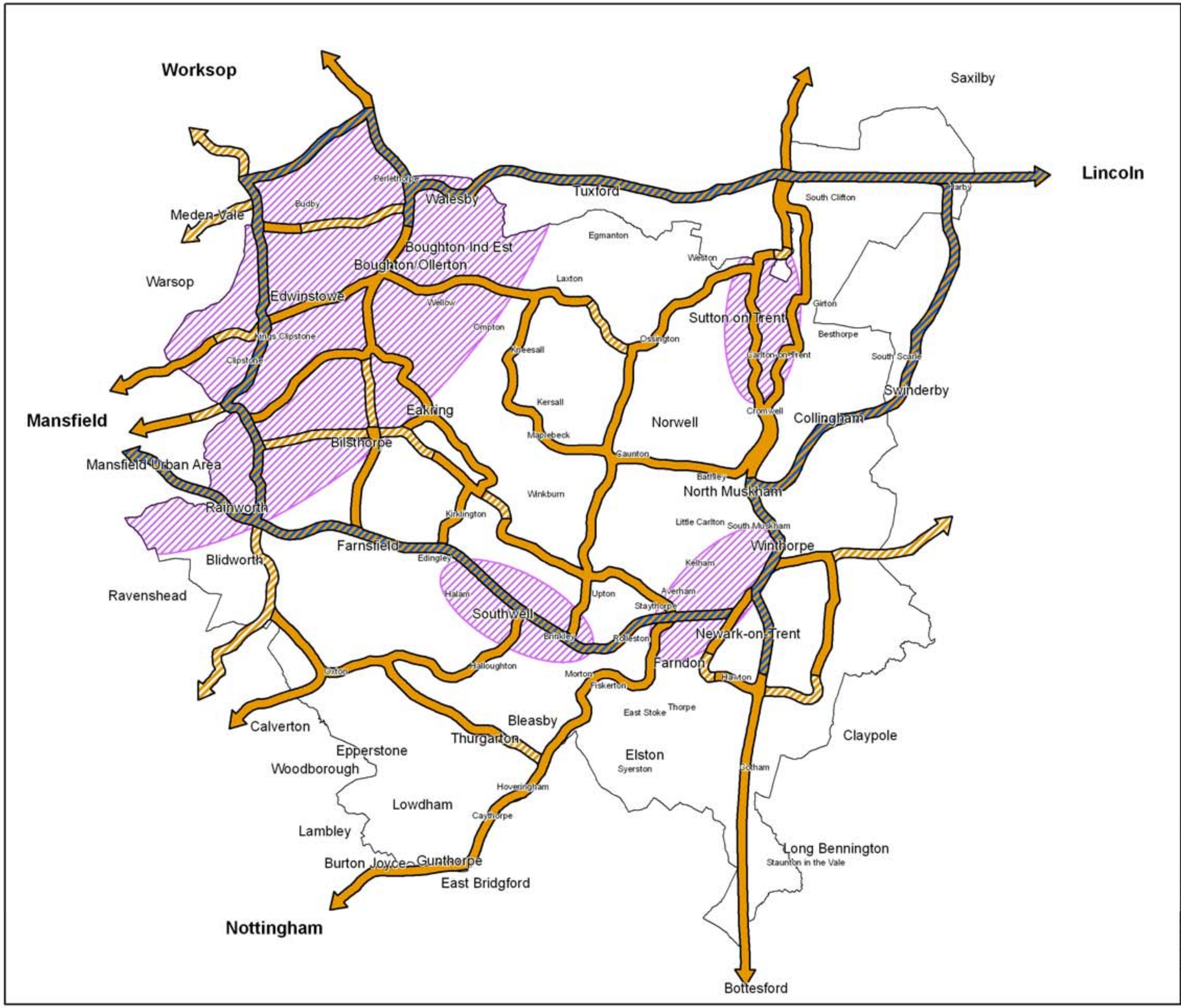

FIGURE 6.2

Strategic Access Route Enhancement

- Existing Route
- Proposed MUR Route
- New Route
- Tourism Support
- Newark & Sherwood District Boundary

Data Sources:
Newark and Sherwood District Council
Nottinghamshire County Council

TEP | NEWARK & SHERWOOD DISTRICT COUNCIL

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The creation of such a network will require time and investment and certain stretches of the network should be prioritised, particularly those sections which can immediately deliver improved linkages between settlements, transport options and visitor areas and are a response to growth, including:

- Newark to Southwell
- Southwell to Rainworth
- Southwell to Rufford/Ollerton and Boughton

Tourism Support

Tourism in Newark and Sherwood contributes considerably to the local economy and supports employment in the District. In the Sherwood Forest area there are already several initiatives planned or in operation, each of which bears a direct relationship to the tourism economy of the area and rely often to a large degree on the District's green infrastructure resource, including the Maun Valley, Centre Parcs, Sherwood Pines Forest Park, Sherwood Forest Visitor Centre, Rufford Country Park and at the wider scale the proposed Sherwood Forest Regional Park.

With the proposed growth in Newark and Sherwood and neighbouring authorities and considering the expanding domestic tourism market, care must be taken to protect the District's resources and assets while supporting this element of the economy.

Increasing numbers of visitors will inevitably mean an increase in pressure on the District's resources. Some assets are more resilient than others and have the capacity to deal with large numbers of people, however others (such as Birklands and Bilhaugh Special Area of Conservation - SAC) are sensitive to overuse and will require measures to protect them. New habitat areas should be created around and/or close to the more sensitive areas to help increase the patch size and therefore resilience to user pressure and also to climate change.

Interventions in the northwest part of the District should therefore follow the aims and objectives of the existing tourism programmes/projects, with Newark and Sherwood District Council providing planning and policy support. This support could be aiding the delivery of new visitor/recreational assets, extending biodiverse areas to reduce the pressure on existing valuable areas such as the Birklands and Bilhaugh SAC and perhaps design guidance for new visitor accommodation such as encouraging the use of locally sourced timber.

Enabling the towns of Ollerton and Boughton, Edwinstowe and Bilsthorpe to align themselves better with the tourism economy will be essential to improve these areas of high deprivation. Businesses that seek to enhance the green infrastructure resource with a mind to expanding the visitor economy should be encouraged.

In Newark itself the riverside area is the main visitor asset. Green infrastructure will have a large part to play in making the most of this resource. The west bank of the Trent, south of the locks, is an area where footpath improvements along the riverbank will greatly increase the amount of accessible green space available and add to the visitor attraction. In addition the nearby Stapleford Woods, whilst not having the same draw as Sherwood, is certainly a destination worthy of investment to improve the existing visitor infrastructure for local users as well as visitors to Newark.

As already mentioned the strategic access network will also improve the visitor offer in the District and will compliment the existing visitor assets. Planning policy should encourage the development of visitor associated infrastructure in areas close to the network and should seek to improve the connections to it.

Biodiversity Protection and Enhancement Areas (Figure 6.3)

Throughout the District there is a wealth of biodiversity assets, including woodlands, river networks and associated riverside land. These important habitat resources should be given due protection within Newark and Sherwood's planning policy. The way in which protection of the natural environment is already managed alongside access and recreation in the District is testament to the multifunctionality and multiple benefits that can be afforded to Newark and Sherwood's natural areas.

There are already mechanisms and programmes/projects in place that are contributing to the protection and enhancement of the wildlife resource in the District, and a significant amount of land is managed in accordance with Environmental Stewardship schemes including the Natural England Higher Level Scheme (HLS) Target Areas, woodland grant schemes and Forestry Commission estate works. The research has shown that within the District there are specific recommendations and particular areas that can be targeted for improvement, both in wildlife value and connectivity and include:

- Enhancing linear habitats along rivers and trails/access networks, including the creation of buffer strips along river and stream corridors (especially the Greet, Devon, Maun and Fleet)
- Improving connectivity between habitats, including woodland, heathland and wetlands and particularly connection between the District's semi-natural ancient woodlands and other woodland in the centre of the District
- With partners, working with landowners/managers/farmers to encourage and enable uptake of land management schemes
- Creating accessible natural areas close to settlements and increasing wildlife value of urban green spaces through increasing multifunctionality of existing spaces
- Extend valuable habitats to create Sustainable Accessible Natural Green Space (SANGs) that will protect the Birklands and Bilhaugh SAC from development
- Ensure planning policy supports the protection of the network area by restricting or placing conditions on development in close proximity to notable habitats and biodiversity resources

Several key action areas for biodiversity interventions have been identified:

- Moribund mineral extraction sites to be prioritised for wildlife and recreation
- Policy support for restoration of defunct extraction sites/rural brownfield
- Support the creation of fish breeding areas and creation of washlands/wildlife scrapes on Newark Piscatorial Federation land
- Encourage more wildlife-friendly grazing regimes on floodplain
- Seek to maximise public access to greenspace and woodland to the north of the proposed development land east of Newark (discussed in further detail in Area Based Interventions)
- Safeguard the Middle Beck as a natural corridor south of Newark (discussed in further detail in Area Based Interventions)

- Ensure that habitats created/expanded are the most appropriate to the area's biodiversity and landscapes (for example, heathland as an alternative to woodland planting in the Sherwood area)
- Promotion of community woodlands as a land use close to settlements, especially on land close to Newark
- Creation of washlands along the Trent Corridor and wetlands along secondary river corridors
- Interpretation at key sites such as fish breeding areas/Stapleford Woods/river corridors close to settlements and where land management changes are happening e.g. felling of coniferous woodland, heathland management and creation of new wetlands
- Street tree planting in high need urban areas
- Promote Sustainable Drainage System (SuDs) use and more natural planting around employment areas
- Creation of a string of wildlife areas along the National Cycle Route to the south of Newark
- Create new woodland/heathland and other habitats close to Rainworth to create a natural corridor that will stretch from Sherwood to the north of Nottingham

Climate Change and Flooding (figure 6.4)

Our changing climate is going to bring with it a series of challenges, with seasonal changes affecting most aspects of our lives and the environments on which we and other species depend, including food production, availability of water and the liveability of the urban environment.

Minimising flood risk and storage of excessive rainfall will be needed. Maintaining moisture in the ground is essential for crop production and ensuring that streams and rivers remain at levels that sustain wildlife, retain amenity value and reduce susceptibility to pollution events. Increased populations and abstraction of groundwater means that allowing water to percolate is essential to maintain productivity and health.

Rainfall interception will therefore both increase groundwater recharge and will reduce the cost associated with flooding and water treatment: minimising the risk of excessive inundation which can lead to the release of untreated waste water as systems become overloaded and to pollution and increased sedimentation in watercourses as a result of run-off from urban and rural environments.

There are already a number of measures and programmes underway which are helping to address the effects of climate change. Wetland creation along the River Trent and other already highlighted projects such at fish protection areas have a direct economic benefit, through tourism, flood control and supporting the angling related economy.

This strategy has identified a series of additional measures to help alleviate the environmental stresses arising from expected future weather scenarios. These can be achieved in a number of both rural and urban locations. The proposed interventions are multifunctional in nature and so will provide a number of benefits to communities, the economy and the environment.

Figure 6.4 shows where the various types of intervention would deliver the greatest public benefit.

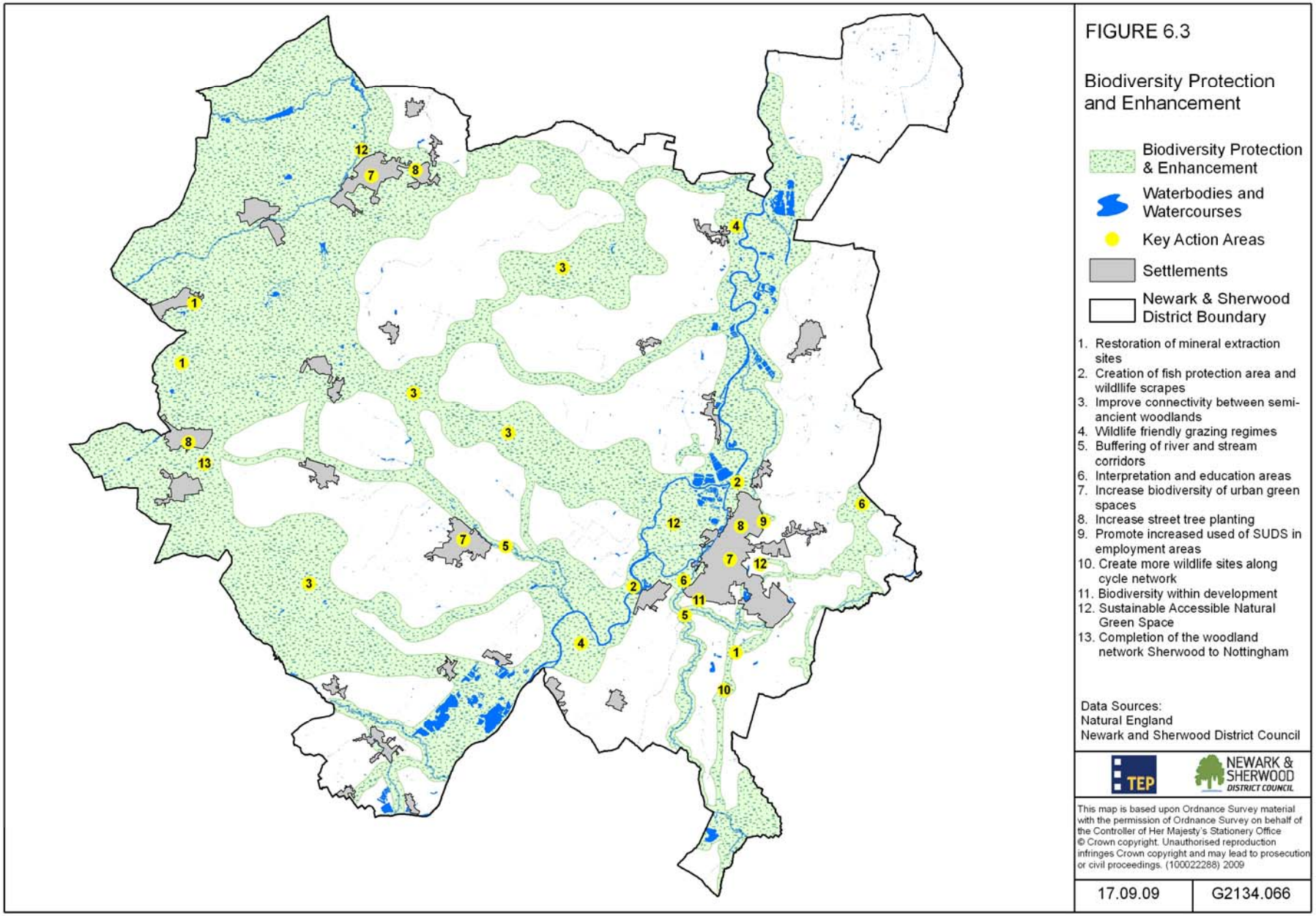
FIGURE 6.3
Biodiversity Protection and Enhancement
Biodiversity Protection & Enhancement
Waterbodies and Watercourses
Key Action Areas
Settlements
Newark & Sherwood District Boundary
1. Restoration of mineral extraction sites
2. Creation of fish protection area and wildllife scrapes
3. Improve connectivity between semi-ancient woodlands
4. Wildlife friendly grazing regimes
5. Buffering of river and stream corridors
6. Interpretation and education areas
7. Increase biodiversity of urban green spaces
8. Increase street tree planting
9. Promote increased used of SUDS in employment areas
10. Create more wildlife sites along cycle network
11. Biodiversity within development
12. Sustainable Accessible Natural Green Space
13. Completion of the woodland network Sherwood to Nottingham
Data Sources:
Natural England
Newark and Sherwood District Council
TEP
NEWARK & SHERWOOD DISTRICT COUNCIL
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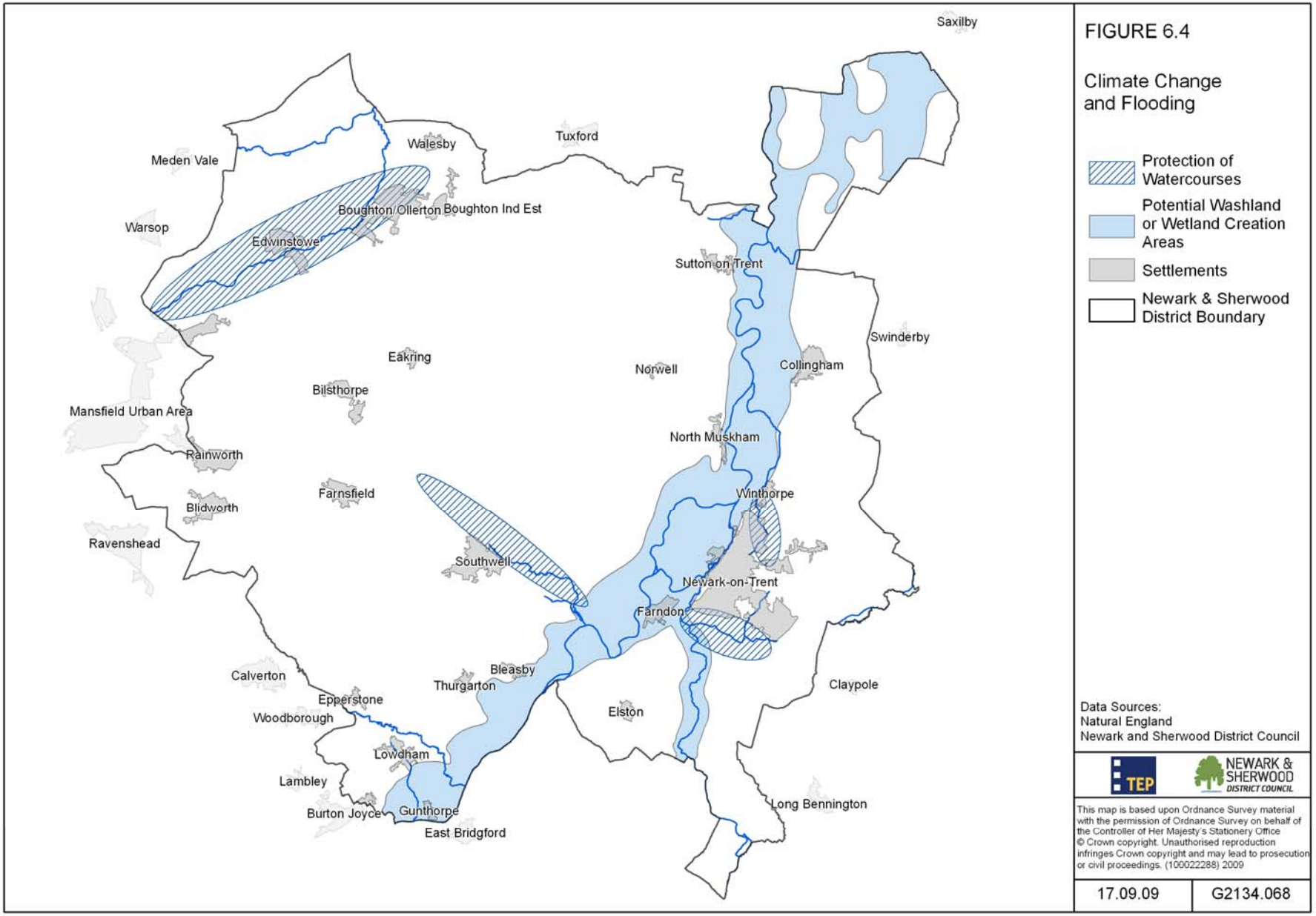
Saxilby
Meden Vale
Walesby
Tuxford
Warsop
Boughton/Ollerton
Boughton Ind Est
Edwinstowe
Sutton on Trent
Swinderby
Eakring
Norwell
Collingham
Bilsthorpe
Mansfield Urban Area
North Muskham
Rainworth
Farnsfield
Winthorpe
Blidworth
Ravenshead
Southwell
Newark-on-Trent
Farndon
Calverton
Bleasby
Thurgarton
Claypole
Epperstone
Elston
Woodborough
Lowdham
Lambley
Long Bennington
Burton Joyce
Gunthorpe
East Bridgford
FIGURE 6.4
Climate Change and Flooding
Protection of Watercourses
Potential Washland or Wetland Creation Areas
Settlements
Newark & Sherwood District Boundary
Data Sources:
Natural England
Newark and Sherwood District Council
TEP
NEWARK & SHERWOOD DISTRICT COUNCIL
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Support of the creation of wetlands alongside watercourses
In many areas along the District's water courses there are opportunities to create flood storage areas that inundate during periods of heavy rainfall or from adjacent rivers over-spilling. These areas can also provide refuge and habitat for wildlife and provide natural green space for local communities.

Sustainable Drainage Schemes (SuDS) requirements in new development
The District Council should consider making SuDS mandatory in development schemes over a specified size. Design guides should direct all new development to address the issue of increased run-off and rainfall interception. SuDS that connect to the hydrological network provide additional benefit as a recreational and biodiversity asset and so should be promoted.

Use of existing spaces for flood control
In parts of the District's settlements, particularly in and around industrial areas and business parks, there are large amounts of sealed surface. Close to many of these sites are areas of open space that could be used to store excessive rainfall in collection ponds. These spaces can also provide natural green space for workers in these areas as well as supporting biodiversity in addition to the flood water storage function.

Increase tree planting
Trees planted for shade are an effective way of reducing increased temperatures in the urban environment. Areas for tree planting should of course be those residential areas that currently have few street trees. Planting in employment areas is also necessary, where large reflective surfaces and transport based and other emissions will make rising temperatures uncomfortable for workers. Trees can also help to reduce run-off through intercepting rainfall and contribute to cooling through evapotranspiration.

Urban watercourses
In Newark there are several watercourses passing through the urban environment that in some parts are culverted. Measures should be taken to de-culvert or 'skylight' these water courses where land use and existing buildings allow. Development on land where a culverted watercourse passes underneath should incorporate measures to open up the watercourse and retain it as a feature of the new development.

In some cases there are open spaces along the urban water networks that could serve as storage areas during heavy rainfall; where practical these spaces should be used for this purpose.

Buffer strips along watercourses
The District's watercourses must be protected from run-off, both from the urban and agricultural environment. Heavy inundation can flush pollutants (including salt and oil from roads, pesticides/fertilisers and soil) from these environments into the rivers network, affecting water quality. Retaining soil is also important for maintaining productivity of the land. To help reduce this risk, where practical, the District's water network should be subject to a buffer of natural vegetation along its length, which would also help to create a corridor along which wildlife is able to move freely.

New infrastructure

The new road infrastructure planned to the south of Newark will have an effect on drainage and will increase the run-off rate and will act as a barrier to some wildlife species in the area. To reduce the road's effect on the area's hydrology proposals must be brought forward as part of the infrastructure planning/design to mitigate the run off of water and improve the quality of the water before it enters the river system, for example through the creation of balancing ponds. In addition care must be taken to ensure that the passage of wildlife and people is not negatively affected and ample riverbank is available for this movement, particularly where the road crosses the River Devon or other stretches of water.

Access to Green Space and Local Access Routes, Recreation

Accessible, functional and attractive green spaces are essential to the health and well being of our communities. They are a vital component of the urban fabric and contribute to sustainable development as recreational spaces and as a focus for education and community interaction, as well as providing space for wildlife and flood relief.

Within Newark and Sherwood there are several areas that display high levels of poor health and deprivation, these are the priority for green space enhancement and provision. Providing space for recreation and exercise is where green infrastructure can make a direct contribution to improving the health and well being of the District's communities. The Walking to Health Initiative has been estimated to have saved the NHS over £81 million over the three years since inception[1], proving that benefits go beyond simply quality of life and improved health.

Including green spaces in a local access network contributes towards sustainable transport objectives by providing safe and traffic free routes between communities, services, employment and education centres. Where suitable land is in short supply, access networks to the surrounding countryside can often make access to green space a reality for communities with a deficit of green space.

The analysis identified several areas within the District that will require improvements to existing provision and the creation of new, fit for purpose and multifunctional spaces. In terms of new development, sites identified for the expansion of Newark must not increase the pressure on the existing green space resource. Newly created sites should be located with an understanding of the potential contribution of that site to the wider green space network.

Recommendations include:

- Improved connections to larger natural areas such as Stapleford Wood and the banks of the River Trent
- Access to the surrounding countryside particularly north east settlements and around Newark
- Improved visitor infrastructure in green spaces e.g. Stapleford Wood
- Better, improved access along the River Trent, for walkers and anglers
- Large open natural green spaces close to Newark (as part of SANGS)

[1] Natural England Technical Information Note TIN055 - An estimate of the economic and health value and cost effectiveness of the expanded WHI scheme (2009), Natural England (based on only 500 schemes nationwide)

- Creation of new green spaces in the south of Newark as part of new development (including allotments)
- Better connections to outdoor sports assets

Area Based Green Infrastructure Interventions

Throughout this study two broad areas have consistently shown their relative importance for green infrastructure in the District in terms of their socio-economic and environmental characteristics. These are:

1. Newark Urban Area
2. Southwell
3. The western half of the District - including Ollerton and Boughton, Clipstone, Edwinstowe, Rainworth, Blidworth, Farnsfield and Bilsthorpe.

A green infrastructure plan has been developed for each of these areas, responding to the particular needs, opportunities and characteristics that exist to set out a series of recommendations specific to these areas yet still sitting within the broad strategic plan for the District.

1. Newark Urban Area (figure 6.5)

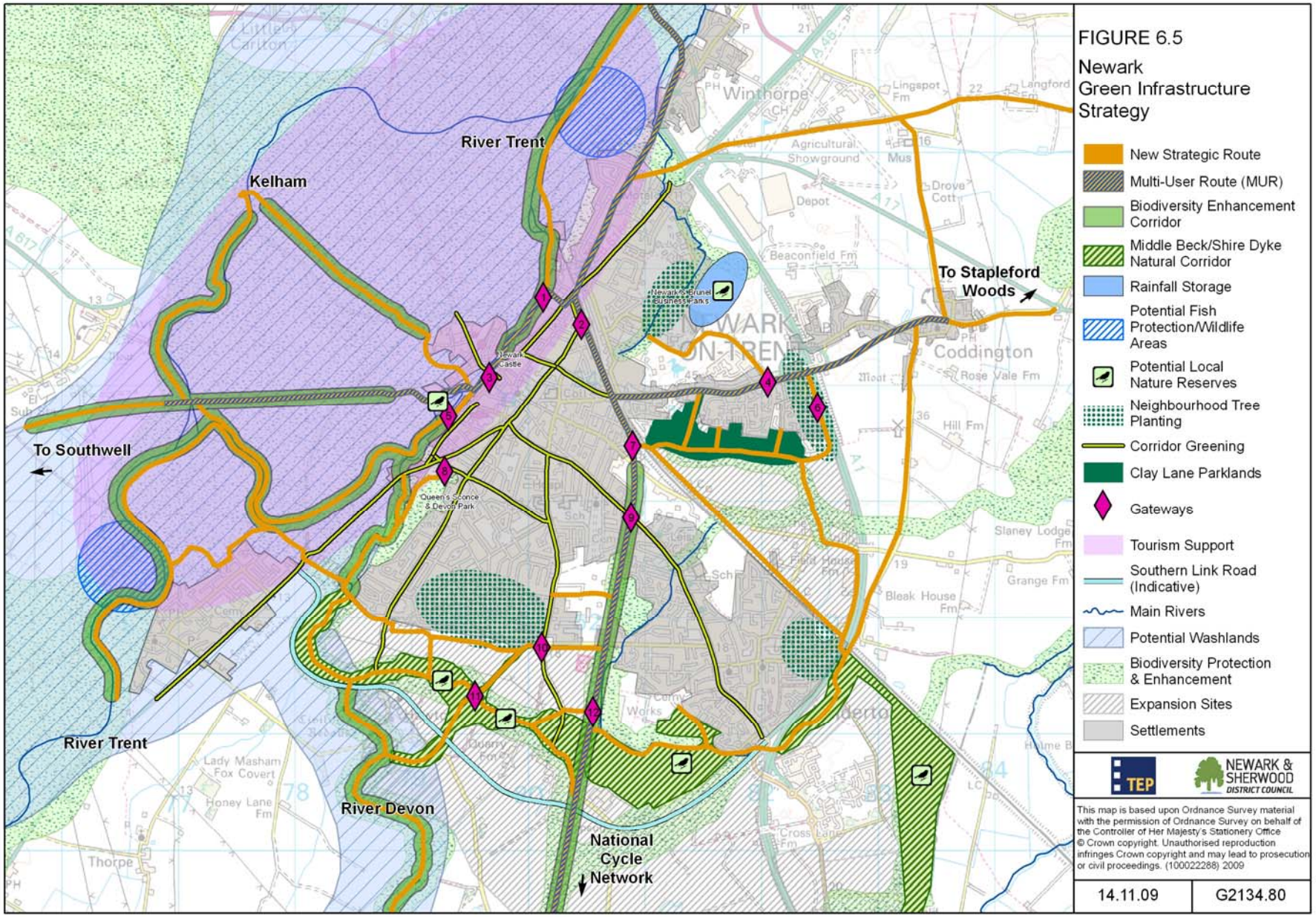
Whilst all of the spatial framework themes apply equally to Newark as they do for other parts of the District, the town's size, location and specific planning needs requires that it has a more detailed and locally responsive set of actions to address issues that include:

- Lack of connectivity between Newark and surrounding countryside
- Growth and pressure on existing assets
- Lack of provision for some green space typologies in some areas
- Retaining and enhancing access to the countryside
- Protection and enhancing the environmental functions of existing open space, such as flooding and wildlife.
- Future proofing existing infrastructure and protecting existing and future communities against climate change
- Improve access along the Trent (North and South) and the Devon
- Under-provision of Local Nature Reserves
- Protection of open space in new development areas

Key Strategic Routes

Improving the connectivity to provide good links that connect to variety of open and green spaces can widen the recreational offer available to people and thus the number of potential activities. Improving the connections is also important in increasing the tourism infrastructure and sustainable transport options. Ensuring these links are maintained and where possible enhanced during the town's expansion will be essential in improving and maintaining the quality of life for the town's communities.

- Increase the accessibility of the Rivers Trent, Devon and Middle Beck
- Create footpath link between Kelham Hall, Averham and the railway bridge at Averham Weir


River Trent
Kelham
To Stapleford Woods
To Southwell
River Trent
River Devon
National Cycle Network
Newark Castle
Queen's Sconce & Devon Park
Newark & Brunel Business Parks
Winthorpe
Coddington
FIGURE 6.5
Newark Green Infrastructure Strategy
New Strategic Route
Multi-User Route (MUR)
Biodiversity Enhancement Corridor
Middle Beck/Shire Dyke Natural Corridor
Rainfall Storage
Potential Fish Protection/Wildlife Areas
Potential Local Nature Reserves
Neighbourhood Tree Planting
Corridor Greening
Clay Lane Parklands
Gateways
Tourism Support
Southern Link Road (Indicative)
Main Rivers
Potential Washlands
Biodiversity Protection & Enhancement
Expansion Sites
Settlements
TEP
NEWARK & SHERWOOD DISTRICT COUNCIL
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- Create a circular walk on land north of Farndon Harbour and make a connection across Farndon Fields to the Sconce and Devon Park and beyond to the Middle Beck
- New access alongside the railway and through the Clay Lane Country Park in land east of Newark containing Barnby Road and Clay Lane
- Ensure all existing footpaths and links in around Newark are well maintained

Biodiversity Enhancement Corridors

Connectivity is essential in allowing wildlife to thrive and adapt to the changes in our climate. Using the existing natural connective elements of the landscape such as rivers is the simplest way to create a movement network, which of course can also contribute to health and well being by becoming a recreational network as well. Equally biodiversity enhancements can also be made alongside access routes. Enhancements along access networks in the agricultural matrix can support food production by providing habitat and breeding areas for pest-controlling species/predators such as birds.

The main corridors that should be a priority for biodiversity enhancement are:

- Trent, Devon and Middle Beck corridors
- The National Cycle Network (NCN) Route 64
- Potential restoration of mineral workings adjacent to the NCN route
- The Newark to Southwell Multi-User Route (MUR)

Key Actions

- Restricting development in or in close proximity to natural corridors
- Policy support for habitat creation such as wet woodland, wetlands and flood storage along corridors
- Partnership support for landowners/managers and other groups wishing to increase the wildlife value of the corridors
- Recognition of the value of these corridors within planning, nature conservation, recreation and climate change policy
- Integrate these networks with existing habitat types and/or other initiatives such as the potential fish protection areas or flood defence wetlands

Middle Beck/Shire Dyke Natural Corridor

Within Newark there are several areas where changes to the land management will produce multiple benefits and increase multifunctionality – particularly because of their contribution to reducing flood risk, but also because of their potentially significant role in providing accessible natural green space and becoming havens for wildlife.

The Middle Beck/Shire Dyke Natural Corridor is located within two of the potential development areas earmarked for the expansion southwards of Newark, in the Fernwood and Hawton areas. The area shown on figure 6.5 is directly correlated to the extent of the Environment Agency's Flood Zone 3 (1 in 100yr event). Consistent with Planning Policy Statement 25[2] this area highlighted on the map should be kept in soft use.

[2] Planning Policy Statement 25 – Development and Flood Risk (2006) CLG

Development planned for this area should be located outside of the flood zone and this area retained and a multifunctional corridor. This would become an important element of Newark and Sherwood's ecological and recreational network as a 'natural corridor', and can also be used to store excessive run-off from new developments. Land along this corridor upstream of but not located within the flood zone should also be retained in soft use so as not to increase flood risk further downstream.

There is the potential to create a chain of small reserves along this corridor, addressing the current shortfall in the provision of Local Nature Reserves (LNRs) and going some way towards meeting the Natural England target of 1ha of LNR per 1,000 people[3]. With the access improvements, educational and biodiversity value this corridor is ideally suited for the creation of a series of interconnected LNRs.

The large area covered by the flood zone, need for local nature reserves, potential for flood storage and the landscape connecting function of this corridor provide the opportunity to create a large accessible green space for the communities of Newark. The area should be managed as a county park, although the term country park has a sound of formality, it is envisaged that the area will be subject to minimum management and would be mostly of a natural essence.

Key actions

- Create an open access 'natural corridor' along the Middle Beck/Shire Dyke and the area of Fernwood development area within Flood Zone 3
- Refrain from allowing development directly within this area
- Create a series of storage ponds to receive run-off from adjacent development
- Provide access routes along the watercourse that connect to existing rights of way and the Trent Vale Project
- Make the connection for people and wildlife between this area and Sconce and Devon Park and Fernwood to the east
- Develop a series of LNRs along the Middle Beck/Shire Dyke corridor
- Ensure signage and interpretation is provided for at key gateways

Rainfall Storage

The land to the south east of Brunel Drive adjacent to the Newark and Brunel Business Parks has been identified for flood storage improvements because of the drains that run close by and the large amount of sealed surface within the two business parks. Such a large amount of sealed surface and large building footprints have a dramatic effect on the quantity and rate of run-off entering the existing drain. This drain runs into The Fleet which has an amenity and wildlife value, so reducing rapid run-off can also reduce the amount of organic and non-organic pollutants from entering the water courses.

This site can be designed in such as way as to provide an attractive green space for the workers in the estate and will compliment the wildlife value of the nearby Beacon Hill Conservation Park. In combination with the proposed increase in tree panting in the area this site will help increase the climate change resilience of the parks and increase biodiversity.

[3] Currently there is only 8.14ha of LNR within an 8km radius of Newark, 4.5ha of which is located in Farndon. This leaves Newark with a shortfall of around 100ha of designated Local Nature Reserves

Along with the Middle Beck Natural Corridor, this site can also contribute towards achieving Natural England's LNR provision standards should the site or part of it be designated as an LNR.

Key actions:

- Create a series of pools that inundate from the drain during heavy rainfall, and that hold some water during dry periods
- Use natural planting to raise the wildlife and amenity value of the site
- Create links to close-by sites and access networks
- Consider creating a Local Nature Reserve

Potential Creation of Fish Protection Areas/Wildlife Scrapes

The angling related economy is worth some £157 million and 3,300 jobs in the East Midlands alone[4]. Maintaining the value of the River Trent as a fishery is vital in supporting Newark and Sherwood's recreational offer and protecting and enhancing the District's biodiversity. With angling providing a pastime for many people and the clear economic benefits of angling to not only Newark and Sherwood but to the country as a whole, supporting the fish populations is essential.

Newark Piscatorial Federation owns several parcels of land and has suggested that these could be used to create fish breeding areas and scraps for wildfowl and other wildlife. The use of this land to reinforce the wildlife and recreational value of the River could be a vital part of safeguarding its value both commercially and as recreational asset in the face of a changing climate. The project would be entirely consistent with the biodiversity improvements being undertaken along the whole of the Trent Valley from Nottingham Trent River Park through to Beckingham Marshes at Gainsborough.

Key actions:

- Support Newark Piscatorial Federation through the planning process
- Integrate other actions such as footpath improvements alongside these projects
- Recognise the multifunctional value of these projects and their contribution to the economy, environment and communities of Newark

Neighbourhood Tree Planting

There are several neighbourhoods within Newark where there is an opportunity to increase the number of street trees or plant trees on the limited function amenity grassland that can often be found in residential neighbourhoods. Areas shown as being a priority for increased street tree planting are those considered to be most likely to benefit from such a programme because of the relative vulnerability of the population (in terms of health, age and mobility – as identified through the public benefit assessment).

The value of increased planting in these neighbourhoods and business parks goes beyond those of simple aesthetic value; they are also a pivotal aspect of addressing the negative effects of climate change. Providing cooling through shade and evapotranspiration and reducing the level of airborne particulate pollution are key functions of urban planting.

[4] Economic Evaluation of Inland Fisheries – (2009), Environment Agency

Although an increase in the number of urban trees is desirable across Newark those areas considered as a priority are:

- The southern part of the Devon ward
- The Manthorpe Estate
- Newark and Brunel Business Parks

Key actions:

- Provide information to the communities/businesses of these neighbourhoods and the business parks about the value and reasons behind a street tree planting programme
- Involve those communities in the programme from the start including schools and community/youth groups
- Reduce costs through supporting a volunteer programme
- Be inventive to achieve added value: for example some spaces could support small community orchards

Corridor Greening

Planting along transport corridors can raise the image or perception of the town that visitors, potential investors and people looking to move and/or invest in have of Newark. The main transport corridors that enter and pass through Newark are important in creating first impressions for visitors to the town and its surroundings. They are also the main routes through which the town's communities pass through most days and their quality and appearance influences the quality of place that they associate with their own town.

Planting along transport corridors is also an important aspect of addressing the effects of climate change. In the same way in which neighbourhood tree planting can reduce the 'heat island' effect, planting along road corridors is important in reducing the effects of airborne pollution, which with rising summer temperatures will have increased implications for public health.

Corridors of trees also provide 'stepping stones' across urban areas for wildlife, helping to connect the important resource of private gardens with that of the more recognisable habitats of the countryside.

The key corridors identified for improvement are;

- Farndon Road – B6166 – Victoria Street – Portland Street – Carter Gate – Appleton Gate – Lincoln Street
- Mill Gate – North Gate – Lincoln Road Bridge
- Boundary Road
- Hawton Road – Albert Street
- London Road
- Bowbridge Road
- Queens Road – Sleaford Road – Beacon Hill Road
- Great North Road

Clay Lane Parklands

The creation of an area of natural parkland in this area of Newark is intended to serve the communities of Beacon Hill and the proposed expansion to the south of Clay Lane, providing accessible natural green space. The area identified has many mature landscape features such as hedgerows, trees and field patterns that add to the character and wildlife value of Newark. Biodiversity enhancements are already taking place at Clay Lane open space. The site is also adjacent to Clay Lane: a quiet lane leading to the edge of town and the National Cycle Network (NCN), making this site a major contributor to Newark's future green infrastructure network.

In conjunction with access improvements across the Park and along the Middle Beck/Shire Dyke and Devon corridors, the communities of Beacon Hill can have traffic free access to the west and south of the town. This is important for not only recreation but also in terms of access to new employment opportunities arising from development in Fernwood and adjacent to the NCN route. Conversely communities in the south will have easy access to the employment areas at Newark and Brunel business parks.

The Parklands would retain most of its original landscape features with any physical change kept to the minimum necessary. The creation of access points or gateways and the provision of some access routes across the site are the improvements that are most needed, alongside interpretation of the site and its features as an important part of increasing its value for local communities. Management changes to raise the biodiversity value of the site can also be implemented.

Key Aspects

- Clay Lane Parklands must connect to the access network
- Integration of biodiversity enhancement into the site
- Creation and continued support of a 'Friends' group to ensure community interest over time
- Signage and interpretation is vital to the users' enjoyment and understanding of the site
- Retain mature landscape features

Gateways

Within Newark there are some areas that act as natural hubs or nodes where several recreational routes converge, clusters of sites and/or historic and recreational assets such as Newark Castle or the River Trent Corridor can be found, or where areas on the edge of communities lead to open space. The gateway theme is about interpretation, information and direction in places where it can deliver the greatest benefit to users of Newark's access network.

Key gateways locations are:

1. Trent Lane
2. Northgate Railway Station
3. Newark Castle
4. Beacon Hill Road
5. Newark Millgate Museum

6. Newbury Road
7. Cromwell Road/Clay Lane/NCN route intersection
8. Sconce and Devon Park
9. London Road/NCN route intersection
10. Devon Works
11. Middle Beck/Shire Dyke
12. NCN route - Millstone Cottage

Expansion Sites

Proposed growth in the District will bring a series of challenges for the existing green infrastructure of Newark that this Strategy must address, and providing a quality environment will be a major contributor to delivering a quality of place. Through understanding and working alongside existing natural features and recognising the impact of development on the environment and vice versa, new development can be delivered sustainably in Newark.

Areas adjacent to the planned development areas including Beacon, Devon and Balderton West already have issues of under-provision of certain types of spaces such as outdoor sports provision, allotments and provision for children and young people. The design of the new development areas should therefore seek to ensure that the already stretched resource is not further impacted on and instead provide green and open spaces within development to help reduce this deficit.

Access routes to the countryside that currently serve those communities neighbouring the new development areas should also be protected and should be made integral to the design and layout of the development. Human movement through the landscape is not the only consideration in design, the ability of wildlife to move along the natural corridors is also important. In the case of Newark's southernmost proposed development area, this means the Middle Beck/Shire Dyke and Devon watercourses.

With the creation of residential areas comes the need to consider the transport network. Providing a sustainable alternative to private transport will need to be considered within the layout: linking to existing and providing new sustainable transport networks is essential to reduce the causes of climate change, reduce congestion and contribute to improving the health and well being of Newark's communities.

Other than risk of fluvial flooding, the increase in sealed surface arising from development brings risks of surface water flooding and increased run-off into either the waste water system or directly into the water courses. Run-off will affect the water quality and therefore ecological and amenity value of the District's rivers. Design guides must therefore seek to disrupt this chain of events through ensuring that Sustainable Drainage Systems are implemented from the initial stages of development design. These SuDS can lead to storage areas within the surrounding natural landscape where natural percolation can allow slow release of excessive rainfall.

Key considerations for development design

- Consideration of Sustainable Drainage Systems (SuDS) for all new development
- Protect and enhance existing natural and human movement corridors

- Links between green and open space, local centres, surrounding countryside and the access network are the backbone of the layout design
- Provide a variety of green and open space that meet the needs of new communities
- Provide green and open space within development areas that helps reduce the deficit of spaces in adjacent communities
- Design guides to direct building standards to meet or exceed BREEAM 'Very Good' rating

Key actions:

- Linear natural corridor along the Middle Beck/Shire Dyke/Devon Corridor focused on the area included in the Environment Agency's Flood Zone 3
- Open access area and woodland to the north of Clay Lane
- Consideration of SuDS network to link into existing water courses
- Multi-user trail within the Middle Beck/Shire Dyke corridor that makes connections to the NCN route and Sconce and Devon Park
- Outdoor sport facilities, this can be supplemented by green gyms or an informal route suitable for jogging
- Allotment space that exceeds the provision required by residents of the new communities
- Potential Local Nature Reserves within Flood Zone 3 in the Southern and Fernwood development areas

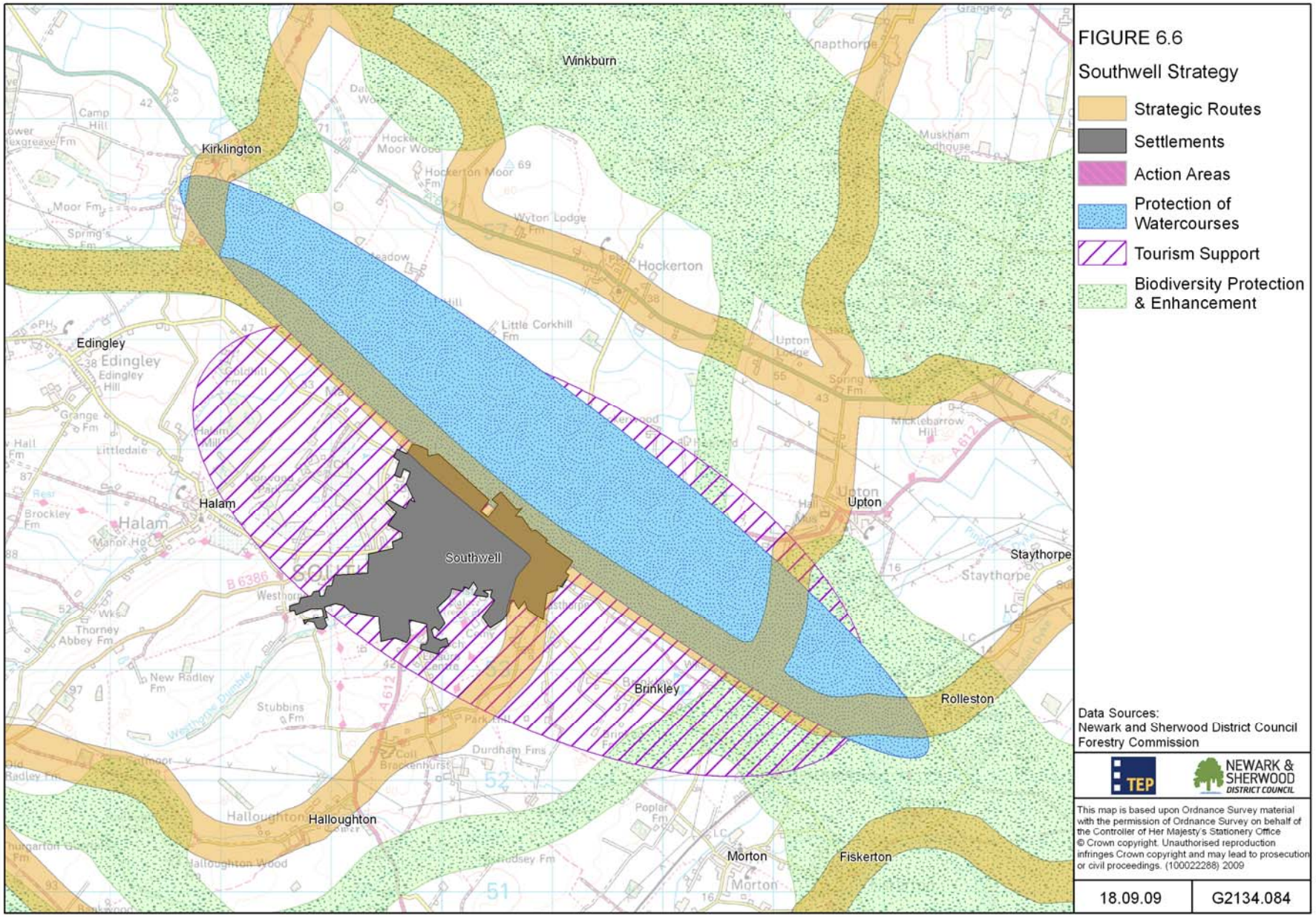
2. Southwell (figure 6.6)

Green space provision in Southwell is amongst the best in the District and the town is located adjacent to the Southwell Trail which enables the communities to travel traffic-free between Southwell, Farnsfield and Bilsthorpe. The town's architecture, heritage assets, unique character and independent retailers make it a destination for visitors.

What Southwell does lack however are connections to either the sub-regional centre at Newark or the tourism honey pot of the north western area around Sherwood Forest. A multi-user route stretching from Newark to Edwinstowe or Ollerton and Boughton that is based on the Southwell Trail will open up both Southwell and Newark to visitors to the Sherwood Forest area, many of whom are already using the cycle networks around Sherwood Pines and Centre Parcs.

The primary intervention whilst not specifically in Southwell itself, but which will ultimately benefit the town would be making the links between Newark and Southwell and Southwell and the northwest. Nottinghamshire County Council is planning to extend its programme of Multi-User Routes (MURs) and this important connection is part of that programme.

Biodiversity enhancements along this and the River Greet corridor will contribute to the District-wide biodiversity network and can contribute to protecting the water quality of this feeder river for the Trent.


Winkburn
Kirklington
Edingley
Halam
Southwell
Upton
Staythorpe
Brinkley
Rolleston
Halloughton
Morton
Fiskerton
Hockerton
FIGURE 6.6
Southwell Strategy
Strategic Routes
Settlements
Action Areas
Protection of Watercourses
Tourism Support
Biodiversity Protection & Enhancement
Data Sources:
Newark and Sherwood District Council
Forestry Commission
TEP
NEWARK & SHERWOOD DISTRICT COUNCIL
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Key actions:

- Support the Creation of the proposed MUR route
- Planning policy that supports sensitive development which is likely to increase the tourism interest of Southwell
- Continue to employ rigorous development guidelines to protect Southwell's character

3. Western Newark and Sherwood (figure 6.7)

The west of Newark and Sherwood has the greatest concentration of green infrastructure assts in the District but also has the highest concentrations of poor health and deprivation. This part of the District is also home to most of the District's visitor/tourism interest, with several large attractions. Most of the settlements are closer to Mansfield than to the District centre of Newark and sustainable transport is an issue due to the lack of railway infrastructure and busy main roads.

With the creation of the proposed Sherwood Forest Regional Park these settlements particularly those towards the north of the area will find themselves with the prospect/opportunity to become gateways to the wider park. Aligning policy and support with the Regional Park concept should enable these settlements to maximise the associated economic gains expected through the Regional Park approach.

The key issues to which green infrastructure interventions should be directed are:

- Providing a quality of place with multiple options for exercise and recreation, close to communities
- Supporting and enhancing the tourism industry
- Planning policy to support the infrastructure needed for the proposed regional park such as accommodation and visitor attractions
- Support for green infrastructure initiatives within tourism/visitor strategies and policies
- Reducing the impact of increased visitor numbers on the natural resource
- Contribute to the sustainable transport network, connecting settlements to employment centres particularly along the strategic routes identified within the strategy
- Encourage the use of local produce in the visitor economy and farm diversification

With this in mind a set of themes has been developed that will direct green infrastructure provision towards addressing the specific needs of the communities, environment and economy of the western part of the District. Other general aspects of the strategy such as climate change and flooding should still be part of development and planning for this area, however these can be delivered by ensuring that multifunctionality is at the heart of green infrastructure provision.

The strategic access network shown in figure 6.6 is envisaged to provide a network of low-traffic/no traffic routes that will contribute towards the District's sustainable transport needs and support the visitor economy. Many of the routes shown are already

in existence and being used as multi-user routes and will require little change, perhaps no more that increased and appropriate directional signage. Others are rights of way that currently support only pedestrian access and will require some physical works and investment to enable them to support cycling. Several sections of the network are disused railway lines that should be considered for dismantling and converted to multi-user routes similar to the Southwell Trail. The spatial layout of the network has been designed to connect to the District's settlements and key visitor attractions.

Ollerton and Boughton

Ollerton and Boughton are surrounded by countryside and several large areas of semi-natural habitat, whilst the restoration of the coalfield landscape has provided open access areas close to the heart of the settlements. In all, green infrastructure provision for the two settlements is very good.

Green infrastructure can contribute towards addressing poor health in this area, but this is largely a behavioural issue that should be promoted though other policies and strategies such as community and health strategies. These should promote the open space resource as a component part of improving the health and well being of local communities.

Education, interpretation, promotion and ease of access will be the types of intervention that are needed for the residents to enjoy the many benefits that well planned and inclusive green and open space networks can provide. The creation of circular walks including 'green gyms' and increasing the number of allotment spaces and their promotion in the local school curriculum are the types of green infrastructure that could deliver benefit. Community management and ownership of spaces is also necessary to ensure they remain part of social infrastructure.

Edwinstowe

There are few large open green spaces within Edwinstowe although there is access to the large wooded and heathland areas to the north of the village and Thoresby Hall. For the most part this village is residential and most employment opportunities are outside of the settlement towards Mansfield and the Sherwood Energy Village. The main focus of green infrastructure here should be the creation of safe and sustainable access routes between Edwinstowe and these employment centres. There is scope for a link to be created along the Maun Valley towards Mansfield and the Sherwood Energy Village.

Clipstone

Clipstone also has a substantial amount of green infrastructure surrounding the village. It is located in between the Maun Valley and the Sherwood Pines Forest Park. Key to improving the health and well being of the community is ensuring other policies and programmes recognise and promote the many benefits associated with green infrastructure and promote its use. Actual provision in the village should focus on connecting communities to those resources and the restoration of the extraction site on the eastern edge of Clipstone and to the Vicars Water Country Park LNR. New development in Clipstone should contribute to the access to the surrounding countryside by ensuring clear access routes exist.

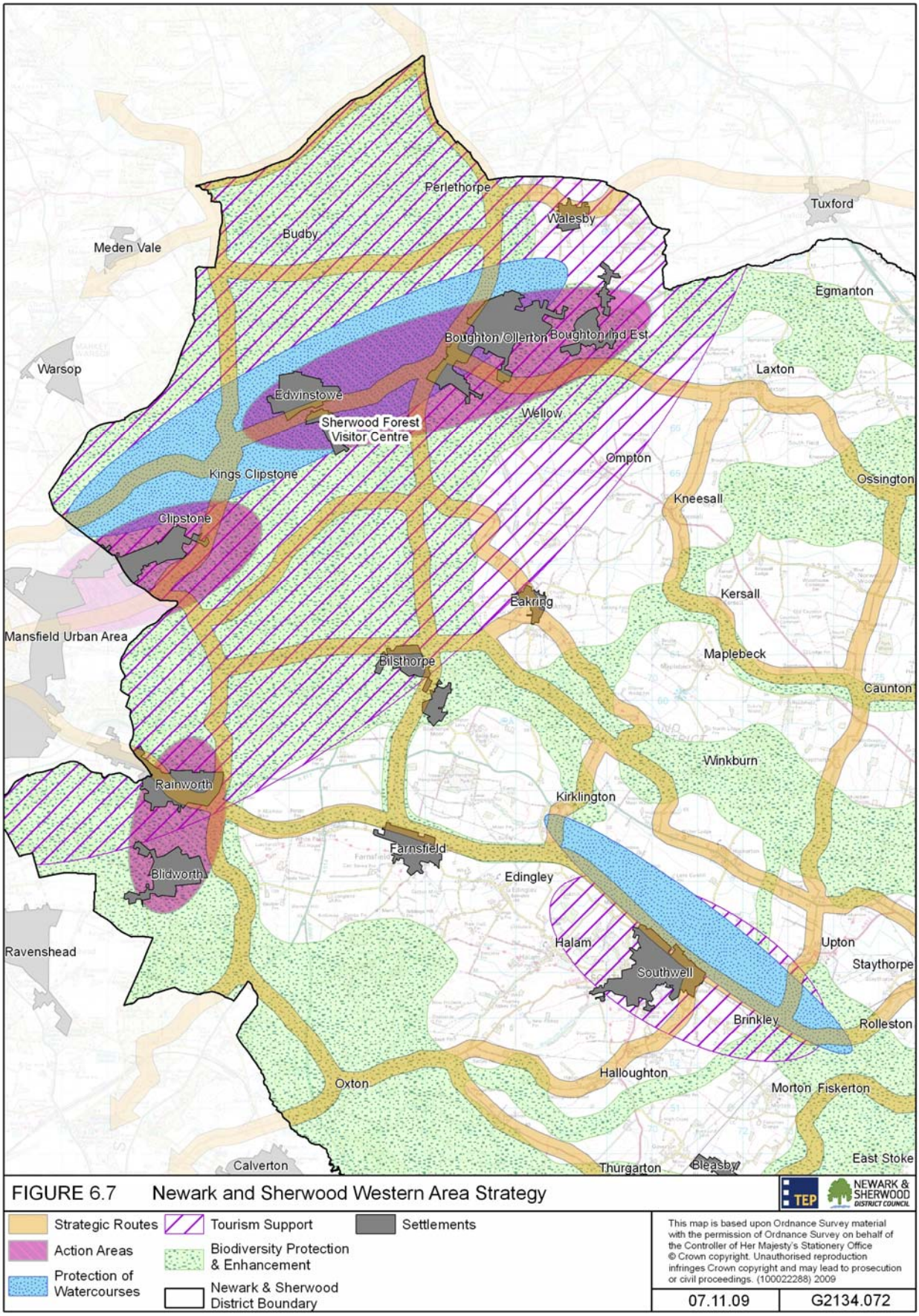

FIGURE 6.7 Newark and Sherwood Western Area Strategy

Strategic Routes
Action Areas
Protection of Watercourses
Tourism Support
Biodiversity Protection & Enhancement
Newark & Sherwood District Boundary
Settlements

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Rainworth and Blidworth

Poor health and air quality affect these two settlements, and green infrastructure should be directed towards offering recreational space away from the road corridor. To the north of Rainworth there is the potential to create a screen of woodland between the community and the A617 main road. This will reduce air and noise pollution for the residents of Rainworth. The Tippings Wood LNR and surrounding area already provides accessible green space and should be a priority for investment and possible expansion.

To the north of Blidworth, the employment area has opportunity to reduce its impact on surface water flooding through the creation of a series of collection ponds on adjacent land. Tree planting on unused green spaces can further climate proof this area.

To the east of the settlements is a chain of accessible woodland that is connected to Sustrans National Cycle Network. Around Rainworth there are opportunities to increase habitat creation, connecting this chain of woodland to the Sherwood Pines Forest Park in the north. This would create a corridor of semi-natural habitats stretching from Sherwood through to Burntstump Country Park on the northern edge of Nottingham, which could include a multiuser trail. Further improvements to the access network should be made through using the derelict railway line to the east to connect with the Southwell Trail.

The Greenwood Community Forest is a major deliverer of green infrastructure in this part of the District and planning policy and funding should be directed towards the objectives of the Greenwood initiative. Greenwood already has a record of community involvement and working with landowners/manager and is ideally positioned to facilitate further improvements to green infrastructure in this area.

The following chapter will concentrate on how the recommendations outlined in the strategy can be delivered. It will focus on the various current and potential funding streams, stakeholders and delivery bodies that can contribute towards Newark and Sherwood's green infrastructure network.

Chapter 7: Implementation, Delivery and Best Practice

This chapter reviews a range of potential funding, partnership and other resources that may be needed to deliver the recommended green infrastructure interventions in Newark and Sherwood.

We first explore the range of initiatives already underway or planned in the district that will have green infrastructure implications, before using a range of 'best practice' case studies to consider:

- Planning conditions, obligations and tariffs
- Partnerships & co-provision
- Community and voluntary sector engagement
- Funding

A range of thematic 'best practice' examples from across the country are also set out, responding to the types of interventions that have been recommended for Newark and Sherwood's green infrastructure.

Finally, approaches from other Local Authorities who have included green infrastructure in their local planning systems are considered, particularly the inclusion of strategic recommendations within Local Development Framework documents, to identify how Newark and Sherwood District Council should respond within its own LDF.

Existing Programmes and Initiatives

There are already several initiatives in operation or planned for Newark and Sherwood, each of which has a considerable geographic coverage and in some instances overlap between them, potentially aiding delivery and reducing budget expenditure through more co-ordinated operations.

- **Greenwood Community Forest**

Greenwood (Figure 7.1) was established as Nottinghamshire's Community Forest in 1991. It covers some 161 square miles/416 km^2 (over 19% of Nottinghamshire) and serves around 1 million people. The main aim of the Forest is to provide countryside on communities' doorsteps, and to provide "economic prosperity, biodiversity, education, health, social enrichment and improved quality of life". Its goal is to create on average 30% woodland cover and to increase access to existing woodlands; in the period 1991 - 2000 has seen over a million trees and 638 hectares of woodland planted.

The purpose of the Forest as stated in its Strategic Plan[1] is to:

> *"Create a multi-purpose forest with a rich mixture of woods, farmland, open spaces and settlements in Nottinghamshire, contributing towards sustainable development and providing a better environment for people to use, cherish and enjoy now and for generations to come"*

The plan has six aims:

- To expand and enhance woodland cover

[1] Strategic Plan for Greenwood (September 2000) Greenwood Partnership

- Biodiversity
- Support for agriculture
- Countryside access
- Community involvement
- Economic prosperity

Links between the Plan and five other key strategies[2] are acknowledged, confirming that the multifunctional nature of the Forest is at the heart of the Plan.

The Forest's proven track record for partnership working has enabled and encouraged community involvement and attracted funding from a variety of private and public bodies. Recent projects have included a green infrastructure study and 'Planting for Shade' a programme of tree planting designed to combat the effects of rising temperatures through planting around buildings, in particularly schools and playgrounds. This is an important aspect of green infrastructure needs in several of the District's western settlements, which fall within the Community Forest Area.

- **Trent Vale – On Trent Initiative**

The On Trent Initiative (Figure 7.2) is a partnership that aims to conserve and enhance the historic, cultural and natural environments. Through co-ordination of work, sharing of ideas and information, influencing policy and delivering projects On Trent aims to create:

> *"A Trent landscape, rich in wildlife habitats and historic features for the benefit of all, both now and in the future"*

The partnership is led by a steering group which includes; Environment Agency, Natural England, Forestry Commission, FWAG, NFU, RSPB, Wildlife Trusts, Aggregates Companies and the six County Council authorities through which the Trent passes through. This support at the national, county and private level is a clear indication of the support and enthusiasm for the initiative.

For Newark and Sherwood the Trent Vale set of projects is the manifestation of the On-Trent Initiative in the District. The plan sets out a series of five aims and priorities for the four main landscape character types that can be found in the Vale[3]:

1. Conserve and enhance the natural and built features that make up the historic landscape of the Trent.
2. Provide opportunities for all to learn and understand the value of the natural and cultural heritage of the Trent Vale.
3. Provide Opportunities to improve the quality of life for local people by providing training opportunities in traditional crafts and skills.
4. Protect and enhance the network of public access routes, recreational opportunities and visitor facilities in the project area.
5. Conserve, enhance and celebrate the cultural identity of the Trent Vale.

Whilst the aims are themed, in their entirety constitute a multifunctional approach to land use in the Vale.

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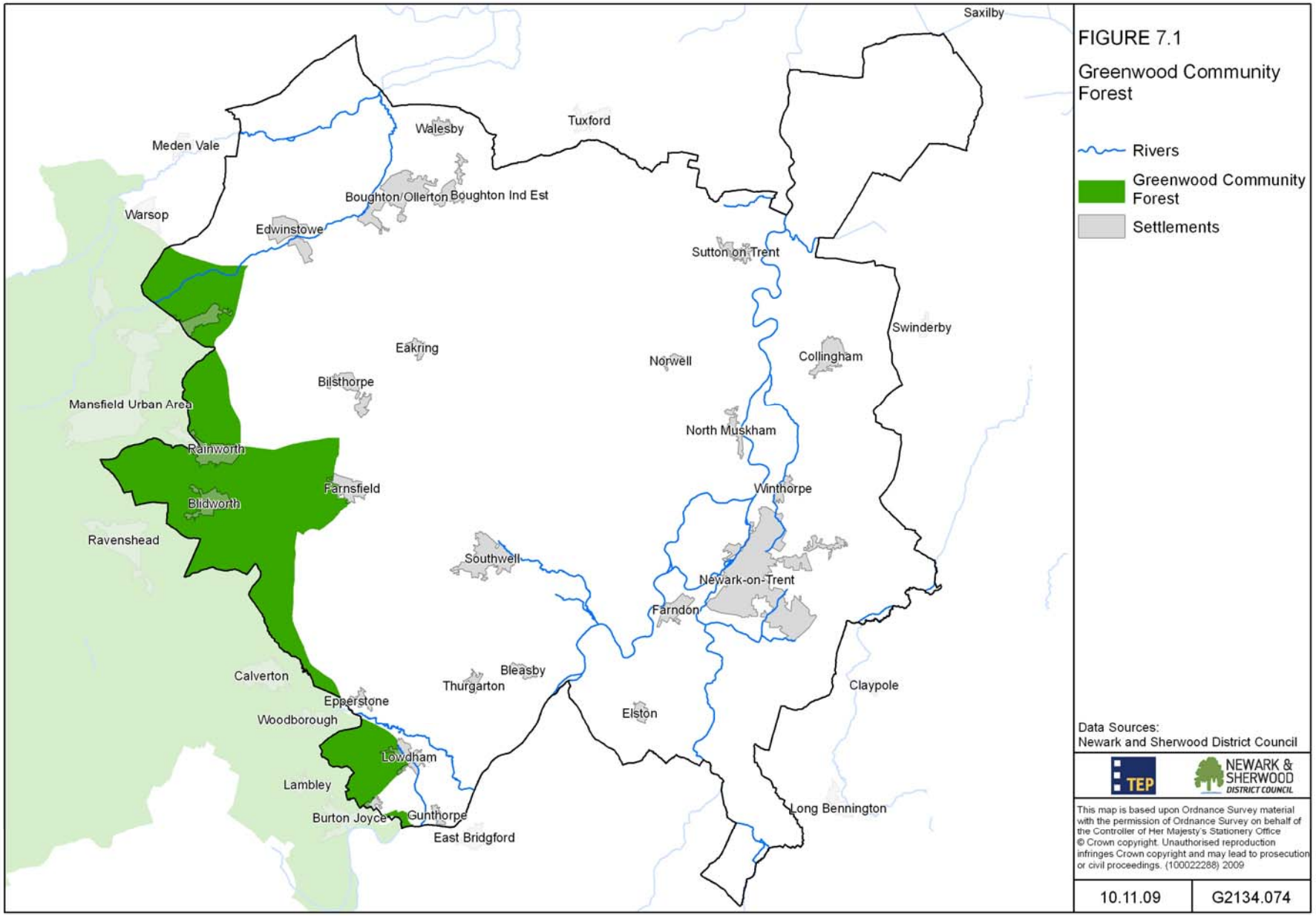
[2] Landscape Regeneration Strategy, Countryside Access Strategy, Community Involvement Strategy, Sustainable Development Strategy and the Sense of Place Strategy

[3] Vale Market Towns, Vale Meadowlands, Industrial/Restored Vale, Vale Farmlands


Saxilby
Meden Vale
Walesby
Tuxford
Boughton/Ollerton
Boughton Ind Est
Warsop
Edwinstowe
Sutton on Trent
Swinderby
Eakring
Norwell
Collingham
Bilsthorpe
Mansfield Urban Area
North Muskham
Rainworth
Farnsfield
Winthorpe
Bildworth
Ravenshead
Southwell
Newark-on-Trent
Farndon
Calverton
Bleasby
Thurgarton
Claypole
Epperstone
Woodborough
Elston
Lowdham
Lambley
Long Bennington
Burton Joyce
Gunthorpe
East Bridgford
FIGURE 7.1
Greenwood Community Forest
Rivers
Greenwood Community Forest
Settlements
Data Sources:
Newark and Sherwood District Council
TEP
NEWARK & SHERWOOD DISTRICT COUNCIL
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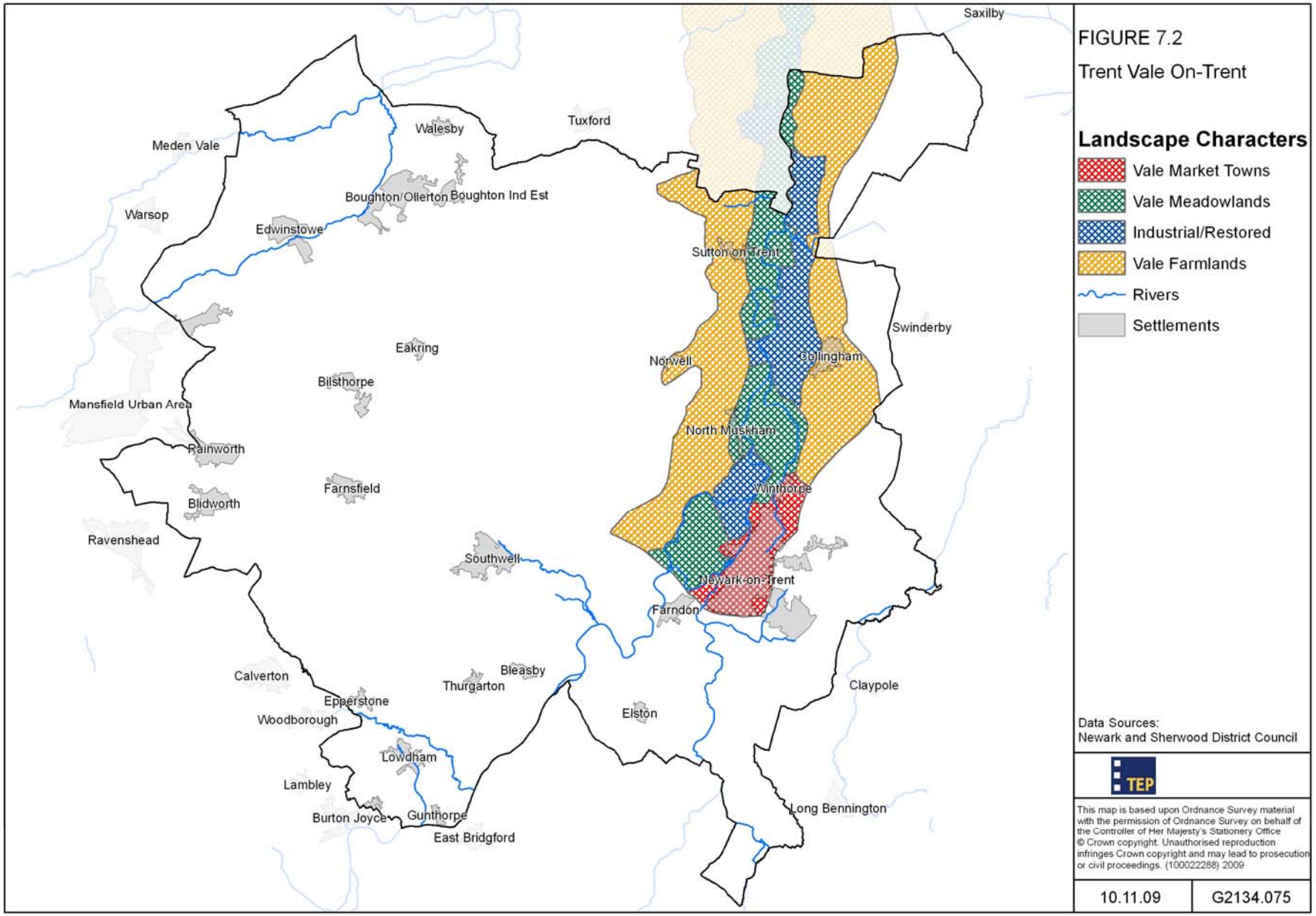
Saxilby
Meden Vale
Walesby
Tuxford
Warsop
Boughton/Ollerton
Boughton Ind Est
Edwinstowe
Sutton-on-Trent
Swinderby
Eakring
Norwell
Collingham
Bilsthorpe
Mansfield Urban Area
North Muskham
Rainworth
Farnsfield
Winthorpe
Blidworth
Ravenshead
Southwell
Newark-on-Trent
Farndon
Calverton
Bleasby
Thurgarton
Claypole
Epperstone
Elston
Woodborough
Lowdham
Lambley
Long Bennington
Burton Joyce
Gunthorpe
East Bridgford
FIGURE 7.2
Trent Vale On-Trent
Landscape Characters
Vale Market Towns
Vale Meadowlands
Industrial/Restored
Vale Farmlands
Rivers
Settlements
Data Sources:
Newark and Sherwood District Council
TEP
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The Trent Vale Business Plan[4] has identified a series of projects to ensure that will deliver green infrastructure all along the Vale and ensure that the communities who will benefit from it will do so fully.

Integrating the work of the Trent Vale Partnership with other green infrastructure provision is paramount in ensuring that the both the Trent Vale projects and those outside of the planned area compliment each other and create added value.

- **Sherwood Forest Regional Park**

The Sherwood Forest Regional Park (Figure 7.3) is still in its nascent stages and plans are still to be finalised. However it is clear from the initial aims of the Park that improving the economy and the quality of life for the potential communities that will reside within the Park area are the key aims and outcomes for delivery.

The Project Management Board has already produced a vision for the Park, building upon elements from the successes of other regional parks and the existing Big Lottery vision:

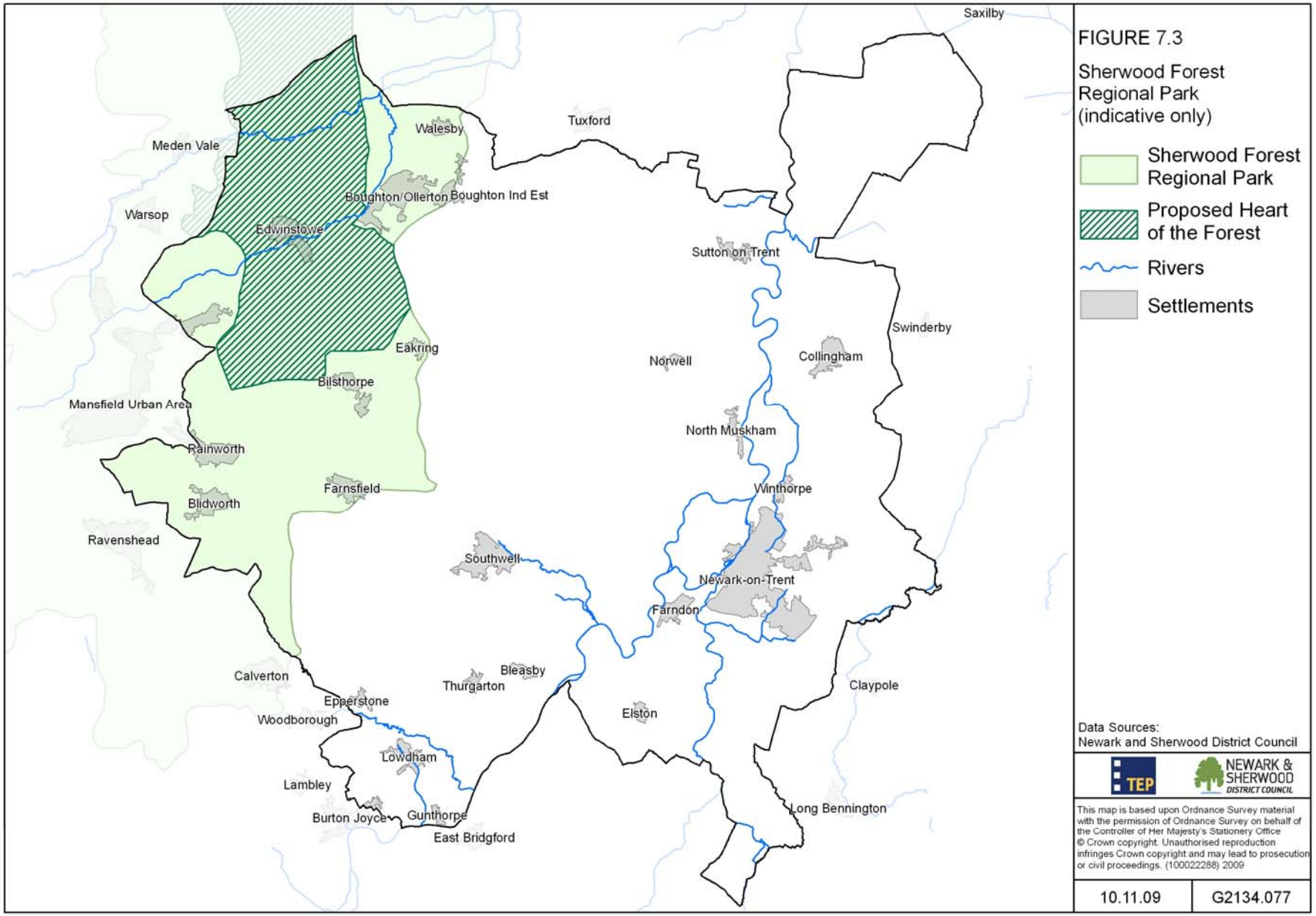
> *"A future for the Sherwood Region where community based projects, economic regeneration and environmental enhancement thrive together in this inspiring natural setting."*

A set of seven objectives have been identified that each have a direct relationship to green infrastructure provision or to which delivering green infrastructure improvements will contribute to:

- *Community Empowerment (Sustainable Communities)*: to facilitate community awareness, empowerment, understanding and well-being, and create opportunities for sustainable and healthy lifestyles.
- *Cultural Heritage*: to conserve and celebrate the cultural heritage of the region and encourage appropriate uses.
- *Economic Development and Regeneration*: to encourage economic development and regeneration that will benefit local communities and respect the environment.
- *Image, Identity and Profile*: to strengthen Sherwood Forest and Robin Hood as an iconic brand and identity for both visitors and locals.
- *Natural Habitats and Landscape*: to conserve and enhance the nature and landscape of the region.
- *Recreation*: to encourage recreation which respects the region's environment.
- *Visitor Economy*: to facilitate the development of Sherwood Forest as a visitor destination whilst respecting the environment.

Each of the spatial recommendations in this strategy will contribute towards these objectives, whilst still delivering the strategic needs of the Newark and Sherwood District. The regional park will drive forward the delivery of green infrastructure in the District and will be able to attract funding and support for a variety of green infrastructure projects that will underpin the economic, social and environmental benefits that the strategy seeks to deliver.

[4] Trent Vale Business Plan (2007) Trent Vale Landscape Partnership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Thurgarton
Claypole
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Woodborough
Lowdham
Lambley
Long Bennington
Burton Joyce
Gunthorpe
East Bridgford
FIGURE 7.3
Sherwood Forest Regional Park (indicative only)
Sherwood Forest Regional Park
Proposed Heart of the Forest
Rivers
Settlements
Data Sources:
Newark and Sherwood District Council
TEP
NEWARK & SHERWOOD DISTRICT COUNCIL
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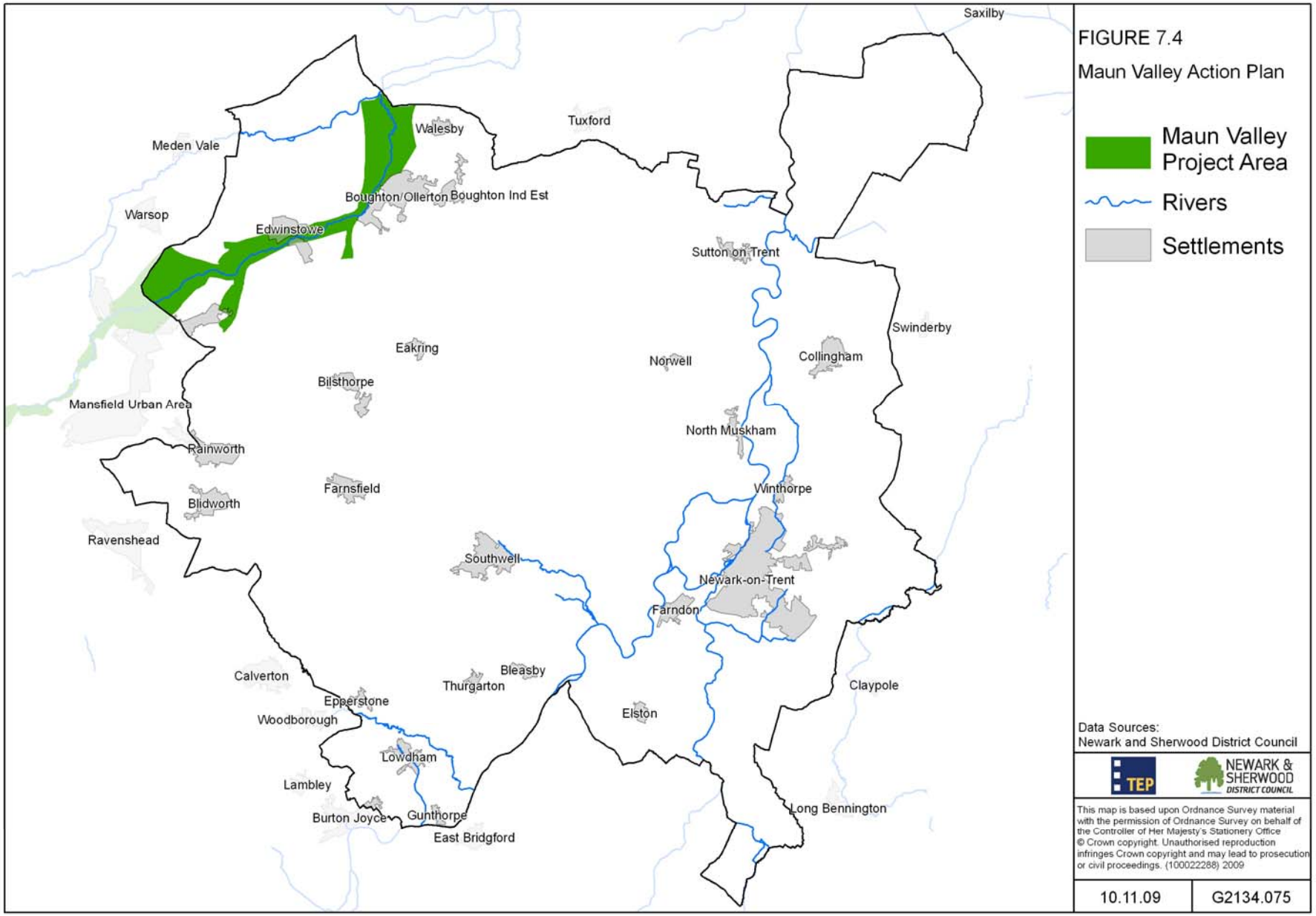
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Bleasby
Thurgarton
Claypole
Epperstone
Elston
Woodborough
Lowdham
Lambley
Long Bennington
Burton Joyce
Gunthorpe
East Bridgford
FIGURE 7.4
Maun Valley Action Plan
Maun Valley Project Area
Rivers
Settlements
Data Sources:
Newark and Sherwood District Council
TEP
NEWARK & SHERWOOD DISTRICT COUNCIL
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- **Maun Valley Action Plan**

The Maun Valley Action Plan[5] (Figure 7.4) recognises the multiple benefits of river valley management to communities, to wildlife and for retaining landscape character and value. The plan concentrates on the conservation, recreation and access aspects of managing the Maun natural corridor.

The plan has identified a series of actions and projects along the length of the Maun Valley that are based on ten objectives. The implementation of the Action Plan is an essential component of improving the District's green infrastructure resource and will contribute many important aspects of sustainable development and prosperity, such as sustainable transport, protection of the environment, health and well being. In addition to this a well managed and accessible Maun Valley will be an asset for the visitor economy of the north west of the District and the proposed Sherwood Forest Regional Park.

- **Sconce and Devon Park, Newark on Trent**

With over 200,000 visitors a year the Sconce and Devon Park is the most popular green space in the Newark Urban Area. This 'Green Flag' park is a truly multifunctional space providing recreational, wildlife and nationally important heritage. Whilst the park was very popular with the town's residents it was felt that there was scope for further improvement, particularly image and accessibility, increasing volunteer engagement and bringing the park to a wider group of people. Newark and Sherwood District Council put the park forward as a candidate for 'Parks for People' funding from the Heritage Lottery Fund.

Improvement of the visitor experience was felt to be an important aspect of increasing return visits and involving people in the management of the park. The funding has enabled not only physical estate works to improve access but also training for volunteers and a programme of monitoring and surveys to measure the success of the various programmes. At all stages of the programme's development the stakeholder steering group enabled a greater input of ideas into the process. To date the funding has allowed the creation of a new children's play area, toilet facilities, café, signage and interpretation, habitat improvements and ranger facilities. The funding has also allowed the employment of a ranger for the park which has had a direct impact on the volunteer programme. Increased numbers of volunteers has improved and widened the interaction of the community with the space, increasing ownership.

- **6Cs Growth Point**

Whilst Newark and Sherwood is not within the 6Cs growth area, the work being undertaken to improve the green infrastructure resource in the constituent areas will benefit the District. Conversely the green infrastructure improvements delivered through the spatial recommendations will compliment and enhance the function of the improvement being made in the 6Cs area. The River Trent Corridor and other watercourses are major components of the 6Cs green infrastructure network, and in combination with Trent Vale Partnership projects, Maun Valley Action Plan, Sherwood Forest Regional Park and the Newark and Sherwood Green Infrastructure Strategy a much greater benefit than the sum of its parts can be achieved.

[5] Maun Valley Action Plan (2000) Baker-Shepherd-Gillespie for Newark and Sherwood District Council

Planning Conditions, Obligations and Tariffs

Green infrastructure can be delivered as a co-product of investment in new or refurbished infrastructure. Such developments create opportunities in the form of new or improved assets as well as threats related to the loss, damage or other alteration of environmental features. This justifies seeking contributions from developers to assist in both the continuing management of existing green infrastructure assets and in the creation of new assets – particularly where deficiencies have been identified.

Planning obligations traditionally take the form of Section 106 (s106) agreements. These are private agreements negotiated between local planning authorities and persons with an interest in a piece of land (usually in the context of planning applications), and are intended to make acceptable development which would otherwise be unacceptable in planning terms. In Newark and Sherwood, the Developer Contributions SPD[6] seeks contributions from developers for natural and cultural heritage assets – clearly relevant to green infrastructure provision.

As a means of supporting green infrastructure, s106 agreements can generate the finance and provide the land for the implementation of new green space assets and improvements to existing greenspace assets, but also critically can be used to fund endowments for long term management. The future approach to developer contributions is being reviewed by Newark and Sherwood District Council. Subject to their lead, a flexible approach to the application of such financial contributions to priority areas across the District rather than restricting their use to the particular locality of the development would be beneficial.

Green infrastructure will of course be one of many competing interests so a realistic level of support for green infrastructure must be advocated during negotiations on tariff-setting.

Partnerships & Co-provision

CABE Space has produced many documents[7] that demonstrate the value of parks, open spaces and the natural environment to residents and businesses, whilst central government now recognises that a quality environment accessible to all contributes strongly towards the establishment of sustainable communities and can contribute towards many local indicators relating to health improvement, biodiversity targets, community safety and wider environmental sustainability[8].

In respect of green infrastructure, much of the government funding that Local Authorities receive for implementation depends on setting and meeting performance targets largely through Local Area Agreements (LAA) and Local Public Service Agreements (LPSA). The majority of LAA and LPSA related funding is dedicated to health, education, social and business support services. There is scope, particularly in the more flexible LPSAs, to set green infrastructure in the context of these targets and thus draw down government funding for capital and (sometimes) revenue projects.

[6] Newark and Sherwood Local Development Framework: Developer Contributions Supplementary Planning Document (October 2008)
[7] Including: A Sense of Place (2007), The Cost of Bad Design (2006), Start With the Park (2005)
[8] World Class Places (2009) HM Government

Nottinghamshire's LAA[9] includes six themes, four of which (A Strong Sense of Place, Children Achieving Their Full Potential, Health and Well Being for All, Sustainability) clearly link into the Green Infrastructure Strategy, whilst green infrastructure per se can also contribute towards another LAA target for a Thriving Economy. Demonstrating that green infrastructure investment delivers these wide-ranging public benefits will help to advocate for 'co-provision' of green infrastructure within funding programmes and increase opportunities for working in partnership with other stakeholders: influencing delivery and adding value by introducing match-funding, joining-up initiatives and stimulating community action.

There is a significant amount of work already underway in Newark and Sherwood that will contribute to the District's green infrastructure provision and quality. These existing initiatives are a key delivery mechanism, and, as business and action plans tend to be reviewed on a rolling basis, it is important to ensure appropriate levels of representation on Partnership and Programme Boards, to maintain close working relationships with partners so that mutual objectives are achieved and to provide them with information and evidence to bid for funding to implement green infrastructure.

Community and Voluntary Sector Engagement

The involvement of voluntary and community sector groups is essential for the delivery of green infrastructure, particularly at the local level. The District's Community Plan should make direct reference to green infrastructure and its multiple benefits. Local communities are critical to the success of any plan or project, and their views should be sought at the earliest stages of development through to long term management and maintenance of sites. Green infrastructure functions such as community cohesion, providing connections with nature, recreational choices and options for improving health will be best delivered where community needs and aspirations are considered and integrated into site designs and development. This is particularly vital in the proposed new housing areas, where Newark and Sherwood District Council has the opportunity to engage with local people (from existing and new communities) so that they can help shape their environment: building a sense of ownership and engendering community cohesion.

CASE STUDY: Neighbourhood Signposting

Kirkholt is a large interwar social housing scheme in Rochdale. It is troubled by issues of poor health, low employment and limited mobility amongst its working age population. Despite being near attractive countryside and the town centre, many residents are reluctant to use the footpaths and cycleways in the area. Using neighbourhood renewal fund monies, the Pennine Edge Forest works directly with community groups to encourage greater countryside access, using guided walks and involving community associations. This has led to greater use of the nearby Rochdale Canal, a multi-million pound regeneration initiative.

[9] This is Nottinghamshire: Local Area Agreement 2008–2011 (2008) The Nottinghamshire Partnership

CABE's guidelines for delivering successful housing growth[10] set out a series of steps for working effectively with communities. These could be applied within Newark and Sherwood, led by the District Council working with those organisations with particular expertise in facilitating community involvement (such as BTCV, Groundwork, etc) to ensure the key principles in this strategy are considered as a critical part of the planning consultation process.

Stimulating positive action for the environment can be achieved at individual, corporate and societal level. At individual levels, bodies such as the Wildlife Trust, Parish Councils, and Groundwork etc are most capable of engaging with local community groups and individuals. National and local publicity campaigns can also stimulate positive green infrastructure outcomes e.g. the BBC's 'Breathing Places' programme, which since its inception in 2005 has involved just under half a million people (of which 27,000 were school children) and is involved with 183 partners[11].

Many environmental trusts and Parish Councils have aspirations to own or lease land as green infrastructure and there would be benefit in facilitating such bodies to purchase land in priority areas. Such facilitation might be through direct financial contribution and/or through assistance with legal and publicity costs. Notwithstanding the above whenever Parish Councils are involved they would have to consider the possibility of increasing the Parish Precept to support their local green space assets.

The level of sustainability of such arrangements can be fragile, as they often rely on the committed contribution of only a few dedicated individuals. Wherever possible an effective exit strategy should be incorporated into any agreements. The most satisfactory would be for the unitary authority to accept ultimate responsibility.

Corporate behavioural change is also possible, particularly where the corporate body is owned or influenced by a major public sector stakeholder. This can sometimes be a matter for contractual negotiation. For example PFI contracts for waste management and educational provision can incorporate "carbon-neutral" clauses which require woodland planting.

Funding

In addition to direct funds secured from the planning process (s106 or Community Infrastructure Levy) and the indirect funding available via existing initiatives, the following organisations and programmes may provide funding for the establishment and management of existing and new green space assets as part of a Green Infrastructure Strategy.

- **New Growth Point Funding**

The success of Greenwood Community Forest in delivering green infrastructure over sustained periods is an example of how a compact between central and local government can achieve cost effective landscape transformation.

As a designated New Growth Area, Newark and Sherwood will benefit from increased funding from central government to put into place the infrastructural requirements associated with growth point housing development. This funding is essential both for major capital projects and green infrastructure. The types of green infrastructure that

[10] Actions for Housing Growth: Creating a Legacy of Great Places (2007) CABE
[11] http://www.bbc.co.uk/breathingplaces/aboutus/

should be included in the growth areas should be guided not only by this strategy and its recommendations but also through consultation with local communities to ensure that there is community ownership of both the plan and green infrastructure.

- **The Rural Masterplanning Fund[12] - CLG and DEFRA**

This is a competition based funding and technical advice project for authorities wanting to deliver growth in market towns. The award of technical support will be give to those authorities that provide the most compelling vision for their rural areas. The fund is designed to ensure that development is brought forward and meets the local authorities' policies for quality and sustainability. Development is defined as mixed use, housing, commercial, community facilities, *green space* and employment use and funding is available for design consultancy, capacity building, project management and embedding quality in development control.

- **Land Fill Tax Credit & Aggregates Levy**

The Landfill Tax Credit System and the Aggregates Levy were created as a means to reduce the environmental impact of these activities and promote a shift to more environmentally friendly ways of waste management and minerals extraction.

Site specific green infrastructure projects may be able to apply to the Aggregates Levy Sustainability Fund (ALSF), whose third objective is "*to address the environmental impacts of post aggregates extraction*". It is delivered through Natural England and English Heritage via the ALSF Partnerships Grant Scheme. It can fund landscapes, biodiversity, access and site enhancement work, but only in or around areas where there has been extraction activity.

The Landfill Communities Fund (LCF) aims to create significant environmental benefits and to undertake projects which improve the lives of communities near landfill sites. Physical works at a specific site within 10 miles of a landfill site can be awarded funding, including species or habitat conservation / restoration and public amenity provision. Recipients of LCF must be registered as Environmental Bodies and should be independent of Local Authority control –such as the Waste Recycling Environmental Network (WREN).

- **Lottery Funding**

The 'good cause' funding generated by the National Lottery in England offers several opportunities for funding green infrastructure interventions from the local to sub regional scale. Each fund has its own rules on the type of projects and bodies it can support, as well as variances in the amount of funding available; such strict eligibility criteria mean that each fund should be investigated thoroughly for appropriateness (web links provided).

  – *Heritage Lottery Fund* www.hlf.org.uk

  Heritage Lottery Fund (HLF) concentrates on the conservation and enhancement of heritage assets, including parks and nature reserves, and increasing access to and involvement in heritage issues. It has a range of funding programmes from small grants of £3,000 to major awards of up to £5million.

  Of particular relevance is the Landscape Partnerships Programme: HLF's primary vehicle for promoting heritage conservation as an integral part of rural regeneration, delivered by partnerships representing a range of heritage and community interests.

[12] Rural Masterplanning Fund Prospectus (2009) CLG

Each scheme would be based around a portfolio of smaller projects, which together provide a varied package of benefits to an area, its communities and visitors.

The Trent Vale Partnership is an excellent example of a successful HLF bid that has green infrastructure as a major element of the project.

– *BIG Lottery Fund* www.biglotteryfund.org.uk

The Big Lottery Fund (BIG) aims to improve the lives of people in need, with a remit covering several green infrastructure functions including the environment, education and health. Across a range of funding programmes, BIG funds projects of up to £1m, and can cover revenue as well as capital costs.

– *Natural England Lottery Fund*

Natural England's 'Access to Nature' grant scheme is funded by the Big Lottery Fund's Changing Spaces Programme and is designed to encourage people from all backgrounds to have access to, enjoy and understand the natural environment. Funding is prioritised towards those schemes that will make a lasting change in areas of high social, economic and environmental deprivation.

Grants of between £50,000 and £500,000 are available for local projects, while grants above £500,000 can be awarded to projects of national significance.

Natural England has three key themes which guide eligibility of projects: community awareness and participation, education, learning and volunteering, and welcoming, well managed and wildlife rich places. Key outcomes are expected to be greater access for a more diverse range of people, greater sense of ownership and meeting the needs of communities.

- **Woodland Grant Scheme**

The Forestry Commission's English Woodland Grant Scheme (EWGS) aims to sustain and increase the public benefits delivered by existing woodlands and to help create new woodlands deliver additional public benefit. There are six grants, five of which apply to the stewardship of existing woodlands and one to the creation of new woodlands.

The Woodland Regeneration Grant enables existing woods to be enhanced, thus improving the biodiversity of those woodlands, whilst the Woodland Creation Grant may be particularly relevant in those areas where fragmented woodlands exist and may offer support to farmers who may suffer a loss of income as a result of changing land use.

The Forestry Commission East Midlands Region has been selected to receive extra funding to help reverse the decline of woodland birds in the region through the East Midlands Woodland Bird Project[13]. For the years 2010/11 there is £2.5 million available for projects which means that the Forestry Commission can offer up to £3,800 per hectare for woodland creation, double the current standard rate.

- **MOREwoods Project[14]**

The Woodland Trust's MOREwoods scheme is designed to create new native woodland and is available to landowners for a single site or a combination of smaller sites totalling at least 2.5ha. The Woodland Trust will provide advice on the selection of species, protection and design as well as organising contractors to carry out the work if necessary. Some financial contribution from the landowner may be necessary, but this could be offset by future economic gains.

[13] http://www.forestry.gov.uk/website/forestry.nsf/byunique/infd-7q3ea9
[14] http://www.woodlandtrust.org.uk/en/plant-your-own-wood/morewoods/Pages/freewoods.aspx

In South Hampshire a partnership between the Woodland Trust and South Hams District Council planted 50ha of trees on private land within 10 miles of the Langage Power Station to reduce its visual impact. This could become a model for the screening of the Staythorpe Power Station close to Newark.

CASE STUDY:
The Woodland Trust & Essex County Council - Tree Initiative and FREEwoods

Essex is one of the least wooded areas in the country at 5.7%.

In 2008 the Council made nine pledges to make Essex a better place to live for its residents. Recognising the need to protect and enhance biodiversity and to bring communities closer to the environment, one of the pledges was the Tree Initiative, with a vision to plant 250,000 trees in the 2008/9 period. The Woodland Trust undertook some of this planting as part of its national scheme to plant a tree for every child in the UK, some 12 million. Working together, the Council and the Woodland Trust have been able to plant 131, 390 trees in Essex and involved over 47,000 people in the project through a series of structured planting days involving schools, community groups, the Scouts and Guides and County Council staff.

In addition to this the Trust piloted the FREEwoods scheme in Essex, which enabled private landowners to create small woodlands of around 1ha. Engaging both the National Farmers Union (NFU) and the Country Land and Business Association (CLA) the scheme attracted great interest and resulted in over 23,000 trees being planted.

With help from the Council the Woodland Trust has also been able to take the first steps towards creating 42ha of woodland outside Colchester dubbed 'The Peoples Forest'.[15]

- **Entry Level Stewardship/Organic Entry Level Stewardship/Higher Level Stewardship**

Environmental Stewardship is an agri-environment scheme delivered by DEFRA and Natural England which aims to secure widespread environmental benefits. The scheme has three elements:

  - Entry Level Stewardship (ELS)
  - Organic Entry Level Stewardship (OELS)
  - Higher Level Stewardship (HLS).

ELS and OELS are a 'whole farm' schemes; ELS is open to all farmers and land managers with conventionally farmed land whilst OELS is open to farmers who manage all or part of their land organically and who are not receiving aid under the Organic Aid Scheme (OAS) or the Organic Farming Scheme (OFS).

HLS, which will usually be combined with ELS or OELS options, aims to deliver significant environmental and other benefits in high-priority situations and areas. HLS is discretionary and concentrates on the more complex types of management, where land managers need advice and support and where agreements need to be tailored to local circumstances.

[15] Essex Works – The Woodland Trust's Contribution to the Essex County Council's Pledge (2009) The Woodland Trust

Higher level schemes are expected to contribute to wildlife conservation, maintenance and enhancement of landscape quality and character, natural resource protection, protection of the historic environment and promotion of public access, and understanding of the countryside, although each scheme is specific to local management needs and priorities.

Within Newark and Sherwood there are three Higher Level Stewardship Target Areas in operation: Trent, Sherwood and Laxton Fields (Figure 7.5), and there are HLS agreements in place for schemes on individual farms and landholdings across the area. The southern section of the Trent Target Area is outside of the large landscape scale initiatives such as the Maun Valley and Trent Vale and so may be an appropriate vehicle for delivering green infrastructure outside of these established programmes and projects.

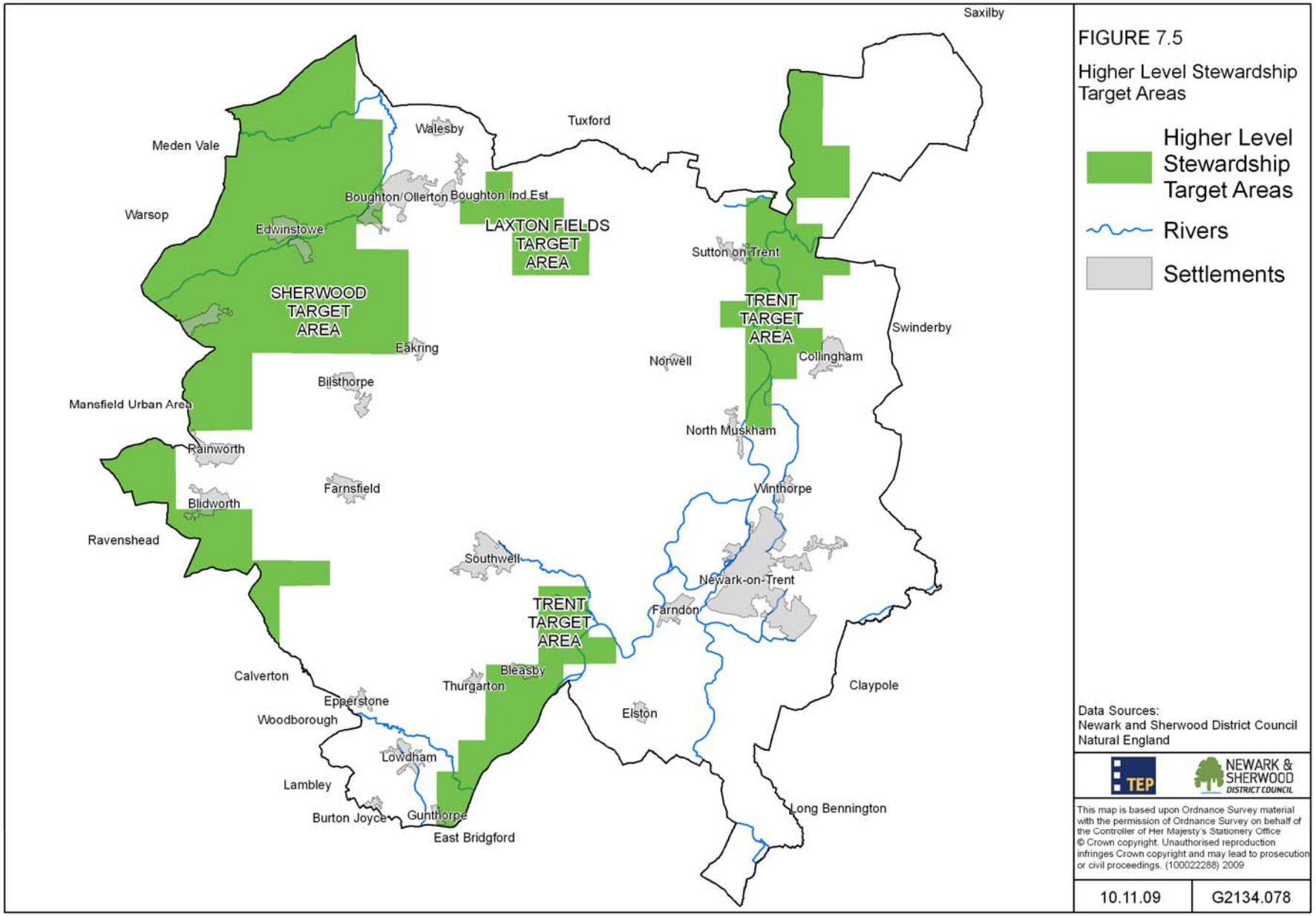
- **Play Strategy[16] National Scheme**

As part of the Government's Play Strategy £235 million has been allocated for the improvement of children's play, with each local authority to be awarded capital dedicated to help improve children's play facilities. Children's play can involve much more that climbing frames and swings, Recognising the 'natural playground' potential of the natural environment and accepting that a natural setting is just as important for children's play and development can lead to improvements across the District in the provision of unique and inventive natural play areas for future generations.

- **Environment Agency**

The Environment Agency has responsibilities for flood control, water quality and biodiversity – a remit which reflects green infrastructure functions. Increased EA spending on improving flood defences can include soft-end flood defences as well as traditional resistive measures that hold back or redirect flood water, including the creation of washlands/wetland and rainfall collection areas. Aligning the Environment Agency's operational priorities with green infrastructure objectives in such a way can help to secure funding to provide multifunctional flood defences via environmental improvements.

[16] The Play Strategy (2008) Department for Culture, Media and Sport, Department for Children, Schools and Families, Play for Life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SHERWOOD TARGET AREA
TRENT TARGET AREA
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Mansfield Urban Area
North Muskham
Rainworth
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Newark-on-Trent
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Bleasby
Thurgarton
Claypole
Epperstone
Woodborough
Elston
Lowdham
Lambley
Long Bennington
Burton Joyce
Gunthorpe
East Bridgford
FIGURE 7.5
Higher Level Stewardship Target Areas
Higher Level Stewardship Target Areas
Rivers
Settlements
Data Sources:
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Best Practice Examples

The various types of intervention recommended under the strategic plans for green infrastructure fall into general thematic areas. We have considered successful and innovative thematic projects from the UK and further afield to demonstrate how similar objectives have been met and opportunities developed - particularly in those areas with similar issues and needs to those identified in Newark and Sherwood District.

- **River corridor management**

The management of river corridors requires an integrated approach as laid out in the European Water Framework Directive. Whilst working across the many agencies, landowners/managers, local authorities and users is not a simple task, there are many examples of where this has been achieved in the UK and elsewhere in Europe, including:

  - Friends of the Yarrow: creation of buffer strips along the banks of the River Yarrow (Chorley Borough Council, EA)[17]
  - Dart Catchment Project: River Dart, Devon (Devon Wildlife Trust)[18]
  - River Eden conservation and management project: Fife, Scotland (SNH, Fife Council, FWAG, St Andrews University)[19]

There are aspects of each of these examples which apply directly to Newark and Sherwood, particularly the creation of working relationships with landowners and managers.

- **Restoration of extraction sites**

Current and historic mineral extraction has left an unwanted legacy in some parts of the District, with Britain's industrial past meaning that many places around the country are experiencing similar circumstances. Particularly innovative and interesting solutions have been developed at:

  - River Sence Forest Park: North West Leicestershire[20]
  - Collier's Moss: St Helens, Merseyside[21]
  - Sett Valley Multi-user Trial: New Mills to Hayfield, High Peak, Derbyshire[23]

- **Woodland initiatives**

The National Forest has brought about an increase in the biodiversity and recreational interest of the East Midlands, with growing direct and indirect economic benefits emerging as a result of the Forest's activities.

Examples of this type of woodland based regeneration exist elsewhere in the country in many cases arising from the need to stimulate economic, social and environmental regeneration. The long-term nature of woodland regeneration is such that economic returns are often longer term results, while recreation, biodiversity and landscape visual amenity benefits appear much more quickly.

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[17] Water: Local Planning and Management (2007) ENMaR, European Network of Municipalities and Rivers

[18] Dart Catchment Action Plan 2004-6: Strengthening the relationships between people, water and wildlife (2004) Devon Wildlife Trust

[19] http://www.biodiversityscotland.gov.uk

[20] http://www.forestry.gov.uk/website/WildWoods.nsf/LUWebDocsByKey/EnglandDerbyshireTheNationalForestSenceValleySenseValleyForestPark

[21] http://www.changingplaces.org.uk/index.asp?page=92

[23] http://www.derbyshire.gov.uk, http://derbyshire-peakdistrict.co.uk/settvalleytrail.htm

Because of the long term nature and early stage of many similar projects, case studies of actual financial and social benefits are thin on the ground. However the confidence that various agencies have in woodland's ability to stimulate regeneration and provide for local communities is reflected in the number of community forests around the country, and understanding the lessons and experience gained from these and in the National Forest will inform and guide initiatives in the Sherwood Forest Regional Park, particularly:

- The Greenwood Community Forest[24]
- Newlands: North West England (Forestry Commission, NWDA)[25]
- The Mersey Forest: Merseyside & Cheshire[26]

- **Flood control & new development**

There are various ways that green infrastructure can aid in reducing the effect of development on the hydrological cycle, and also ways in which the planning system can ensure adequate drainage measures in new developments, as illustrated by measures employed in:

- Upton, Northamptonshire[28]
- Lamb Drove, Cambridgeshire[29]
- Bramley Green, West Sussex[30]
- Sutcliffe Park, Lewisham[31]

This is particularly relevant to the intended development areas around Newark Urban Area, although some measures can be 'retro-fitted' to existing developments and incorporated into green infrastructure planning across the District.

- **Large scale development**

The Hamptons, Peterborough: This 8,000 dwelling development in South Peterborough, has afforded Natural England the opportunity to lead the preparation of a Delivery Plan, which had the agreement of all the stakeholders. Connectivity emerged as a key theme within the plan, including improved links for people and wildlife between Hamptons, the city to the north and Great Fen, a major landscape scale project, to the south. The site included a key site of nature conservation interest, Orton Pit, a disused clay pit with Special Site of Scientific Interest (SSSI) and Special Area of Conservation (SAC) designations. Natural England for many years had been working closely with the developers O&H to ensure its protection. Due to the other environmental constraints posed by the site, the development also incorporated extensive Sustainable Drainage Systems (SuDS) provision[33].

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[24] Strategic Plan for Greenwood – Guiding the Creation of Nottinghamshire's Community Forest (2000) Greenwood Partnership
[25] www.forestry.gov.uk/newlands
[26] www.merseyforest.org.uk
[28] Green Growth for Green Communities – A Selection of Regional Case Studies (2009) Natural England
[29] http://www.ciria.org/suds/cs_lamb_drove.htm
[30] Bramley Green Case Study for PPS25 (2008) CLG
[31] http://www.greenwich.gov.uk/Greenwich/YourEnvironment/GreenSpace/ParksGardens/Eltham/HistoryofSutcliffePark.htm
[33] Green Infrastructure Guidance (2009) Natural England

- **Circular routes**

Circular routes are a more practical recreational resource for communities: being able to start and end the journey close to the front door makes the idea much more appealing. The same applies to tourist attractions: being able to offer alternatives to the main attractions will always make a place or site more attractive to a wider range of visitors. There are several examples from around the country of sites and areas that have improved both the existing recreational offer for the resident communities and also providing additional interest for visitors to the area, including:

  - The Salcey Forest Project: River Nene Regional Park, Northamptonshire[34]

Taking Forward Green Infrastructure Policy

The planning system has a critical role to play in implementation of green infrastructure, aiming to maximise the design quality and environmental sustainability of developments while still enabling the developer to achieve his objectives.

PPS12 (published 2008) sets out government policy on Local Development Frameworks (LDFs), stating that LDFs must create a strong relationship between service delivery and planning for the built and natural environment in order to create strong and prosperous communities.

Newark and Sherwood's LDF needs to adopt this Green Infrastructure Strategy to ensure a strong promotional policy for green infrastructure that clearly advocates the need to safeguard and uplift green infrastructure functions in all developments. Newark and Sherwood's Core Strategy Options Report paper clearly sets out the importance of green infrastructure in its Core Policy 10, which states that the key recommendations of this Strategy will be implemented alongside the Nature Conservation Plan and Local Biodiversity Action Plan.

Detailed development and management policies in the LDF should ensure that green infrastructure assets are assessed during any development and that each development:

- Creates new green infrastructure assets within its own footprint
- Safeguards any assets that might be affected by development
- Contributes to overall functioning of the green infrastructure network.

Robust planning policy will enable refusal of development which does not deliver high standards of green infrastructure both on and off-plot. This will require commitments in Core Strategy and other LDF and associated policies, while supplementary guidance can provide Newark and Sherwood District Council with the flexibility needed to guide and control delivery across a broad range of development locations, footprints and types.

[34] Planning Sustainable Communities: A Green Infrastructure Guide for Milton Keynes & the South Midlands (2005) MKSM Environment and Quality of Life Sub Group

Case Studies on Supplementary Planning Documents

Manchester City Council has adopted Supplementary Planning Document (SPD) entitled "Guide to Development". This requires most developers to produce an Environmental Standards Statement (ESS) in addition to the statutory Design and Access statement. The ESS includes expectations relating to biodiversity and green space. This could logically be extended to encompass other aspects of green infrastructure such as favourable social and health outcomes.

The Mayor of London has drafted (in August 2007) SPD relating to the East London Green Grid. This suggests topics in which Local Authorities should develop ambitious policy for safeguarding and (re)building green infrastructure functions.

Stafford Borough Council has commissioned (in 2009) a draft SPD that sets out standards for green infrastructure provision in the borough. Alongside a set of overarching principles to guide planning officers in the inspection of development proposals, the SPD sets out a range of distinct provision and quality standards that developers must respond to in their proposals. The SPD also sets out a framework for the calculation of Developer Contributions to deliver green infrastructure interventions across the Borough, including the creation of a Community Park, Country Park and an area of 'Natural Parklands'.

The box below suggests a four stage process that could be used within the LDF process to ensure the integration of green infrastructure principles within Newark and Sherwood (stage 1 and 2 are already largely covered by this work on a Borough wide basis, but may need more work at the site specific level).

Embedding GI in the LDF Process

Step 1 Audit

- Identify green infrastructure assets (on and off site) which may be affected. This includes vegetation, biodiversity, access, soil porosity, distinctive landscape and heritage.

Step 2 Plan

- Have regard to the Newark and Sherwood Core Strategy, Landscape Character Assessments, Green Space Strategy, Community Greenspace Improvement Plan, Greenwood Strategic Plan, Biodiversity Implementation Plan and the East Midlands Regional Forestry Framework
- Consider design and sustainability codes that apply to the development type and location
- Consult local planners, environmental bodies and community to understand neighbourhood priorities
- Assess how the development might impact on areas of opportunity and/or deficiency in green infrastructure.

Step 3 Site Design

- Safeguard green infrastructure assets on site
- If asset loss is inevitable: recreate green infrastructure to ensure "no net loss" of the functions provided by the lost assets
- Create new assets on site in line with local and strategic priorities.

Step 4 Reinforce strategic green infrastructure functions

- Address deficiencies (both pre-existing in the neighbourhood and those caused by the new development)
- Ensure linkages to the green access network
- Contribute to the strategic green infrastructure network
- Ensure long term management and governance arrangements are in place for green infrastructure on site and (where relevant) off site.

However, it is important that this Green Infrastructure Strategy does not stand alone and remain just the responsibility of Newark and Sherwood District Council as the Local Planning Authority to implement. It needs to be integrated and progressed in tandem with other LDF documents and with other District and County wide strategies such as the community strategy, climate change, tourism and so on. It is also suggested that the first housing development to receive planning approval should be a 'best practice' example of how the implementation of enhancing or creating new green space assets can be achieved, whether or not it is located in a high priority area. That would set the standard and demonstrate that the Council is determined to encourage and if necessary push forward the creation of an improved green infrastructure for the District.

Recognising the scale of the opportunity

Given the level of support for and interest in green infrastructure at both the national and regional level and the funding available, it is important that Newark and Sherwood makes the most of this opportunity to consolidate and improve the District's green resources. With the manifold benefits of green infrastructure such as halting the loss of and increasing biodiversity, adapting to and mitigating against climate change, health and recreation and inward investment, Newark and Sherwood finds itself presented with a once in a generation chance to make real positive changes for the District's residents.

A Green Infrastructure Strategy for Newark & Sherwood

APPENDICES

APPENDIX 1:

Policy context for Green Infrastructure in Newark and Sherwood

National Policies

Planning Policy Statement 25 – Development and Flood Risk (2006) CLG

Planning Policy Statement 25 sets out the Government's national policy on development and flood risk. It is intended to guide the development of Regional Spatial Strategies/Regional Plans and Local Development Plans/Local Development Frameworks. There is recognition in this document of the need to consider climate change and changing weather patterns in future planning. The policy sets out that other than traditional fluvial flooding alongside rivers, the impact of development outside of nominal flood zones can impact upon the flood risk experienced by an area, and that this should be considered throughout all stages of planning. In reducing that risk the policy suggests that sustainable development can be delivered through, amongst other measures by:

- reducing flood risk to and from new development through location, layout and design, incorporating sustainable drainage systems (SUDS);
- using opportunities offered by new development to reduce the causes and impacts of flooding e.g. surface water management plans; making the most of the benefits of *green infrastructure* for flood storage, conveyance and SUDS; re-creating functional floodplain; and setting back defences;

This planning policy statement is support by a best practice guide with several illustrative case studies showing how restoring the more natural flood plain can in fact reduce risk and how new development can be achieved whilst improving the functionality of the river/stream corridor.

Securing the Future: The UK Sustainable Development Strategy (2005) HM Government

> *'The goal of sustainable development is to enable all people throughout the world to satisfy their basic needs and enjoy a better quality of life, without compromising the quality of life of future generations.'*

The UK Development Strategy has developed a set of shared priorities that apply across the UK:

- Sustainable Consumption and Production
- Climate Change and Energy
- Natural Resource Protection and Environmental Enhancement
- Sustainable Communities

Each of the above priorities has a direst relationship with the benefits that can be attributed to green infrastructure and there is recognition within this strategy of the contribution that green space and biodiversity make to our standard of living, quality of life, health and well-being. Sustainable transport options, productive agricultural land,

reduced risk of flooding and vulnerability to 'heat island' effect and the protection, enhancement and expansion of natural habitats are key aspects of green infrastructure planning that contribute to the UK's sustainable development.

Planning Policy Statement 9: Biodiversity and Geological Conservation (2005) CLG
This national policy for the protection of our biodiversity and geological resources is intended to inform the production of regional and local planning document. At the local authority planning level local authorities and their planning documents should:

- Take an integrated approach to planning for biodiversity and geodiversity when preparing local development documents. They should ensure that policies in local development documents reflect, and are consistent with, national, regional and local biodiversity priorities and objectives (including those agreed by local biodiversity partnerships).
- Indicate the location of designated sites of importance for biodiversity and geodiversity, making clear distinctions between the hierarchy of international, national, regional and locally designated sites
- Identify any areas or sites for the restoration or creation of new priority habitats which contribute to regional targets, and support this restoration or creation through appropriate policies.

A green infrastructure strategy is a framework on which the above requirements can be delivered. The process through which green infrastructure strategies are developed allows for aspects such as understanding where valuable biodiverse/geodiverse sites are located and where enhancement and re-creation can take place. In addition to this understanding where the greatest public benefit can be achieved helps maximise the value of such interventions.

World Class Places: Government Strategy for Improving Quality of Place (2009) CLG
Quality of place is vital in maintaining the viability of communities and local economies and this strategy considers it a key local factor in providing a quality of life and one of the four elements that contribute towards a quality of place. World Class Places encourages the use and expansion of green infrastructure to reduce the impacts and causes of flooding, reduce the effects of climate change and increase the viability of the country's biodiversity resource. This is in addition to value of the natural environment to contribute to our health and well being. This strategy has been endorsed by many of the agencies with a interest in seeing green infrastructural improvements across the country including; Environment Agency, CABE, HCA, English Heritage and Natural England.

Regional

East Midlands Regional Plan (2009) Government Office for the East Midlands
The Regional Spatial Strategy for the East Midlands prescribes many policies that through well planned green infrastructure, the intended outcomes can be delivered. Policies such as flood risk, protecting and enhancing the natural environment, tourism, sport and recreation are all supported by green infrastructure planning. The plan also has specific policies relating to green infrastructure under Policy 28 - Regional Priorities for Environmental and Green Infrastructure.

This policy requires that local authorities:

- Assess the capacity of existing Environment Infrastructure to accommodate change in order to inform decisions on the scale, location and phasing of new development. Account should be taken of current deficits and likely future demands, including those likely to result from climate change, to identify any further needs or constraints
- Select appropriate indicators and targets to monitor the condition of Environmental Infrastructure and to ensure that its capacity to accommodate change is not breached
- Ensure that the provision and design of new Environmental Infrastructure is considered and its delivery planned through environmental capacity analysis at the same time as other infrastructure requirements
- Within Local Development Frameworks develop 'green infrastructure plans' based on character assessments of existing natural, cultural and landscape assets and the identification of new assets required to meet the needs of existing and expanding communities
- Increase access to green space that can be used for formal and informal recreation, educational purposes and to promote healthy lifestyles, without increasing pressures on sensitive sites, especially those designated under the European Habitats Directive
- Identify delivery and funding mechanisms for the creation and future management of Green Infrastructure, including from the planning system

East Midlands Environment Strategy – Objectives and Policies (2002) EMRA
The regional environment strategy brings together many of the benefits that can be attributed to green infrastructure such as improving the quality of water and soils, providing corridors for wildlife, access to nature and recreation and the concept of the 'green lung' in urban areas. Importantly it recognises the multifunctional nature of green infrastructure in aspects such as green sustainable travel routes, where safe, green and sustainable routes can incorporate wildlife corridors and important environmental functions such as reducing flood risk and maintaining water quality and reducing soil loss.

Green Infrastructure for the East Midlands: A Public Benefit Mapping Project (2006) TEP for EMRA
This document commissioned by the East Midlands Regional Agency looked to understand where the greatest public benefit could be achieved through green infrastructure interventions. Using a variety of datasets to represent the objectives of the regional spatial strategy it showed that green infrastructure can provide a great deal of public benefit throughout the region. For Newark and Sherwood the benefit manifested itself along the Trent Vale, Sherwood Forest area and the Newark town urban area, particularly with regards to access, biodiversity and climate change.

Tackling Climate Change in the East Midlands – Regional Programme of Action 2009-2011 (2009) East Midlands Regional Climate Change Partnership
This programme of action is clear in its support for green infrastructure as part of new development, in terms of its value in reducing flood risk, supporting biodiversity and sustainable drainage. It recognises the role of green infrastructure as part of the wider environmental infrastructure essential for communities, the environment and the economy and presents green infrastructure as:

"Contributing to a high quality natural and built environment and helping enhance the quality of life for present and future communities, providing multiple benefits in the light of climate change predictions' and that 'green infrastructure can link existing green space and habitats, encourage walking and cycling opportunities, provide shade and enable certain kinds of species to move as the climate changes."

This is clear recognition of the multifunctional nature of green infrastructure and its many benefits in helping to address the issues and challenges that the region will face in light of a changing climate.

Putting Wildlife Back on the Map: A Biodiversity Strategy for the East Midlands (2006) EMRA & East Midlands Biodiversity Forum

The core of this strategy naturally concentrates on protecting, enhancing and expanding the region's biodiversity resource, but it also contains a vision for green infrastructure in the East Midlands and makes the links between national policy and green infrastructure. It also confirms the link between green infrastructure and other parts of the strategy including; Urban and Post-Industrial Development, Community Engagement, Business and Industry, Tourism and Industry. There are also connections made between green infrastructure and national issues such as Sustainable Development and Quality of Life and wider issues such as Water Resources. Importantly it attempts to understand the limitations and constraints facing the delivery of green infrastructure in the region, culminating in four objectives to aid the roll out of green infrastructure across the region:

- To develop a clear spatial framework for GI delivery at regional and sub-regional levels to help guide prioritisation
- To provide clear guidance on how to deliver a high quality biodiversity network as part of multifunctional GI
- To recognise opportunities for delivering GI and support through reliable funding and data provision
- To ensure that economic regeneration initiatives, biodiversity projects and multi-functional GI delivery are developed in an integrated way

During the development of any green infrastructure strategy these objectives should be taken into consideration, especially the funding and delivery aspects.

Local

Newark and Sherwood Local Development Framework: Core Strategy Issues and Options Paper (2005) Newark and Sherwood District Council

Green infrastructure is well represented within this document and its importance to the future sustainable development of the District is clear. It recognises the value of green infrastructure in protecting the District's biodiversity, health benefits and climate change mitigation.

It describes the need to develop a green infrastructure network and the need to maximise green infrastructure returns arising from new development. There is also to be a core policy; Core Policy 10: Biodiversity, Geological Conservation and Green Infrastructure although in addition to this many of the other policies have a relationship with green infrastructure such as Landscape Character, Historic Environment, Managing Flood Risk, Tourism, Climate Change and Economic Growth and Prosperity.

There is also requirement for the large development areas (strategic sites) to submit a green infrastructure framework with any development proposal. Through adopting a wider green infrastructure strategy these smaller frameworks can 'dovetail' into the wider network.

The 2nd Community Plan for Newark and Sherwood: Raising Aspirations and Improving Accessibility 2006–2016 (2006) Newark and Sherwood Local Strategic Partnership
Whilst the Newark and Sherwood Community Plan does not make reference to green infrastructure, there are many aspects of it to which green infrastructure can contribute, and how the community plan can contribute to the green infrastructure network.

Several of the plan's strategic priorities have elements to which green infrastructure can make a positive contribution, the three most obvious being 'Clean and Green', 'Health and Well Being' and 'Accessible'.

Aspects such as encouraging people t take 'Pride in their Local Spaces', 'Friends of Groups' and 'Preserving Local Animal and Plant Life' are as important as the larger more strategic aspects of green infrastructure provision. In terms of delivery and management of the network the community plan has a great deal to offer and conversely the green infrastructure next has much to offer the community plan.

Draft Community Greenspace Provision Improvement Plan (2009) Knight Kavanagh & Page for Newark and Sherwood District Council
This plan has identified the deficiencies using a set of assessment criteria for a number of different green space typologies across the District's settlements. This is important in that through inclusion within the wider green infrastructure network new spaces intended to address the deficiency will have added value and functionality. The creation of network of spaces, particularly those of a natural essence will go some way to addressing the lack of this type of space.

A Sports and Activity Plan for Newark and Sherwood (2008) Newark and Sherwood District Council
Green and open spaces play a large part in the District recreational resource if not particularly for more conventional active pastimes certainly for more passive activities such as walking. Green infrastructure networks can offer both a connected network for such activities and a sustainable transport option that connects communities to the variety of more active opportunities that exist in the District. Providing safe routes to such opportunities will be a key element of encouraging young people and children to enjoy the sports activities and planned improvements of the plan.

Newark and Sherwood Biodiversity Implementation Plan **(2003) Baker-Shepherd-Gillespie for Newark and Sherwood District Council**
This plan gives a comprehensive overview of the District's biodiversity and prescribes a series of objectives and priorities for natural character areas relating to protecting, enhancing and expanding the wildlife value of the District. The process for developing a green infrastructure strategy takes into account the spatial distribution of natural habitats and through analysis where gaps in the natural networks exist. The multifunctional approach that green infrastructure provides can create the opportunity for improved wildlife habitats alongside other functions such as flood control and public access, through making the connections between accessible green spaces and public benefit.

Strategic Flood Risk Assessment Level 1 Report (2009) WSP for Newark and Sherwood District Council

This report gives a detailed assessment of the needs of the District and its settlements regarding flood protection and reducing the effect of new development on the current flood risk. It recommends a series of actions for specific sites that would reduce the downstream flood risk such as SuDS which can be an important part of urban and peri-urban green infrastructure networks. For the growth areas on the edge of Newark it recognises that development should be steered away from those areas within the flood zones. This provides opportunities to create a network of sites/spaces within the floodplain that can deliver a number of functions that are of benefit to communities. This could include access and green space, benefits to the economy through reducing flood risk to new development and for biodiversity through making the connections between existing habitats and potentially creating new ones.

APPENDIX 2:

Documents considered in the assessment of issues affecting Newark and Sherwood's green infrastructure (Chapter 4)

A Sports and Activity Plan for Newark and Sherwood (2008) Newark and Sherwood District Council

A Vision for the Future of Sherwood Forest (2004) Sherwood Forest Trust

Building the Visitor Economy - Strategic Plan 2008-2011 (2008) EMDA

Draft Community Greenspace Provision Improvement Plan (2009) Knight Kavanagh & Page for Newark and Sherwood District Council

East Midlands Environment Strategy – Objectives and Policies (2002) EMRA

East Midlands Regional Plan (2009) Government Office for the East Midlands

East Midlands Strategic River Corridors Survey (2004) EMRA

Economic Development Strategy – Partnerships for Growth (Review 2008) NSDC

Economy in the East Midlands- Strategic Plan 2008-2011 (2008) EMDA

England's Natural Environment in 2060 – Issues, Implications and Scenarios (2009) Natural England

Greater Nottinghamshire Landscape Character Assessment (2009) TEP for Nottinghamshire County Council

Green Infrastructure for the East Midlands – A Public Benefit Mapping Project (2006) TEP for EMRA

Improving Accessibility 2006 – 2016 (2006) Newark and Sherwood Local Strategic Partnership

England's East Midlands - Integrated Regional Strategy (2005) EMRA

Local Biodiversity Action Plan for Nottinghamshire (1998) Nottinghamshire Biodiversity Action Group and Nottinghamshire County Council

Making Space for Water: taking forward a new Government strategy for flood and coastal erosion risk management in England (2005) Defra

Maun Valley Action Plan (2000) Baker Shepherd Gillespie for Maun Action Plan Steering Group (NSDC, MDC, ADC)

Newark and Sherwood Biodiversity Implementation Plan (2003) Baker-Shepherd-Gillespie for Newark and Sherwood District Council

Newark and Sherwood Local Development Framework: Core Strategy Issues and Options Paper (2005) Newark and Sherwood District Council

Newark and Sherwood District Council Infrastructure Delivery Plan (2009) WYG for Newark and Sherwood District Council

Newark and Sherwood District Council Strategic Flood Risk Assessment – Level 1 Report (2009) WSP for Newark and Sherwood District Council

Newark and Sherwood Growth Point Programme of Development for CLG (2007) EKOS Consulting for Newark and Sherwood District Council

Nottinghamshire County Council Cycling Strategy 2006/7-2010/11 (2006) Nottinghamshire County Council

Nottinghamshire Rights of Way Improvement Plan 2007-2012 (2007) Nottinghamshire County Council

Our Natural Health Service: The Role of the Environment in Maintaining Healthy Lives (2009) Natural England

Pitt Review – Learning Lesson from the 2007 Floods (2008) Cabinet Office

Planning Policy Statement 9: Biodiversity and Geological Conservation (2005) CLG

Public Space Lessons – Adapting Public Space to Climate Change (2008) CABE

Putting Wildlife Back on the Map: A Biodiversity Strategy for the East Midlands (2006) EMRA & East Midlands Biodiversity Forum

River Trent Fluvial Strategy Final Strategic Appraisal Report (2005) Environment Agency

Routes to Play: A Guide for Local Authorities, (2009), SUSTRANS

Safeguarding Our Soils – A Strategy for England (2009) Defra

Space 4 Trees: The East Midlands Regional Forestry Framework (2005) East Midlands Regional Forestry Framework Steering Group

State of the District Report 2009 (2009) Newark and Sherwood District Council

Strategic Plan for Greenwood: Guiding the Creation of Nottinghamshire's Community Forest (2000) Greenwood Partnership

Tackling Climate Change in the East Midlands – Regional Programme of Action 2009-2011 (2009) East Midlands Regional Climate Change Partnership

The 2nd Community Plan for Newark and Sherwood: Raising Aspirations and Improving Accessibility 2006 – 2016 (2006) Newark and Sherwood Local Strategic Partnership

The East Midlands Health Strategy – Next Steps for Investment (2009) Government Office for the East Midlands

This Is Nottinghamshire: Nottinghamshire's Local Area Agreement 2008-2011 (2008) Nottinghamshire Partnership

Trent Vale Business Plan (2007) Trent Vale Landscape Partnership

Working Positively with Rural Estates: the scale and nature of rural estates and their contribution to the East Midlands (2009) EMDA

World Class Places: The Government's Strategy for Improving Quality of Place (2009) CLG

APPENDIX 3:
Stakeholder Consultation Summary

The consultation for Newark and Sherwood's green infrastructure strategy was undertaken in three stages: an initial telephone interview with key stakeholders, a questionnaire sent out to a wider group of stakeholders and a stakeholders' workshop.

The key stakeholders identified for the telephone interviews included Natural England, Environment Agency, British Waterways, Nottinghamshire County Council, English Heritage, RSPB, Newark and Sherwood District Council and the Countryside and Business Landowners Association (CLA).

Both the telephone interviews and questionnaires involved a series of questions regarding green infrastructure needs and provision in the District and to what extent a green infrastructure strategy could help organisations achieve their objectives. The combined responses are summarised below.

Question 1: What do you think are the key issues regarding green and natural spaces and assets in the District?

Funding was a common issue, with many respondents feeling that whilst attracting capital to initially implement projects is relatively easy obtaining finance for on-going management and delivery is difficult. Several respondents indicated that their organisation may fund projects which helped them meet their objectives.

Several of the stakeholders raised concerns that the *Growth Point and associated development* may affect the quality and sustainability of the District's green infrastructure resource, through the direct loss of assets and damage to habitats from development and via increased pressures on sensitive sites such as SSSIs and the SAC that may occur with an increase in population and heightened domestic tourism. This concern extended to include natural, heritage and cultural features that could be lost to development, particularly in the Newark Urban Area.

A lack of understanding among decision/policy makers of the value and multiple benefits of green infrastructure and poor awareness of how green infrastructure could help deliver objectives across a wide range of other agendas such as health and economic development was also a concern. This was felt to extend to developers who it was perceived often considered green infrastructure/open space as an after thought.

Access to green infrastructure was also recognised as an important issue, particularly around several settlements and along the River Trent. One stakeholder felt that the existing rights of way network was a little outdated and not necessarily fit for purpose in meeting the needs of communities, with some pathways not connecting to assets and in places being poorly maintained. Newark in particular was highlighted as having several 'pinch points' along the Trent that limit the functionality of the access network.

Working together was seen as a key element of ensuring the successful protection/creation of green infrastructure for the district, and the creation of effective

partnerships was recognised as vital to taking forward green infrastructure in the District, especially in attracting funding and support. Some stakeholders felt that competition for funding from different organisations which effectively wanted the same thing was counter-productive. Engaging those organisations not traditionally associated with environmental works (such as health trusts, community groups and businesses) was thought to be vital in achieving the wider potential benefits of green infrastructure.

Community involvement was also thought of as vital to the future of green space provision and management. The functions and types of green infrastructure that exist or may be created must respond to the needs of that community and wherever possible should involve members of that community in its inception, design, construction and future management.

Across the range of stakeholders *climate change* was seen as a major threat. Most understood the contribution of green infrastructure in adapting to and mitigating against the effects of climate change. Increased flooding, increased vulnerability of biodiversity and the threat of fires/increased vulnerability to fire were the three main issues raised.

Question 2: Which do you think are the most important assets in Newark and Sherwood and what do you think the District needs more of?

Note: the respondents naturally showed some degree of bias as to what they considered important according to the nature of the organisation they represented. We have therefore attempted to identify common aspects from the full range of organisations and specialisms represented.

The two main assets that were frequently raised as most important were unsurprisingly the *River Trent corridor* and the *Sherwood Forest* area. The Trent was considered important for a number of reasons, including wildlife, recreation and heritage. The catchment areas that feed the Trent and its tributaries were also thought of as an important element in reducing flood risk and improving water quality.

Sherwood Forest's history and the fact that it internationally famous means it is the major asset for the District. Several stakeholders however considered that the area is sub-standard in terms of quality and variety of habitats and noted that many visitors to the area expected something more from such a renowned asset. This is to some degree due to raised expectations of visitors because of perceptions of the Forest developed from TV and film images, but several respondents made it clear that the visitor experience is less than satisfactory and requires attention. There were also positive comments made about the Sherwood Forest area, particularly the habitat creation work that has started to increase the amount of heathland in the area and the replanting of broadleaved trees.

Outside of the two major assets, *The Dumbles* in the south and the *semi-natural ancient woodland* in the centre of the District were also mentioned by several consultees, especially the need to protect and expand woodland habitats and connectivity. *Stapleford Woods* close to Newark Urban Area was also a subject of discussion. An important asset because of its proximity to Newark and its size, many felt that further investment was needed to ensure that it meets the needs of Newark's communities, particularly in relation to the quality of site infrastructure and the condition of the site overall.

The District's *heritage and archaeological sites* were thought to be very important, particularly the built heritage including the wharves at Newark and several other assets dating from the mediaeval period. Bringing these assets into the green infrastructure network was considered an important part of the strategy as a way of protecting and enhancing them. Interpretation of these sites would then also reinforce their value.

The *gravel pits* close to Newark were considered important because of their multifunctional nature, providing a biodiversity interest and recreational opportunities while restoring derelict landscapes. The closeness of Newark also increases their value. The District's *derelict railway lines* were identified as an opportunity by several stakeholders: currently underused and requiring attention/investment to embed them within the sustainable transport network.

During the workshop, where more locally based stakeholders attended, a great deal of attention was drawn to the limited amount of *allotments*, especially in the Newark Urban Area. The number of *local nature reserves* and access to the banks of the River Trent was an issue raised at the workshop.

Privately owned land was also felt to be undervalued, with private landowners potentially having a significant role in enhancing the District's green infrastructure resource.

Question 3: What would you think are or should be Newark & Sherwood's green infrastructure strategy priorities?

By a long way, and from all stakeholders, the need to *improve connectivity between habitats* was seen as a main priority, to be delivered in conjunction with other measures such as *improved access for people* and *inclusion of heritage assets* within the natural and access networks. It was also felt that for any changes/improvements/expansion of habitats and the access network, *interpretation* would be vital to make the most of the asset.

The *River, streams and other watercourses* frequently featured as "ready-made" connected networks which frequently connect settlements to more natural areas and support biodiversity and recreation. Similarly, *retaining existing access routes*, particularly those close to settlements to ensure access to the countryside, was also amongst the main priorities for green infrastructure in the District.

Other important issues were to reduce the piecemeal *loss of habitats* within the urban area to development and to reduce the loss of habitats in the agricultural matrix.

Building upon existing successful programmes was also considered to be important, as these often had established communication networks and like-minded people willing to give time and expertise.

The *risk of damaging landscape character* through development and altering traditional land-use patterns was raised as an issue, although there was also recognition that some change was needed and that the landscape is a dynamic entity with character resulting from changes over time.

Reducing the risk of flooding within new development and also along the District's water courses was mentioned on several occasions.

One over-riding theme was the need to *demonstrate the benefits of green infrastructure* across a range of sectors. 'Selling' green infrastructure as part of the solution for addressing poor health levels, flooding and heat island effect was seen as the most important aspect of attracting support and funding. Some stakeholders suggested that the District would benefit from a green infrastructure 'champion', taking forward the strategy and broader green infrastructure ethos and acting as an important link between communities, delivery organisations and Newark and Sherwood District Council.

Question 4: Do you think a Green Infrastructure Strategy for Newark & Sherwood will help you or you organisation achieve its objectives? If so, how?

All of the stakeholder organisations felt that a green infrastructure strategy could help them deliver their objectives and/or targets. Many felt that the strategy had the opportunity to *bring together many smaller projects under one framework*. It was thought that this, along with a *strong evidence base* would *enable projects to lever-in more funding*.

The *evidence led approach* of creating a green infrastructure strategy and the level of national and regional support for the concept was thought to be important in bringing green infrastructure to a wider audience and *attracting support from outside the sector* such as developers and politicians. Adoption in the Local Development Framework would provide *strong policy support* for the actions/projects identified in the strategy.

As an umbrella or framework the strategy was considered useful in bringing together many smaller projects which may or may not at present attract support through *identifying new partners*. This was felt to be of particular importance to small community led projects whose work would attract more attention when seen in its wider context as part of a green infrastructure plan. In addition to attracting funding and support, the community led projects were also seen as an important human resource, providing skills and time to make projects happen.

The *wider spatial approach* of the strategy often extending beyond an organisation's geographical remit was mentioned as being important for identifying areas where habitat creation could take place. This was particularly true of land under private ownership, which has often fallen below the radar of several of the organisations.

Question 5: How do you think you or your organisation and members can add to a green infrastructure strategy and its implementation (e.g. funding, knowledge and skills, personnel)?

The stakeholders identified several ways through which their organisations could add to the strategy, ranging from funding, skills and knowledge, volunteer networks and green space sites that could feed into the network.

Several of the larger organisations revealed that *funding/grants* are available for green infrastructure projects, especially those that delivered benefits across a number of themes. Some organisations also offered that they can also help with *applications for funding*, reducing time wastage and ensuring that opportunities are maximised. Advice on *project planning* and the types of skills and actions needed to deliver them was also an area where stakeholders can help, as many are already involved in large projects or have successfully completed previous projects.

Several of the stakeholders are *landowners* and would be willing to consider opportunities for including it within the green infrastructure network. Whilst much of this land could be considered as green infrastructure by definition, it was mentioned that management techniques could be changed to deliver increased functionality.

Access to *volunteer networks and experienced workers* was thought to be one of the most important aspects that stakeholder organisations could bring to green infrastructure provision in the District.

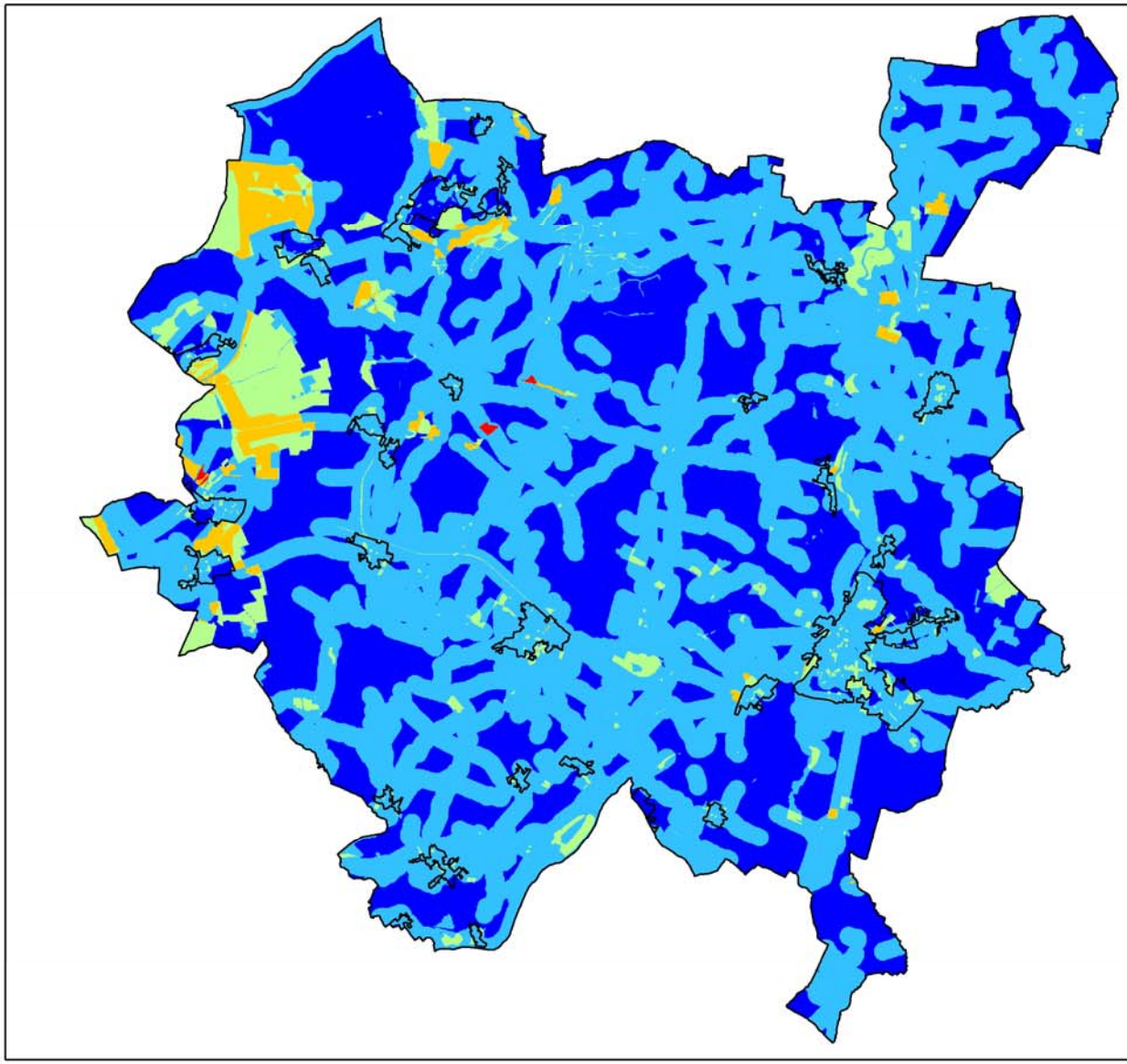
Support for a green infrastructure strategy for Newark and Sherwood amongst the stakeholders was unanimous. Many stakeholders felt that the strategy could bring together the many existing and planned projects and make the connections between them, in addition to providing a framework for projects/programmes outside of the two main action areas of Sherwood and the Trent. During the workshop a series of individual projects and areas for improvement were identified and are included within and have directed the strategy's development.

APPENDIX 4:
PBRS Datasets and Component Maps

Function/benefit	Data source/s
Health and Well Being	
Improves quality of life Improves physical and mental well being Reduces the occurrence/effects of pollution	**Need**: IMD 2007 - 30% Most Deprived (East Midlands Threshold) (CLG) Poor Health - 30% Worst Health (East Midlands Threshold) (Office National Statistics) Population Density - 30% Most Dense (District Threshold) (Office National Statistics) Schools (Newark and Sherwood District Council) Poor Air Quality - 30% Worst (Office for National Statistics) Transport Network (Newark and Sherwood District Council) **Opportunity**: Open Spaces (Newark and Sherwood District Council) PROW (Nottinghamshire County Council) Cycleways (Newark and Sherwood District Council) LNR (Natural England) NNR (Natural England) Nature Reserves (Nottinghamshire Wildlife Trust) Accessible Woodland (Forestry Commission) Open Access Land (Natural England)
Tourism	
Creates the setting for tourism through enhancing landscapes and identity Increases the visitor/tourism offer through providing new attractions Improves access between visitor/tourism assets Decreases impact of increased visitor numbers through providing alternative destinations	**Opportunity**: Tourism Sites (TEP Digitised) LNR (Natural England) NNR (Natural England) Sherwood Forest Regional Park (TEP Digitised) River Trent or Trent Vale Project Area (TEP Digitised) PROW (Nottinghamshire County Council) Cycle Routes (Newark and Sherwood District Council & Nottinghamshire County Council) Open Access Land (Natural England) Mature Landscape Areas (Newark and Sherwood District Council) Scheduled Monuments (English Heritage) Historic Buildings (Nottinghamshire County Council) Accessible Woodlands (Woodland Trust) Registered Parks and Gardens (English Heritage) Water (Newark and Sherwood District Council from Mastermap) Battlefields (English Heritage)

Function/benefit	Data source/s
Climate Change and Flooding	
Reduces the 'heat island' effect	**Need**: Flood Zones 2 and 3 (Newark and Sherwood District Council) Sealed Surfaces (Newark and Sherwood District Council) River Centrelines (Newark and Sherwood District Council) Older People - top 30%, Younger People - top 30%, Population Density - 30% Most Dense (Office for National Statistics) Transport Network (Newark and Sherwood District Council) **Opportunity**: Local & National Nature Reserves, Priority Habitats, SSSI (Natural England) SINCS (Newark and Sherwood District Council) All Woodland (Forestry Commission) Registered Parks and Garden (English Heritage) Non-Sealed Surface (Newark and Sherwood District Council MasterMap) Nature Reserves (Nottinghamshire Wildlife Trust) PROW/Cycle Networks (Newark and Sherwood District Council)
Reduces the incidence of flooding	
Provides alternatives to motorised transport	
Enhances viability of species through reduced fragmentation	
Access, Recreation and Community Need for Green Space	
Creates multifunctional neighbourhood spaces	**Need**: ANGSt Dataset (TEP construct from Newark and Sherwood District Council data) Population Density (Office for National Statistics) Land around Settlements (buffer access to countryside) (Newark and Sherwood District Council MasterMap) Schools (Newark and Sherwood District Council) **Opportunity**: Accessible Woodland, Open space, PROW/Cycle Network, River Networks (Newark and Sherwood District Council) Water Bodies (Newark and Sherwood District Council MasterMap) Local Nature Reserves (Natural England)
Provides spaces for interaction and community events	
Provides opportunities for communities to enjoy the natural world	
Provides network of safe sustainable routes to school, work and play	
Biodiversity	
Safeguards and enhances the biodiversity resource	**Opportunity**: SAC, SSSI, LNR, NNR, Environmental Stewardship Schemes, HLS Target Areas, Priority Habitats (Natural England) Wildlife Reserves (Nottinghamshire Wildlife Trust) Ancient Woodland, SINCS, Waterbodies, River Corridors, Flood Zones 2 and 3 (Newark and Sherwood District Council) Other Woodland, Woodland Grant Schemes (Forestry Commission)
Improves the viability of species through improved connectivity	

Function/benefit	Data source/s
Land Use and Environmental Quality	
Support Agriculture through ecosystem services	**Need**: Flood zones 2 and 3, Roads Network (Newark and Sherwood District Council) Sealed Surfaces, Water courses & Water Bodies (Newark and Sherwood District Council MasterMap) Nitrate Vulnerable Zones, Grade 2 Agricultural Land (there is no Grade 1) (Natural England) **Opportunity**: Grade 4 Agricultural Land (there is no grade 5), Priority Habitats, SSSI, LNR, NNR, SAC, Environmental Stewardship Schemes, HLS schemes & Target Areas (Natural England) Woodland (all), Woodland Grant Schemes (Forestry Commission) SINCS, Open Spaces, Buffered River Network (Newark and Sherwood District Council) Unsealed surface (Newark and Sherwood District Council MasterMap) Urban Extensions (TEP Digitised)
Maintains water and air quality	
Reduces effect of climatic change on agriculture	



Public Benefit
Recording System

Health and Well Being
Opportunity

LOW

HIGH

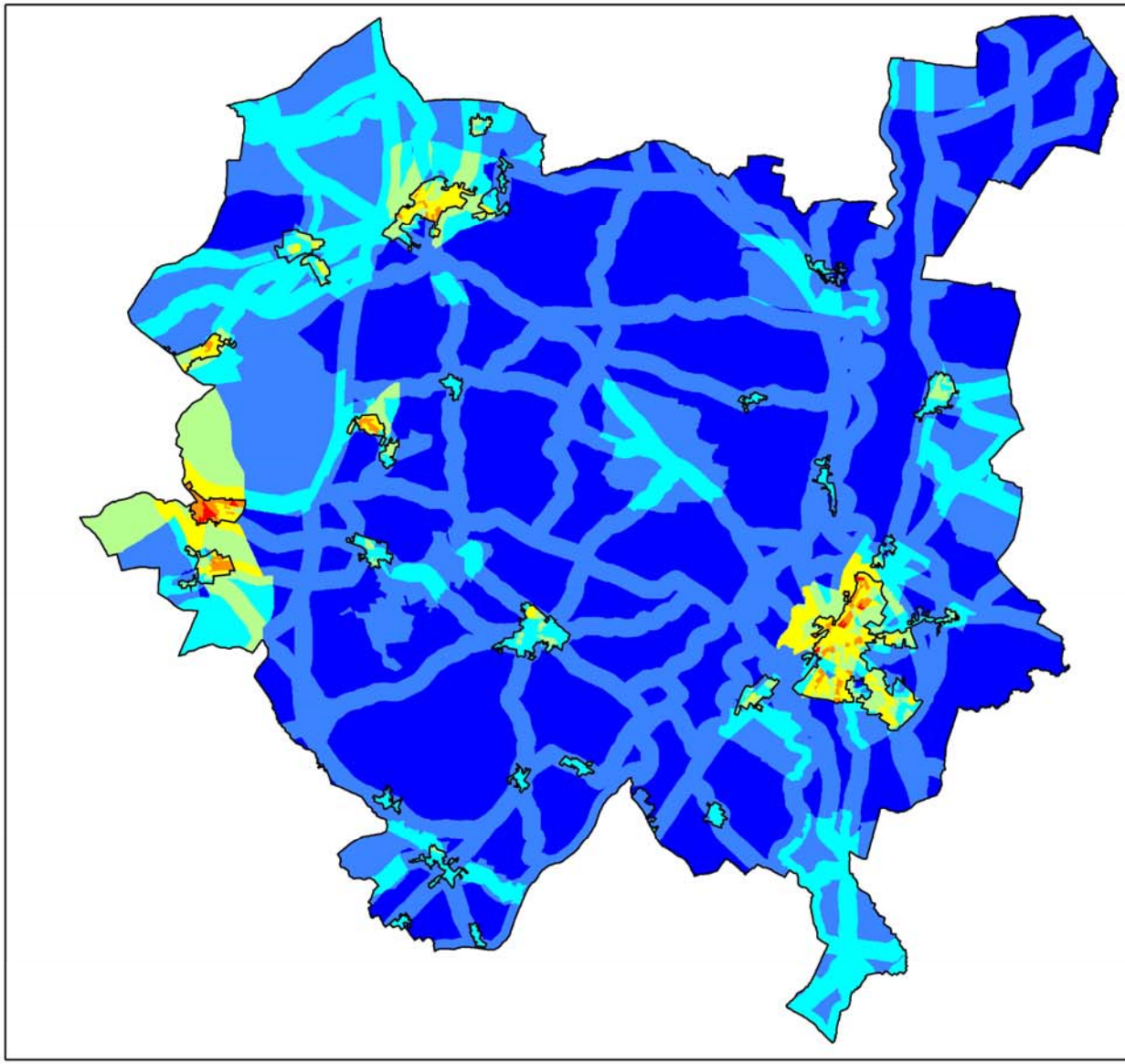
Settlements

Data Sources:
Natural England
Newark and Sherwood District Council

TEP

NEWARK & SHERWOOD DISTRICT COUNCIL

17.09.09	G2134.026



Public Benefit
Recording System

Health and Well Being
Need

LOW

HIGH

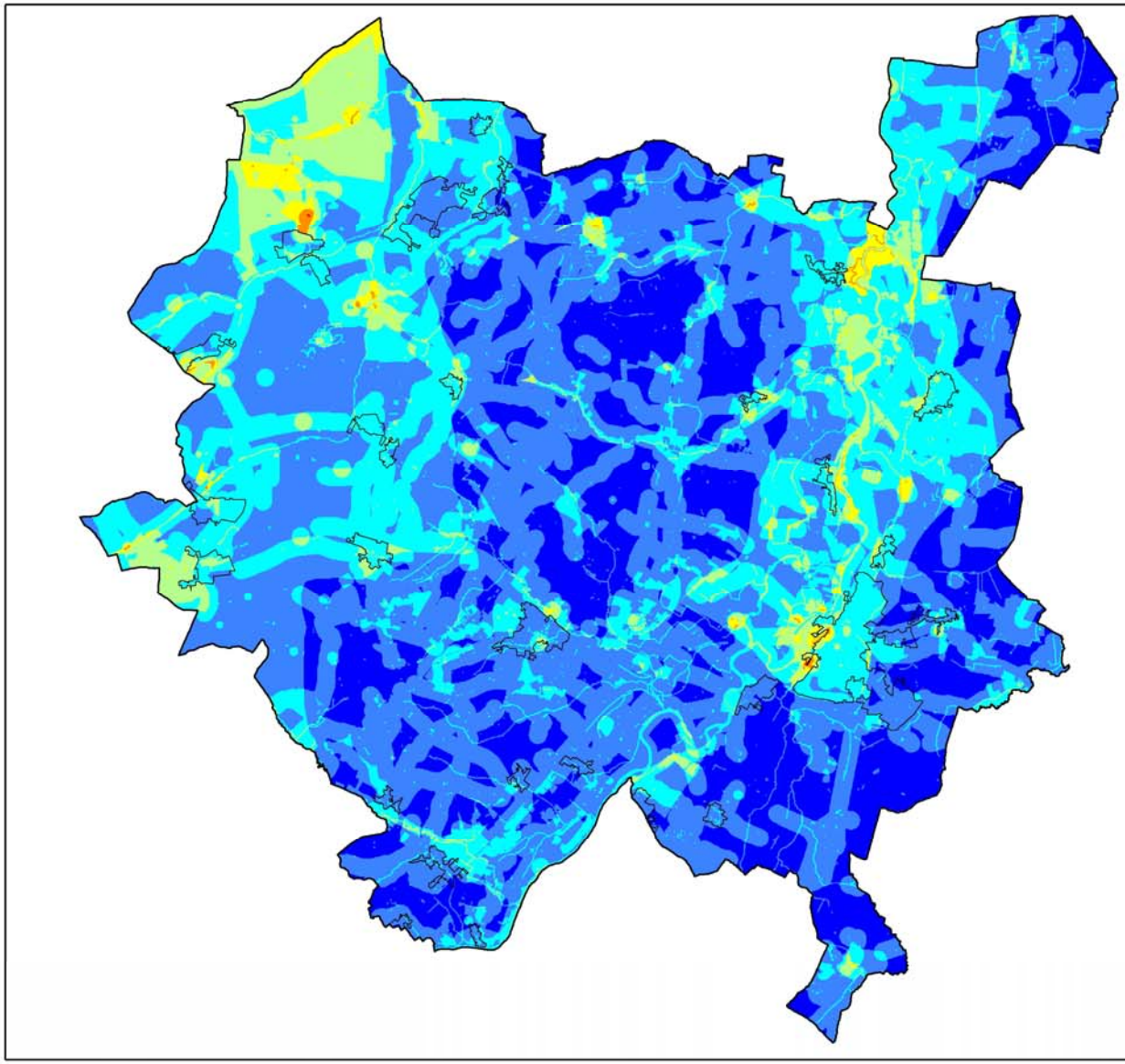
Settlements

Data Sources:
Natural England
Newark and Sherwood District Council

TEP

NEWARK & SHERWOOD DISTRICT COUNCIL

17.09.09	G2134.025



Public Benefit
Recording System

Tourism
Opportunity

LOW

HIGH

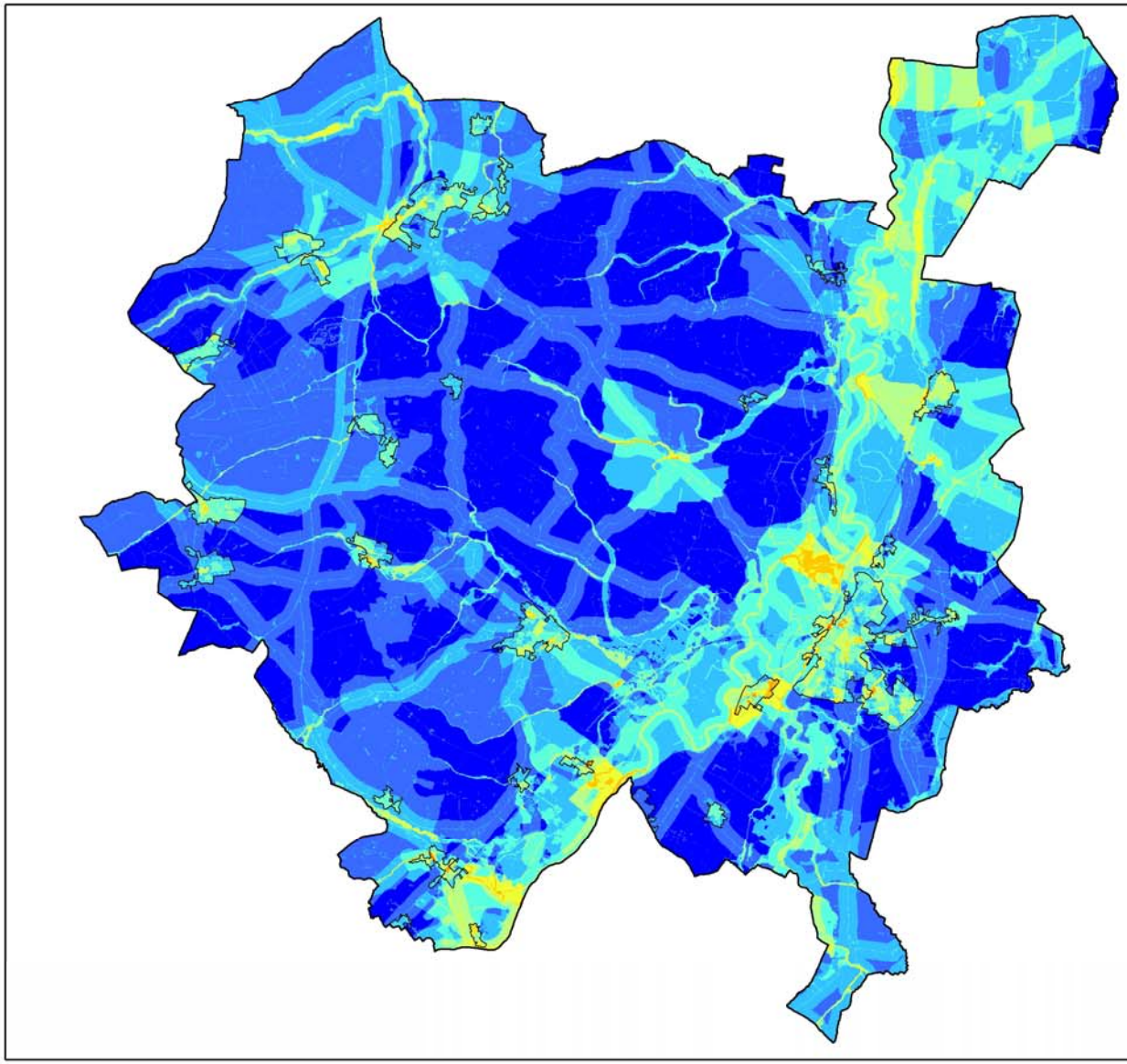
Settlements

Data Sources:
Natural England
Newark and Sherwood District Council

TEP

NEWARK & SHERWOOD DISTRICT COUNCIL

17.09.09	G2134.027



Public Benefit
Recording System

Climate Change
& Flooding
Need

LOW

HIGH

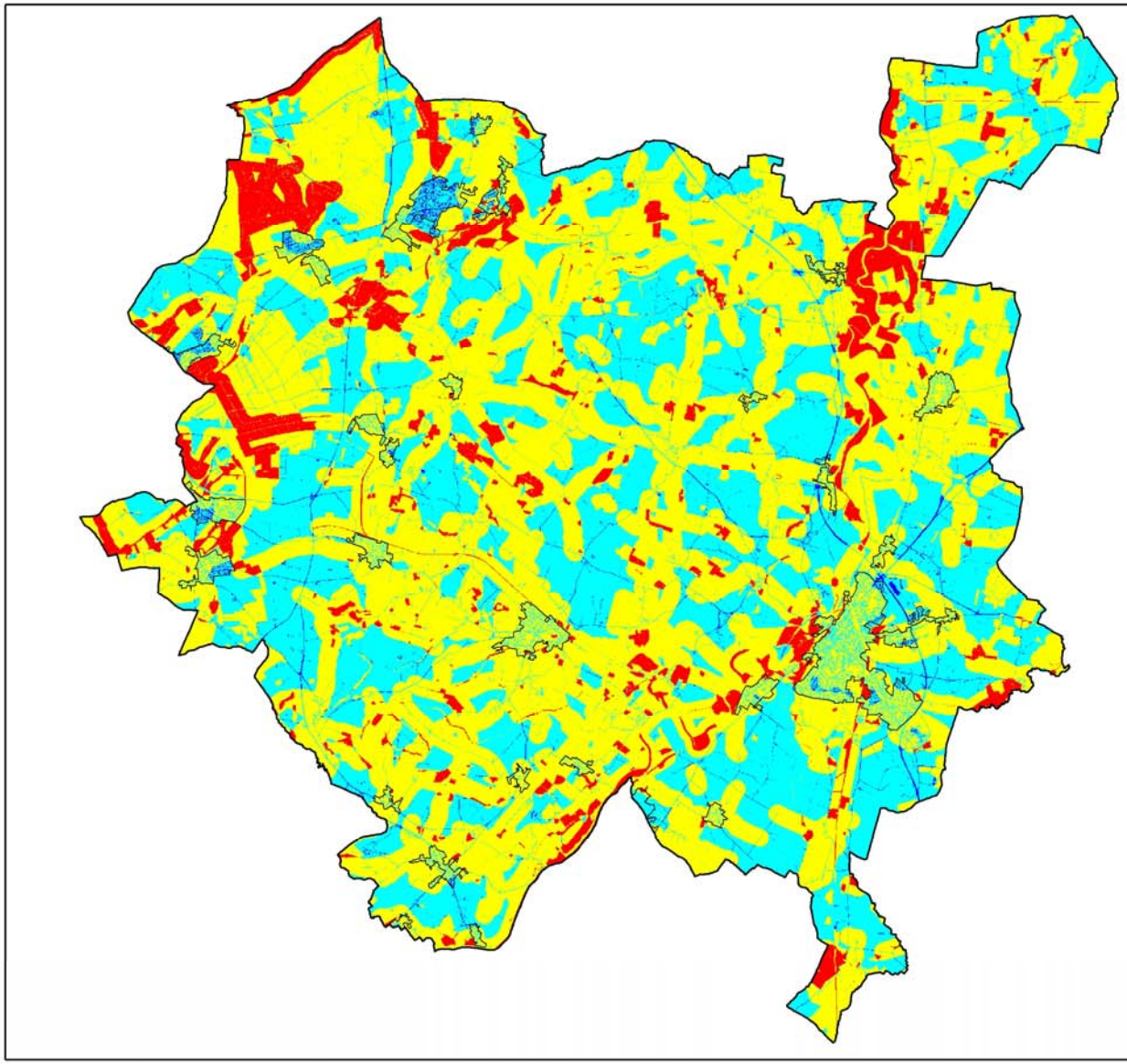
Settlements

Data Sources:
Natural England
Newark and Sherwood District Council

TEP

NEWARK & SHERWOOD DISTRICT COUNCIL

17.09.09	G2134.028



Public Benefit
Recording System

Climate Change
& Flooding
Opportunities

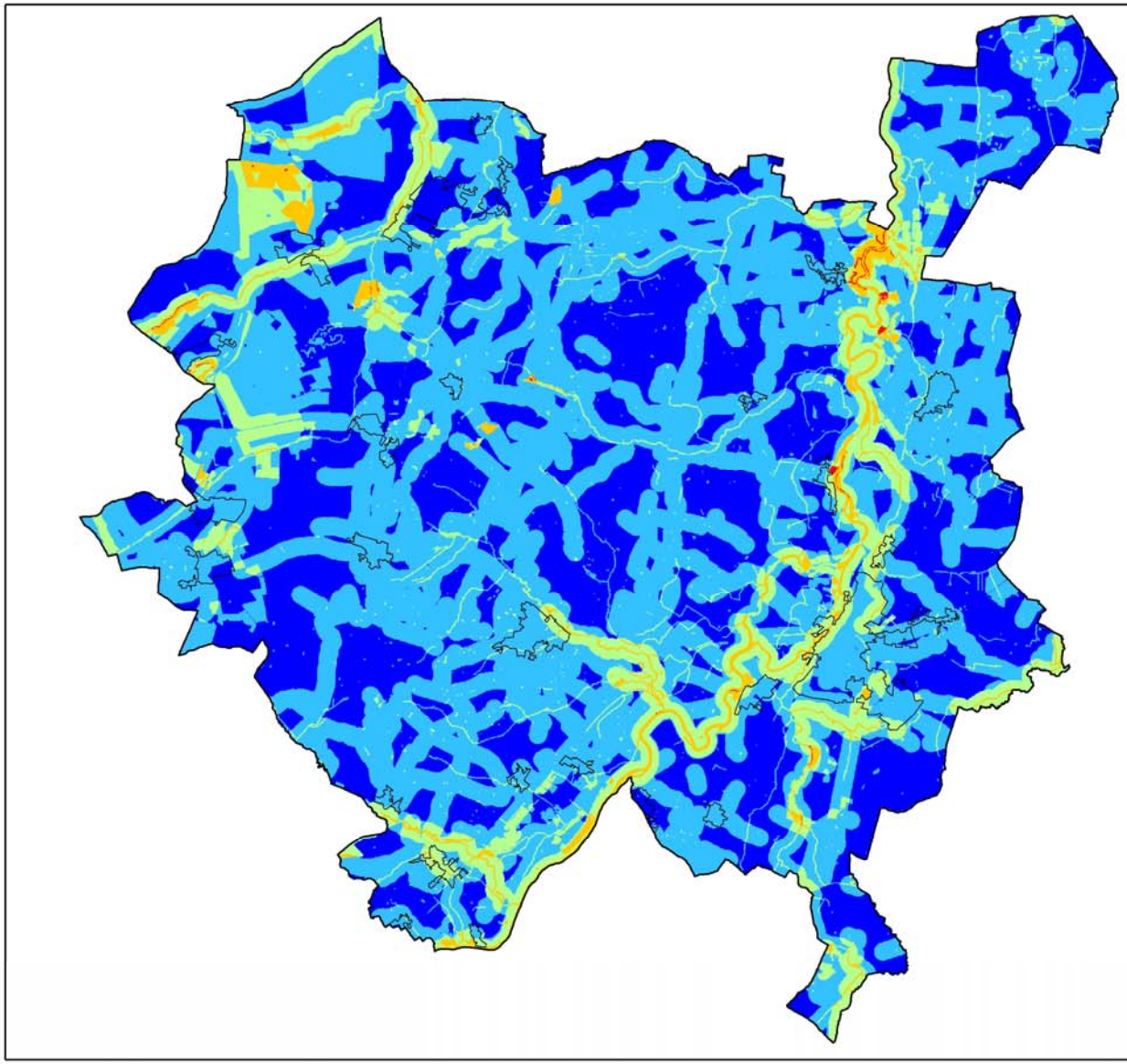
Settlements
Low
High

Data Sources:
Natural England
Newark and Sherwood District Council

TEP

NEWARK & SHERWOOD DISTRICT COUNCIL

17.09.09	G2134.029



Public Benefit Recording System

Access, Recreation and Community Need for Green Space Opportunities

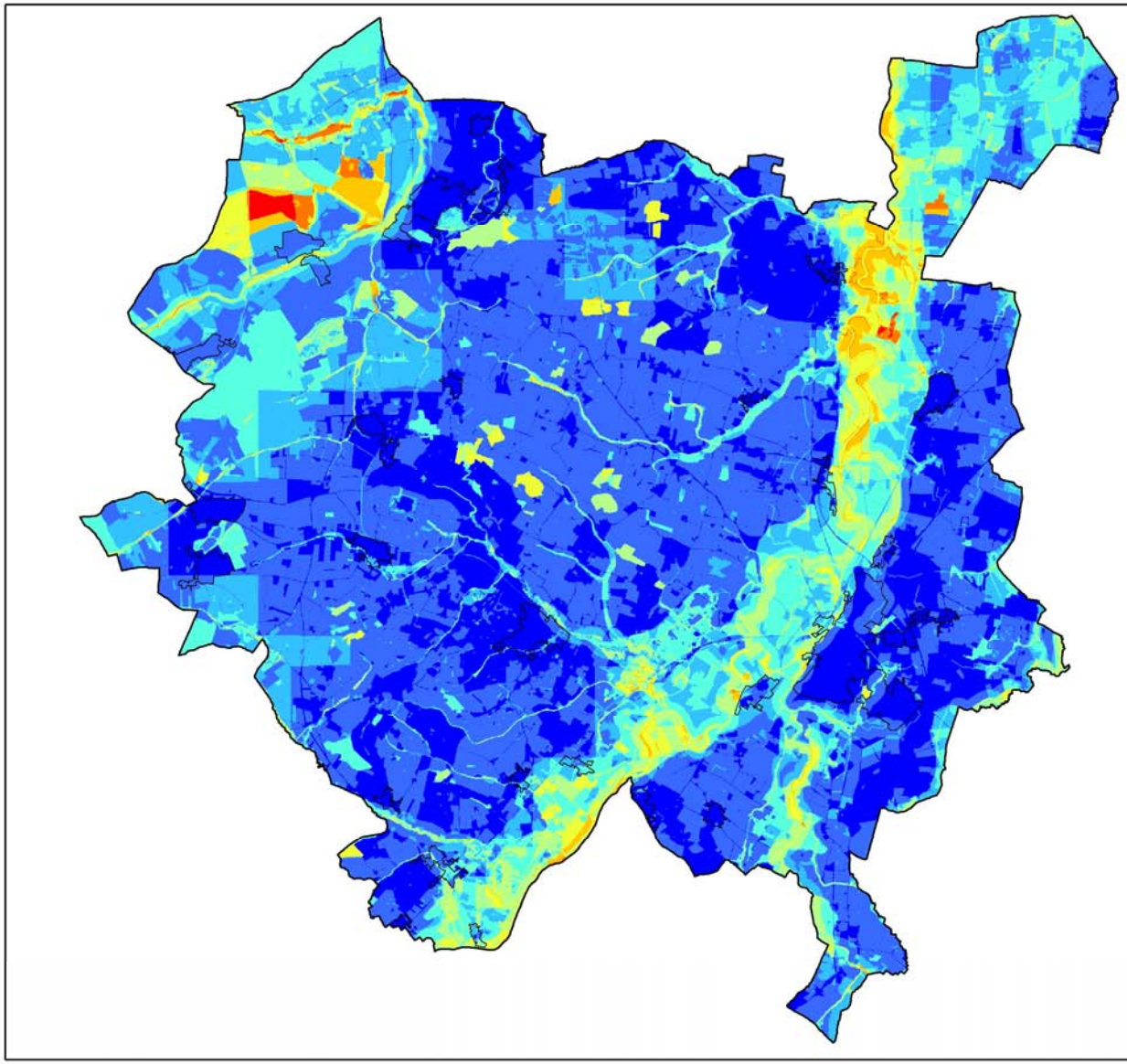
- Settlements
- LOW
- HIGH

Data Sources:
Natural England
Newark and Sherwood District Council

TEP

NEWARK & SHERWOOD DISTRICT COUNCIL

17.09.09	G2134.030



Public Benefit
Recording System

Biodiversity
Opportunities

LOW

HIGH

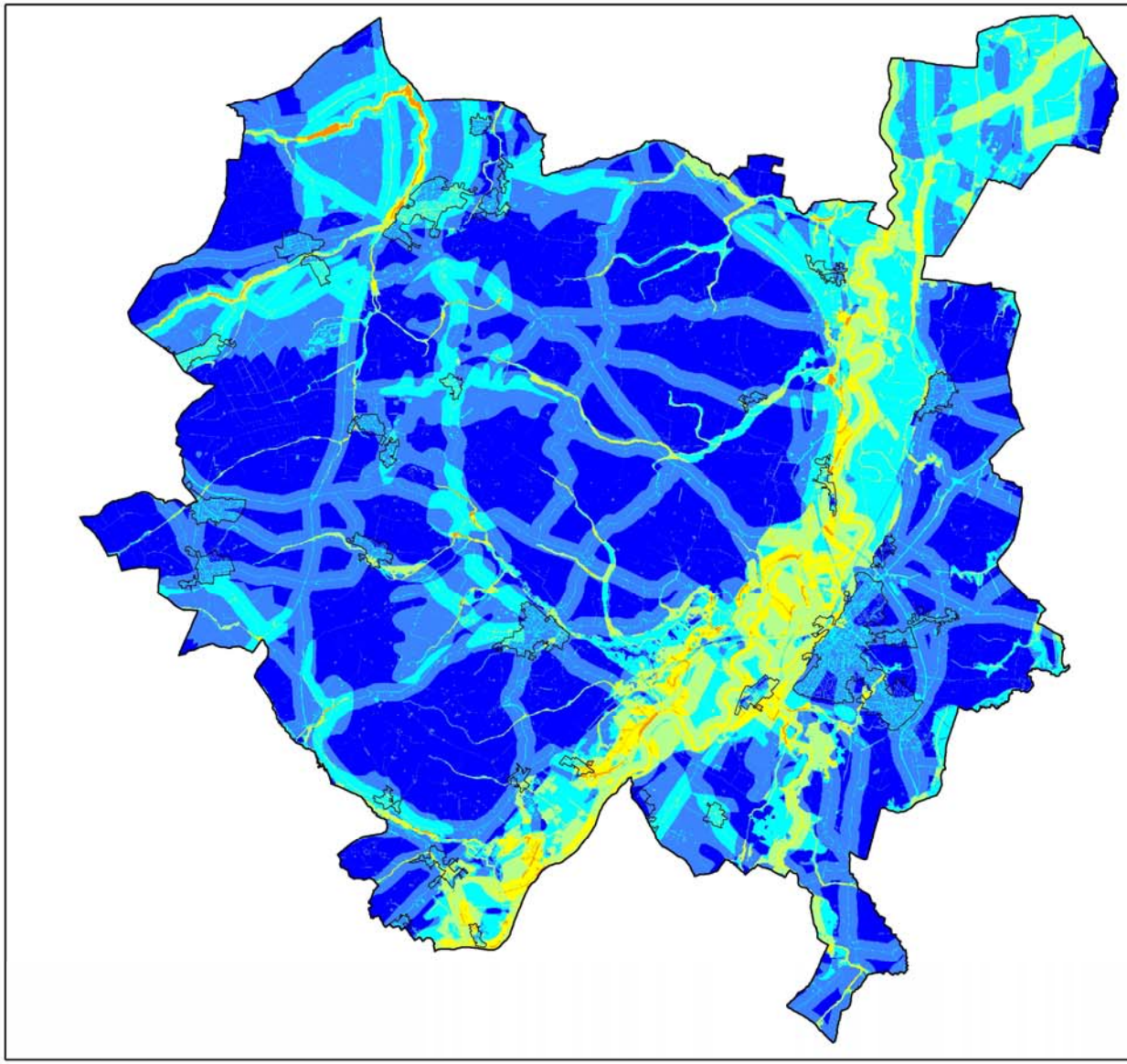
Settlements

Data Sources:
Natural England
Newark and Sherwood District Council

TEP

NEWARK & SHERWOOD DISTRICT COUNCIL

17.09.09	G2134.032



Public Benefit Recording System

Land Use and Environmental Quality Need

Low

High

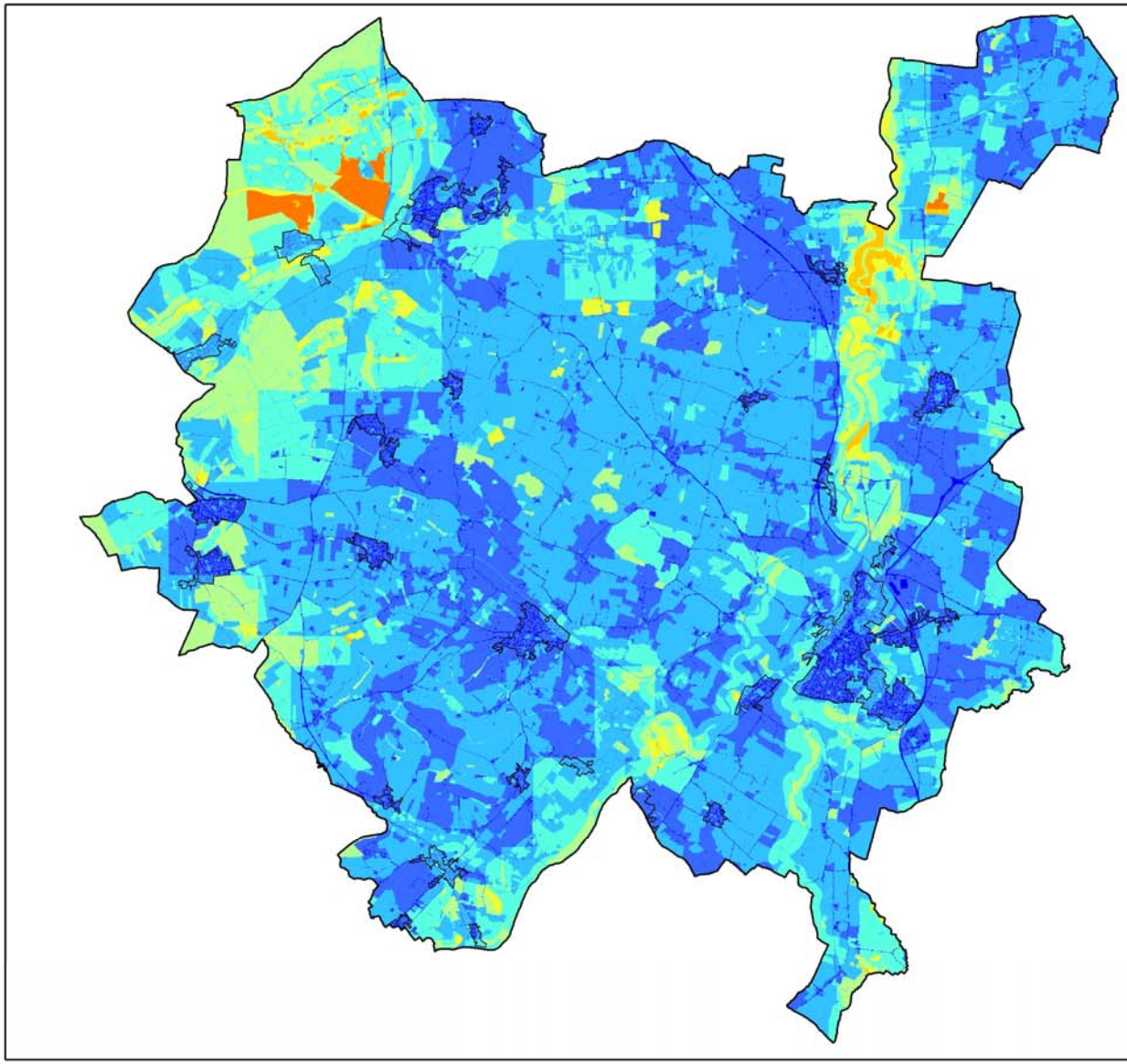
Settlements

Data Sources:
Natural England
Newark and Sherwood District Council

TEP

NEWARK & SHERWOOD DISTRICT COUNCIL

17.09.09	G2134.081



Public Benefit Recording System

Land Use and Environmental Quality Opportunity

Low

High

Settlements

Data Sources:
Natural England
Newark and Sherwood District Council

TEP

NEWARK & SHERWOOD DISTRICT COUNCIL

17.09.09	G2134.082

APPENDIX 5:
GI Actions Summary Tables

The following tables summarise the actions recommended for each strategic area and under each theme discussed in Chapter 6.

- **Newark and Sherwood District Strategic Green Infrastructure Plan**

ACTION	Page ref.
Key Strategic Routes	***57***
• Improved surface conditions, allowing multi user access where appropriate • Creation of new paths • Directional signage with distance/time/destinations • Biodiversity enhancements alongside the route corridors where appropriate • Development proposals that abut or cross the network should include provision for enhancement or extension of access routes and their use as above • Investigation into the potential for extending the access network via disused but not dismantled railways	
Tourism Support	***60***
Biodiversity Protection and Enhancement Areas	***61/2***
• Moribund mineral extraction sites to be prioritised for wildlife and recreation • Policy support for restoration of defunct extraction sites/rural brownfield • Support the creation of fish breeding areas and creation of washlands/wildlife scrapes on Newark Piscatorial Federation land • Encourage more wildlife-friendly grazing regimes on floodplain • Seek to maximise public access to greenspace and woodland to the north of the proposed development land east of Newark (discussed in further detail in Area Based Interventions) • Safeguard the Middle Beck as a natural corridor south of Newark (discussed in further detail in Area Based Interventions) • Ensure that habitats created/expanded are the most appropriate to the area's biodiversity and landscapes (for example, heathland as an alternative to woodland planting in the Sherwood area) • Promotion of community woodlands as a land use close to settlements, especially on land close to Newark • Creation of washlands along the Trent Corridor and wetlands along secondary river corridors • Interpretation at key sites such as fish breeding areas/Stapleford Woods/river corridors close to settlements and where land management changes are happening e.g. felling of coniferous woodland, heathland management and creation of new	

wetlands • Street tree planting in high need urban areas • Promote Sustainable Drainage System (SuDs) use and more natural planting around employment areas • Creation of a string of wildlife areas along the National Cycle Route to the south of Newark • Create new woodland/heathland and other habitats close to Rainworth to create a natural corridor that will stretch from Sherwood to the north of Nottingham	
Climate Change and Flooding	***62, 65***
• Support of the creation of wetlands alongside watercourses • Sustainable Drainage Schemes (SuDS) requirements in new development • Use of existing spaces for flood control • Increase tree planting • Urban watercourses • Buffer strips along watercourses • New infrastructure	
Access to Green Space and Local Access Routes, Recreation	***66/67***
• Improved connections to larger natural areas such as Stapleford Wood and the banks of the River Trent • Access to the surrounding countryside particularly north east settlements and around Newark • Improved visitor infrastructure in green spaces e.g. Stapleford Wood • Better, improved access along the River Trent, for walkers and anglers • Large open natural green spaces close to Newark (as part of SANGS) • Creation of new green spaces in the south of Newark as part of new development (including allotments) • Better connections to outdoor sports assets	

Area Based Green Infrastructure Interventions: Newark Urban Area

ACTION	Page ref.
Key Strategic Routes	***67, 69***
• Increase the accessibility of the Rivers Trent, Devon and Middle Beck • Create footpath link between Kelham Hall, Averham and the railway bridge at Averham Weir • Create a circular walk on land north of Farndon Harbour and make a connection across Farndon Fields to the Sconce and Devon Park and beyond to the Middle Beck	

- New access alongside the railway and through the Clay Lane Country Park in land east of Newark containing Barnby Road and Clay Lane
- Ensure all existing footpaths and links in around Newark are well maintained

Biodiversity Enhancement Corridors	***69***

- Restricting development in or in close proximity to natural corridors
- Policy support for habitat creation such as wet woodland, wetlands and flood storage along corridors
- Partnership support for landowners/managers and other groups wishing to increase the wildlife value of the corridors
- Recognition of the value of these corridors within planning, nature conservation, recreation and climate change policy
- Integrate these networks with existing habitat types and/or other initiatives such as the potential fish protection areas or flood defence wetlands

Middle Beck/Shire Dyke Natural Corridor	***70***

- Create an open access 'natural corridor' along the Middle Beck/Shire Dyke and the area of Fernwood development area within Flood Zone 3
- Refrain from allowing development directly within this area
- Create a series of storage ponds to receive run-off from adjacent development
- Provide access routes along the watercourse that connect to existing rights of way and the Trent Vale Project
- Make the connection for people and wildlife between this area and Sconce and Devon Park and Fernwood to the east
- Develop a series of LNRs along the Middle Beck/Shire Dyke corridor
- Ensure signage and interpretation is provided for at key gateways

Rainfall Storage	***71***

- Create a series of pools that inundate from the drain during heavy rainfall, and that hold some water during dry periods
- Use natural planting to raise the wildlife and amenity value of the site
- Create links to close-by sites and access networks
- Consider creating a Local Nature Reserve

Potential Creation of Fish Protection Areas/Wildlife Scrapes	***71***

- Support Newark Piscatorial Federation through the planning process
- Integrate other actions such as footpath improvements alongside these projects
- Recognise the multifunctional value of these projects and their contribution to the economy, environment and communities of Newark

Neighbourhood Tree Planting	72

- Provide information to the communities/businesses of these neighbourhoods and the business parks about the value and reasons behind a street tree planting programme

• Involve those communities in the programme from the start including schools and community/youth groups • Reduce costs through supporting a volunteer programme • Be inventive to achieve added value: for example some spaces could support small community orchards	
Corridor Greening	***72***
Clay Lane Parklands	***73***
• Clay Lane Parklands must connect to the access network • Integration of biodiversity enhancement into the site • Creation and continued support of a 'Friends' group to ensure community interest over time • Signage and interpretation is vital to the users' enjoyment and understanding of the site • Retain mature landscape features	
Gateways	***73***
Expansion Sites	***75***
• Linear natural corridor along the Middle Beck/Shire Dyke/Devon Corridor focused on the area included in the Environment Agency's Flood Zone 3 • Open access area and woodland to the north of Clay Lane • Consideration of SuDS network to link into existing water courses • Multi-user trail within the Middle Beck/Shire Dyke corridor that makes connections to the NCN route and Sconce and Devon Park • Outdoor sport facilities, this can be supplemented by green gyms or an informal route suitable for jogging • Allotment space that exceeds the provision required by residents of the new communities • Potential Local Nature Reserves within Flood Zone 3 in the Southern and Fernwood development areas	

Area Based Green Infrastructure Interventions: Southwell

ACTION	Page ref.
Southwell	***77***
• Support the Creation of the proposed MUR route • Planning policy that supports sensitive development which is likely to increase the tourism interest of Southwell • Continue to employ rigorous development guidelines to protect Southwell's character	

Area Based Green Infrastructure Interventions: Western Newark and Sherwood

ACTION	Page ref.
Western Newark and Sherwood	***77***
• Providing a quality of place with multiple options for exercise and recreation, close to communities • Supporting and enhancing the tourism industry • Planning policy to support the infrastructure needed for the proposed regional park such as accommodation and visitor attractions • Support for green infrastructure initiatives within tourism/visitor strategies and policies • Reducing the impact of increased visitor numbers on the natural resource • Contribute to the sustainable transport network, connecting settlements to employment centres particularly along the strategic routes identified within the strategy • Encourage the use of local produce in the visitor economy and farm diversification	
Ollerton and Boughton	***78***
Edwinstowe	***78***
Clipstone	***78***
Rainworth and Blidworth	***80***

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