

3.0 CENTRAL LINCOLNSHIRE GREEN INFRASTRUCTURE ASSESSMENT

3.1 General

3.1.1 This section provides an analysis of key needs and opportunities for provision of GI across Central Lincolnshire as a whole within the context of the following GI functions:

- Wildlife Habitat Provision;
- Landscape/Townscape Setting and Historic Environment;
- Sustainable Access, Recreation and Movement;
- Sustainable Local Energy and Food Production; and
- Sustainable Resource Management and Climate Change Adaptation.

3.1.2 It should be noted that there is often overlap between the GI functions. For example, wildlife provision and access to nature are closely related. This section should be read in conjunction with **Section 4.0**, which provides an assessment of GI needs and opportunities within the context of the defined GI Zones.

3.2 Wildlife Habitat Provision

3.2.1 Key needs and opportunities relating to wildlife habitat provision at the Central Lincolnshire scale are discussed below. This section should be read in conjunction with **Section 4.0**, where wildlife habitat provision needs and opportunities are set out within the context of GI zones.

Key Needs/Deficiencies

Fragmented Habitats

3.2.2 Based on an analysis of available data¹⁴¹ it appears that despite some clusters of habitat within the Study Area, for example in the Lincolnshire Limewoods area, habitats are generally very fragmented, comprising mostly small and widely scattered sites. Small areas of habitat generally support fewer species and some species associated with particular habitats require relatively large areas of habitat and are therefore absent from smaller areas. In addition, small and isolated habitats and sites are more vulnerable to the potential negative effects of adjoining more intensive land uses and a range of other potential factors such as climate change.

3.2.3 Apart from the Fens and parts of some of the floodplains, hedgerows are widespread throughout Central Lincolnshire. The hedgerow network has value both as habitat itself and as

¹⁴¹ It should be noted that the data provided illustrates the extent of mapped habitats at present and not the whole resource. There are more BAP habitats in Lincolnshire than what has currently been mapped

providing links between other areas of habitat. This value is particularly notable given the intensively agricultural nature of the landscape and land use within the area. Whilst the integrity and functional value of the hedgerow network has been reduced through a combination of (now mostly historic) hedgerow removal, neglect and inappropriate management, the latter factors leaving many remaining hedges gappy, there has been a concerted effort in many parts of Central Lincolnshire to replace hedgerows.

- 3.2.4 As identified in the recent Lawton Review¹⁴² maintaining the status quo will not ensure the conservation of existing habitats and sites, the species they support and the services they provide. In order to conserve existing habitats and species, a more coherent ecological network will be required

Gaps in Information

- 3.2.5 There are information deficits in relation to the status and/or condition of many of the non-statutory designated sites, notably SNCIs, some of which have not been surveyed for a long time. The network of SNCIs is however in the process of being reviewed, including new surveys, against the new LWS selection criteria. In addition, it is believed that there are habitats and sites that are likely to meet the new LWS selection criteria that have not been identified. For example, in relation to this the 'Life on the Verge' project has identified many new and candidate LWSs in the Southern Lincolnshire Edge and Kesteven Uplands National Character Areas and has now been extended to the Lincolnshire Wolds National Character Area. A lack of comprehensive and up-to-date information can contribute to the continuing loss of sites and their features of interest.

Management

- 3.2.6 In most cases wildlife habitats and sites require positive conservation management to satisfactorily conserve their features of interest and to maximise their potential to support wildlife. Such management can include, for example, scrub control and grazing and/or cutting for grassland and heathland, coppicing for woodland and removal of non-native species. Mechanisms for ensuring the appropriate management of statutorily designated sites (administered by Natural England) are relatively strong. For example 99.52% of SSSIs in Lincolnshire are currently¹⁴³ in favourable or unfavourable recovering¹⁴⁴ condition.

¹⁴² Making Space for Nature: a review of England's wildlife sites and ecological network. Report to Defra (2010, Lawton, J.H., Brotherton, P.N.M., Brown, V.K., Elphick, C., Fitter, A.H., Forshaw, J., Haddow, R.W., Hilborne, S., Leafe, R.N., Mace, G.M., Southgate, M.P., Sutherland, W.J., Tew, T.E., Varley, J., & Wynne, G.R.)

¹⁴³ <http://www.sssi.naturalengland.org.uk/Special/sssi/report.cfm?category=C>, CF results as of 01-05-2011

¹⁴⁴ Which means the management necessary to bring the site to favourable condition is in place.

- 3.2.7 However, although drivers and incentives for the positive conservation management of non-statutorily designated sites do exist, including funding for such management through Environmental Stewardship and the English Woodland Grant Scheme, they tend to be weaker. Until recently, National Indicator (NI) 197¹⁴⁵ operated as a driver for improved management of such sites. NI 197 has now been replaced by (dataset) 160 in the Single Data List. Local Authorities who previously supplied data on NI 197, will continue to provide the same data as part of their response to the Single Data List (the data collection continues to assess the proportion of Local Sites receiving positive conservation management). It is however unclear whether any objectives for the management of such sites in Lincolnshire will be set.
- 3.2.8 Despite the progress that has been made since the introduction of NI 197 information on the condition and management of non-statutory sites is often lacking and/or patchy. In Lincolnshire the preparation of NI 197 and its successor (dataset) 160 has been based only on the management of LWSs and has not included management of SNCIs because robust, up-to-date information is not available for these sites.
- 3.2.9 The percentage of local sites receiving positive conservation management in Lincolnshire for 2010-11 was 61.7%, and the figures for North Kesteven, West Lindsey and Lincoln City were 48.7%, 58.2% and 36.7% respectively. For the Central Lincolnshire area as a whole the figure was 52.4%. This means that for many sites their condition and management is unknown or they are not receiving positive conservation management.

Watercourses

- 3.2.10 There are many watercourses in Central Lincolnshire ranging from large rivers, such as the Trent and Witham to the small chalk streams of the Wolds. These watercourses and their adjacent habitats, such as floodplain grassland and ditch networks, present a number of specific issues, needs and opportunities. There are issues regarding the quantity and quality of water in the area's watercourses (further details are provided in **Section 3.6**). For example abstraction has led to significantly reduced flows in some watercourses, such as some chalk streams. There is a problem associated with diffuse pollution as a result of nutrient run-off from fertilizers as a result of the intensive agriculture of the area and there are point-source polluting discharges from water treatment works. Consequently, the ecological status of watercourses in the area is mostly moderate to poor, although there are some watercourses that are of good status, notably some of those rising on the chalk of the Wolds¹⁴⁶. Many of Central Lincolnshire's watercourses are fragmented. Barriers to fish passage are one of the biggest

¹⁴⁵ NI 197 (now replaced by 160 in the Single Data List) was an indicator of local authority performance which identified the percentage of designated local wildlife and geological sites (Local Sites) that had received positive conservation management in the past five years

¹⁴⁶ River Basin Management Plans, Humber and Anglian River Basin Districts (2009, Environment Agency)

issues affecting the rivers' ecology. Where barriers to movement exist, they can restrict fish populations, which in turn can mean that a water body fails to meet good ecological status. The Environment agency have carried out some work to identify the priority structures although further work is needed to understand all the pressures affecting fish passage in the Study Area.

- 3.2.11 In addition, many of the rivers in the area have been heavily modified and canalised, for example for the purposes of drainage and navigation, and most of the larger rivers have become isolated, to varying degrees, from their floodplains through the widespread construction of flood defences. These modifications have had significant impacts on floodplain habitats and have led in many areas, for example, to their conversion to arable. Rivers and their floodplains are large-scale linear landscape features which have the potential to link habitats over large distances, although, due to the current status of rivers and their floodplains this function is likely to be limited.
- 3.2.12 Watercourses maintained by the IDBs are a valuable habitat resource for a high number of protected species (particularly water voles) and maintenance of the drainage ditch systems are guided by BAPs produced for each Drainage District by the relevant IDBs.

Biodiversity Opportunity Mapping

- 3.2.13 A number of biodiversity opportunity mapping exercises have been carried out which cover parts of Central Lincolnshire. These are:
- The East Midland Woodland Opportunity Mapping Guidance¹⁴⁷, which identifies broad strategic directions of travel for woodland planting in the Region's Landscape character Types. It has the potential to be used to inform woodland grants and stewardship schemes (see map in **Appendix A11**);
 - Biodiversity mapping carried out as part of the Lincolnshire Limewoods Project. A habitat creation and constraints map was prepared for the Lincolnshire Limewoods area¹⁴⁸, based on the identification of woodland, farmland and wetland zones within the area (see map in **Appendix A12**);
 - Opportunity mapping carried out for English Nature and the Wildlife Trusts for limestone grassland in the Southern Lincolnshire Edge and Kesteven Uplands National Character Areas¹⁴⁹. This used data on the location and extent of known existing limestone grassland sites, their condition and soils and geology to identify target areas for maintaining and creating limestone grassland. The results of this mapping informed the development of the 'Life on the Verge' Project;

¹⁴⁷ The East Midland Woodland Opportunity Mapping Guidance (2010, LDA Design for Natural England)

¹⁴⁸ Wildlife corridors in the Lincolnshire Limewoods: Habitat creation and opportunities and constraints map (2008, Ecological Services Ltd for the Lincolnshire Wildlife Trust and Lincolnshire Limewoods Project)

¹⁴⁹ A vision for the Lincolnshire and Rutland Limestone Natural Area (now the Southern Lincolnshire Edge and Kesteven Uplands National Character Areas) – opportunities for protecting limestone grassland, geology and landscape (2005, The Wildlife Trusts and English Nature)

- The 'On-Trent' Project has mapped Trent floodplain habitats and habitat creation and enhancement opportunities via stewardship schemes, mineral extraction and 'other opportunities'¹⁵⁰ (see map in **Appendix A13**);
- Wetland opportunity mapping (1st draft), generated by the Lincolnshire Wildlife Trust, which identifies broad areas that, in their opinion should be prioritised for wetland enhancement/creation. It should be noted that the mapping is very much 'work-in progress' (see map in **Appendix A14**).

3.2.14 The CLJPU is currently in discussion with Natural England in order to ascertain the feasibility of running biodiversity data from the Lincolnshire Environmental Record Centre through Natural England's biodiversity opportunity mapping model, both in the short term and/or medium term (post study) in order for this to feed into this GI Study.

Lincolnshire Biodiversity Action Plan

3.2.15 The Lincolnshire Biodiversity Action Plan¹⁵¹ identifies habitats and species of importance in the County as well as a range of associated targets related to understanding the resource and its management and for new habitat creation. Habitat creation as part of the delivery of the GI Network for Central Lincolnshire has the potential to contribute to the delivery of these targets (see **Appendix A15** for details).

Key GI Assets and Opportunities

- Decrease the fragmentation of existing habitats and sites by increasing their size and joining them up through targeted habitat creation, with particular opportunities presented along linear landscape features such as river corridors, hedgerows, railways and road networks;
- Seek opportunities to remove barriers/pressures affecting the movement of fish along rivers and streams;
- Buffer habitats and sites from the potential negative effects of adjoining more intensive land uses;
- Make the wider landscape more permeable for wildlife species, for example by the creation of 'stepping stone' habitats between existing sites and creating and strengthening other habitat links such as hedgerow networks;
- Advance the processes of identifying i) the current status and condition of SNCIs; ii) SNCIs suitable for designation as LWSs; and iii) potential new sites for designation;
- Identify the condition and management of all non-statutory sites and ensure that sites receive appropriate positive conservation management (potentially through the uptake of agri-environment schemes in liaison with local landowners);
- Seek opportunities to reduce i) the impact of over-abstraction on flows in some watercourses through on-going reviews of abstraction licences; ii) point source pollution from water treatment works, for example through the introduction of phosphate removal; and iii) diffuse pollution through a range of initiatives and measures such as Environmental Stewardship and Catchment Sensitive Farming;

¹⁵⁰ <http://www.ontrent.org.uk/youcando/sitebasedprojects.html>

¹⁵¹ Lincolnshire Biodiversity Action Plan: action for wildlife in Lincolnshire. 2nd edition (2006, Lincolnshire Wildlife Trust)

- Seek opportunities, where appropriate, for the naturalisation and diversification of watercourses, such as that carried out by the Lincolnshire Wolds Chalk Streams Project¹⁵² and significant habitat restoration and creation, especially of floodplain grassland and wetland, with the potential to link such habitat restoration and creation to the development of new flood control measures, such as the creation of new ‘washlands’;
- Ensure that opportunities for conservation and enhancement of biodiversity related to watercourses and drainage ditches are fully considered throughout the capital and maintenance operations of the regulatory bodies (EA, IDBs, LAs etc).

3.3 Landscape/Townscape Setting and Historic Context

Key Needs/Deficiencies

- 3.3.1 Key needs and opportunities relating to landscape/townscape setting and historic context at the Central Lincolnshire scale are discussed below. This section should be read in conjunction with **Section 4.0**, where landscape/townscape setting and historic context needs and opportunities are set out within the context of GI zones.

Landscape and Visual Sensitivity

- 3.3.2 There is a need for new development to be sensitively located and respond to the local character of its landscape setting. The scale, massing and height of development should be considered in relation to the topography; general pattern of settlement in the area; key views; landmarks; and memorable and distinctive features within the local landscape. For example, buildings situated on prominent ridge slopes are likely to visually impact upon the character of the local landscape. Achieving sensitive development in landscape character and visual terms depends on a commitment to developing a successful aesthetic and functional relationship between development form and design – its layout, scale, density, appearance – and the local landscape. This largely depends on the response of a development to the inherent landscape characteristics, features and special qualities that give an area its special identity and local distinctiveness. Within Central Lincolnshire, development can be particularly visually intrusive in the open low-lying landscapes of the Settled Fens and Marshes, Planned and Drained Fens and Carrlands, Fen and Marsh Farmlands, Unwooded Vales and Floodplain Valleys; and also on the higher, exposed ridge landscapes of the Wolds Scarps, Limestone Scarps and Forest Hills and Ridges.

¹⁵² <http://www.lincswolds.org.uk/chalkstreams.htm>

Rural Landscape Pattern and Key Landscape Features

- 3.3.3 The Study Area has a diverse rural landscape which supports a range of agricultural activities from livestock and dairy farming to cereal and vegetable production. Farming plays an important role in creating a 'sense of place'. A network of hedgerows at field boundaries is a key component of the landscape pattern of Central Lincolnshire. The key threats to hedgerows are neglect, over management or loss as a result of settlement expansion. Similarly, other key landscape features and habitats are under pressure from agricultural and development related activities. There is therefore a need to protect and encourage positive management of existing intact and denuded landscape features such as hedgerows, stone walls, woodland, heathland and other semi-natural habitats (in keeping with local landscape character). There is also a need to protect the high sensitivity and distinctiveness of landscape features within Areas of Great Landscape Value and the AONB.

Settlement Pattern and Character

- 3.3.4 Settlement pattern within Central Lincolnshire varies from small-scale, intimate nucleated and linear villages, to the larger market towns of Sleaford and Gainsborough and the City of Lincoln with its pattern of suburbs expanding from the historic core. Regardless of their size or scale, each settlement has its own unique identity – a product of the relationship with surrounding landscapes and the pattern of growth. Many of the villages have intact historic cores and distinctive settlement patterns, whilst Sleaford, Gainsborough and Lincoln have distinct townscape elements and character which contribute to recognisable sense of place. All settlements also have a symbiotic relationship with their landscape settings. Settlement expansion which has no or little regards to historic integrity and pressures for new infill development is resulting in a loss of these distinctive patterns and erosion of local vernacular sense of place.
- 3.3.5 In order to maintain/enhance this diversity of settlement pattern and character and relationships with landscape settings, there is a need to prevent settlement coalescence and protect existing green wedges, settlement breaks and visual amenity areas within the market towns and City of Lincoln. There is also a need to protect the pattern and character of rural settlements, particularly within or in close proximity to potential Growth areas; and physical/visual relationships between the settlements and their landscape settings. In addition, there is a need to better understand the locally distinctive vernacular historic architecture that often forms the core of historic settlements, particularly to inform planning decisions.

Historic Integrity and Interpretation

- 3.3.6 As noted in **Section 2.5**, the Study Area encompasses a diverse range of historic assets. The integrity and settings of these assets are potentially under threat from new development if not designed sensitively. There is therefore a need to protect the historic integrity and setting of all heritage assets, as defined in PPS5¹⁵³, from the impact of development.
- 3.3.7 There is also a need to reduce the number of heritage assets (both nationally and locally designated) identified as being at risk of loss through neglect, decay or inappropriate change. English Heritage's 'Heritage at Risk Register' identifies which of England's listed buildings, scheduled monuments, registered parks and gardens, registered battlefields, protected wreck sites and conservation areas are at risk. West Lindsey District Council holds a 'listed buildings at risk register' and the City of Lincoln Council a 'buildings at risk register'.
- 3.3.8 In many cases, there is also a lack of physical access to historic sites and absence of interpretation of the historic evolution and remaining historic fabric. There is therefore a need to increase intellectual and physical access opportunities to key historic sites and provide physical and intellectual links between key historic assets of the same type (e.g. designed parklands) or age (e.g. Roman walls, roads and defences), where appropriate.

Key GI Assets and Opportunities

- Soften the edges of existing settlements and potential new developments with tree and hedgerow planting to enhance the setting(s);
- Incorporate remnant hedgerows, ponds and other landscape features within potential new planned developments or neighbourhoods;
- Encourage the use of best practice innovative and sympathetic architectural solutions for new development; and planning solutions which take inspiration from local distinctiveness and character whilst utilising eco-friendly and high quality design;
- Seek opportunities to reduce the number of heritage assets currently identified as being at risk;
- Improve the management of historic areas or sites (potentially including the conservation of historic assets, restoration of degraded or damaged assets and the re-creation of lost assets);
- Improve/provide presentation of historic assets and enhance the visual appearance of their settings where appropriate;
- Seek opportunities to preserve important archaeological areas, whether nationally designated or locally recognised as 'greenspace';

¹⁵³ Planning policy Statement 5: Planning for the Historic Environment (2010, DCLG) provides the following definition of **heritage assets**: 'a building, monument, site, place, area or landscape positively identified as having a degree of significance meriting consideration in planning decisions. Heritage assets are the valued components of the historic environment. They include designated heritage assets (as defined in this PPS) and assets identified by the local planning authority during the process of decision-making or through the plan-making process'. PPS5 provides the following definition of **designated heritage asset**: 'a World Heritage Site, Scheduled Monument, Listed Building, Protected Wreck Site, Registered Park and Garden, Registered Battlefield or Conservation Area designated as such under the relevant legislation.'

- Improve/provide interpretation and intellectual access opportunities, providing an explanation of what can be seen and why the feature exists; and
- Improve/provide physical access to historic assets in liaison with landowners.

3.4 Sustainable Access, Recreation and Movement

3.4.1 Key needs and opportunities relating to sustainable access, recreation and movement at the Central Lincolnshire scale are discussed below. This section should be read in conjunction with **Section 4.0**, where access, recreation and movement needs and opportunities are set out within the context of GI zones.

Key Needs/Deficiencies

Open Space, Sport and Recreation Sites

3.4.2 None of the Districts within the Study Area have currently carried out Open Space, Sport and Recreation Studies/Assessments. In view of this, it has not been possible to assess current and future¹⁵⁴ needs/deficiencies (with regards to levels of provision, quality and accessibility of different types of sites) in relation to the following types of sites:

- Parks and Gardens;
- Natural and semi-natural greenspace;
- Green corridors (this is partly covered under the 'Sustainable Access' section);
- Amenity greenspace;
- Provision for children and young people;
- Allotments, community gardens and urban farms;
- Cemeteries, churchyards and burial grounds;
- Civic squares and spaces; and
- Common land.

3.4.3 In relation to natural and semi-natural greenspace, an assessment of the current needs/deficiencies of accessible natural greenspace is provided in the section 'Accessible Natural Greenspace' (also refer to **Appendix A16**).

3.4.4 With regards to outdoor sports facilities and built facilities for sport, information relating to standards of provision and needs/deficiencies at the County level is set out in the Lincolnshire County Sports Facilities Framework¹⁵⁵. The City of Lincoln also set out aspirational standards in their Leisure Strategy¹⁵⁶, which, in line with Government planning policy guidance, are based

¹⁵⁴ Taking account of projected increases in population

¹⁵⁵ Lincolnshire County Sports Facilities Framework(December 2008, Lincolnshire Sports Partnership)

¹⁵⁶City of Lincoln Leisure Strategy(2009, Lincolnshire Sports Partnership)

upon a specific local assessment of need¹⁵⁷. The Districts of West Lindsey and North Kesteven have not carried out District level sport/leisure assessments. Both the County and the City of Lincoln's standards of provision and identified needs/deficiencies are set out in **Appendix A17** (see **Tables A17a** and **A17b**). The Lincolnshire Sports Partnership have identified the need for each District to carry out a Playing Pitches Audit and Strategy to allow Lincolnshire to access funding through Sports England's Play, People and Places strategic funding scheme to ensure greenspaces, including playing fields and parks, are maintained. The Partnership have also identified a need to generally increase people's participation in sport and recreation (in line with Sport England's targets¹⁵⁸) and to develop local, cost effective opportunities to achieve this – greenspaces have a central role to play in realising this.

3.4.5 It should be noted that whilst each of the Districts within the Study Area have developed a Play Strategy, none have adopted locally derived standards for play provision. The Districts all however recognise, in relation to the provision of all new play areas, the value of the Six Acre Standard¹⁵⁹ (developed by the Fields in Trust¹⁶⁰ - see **Appendix A17/Table A17c** for details of the standard), which is the most widely used minimum standard for play provision. The City of Lincoln Play Strategy however states that *'issues regarding the application of the Fields in Trust's standards have been subject to national debate and the revised PPG17¹⁶¹ (PPG17) has recognised this. PPG17 now advises that the Fields in Trust's standard should be used as a guide rather than as a proposed national standard and that local authorities should establish local provision standards based on a robust evaluation of local need'*.

3.4.6 The following saved policies from the City of Lincoln, North Kesteven and West Lindsey Local Plans make reference to standards of provision for a number of open space types. These are listed below and details of each policy are provided in **Appendix A17**:

- City of Lincoln Local Plan: Policy 65B 'Play and Amenity Space in Housing Areas';
- West Lindsey Local Plan : Policy RES 5 'Provision of play space/recreational facilities in new residential developments and Policy CRT 2 'Standards for open space sport provision'; and
- North Kesteven Local Plan: Policy H4 'Public open space provision in new residential developments.

Accessible Natural Greenspace

3.4.7 In order to understand how well the population of Central Lincolnshire is provided for in terms of accessible natural greenspace and plan for better provision, an assessment of accessible

¹⁵⁷City of Lincoln Leisure Strategy(2009, Lincolnshire Sports Partnership)

¹⁵⁸ Sport England's revised target in 'Sport England Strategy 2008 - 2011' is to increase regular participation nationally by 200,000 people per annum (2,702 people per annum in Lincolnshire, or 0.39% of the population).

¹⁵⁹ The Six Acre Standard has been reissued under the new name 'Planning and Design for Outdoor Sport and Play'

¹⁶⁰ Previously known as the National Playing Field Association (NPFA)

¹⁶¹ Planning Policy Guidance 17: Planning for Open Space, Sport and Recreation (2002, DCLG)

natural greenspace has been undertaken (see in **Appendix A16** for more details). The assessment used Natural England's Access to Natural Greenspace Standard (ANGSt) as a benchmark for the Study Area as a whole. The ANGSt Model is based on distance thresholds and defines the maximum distance that any resident should have to travel from their home to reach accessible natural greenspace. It emphasises the importance of people being able to have easy access to natural and semi-natural greenspace close to where they live. **Figures 3.1-3.4** illustrate the distribution of accessible natural greenspaces¹⁶² and the four distance thresholds as applied to different sizes of accessible natural greenspace (neighbourhood scale¹⁶³, district scale¹⁶⁴, county scale¹⁶⁵ and sub-regional scale¹⁶⁶). It is important to remember when using ANGSt that open countryside and the Public Rights of Way network are not included in the model and therefore care should be taken when interpreting it.

- 3.4.8 Central Lincolnshire covers 211,577ha of land, c.3,901ha of which is accessible natural greenspace (c.2% of the total area). West Lindsey District has the most accessible natural greenspace (2,857ha/c.2.5% of the District's total area) and North Kesteven the least (585ha/c.0.6% of the District's total area). There is approximately 1133ha of accessible natural greenspace land within the Lincoln Area (c.459ha of which falls within the boundary of the City of Lincoln/c.13% of the City Council's total area). C.1, 2 and 0.2% of the total land cover of the Gainsborough, Lincoln and Sleaford Areas respectively is accessible natural greenspace.
- 3.4.9 As illustrated on **Figures 3.1-3.4** there are practically no accessible natural greenspace sites in the central north-south part of the Study Area (excluding Lincoln) and virtually no accessible natural greenspace sites in/on the doorstep of Gainsborough and Sleaford. Central Lincolnshire generally performs poorly against the Access to Natural Greenspace Standard, with substantial deficiencies at all scales. Most of the accessible natural greenspace sites within the Study Area are clustered along the eastern and western edges of the Study Area. Many are designated for their nature conservation value and therefore have carefully managed public access. These sites are likely to be sensitive to additional recreational pressures, which should be borne in mind in relation to meeting current needs and those of the future population (including the additional households planned in and around Gainsborough, Lincoln and Sleaford). Whilst planned growth is likely to create further pressure on existing sites it also offers opportunities for new greenspaces. It should be noted that potential growth/development locations in the Gainsborough, Lincoln and Sleaford Areas, as show on **Figure 2.19a**, all currently have significant deficiencies of different scales of accessible natural greenspace, particularly

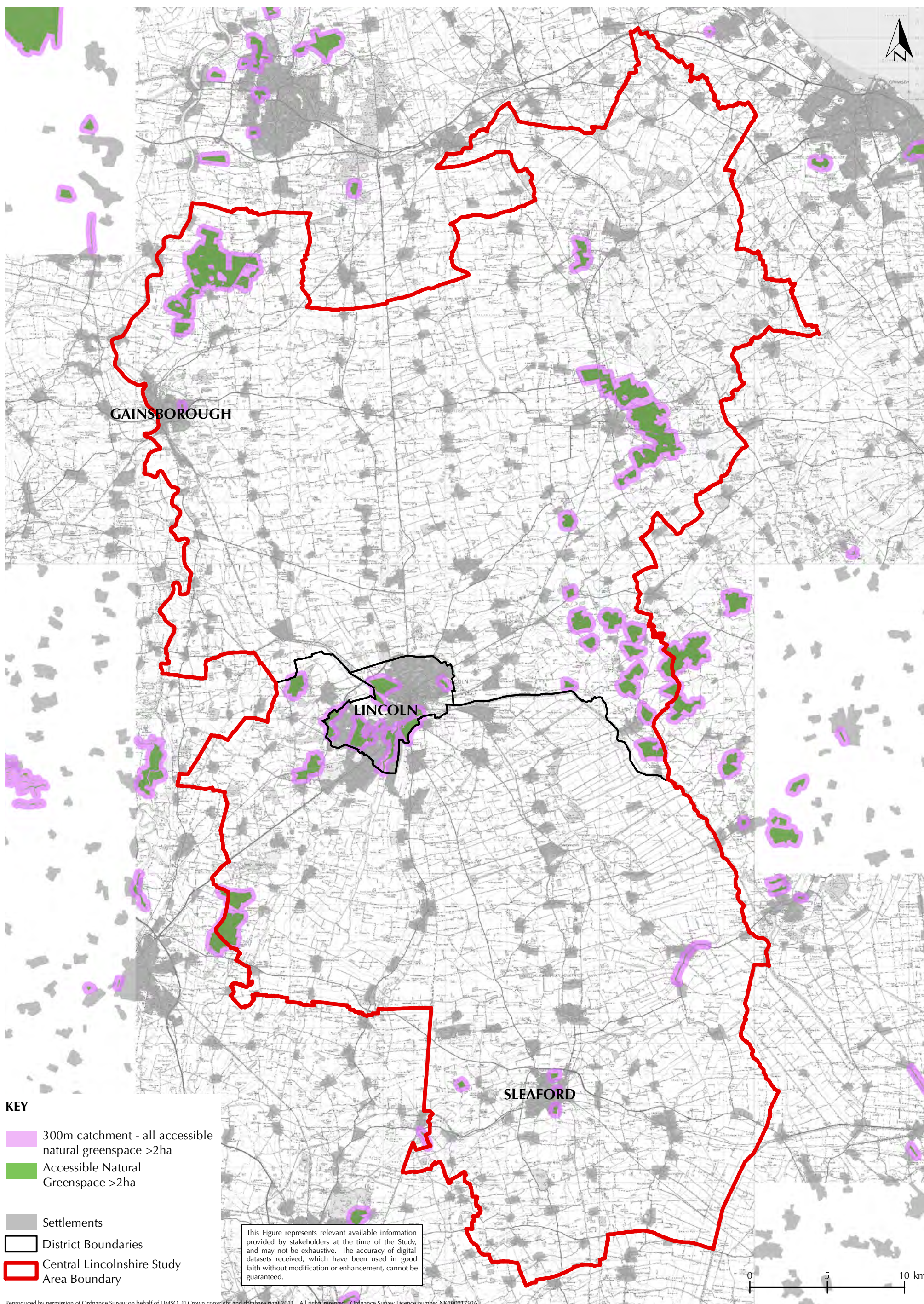
¹⁶² Only accessible natural greenspace sites over 2 hectares in size have been included

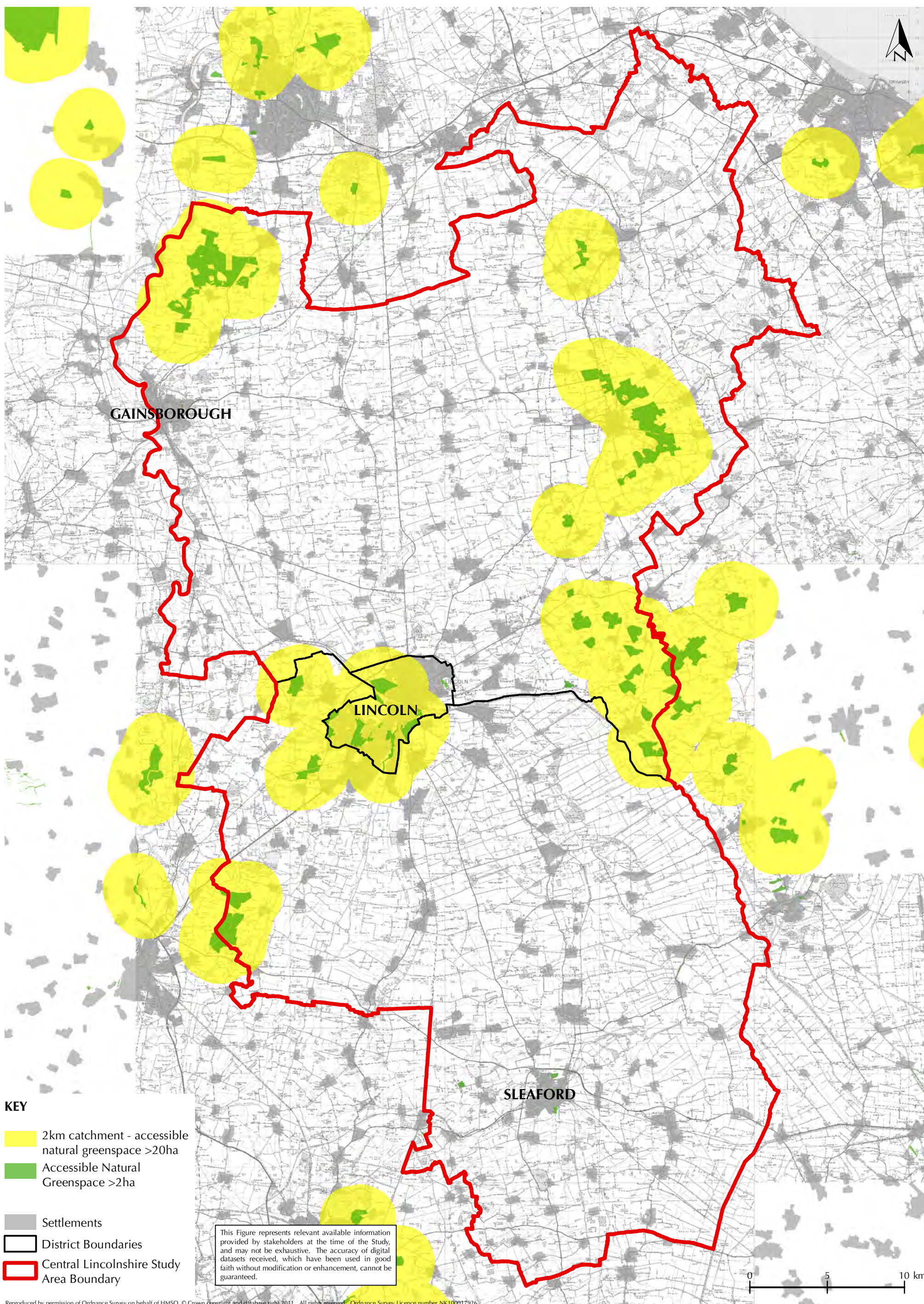
¹⁶³ sites over 2ha within 300m of inhabitants

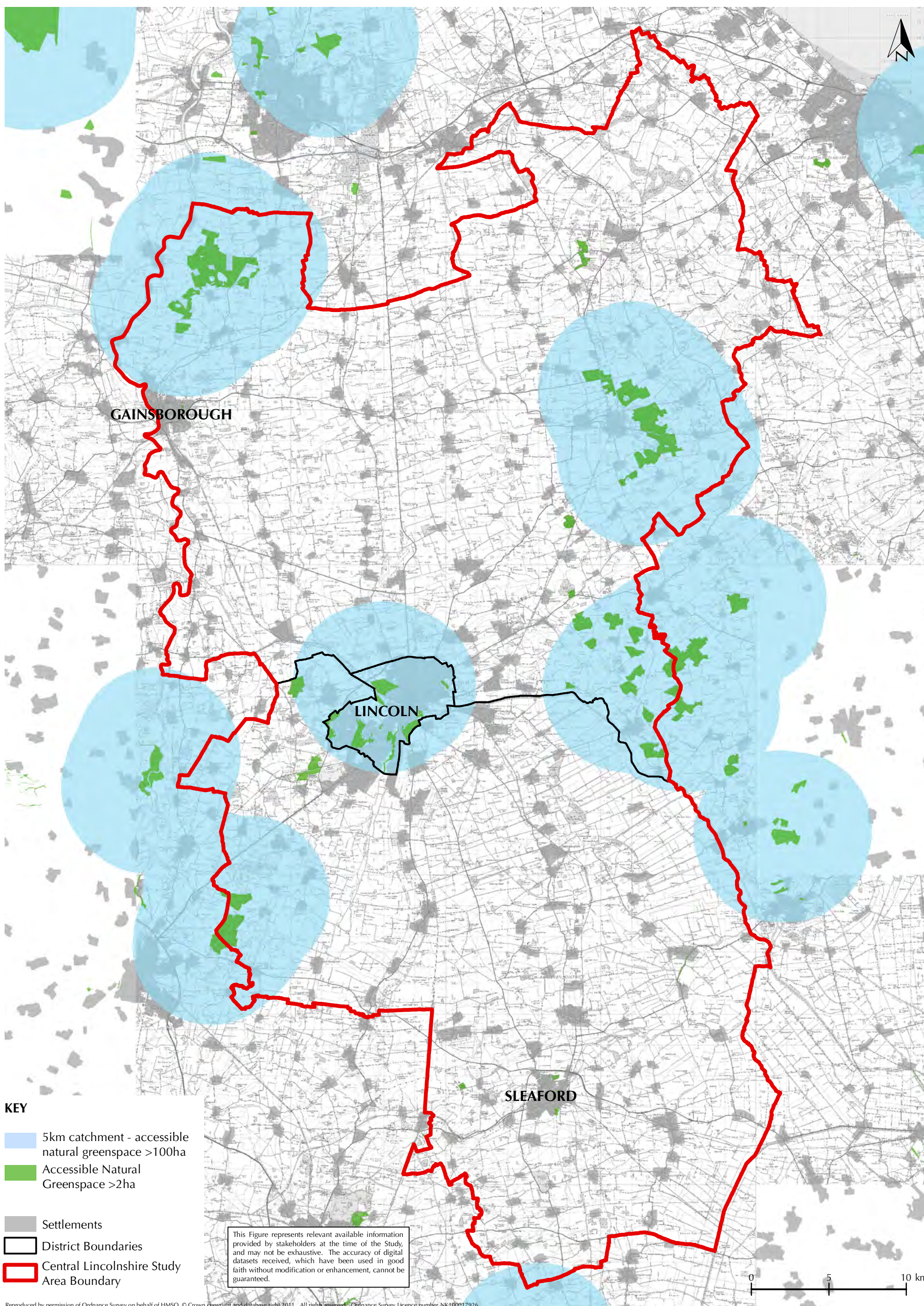
¹⁶⁴ sites over 20ha within 2km of inhabitants

¹⁶⁵ sites over 100ha within 2km of inhabitants

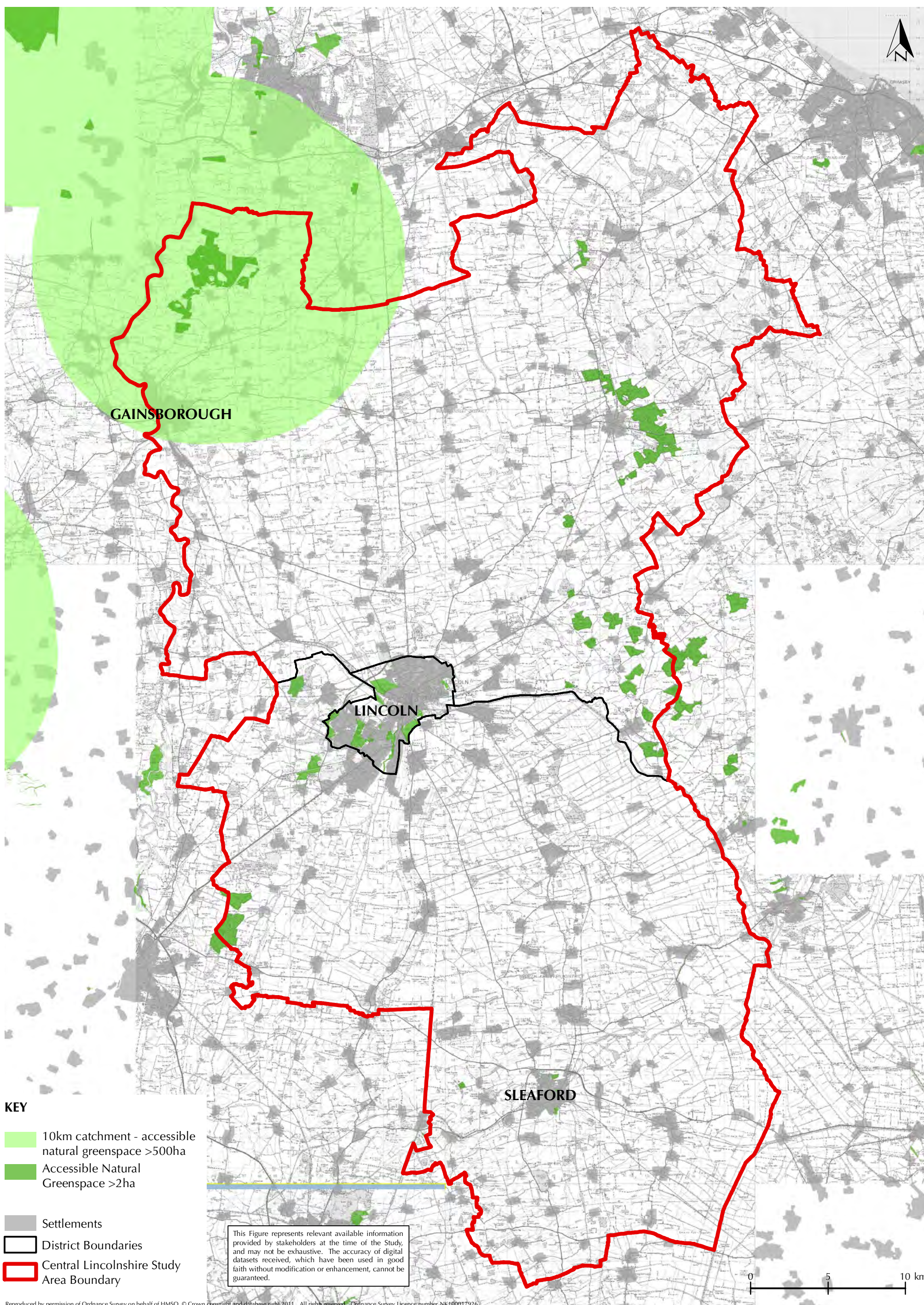
¹⁶⁶ sites over 500ha within 10km of inhabitants







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neighbourhood scale sites. New and enhanced accessible natural greenspace sites will need to be provided to meet current and future needs.

- 3.4.10 Deficiencies of accessible natural greenspace (neighbourhood, district, county and sub-regional scales) are summarised in **Table 3.4a** (more details are provided in **Appendix A16**).

Table 3.4a: Summary of Current Accessible Natural Greenspace Deficiencies

Sub regional provision	Deficiency for all of Central Lincolnshire with the exception of a discrete area to the north-west (which includes Gainsborough)
County provision	Deficiency for almost the entire southern half of Central Lincolnshire (including Sleaford) and a large number of settlements in the northern half (including two thirds of Gainsborough). Lincoln (excluding its southern tip) and a number of settlements in the Lincolnshire Limewoods area and Lincolnshire Wolds AONB have adequate provision
District provision	Deficiency for almost the entire southern half of Central Lincolnshire (including Sleaford) and a large number of settlements in the northern half (including Gainsborough). Lincoln (excluding an area in the northeast and southern tip of North Hykeham), Market Rasen and a number of settlements in the Lincolnshire Limewoods area and Lincolnshire Wolds AONB have adequate provision.
Neighbourhood provision	Deficiency for virtually the entire Study Area. Discrete small pockets of residents living in the eastern part of Gainsborough; the north-east, north-west, south-east, Birchwood and Boultham Moor parts of Lincoln; and in the north, central and south parts of the Sleaford have access to at least one site. Residents living in the northern edge of Laughton and Thorpe-on-the-Hill; southern tip of Friesthorpe; north-western tip of Kingthorpe; eastern edge of Bardney and Billingham and the western edge of Canwick also have access to at least one site.

- 3.4.11 The fifth tier of Natural England's Access to Natural Greenspace Standard states that there should be '*a minimum of one hectare of statutory Local Nature Reserves (LNRs) per thousand population*'. The Study Area as a whole currently includes c.228ha of statutory LNRs and a population of c. 282,800 - there is therefore a deficiency of c.55ha. With a projected population of 418,916¹⁶⁷ by 2026 and 429,416¹⁶⁸ by 2031, there will be a need to not only provide 55ha of statutory LNRs to meet current deficiencies but also an additional 146ha by 2031 to meet the need of future populations.

¹⁶⁷ Population estimate calculated on the basis of 2008 based subnational population projections (ONS) for Central Lincolnshire (predicted population by 2026 of 323,100) and projected additional 40,600 new dwellings (which, based on the average number of people living in a household being 2.36, equates to 95,816)

¹⁶⁸ Population estimate calculated on the basis of 2008 based subnational population projections (ONS) for Central Lincolnshire (predicted population by 2031 of 333,600) and projected additional 40,600 new dwellings (which, based on the average number of people living in a household being 2.36, equates to 95,816)

- 3.4.12 It should be noted that whilst there is currently only a small deficiency of statutory LNRs for the Study Area's population, provision is afforded by only a small number of sites. Most of Central Lincolnshire's population therefore does not have a statutory LNR close to where they live.

Sustainable Access

- 3.4.13 As stated in LCC's Local Transport Plan¹⁶⁹ *'everyone who lives in, or visits Lincolnshire is affected by transport choices. The modes selected impact upon other people, the environment, the economy and ourselves.'* The need to provide and promote sustainable and quality transport systems for current and future populations (encouraging a shift away from car use), including provision for cycling and walking, is recognised in both the Local Transport Plan and the Core Strategy Issues and Options Consultation Document and is key to sustainable growth. Walking and cycling routes are required for sustainable access to town centres, key services and employment and offer enormous opportunities for recreation and access to nature. As discussed previously, provision of travel by non-car means is an essential Eco-Towns criteria, with 50% of trips from new development set as a target.

Access routes

- 3.4.14 Needs relating to the movement of pedestrians, cyclists and horse riders generally fall under the following themes:
- Upgrading existing routes;
 - Provision of new routes;
 - Incorporation of new routes into proposed development;
 - Marketing and provision of information about routes; and
 - Improved signage and crossings.
- 3.4.15 There is a need to address strategic gaps in the rights of way network across Central Lincolnshire. The network in the western part of West Lindsey District is particularly limited and fragmented and there is a noticeable lack of links to gain access to the wider countryside out of north and south Lincoln and all of Gainsborough. A better connected network of trails for cyclists and horse riders is also needed. The off-road network is disjointed with few wholly off-road routes - the Countryside Access and Right of Way Improvement Plan¹⁷⁰ states that *'equestrians are often forced onto the road network in order to gain access to routes, or complete circular rides'*. Improvements to the network need to address issues of safety, connectivity, path surface and levels of maintenance. The Lincoln Greenways Strategy identified the need to develop a network of Greenways and Quiet Roads within a 13km radius

¹⁶⁹ 2nd Local Transport Plan 2006/7 to 2010/11: Walking and Cycling Strategy (2006, Lincolnshire County Council)

¹⁷⁰ Countryside Access and Right of Way Improvement Plan 2007-12 (2007, Lincolnshire County Council)

of the city. Work to improve and develop the routes identified in the strategy was only partially implemented.

- 3.4.16 Overcoming barriers to movements such as crossing points along busy roads/railway lines and route severance caused by, for example, the A15, A46, A158, A159 and the River Trent, need to be considered and addressed wherever possible.

Waterways

- 3.4.17 The Lincolnshire Waterways Partnership has identified a range of needs relating to waterways within Central Lincolnshire. In relation to access and recreation, needs can be categorised as follows:

- Improving the existing resource;
- Extending the network;
- Developing regional links; and
- Developing the recreational use of the network.

- 3.4.18 Opportunities linked to these needs are discussed under appropriate GI zones in **Section 4.0**.

Public Transport

- 3.4.19 Public transport is perceived to be an issue in Central Lincolnshire. The majority of the rural areas, especially around Sleaford, are dissatisfied with public transportation – the scheduling and frequency of bus services has been raised as an issue¹⁷¹.

Improving Awareness

- 3.4.20 There is a need to improve the marketing and information available to visitors and residents in relation to existing assets/sites, recreational activities and sustainable transport options in order to raise awareness of their existence and benefits.

Tourism

- 3.4.21 There is a general established view that GI plays an important role in supporting and promoting tourism/the tourism economy. Country parks in England, for example, attract approximately 70 million visitors a year with an associated estimated £20billion spend.

¹⁷¹ Delivering a Sustainable Future for Central Lincolnshire: Portrait of Place (April 2011, AECOM)

3.4.22 Investment in GI has the potential to increase tourism by improving Central Lincolnshire's urban and rural tourism offer through the enhancement of the area's overall image as an attractive place to visit; improvements to the setting, accessibility and functionality of key destinations (including enhanced access between destinations); and the creation of new destinations.

3.4.23 The Lincolnshire Tourism Investment Opportunities Assessment¹⁷² provides an analysis of tourism needs across the Lincolnshire Tourism Destination Management Partnership zone. It states that:

'There is a perception that the industry tends to be highly fragmented; involves a high level of small 'lifestyle' operations; and presents little prospects of additional career-based employment. Where larger scale operations do exist, the employment opportunities tend to be highly seasonal, relatively low skilled, and generally in the lower remuneration brackets.

Focused consideration needs to be given to supporting the diversification of the tourism offer of Lincolnshire to ensure that the overall strength of tourism to the economy is not further disintegrated to the overall detriment of the county.

3.4.24 The Opportunities Assessment describes that 'a focus of the growth aspiration for Lincolnshire's tourism sector is, therefore, to utilise its other key assets to much better affect than at present. In particular, the emphasis is on enhancing the necessary mass of attractors and assets to create a viable short breaks sector.' Key priorities to achieve this, of relevance to Central Lincolnshire and the GI Network, include¹⁷³:

- Placing greater attention on the historic core of Lincoln;
- Developing the waterways product, using the Lincolnshire Waterways Link as the new route to an improved 'Lincolnshire' offer;
- Highlighting Lincolnshire's 'back drops' and 'film sets' such as Lincoln Cathedral;
- Enhancing some of the unique aspects relating to Lincolnshire, especially the food and drinks offer and association with the Aviation Heritage;
- Seeking to draw upon the wildlife interest generated through areas including the Wolds and Fens, through attractions such as nature reserves;
- Raising the volume of events (research highlighted that Lincolnshire had three main areas of opportunity in relation to events and festivals, namely food and drink, music, and the arts and literature.

3.4.25 More detailed needs/opportunities can be found in **Sections 4.0** and **5.0** of the Lincolnshire Tourism Investment Opportunities Assessment as well as in the Assessment's Tourism Investment Database. Examples of relevant planned, provisional and ongoing projects listed in the latter include Lincoln Castle (wall walks, redisplay of Magna Carta and opening up of the

¹⁷² Lincolnshire Tourism Investment Opportunities Assessment (2008, Scott Wilson for East Midlands Tourism)

¹⁷³ Key priorities listed in the Lincolnshire Tourism Investment Opportunities Assessment (2008, Scott Wilson for East Midlands Tourism)

Castle grounds), Lincoln Cultural Quarter and Public Realm (streetscape improvements), Regional Country Park (multi-purpose country park) and the Fens Waterways Link (regeneration of rivers and canals).

Health and Well-being

3.4.26 There is a growing recognition that GI can help deliver key benefits for public health and well-being¹⁷⁴. The Department of Health's public mental health framework¹⁷⁵ and plans for improved physical activity¹⁷⁶ as well as the Marmot report¹⁷⁷ all acknowledge the role of green space. The report 'Benefits of Green Infrastructure' by Forest Research¹⁷⁸ describes how this recognition is based on a growing body of evidence which shows that green spaces can, in particular, assist with the delivery of priorities for:

- *Increased life expectancy and reduced health inequality.*
- *Improvements in levels of physical activity and health.*
- *Psychological health and mental well-being (O'Brien et al., 2010).*

Key examples of the role played by green spaces include:

- *Health inequalities related to income deprivation are lower in populations living in the greenest areas. The effect holds for all-cause mortality, and mortality from circulatory diseases.*
- *Living closer to parks or recreation/leisure facilities is associated with increased physical activity and reduced levels of obesity.*
- *There is a clear association between good mental health and physical activity, and access to good quality green space can encourage people to take exercise (Department of Health, 2009).*
- *Around 83% more individuals engage in social activity in green spaces as opposed to sparsely vegetated/concreted ones, helping community cohesion.*
- *The benefits of green space are greatest for people from lower socio-economic groups.*

Key GI Assets and Opportunities

- **Provide a range of accessible natural greenspace sites at different tiers of the ANGSt hierarchy, but particularly neighbourhood scale sites, to meet existing and future needs/deficiencies. As a matter of priority, provision should be focused within the Gainsborough, Lincoln and Sleaford Areas** (see **Section 4.0** for more details);
- Support the development of the Witham Valley Country Park, which seeks to provide a sustainable accessible network of managed outdoor places providing experiences across a diverse range of natural, historic and leisure environments for local residents and visitors. Proposals include improved/new access links, enhancement of existing and provision of new areas for active recreation as well as new visitor facilities;

¹⁷⁴ Benefits of Green Infrastructure (2010, Forest Research for Defra)

¹⁷⁵ New Horizons: flourishing people, connected communities (2010, Department of Health)

¹⁷⁶ Be active be healthy – a plan for getting the nation moving (2009, Department of Health)

¹⁷⁷ Fair society, healthy lives' (2010, Marmot Review)

¹⁷⁸ Benefits of Green Infrastructure (2010, Forest Research for Defra)

- Make use of/restore quarries, which are no longer in use, for informal recreation/accessible natural greenspace and examine the feasibility of making some areas, e.g. some amenity greenspace sites, more natural. Collective improvements of informal spaces through imaginative and naturalistic planting could be the basis of creating green corridors through main settlements and associated growth areas.
- Improve/create new sustainable access links out of Gainsborough, Lincoln and Sleaford to allow existing and future residents as well as visitors to gain access to key services, the wider countryside and key visitor destinations such as the Whisby Nature Park and Natural World Centre, the Lincolnshire Limewoods area and Laughton Woods.
- Improve/create new sustainable access routes in more rural parts of Central Lincolnshire to address gaps in the network for a range of users (for example through existing GI initiatives such as the Limewoods project and the On Trent/Trent Vale initiative). New/improved links should be sought between existing sites/key destinations such as between the Whisby Nature Park and Natural World Centre, the River Witham and the Lincolnshire Limewoods area;
- Improve public transport services and better connect them to the access network for both utility and recreational purposes;
- Make use of disused railways, for example the disused railway between Washingborough and Lincoln, as multi-functional corridors providing sustainable access links and opportunities for informal recreation and habitat creation. Contributions to accessible natural greenspace might be invested in helping to expand and/or improve parts of the access/rights of way network;
- Assess the need to deliver the remainder of the greenway routes identified in the Lincoln Greenways Strategy¹⁷⁹;
- Liaise with the Lincolnshire Waterways Partnership in relation to access and recreation opportunities associated with waterways (e.g. access to nature, walking, horse riding, canoeing and linking the waterways to key destinations/routes) (see **Section 4.0** for more details);
- Liaise with the Lincolnshire Wolds AONB Countryside Service in relation to maximising access and recreation opportunities for all visitors and residents, e.g. new access links, promoted walks and accessible open space (such as new accessible grasslands and woodland sites)¹⁸⁰;
- Identify, develop and promote new circular and linear walking/cycling/equestrian routes using existing access routes and/or creating new permissive or definitive access links. Sustrans are proposing an extension to National Route 64 through the centre of Lincoln and to National Route 15 extending it from Grantham to Sleaford – these proposals will help bridge gaps in the access network;
- Address current and future sport facilities needs/deficiencies identified in the County Sports Framework/Leisure in Lincoln Strategy and increase participation in sport and recreation through the provision of low cost/free activities such as orienteering, park runs and bird walks. Waterways can play a part in meeting increased participation targets; and
- Integrate sustainable access links, different types of open space, sport and recreation sites/spaces (including accessible natural greenspace sites) into the masterplans of growth/development areas. Whilst growth will place pressure on existing leisure provision, it will also create opportunities for inviting developer contributions to help fund additional sites/facilities. The feasibility of creating sustainable transport network hubs, providing opportunities for bike hire, rechargeable buggies etc should be assessed.

¹⁷⁹ Lincoln Greenways Strategy: Greater Lincoln Greenways and Quiet Roads National Demonstration Project (2001, Lincoln City Council)

¹⁸⁰ Lincolnshire Wolds AONB Management Plan and Action Plan 2004-09 (Lincolnshire Wolds Countryside Service)

3.5 Sustainable Local Energy and Food Production

- 3.5.1 Key needs and opportunities relating to sustainable local energy and food production at the Central Lincolnshire scale are discussed below.

Key Needs/Deficiencies

Sustainable Local Energy

- 3.5.2 The Department of Energy and Climate Change¹⁸¹ provides a useful overview of the need for sustainable local energy use/production in the UK:

'The Government is committed to increasing the proportion of energy use from renewable sources. The UK has been blessed with a wealth of energy sources but the depletion of domestic fossil fuel reserves, combined with projected growth in global energy demand, puts the UK's security of energy supply at risk. [...] The Government believes that climate change is one of the gravest threats the UK faces and that urgent action at home and abroad is required. The development of renewable energy sources, alongside nuclear power and the development of carbon capture and storage will also enable the UK to play its part in international efforts to reduce the production of harmful greenhouse gases.'

- 3.5.3 The Governments' Energy White Paper 2003 *'Our Energy Future: creating a Low-Carbon Economy'* defined a long-term energy policy combining the UK's environment, security of supply, competitiveness and social goals. It set a new direction for energy policy – putting the UK on a path to cut its carbon dioxide emissions, the main contributor to global warming, by some 60% by about 2050, with real progress by 2020. In light of Government targets, it is essential to seek opportunities to generate/use renewable energy in Central Lincolnshire. The Central Lincolnshire *'Energy Study'*, recently commissioned by the CLJPU, aims to evaluate the deliverability of new low or zero carbon developments and identify opportunities for providing energy efficiency measures and/or low carbon energy to existing parts of Central Lincolnshire. The Study will look at different ways in which Central Lincolnshire could contribute to the delivery of Lincolnshire's renewable energy targets and will provide recommendations that can be used to inform the planning and delivery of GI in Central Lincolnshire. While Central Lincolnshire performs relatively well against the rest of the East Midlands in terms of renewable energy deployment thus far, initiatives mainly concern the generation of electricity rather than heat¹⁸².

¹⁸¹ See http://www.decc.gov.uk/en/content/cms/meeting_energy/renewable_ener/renewable_ener.aspx

¹⁸² Delivering a Sustainable Future for Central Lincolnshire: Portrait of Place (April 2011, AECOM)

- 3.5.4 When considering renewable energy generation as part of Central Lincolnshire's GI Network, it is important that adverse landscape, ecological and other environmental effects are minimised through careful planning and design. For example, there is a need to ensure that energy crops are planted in ways that are in keeping with existing landscape pattern and character, as fast-growing, tall crops can rapidly change the appearance of the landscape.

Sustainable Local Food Production – Allotments/Orchards, Community Gardens and Urban Farms

- 3.5.5 Demand for locally produced food and allotments is relatively high in Central Lincolnshire. While rural areas benefit from local produce from the agricultural sector, there is strong demand from communities in urban areas for space to grow their own food¹⁸³. There are currently substantial waiting lists for residents wanting an allotment plot in the Lincoln Area, a situation likely to be exacerbated by the planned growth in and around the Lincoln Area. Demand is also likely to be high in the Gainsborough and Sleaford Areas. The potentially high fertility and agricultural value of the land in Central Lincolnshire suggests there are many opportunities for food and fuel production. There is a need to explore demand for urban/city farms as there do not appear to be any currently in Central Lincolnshire. Allotments, community gardens and urban/city farms also have important roles to play, particularly in larger settlements, in helping to meet deficiencies in access to greenspace, encouraging community cohesion, and in increasing awareness of gardening and farming.
- 3.5.6 In the last fifty years most of Lincolnshire's traditional orchards and young commercial ones have been cleared away to be replaced by more profitable arable crops or have succumbed to redevelopment for housing or lost through neglect. The county now has just a handful of commercial orchards and these are nearly all located on the flat lands in the south¹⁸⁴.
- 3.5.7 It is desirable that current and future demand for locally produced food from allotments/orchards, community gardens and urban farms is met. Current levels of provision should be safeguarded and changes in demand met through maximising the use of existing sites and creating new ones. As well as meeting a demand from communities to grow their own food, locally productive landscapes contribute to a carbon efficient approach to living through the reduction of food miles, provide opportunities for people to gather and interact - building social wellbeing whilst also providing opportunities for education and health improvements and are important for biodiversity.

¹⁸³ Delivering a Sustainable Future for Central Lincolnshire: Portrait of Place (April 2011, AECOM)

¹⁸⁴ Information from the East of England Apples and Orchard Project website (<http://applesandorchards.org.uk>)

Sustainable Local Food Production – Agricultural Land

3.5.8 Agriculture plays an important role in terms of food production and security, the national economy and the management of the countryside. With a growing population, climate change and the pressure put on land, there is an acknowledged need to produce food more sustainably¹⁸⁵. Consumers are showing a growing interest in supporting regional and local food products. This has been witnessed in the market growth in the consumption of organic products and in the demand for fresh, locally grown, seasonal food, particularly seen through the growing popularity of direct retailing outlets such as farmers' markets, farm shops, box delivery schemes and other speciality outlets.

3.5.9 The agricultural sector in Central Lincolnshire has a key role to play in relation to:

- Meeting demand for high quality locally produced food for Central Lincolnshire's communities;
- Decreasing dependency on imported food products, thus reducing food miles and carbon emissions;
- Contributing to the local economy;
- Helping connect local communities with farmers to encourage a greater awareness of how food is produced; and
- Supporting local 'food webs' by working closely with local retailers and consumers.

Key GI Assets and Opportunities

- Increase renewable energy production - Central Lincolnshire's installed base of renewables ranks among the top third of Housing Market Areas in the county and with renewable energy contributing 3% to the energy supply there is an opportunity to increase its provision¹⁸⁶;
- Increase wind energy provision in suitable areas. As evidenced through the market deployment of wind energy to the southeast of Central Lincolnshire, wind energy is a key opportunity for the area. This is supported by region wide studies that have been undertaken so far. Initial analysis of wind speeds shows significant wind speeds on the far western and far eastern sides of the area. Other constraints such as ecological, landscape and noise impacts will need to be taken into account. Wind energy should also avoid highly tranquil areas to maintain the peace and quality of life associated with the area. The planned energy study for Central Lincolnshire should seek to identify key areas of opportunity and delivery mechanism¹⁸⁷;
- Deliver renewable heat networks: The UK heat map identifies Lincoln City, Gainsborough and Sleaford as having significant densities of heat demand which may be able to support district heating networks and combined heat and power systems. New development in urban areas with heat network potential may be one way to drive the delivery of district heating infrastructure and should be investigated further. Local agricultural wastes and

¹⁸⁵ Information from Defra's website <http://www.defra.gov.uk/food-farm/food/>

¹⁸⁶ Delivering a Sustainable Future for Central Lincolnshire: Portrait of Place (April 2011, AECOM)

¹⁸⁷ Delivering a Sustainable Future for Central Lincolnshire: Portrait of Place (April 2011, AECOM)

forestry trimmings could be managed to supply local biomass for renewable heat generation¹⁸⁸;

- Increase energy crop production in suitable areas. Optimum sitings for energy crops within the East Midlands region, as illustrated on Natural England's *Miscanthus* yield and short coppice rotation maps¹⁸⁹ indicate that:
 - *'Potential for Miscanthus yield is high in most of the Study Area other than in the limestone scarps and dipslopes (central belt) where potential is medium-low;*
 - *Potential for short coppice rotation is high around Lincoln, Saxby, north of Market Rasen, and between Springthorpe, Saxilby and Lincoln – the rest of the Study Area has generally got medium potential; and*
 - *It should be noted that the information supplied by the Miscanthus yield/short rotation coppice maps is for guidance only and is not intended to fully substitute for professional agricultural advice. Each new planting proposal should be considered on a case by case basis. Natural England provide information on their website¹⁹⁰ relating to the impact of energy crops within individual Joint Character Areas and guidance outlining a number of environmental issues that should be considered when applying for an energy crop grant.'*
- Energy production/conservation should be embedded in the masterplanning of new development and opportunities sought to retrofit renewable energy in the existing housing stock. Key design considerations include: building orientation to maximise solar gain, woodland planting (which provides many benefits including carbon sequestration, habitat creation and wood chip production for renewable energy); incorporating green/brown roofs (to provide insulation and cooling benefits); integrating street trees of appropriate species and size (to provide urban cooling and carbon sinks); incorporating solar water heating and solar electricity on roof space; combining local food production, composting and waste recycling with the potential for energy from waste; and securing energy from decentralised and renewable or low carbon energy technologies. Locating and designing access from new development to local facilities on foot, by cycle or by public transport will encourage a modal shift away from car use;
- Seek opportunities to reduce food miles/carbon footprint, build a more sustainable food supply chain and meet demand for locally produced food. For example delivery of a range of projects focused on local food production (by local growers and communities), consumption and promotion (such as farmers markets, food festivals, healthy eating and cooking groups and community gardens/farm);
- Seek opportunities to raise public awareness of how food is produced by farmers and the importance of agricultural land;
- Make land available for growing food in and around urban areas. Opportunities should be sought to identify land for allotments/community gardens/orchards/urban farms etc., either through Council provision or through community initiatives. Ideally, this would be community led and could be delivered through neighbourhood plans¹⁹¹;
- Incorporate existing and/or new community allotments/community gardens/orchards and other edible landscapes such as hedgerows into masterplans for residential development schemes;
- Seek opportunities to combine food production with other GI functions such as energy production, access and recreation; and
- Support community orchard projects. For example, Groundwork Lincolnshire are looking for partners with publicly accessible land in Lincoln and the immediate surrounding area who would be interested in joining their Community Orchard Project. The aim of the project is to create a number of orchards and wildflower meadows for the public to enjoy

¹⁸⁸ Delivering a Sustainable Future for Central Lincolnshire: Portrait of Place (April 2011, AECOM)

¹⁸⁹ Maps are indicative

¹⁹⁰ http://www.naturalengland.org.uk/ourwork/farming/funding/ecs/sitings/east_midlands_region.aspx

¹⁹¹ Delivering a Sustainable Future for Central Lincolnshire: Portrait of Place (April 2011, AECOM)

with the intension of increasing biodiversity and enhancing community cohesion in the area.

3.6 Sustainable Resource Management and Climate Change Adaptation

3.6.1 Key needs and opportunities relating to sustainable resource management and climate change adaptation at the Central Lincolnshire scale are discussed below.

Key Needs/Deficiencies

Flood Risk and Land Drainage

3.6.2 Flood risk is considered to be a major social and economic issue in the Study Area and East Midlands Region as a whole, particularly in the low lying inland areas within river floodplains. It has two components, the chance (probability) of a particular flood and the impact (or consequence) that the flood would have if it happened¹⁹². The risk of flooding posed to properties within the Study Area arises from a number of different sources including river, groundwater, surface water and sewer flooding. Definitions of groundwater, surface water and sewer flooding from the East Midlands Regional Flood Risk Appraisal¹⁹³ are summarised below:

- **Groundwater Flooding** is very different from flooding from rivers and is generally not closely linked to recent rainfall amounts and it is difficult to predict its spatial extent. Groundwater flooding can often be of a much longer duration than fluvial flooding, lasting for several weeks, with significant social disruption. It occurs when the water table rises above the ground level and flows or ponds on the ground surface. Long term high rainfall is the primary cause of high groundwater levels, which means that groundwater flooding is more likely during the winter months when we receive the majority of rainfall.
- **Surface Water Flooding** occurs when excess rainwater runs off across the surface of the land, rather than overflowing from a watercourse. It is often linked to fluvial, groundwater or sewer flooding and almost always occurs as a result of runoff from impermeable surfaces in urban areas, or in rural areas where natural soil drainage patterns have been disrupted by human activity.
- **Sewer Flooding** depends on a number of factors such as network capacity, system blockages and water levels at their outlets. In urban areas, surface water (rainwater) and foul sewage were historically drained by a single sewer pipe. This is known as a combined sewer. However, more recent developments have installed separate foul and surface water systems. Combined sewers generally have insufficient capacity to convey all flows during a significant flood event. During such times, excess flows are discharged into adjacent drainage systems, usually a watercourse, via combined sewer overflows. This can affect water quality.

¹⁹² River Trent Catchment Flood Management Plan, Summary Report (December 2010,, Environment Agency)

¹⁹³ East Midlands Regional Flood Risk Appraisal (Consultation Report) (2009, AECOM - Report prepared for and on behalf of the East Midlands Regional Assembly)

3.6.3 The East Midlands Regional Flood Risk Appraisal¹⁹⁴, identified sources of potential flooding within the Study Area (ranked as primary, secondary and residual significance) as summarised below:

- Primary sources of potentially significant flooding from the River Witham and River Trent catchments;
- Secondary sources of potential flooding from the extensive network of arterial drainage channels, run by the Internal Drainage Boards (IDBs) to maintain low-lying Fen, most of which rely on pumped drainage; and
- Residual risk of flooding when events greater than the design of the flood defences occurs, or as a result of failure of the defences.

3.6.4 The typical target standards for protection against flooding occurring from primary sources are:

- 1:100 years¹⁹⁵ (fluvial¹⁹⁶), otherwise expressed as 1% chance of a flooding event occurring in any one year; and
- 1:200 years¹⁹⁷ (tidal), otherwise expressed as a 0.5% change of a flooding event occurring in any one year.

3.6.5 The Study Area has a long history of flooding events. In March 1947, approximately 2000 properties were affected in Gainsborough and the most significant flooding of the River Trent was in 1975 when tidal flooding breached embankments at Morton and Spalford, with flooding extending to Lincoln¹⁹⁸. Whilst major fluvial flooding has not occurred since 1947 in Lincoln, recent summer downpours have caused local flooding within the city¹⁹⁹.

3.6.6 In response to the threat that flooding can pose to both people and the natural (and historic) environment, the Environment Agency has prepared a series of Catchment Flood Management Plans (CFMPs). These plans identify the risks associated with flooding in particular catchments and set out a series of objectives for managing flood risk in that particular area. The River Trent²⁰⁰, River Witham²⁰¹ and Grimsby and Ancholme²⁰² CFMPs cover the majority of the Study Area (see map in **Appendix A18**). The Louth Coastal CFMP²⁰³ covers a very small part of the Study Area, north-east of Market Rasen in the Wolds.

¹⁹⁴ East Midlands Regional Flood Risk Appraisal (Consultation Report) (2009, AECOM - Report prepared for and on behalf of the East Midlands Regional Assembly)

¹⁹⁵ 1:100 years is a statistical estimate and equates to a 1% chance of a flood event occurring in any one year

¹⁹⁶ Fluvial relates to flooding from rivers

¹⁹⁷ 1:200 years is a statistical estimate and equates to a 0.5% chance of a flood event occurring in any one year

¹⁹⁸ River Trent Catchment Flood Management Plan, Summary Report (December 2010, Environment Agency)

¹⁹⁹ Lincoln Integrated Urban Drainage Pilot SLD2309 Final Report (June 2008, Faber Maunsell)

²⁰⁰ River Trent Catchment Flood Management Plan, Summary Report (December 2010, Environment Agency)

²⁰¹ River Witham Catchment Flood Management Plan, Summary Report (December 2009, Environment Agency)

²⁰² Grimsby and Ancholme Catchment Flood Management Plan (December 2009 Environment Agency)

²⁰³ Louth Coastal Catchment Flood Management Plan (December 2009 Environment Agency)

- 3.6.7 The Environment Agency is currently developing Flood Risk Management Studies for the Upper Witham and Lower Witham (which covers a significant part of Central Lincolnshire) to re-evaluate the current standard of flood risk protection and recommend sustainable future flood risk management for communities in Lincoln and the Witham and Till catchments upstream of Lincoln. The study is developing options which could provide opportunities for an integrated approach between existing GI and future flood risk management. Lincolnshire County Council, as Lead Local Flood Authority, will also develop a Local Flood Risk Strategy, which will cover Lincolnshire as a whole.
- 3.6.8 The River Trent CFMP²⁰⁴ identifies that 1000 to 2000 properties located within Gainsborough and downstream of Gainsborough and 250 to 500 properties between High Marnham and Torksey (some of which may be outside the Study Area) at risk from 1% annual probability river flooding.
- 3.6.9 The River Witham CFMP²⁰⁵ notes that *'around 72% of the people and property (within the whole catchment) at risk from a 1% annual probability river flood are located in isolated properties or in towns and village scattered throughout the low-lying Fens between Lincoln and Boston²⁰⁶'*. These low-lying fen landscapes occur to the south-east of Lincoln within the Study Area. The CFMP also identifies that between 100 to 500 properties within Lincoln, 50 to 100 properties within Martin Dales and 15 to 50 properties within Billinghay are at risk from 1 % annual probability river flooding.
- 3.6.10 The Grimsby and Ancholme CFMP²⁰⁷ identifies that 50 to 200 properties within Waddingham and Redbourne and 25 to 50 properties within Middle and Market Rasen are at risk from 1% annual probability river flooding.
- 3.6.11 Within all three main river catchments, numerous engineering schemes have been implemented to reduce flood risks, including the widening, straightening and embanking of rivers, the installation of pumping stations and flood storage reservoirs. The key three CFMPs identify future approaches to flood risk management within a series of sub-areas, as summarised in **Table 3.6a** below.

²⁰⁴ River Trent Catchment Flood Management Plan, Summary Report (December 2010, Environment Agency)

²⁰⁵ River Witham Catchment Flood Management Plan, Summary Report (December 2009, Environment Agency)

²⁰⁶ River Witham Catchment Flood Management Plan, Summary Report (December 2009, Environment Agency)

²⁰⁷ Grimsby and Ancholme Catchment Flood Management Plan (December 2009, Environment Agency)

Table 3.6a Potential future approaches to flood risk management within the three main river catchments of the Study Area

Sub-area within the Study Area	Future approaches to flood risk management
The River Trent Catchment Flood Management Plan¹	
Shelford to Gainsborough	Investigate options for removing, abandoning or breaching sections of embankments where they provide little or no flood risk management benefit, to allow a more targeted effort where it is needed. By investigating opportunities for managed realignment, it will be possible to counter the effects of climate change and help to prevent an increase in overall flood risk
	Complete the implementation of an appropriate flood alleviation scheme for Gainsborough
	Achieve the right balance between flood risk management and habitat creation within Beckingham marshes (immediately adjacent to the Study Area)
	Investigate opportunities for creating and restoring wash lands to accommodate climate change
The River Witham Catchment Flood Management Plan¹	
Upper Witham, Barlings Bain and Upper Till	Where feasible, flood risk management opportunities will be reduced as the current activity to manage flooding is out of proportion with the level of flood risk
	Reducing bank and channel maintenance will help naturalise rivers and improve the flow between the river and its floodplain
Grantham, Sleaford and Ancaster	Continue current levels of flood risk management in settlements
	Any new development or re-development should be resilient to all sources of flooding
Outer Lincoln North, Outer Lincoln South and Outer Horncastle	Storing water on the floodplain in these areas can reduce flood risk to settlements downstream and provide environmental benefits
	Development that affects the ability of the floodplain to retain water should be prevented
	Maintenance work on rivers should aim to increase the capacity of the floodplain to retain water
	Storing water on the floodplain could provide long-term benefits for the river environment and wetland habitats
Lincoln	Where possible, flood risk should be managed by storing water on the floodplain upstream of the settlements at risk
	Any redevelopment of floodplain areas is an opportunity to increase their flood resilience
	Organisations should work together to provide an integrated approach to urban drainage issues and surface water flooding.
Limestone Ridge	Where feasible, flood risk management opportunities will be reduced as the current activity to manage flooding is out of proportion with the level of flood risk
	Reducing bank and channel maintenance will help naturalise rivers and improve the flow between the river and its floodplain
The Fens	In the short term, it is still feasible and effective to maintain the existing flood defences at the current level of flood risk management
Grimsby and Ancholme Catchment Flood Management Plan¹	
Ancholme, North Lincolnshire Wolds and Laceby	Investigate opportunities to cease or reduce current bank, channel and flood defence maintenance. In addition, changes in land use, development of sustainable farming practices and environmental enhancement should be investigated to mitigate an increase in flooding in the future

Sub-area within the Study Area	Future approaches to flood risk management
Ancholme Villages, Middle and Market Rasen and Barton and Barrow-upon-Humber	Continue with current maintenance activities throughout the settlements Any new development of re-development should be resilient to all sources of flooding

- 3.6.12 The resultant need, arising from the issues set out above, is for an integrated approach to flood risk management, which protects settlement, reduces flood risks and encourages sustainable water management. Defra has highlighted this need within its Pilot Scheme for urban drainage in Lincoln²⁰⁸. This scheme identifies ways to solve, and barriers to solving a series of urban drainage and flooding problems in Lincoln.
- 3.6.13 Strategic flood risk, from main rivers and reservoirs is the responsibility of the Environment Agency, whilst local flood risk from surface runoff, groundwater and ordinary watercourses is the responsibility of LCC²⁰⁹. The three Central Lincolnshire District Councils have completed Strategic Flood Risk Assessments that provide accurate information on flood risk issues²¹⁰. Flood risk hazard maps are due to be produced by 2013 and action plans by 2015.
- 3.6.14 The main risk within the Lincoln Policy Area is considered to be from fluvial flooding from the River Witham, River Till and Fosdyke Canal²¹¹. Whilst the urban areas of Lincoln have significant flood protection, with the effects of climate change, the flood defences will be overtopped above the 100 year event²¹², resulting in significant flooding to the south-western areas of the city²¹³.
- 3.6.15 As stated in Central Lincolnshire's Infrastructure Topic Paper²¹⁴, *'Central Lincolnshire has significant areas that are deemed to be at risk of flooding from both fluvial (river) and pluvial (surface water) sources. However, Lincoln, Gainsborough and Sleaford have key brownfield sites that are in need of regeneration. Here, decisions need to be made that balance the need for sustainable growth against the need to manage flooding risk'*. Urban areas are predominantly comprised of impermeable materials. Consequently, to avoid the build-up of ground surface water, rainfall has historically been channelled away as quickly as possible by sewers. The sewers, running under the streets of urban areas, are of a fixed capacity and

²⁰⁸ Lincoln Integrated Urban Drainage Pilot SLD2309 Final Report (June 2008, Faber Maunsell)

²⁰⁹ East Midlands Regional Flood Risk Appraisal (Consultation Report) (2009, AECOM - Report prepared for and on behalf of the East Midlands Regional Assembly)

²¹⁰ Central Lincolnshire Local Development Framework, Central Lincolnshire Core Strategy: Issues and Options: Infrastructure Topic Paper (October 2010, LCC/ CLJSPC)

²¹¹ Lincoln Policy Area Strategic Flood Risk Assessment (2010, JBA Consulting)

²¹² Event that on average will occur once every 100 years. Also expressed as an event, which has a 1% probability of occurring in any one year or 1% annual exceedence probability

²¹³ Lincoln Policy Area Strategic Flood Risk Assessment (2010, JBA Consulting)

²¹⁴ Central Lincolnshire Local Development Framework, Central Lincolnshire Core Strategy: Issues and Options: Infrastructure Topic Paper (October 2010, LCC/CLJSPC)

therefore any new development which increases the amount of water getting into the sewers could overwhelm the system, resulting in surface water flooding²¹⁵.

3.6.16 The North Kesteven Strategic Flood Risk Assessment²¹⁶ identifies the following flood risk issues within the District:

- A small area of North Kesteven District around North Scarle falls within the River Trent's tidal floodplain and is at risk from tidal flooding;
- A tributary of the River Trent (Mill Dam Dyke) is a significant tidal flood risk source (which runs through North Scarle);
- The ability of the River Witham to discharge via its tidal outfall at Boston (Grand Sluice), which can be restricted at high tide, is another potential sources of flooding;
- Fluvial flooding as a result of the overflowing or breaching of river or stream banks could occur on the Upper River Witham (upstream of Lincoln, including the River Brant), the Lower River Witham (downstream of Lincoln, including the embanked 'Delphs'), on Billingham Skirths and its tributaries, on the Car Dyke system, the South Forty Foot Drain (including its embanked tributaries), the River Slea/Kyme Eau and the Fossdyke Canal; and
- Sleaford is not at risk of fluvial flooding and there is no risk to people, property or the local economy, although the villages of Ancasted and Wilsford are at risk from the headwaters of the River Slea.

3.6.17 West Lindsey Strategic Flood Risk Assessment²¹⁷ identifies the following flood risk issues within the District:

- Fenland (class 1a) – flooding from embanked, high-level watercourses due to overtopping of the embankments, which can occur over a wide area but is usually fairly shallow;
- Fenland (class 1b) – flooding from embanked, high level watercourses due to breaching of embankments (more serious and deeper than class 1a, resulting in more hazard to life);
- Fenland (class 2) – within a pump-drained catchment when the capacity of the drainage network or its pumping station is exceeded by the runoff generated by the flood event, resulting in widespread waterlogging;
- Lowland plains (class 3) – overflowing of relatively large, slow-moving rivers and tributaries onto a wide, extensive floodplain;
- Upland river valleys (class 4a) – close to their headwaters where the rivers are smaller, the overtopping of banks floods into a relatively narrow but deep floodplain;
- Localised flooding (class 5a) – local urban drainage systems are unable to cope with the rainfall runoff after an intense storm, or blockage;
- Localised flooding (class 5b) – downstream at the end of local drainage systems (urban or rural); and
- Tidal – overtopping or breaching of flood defences on the River Ancholme, downstream of Bishopbridge and the River Trent, downstream of Morton.

²¹⁵ North Kesteven Strategic Flood Risk Assessment (2008 Revision, North Kesteven District Council)

²¹⁶ North Kesteven Strategic Flood Risk Assessment (2008 Revision, North Kesteven District Council)

²¹⁷ West Lindsey Strategic Flood Risk Assessment (July 2009, West Lindsey District Council)

- 3.6.18 There is a need for the plans, policies and programmes of the different public bodies responsible for flood risk and land drainage management in Central Lincolnshire (EA, IDBS, Local authorities etc.) to be aligned in respect of maximising delivery of GI benefits.

Water and Air Quality

- 3.6.19 The following key needs have been identified within the Study Area:

- Improve ecological water quality of the main rivers and tributary rivers/stream corridors within the Study Area, particularly within the Trent, which receives a large volume of discharges;
- Improve water resource management within the River Witham catchment, which has been identified as 'over-licensed'²¹⁸;
- Decrease the amount of chemical pollutants entering waterways²¹⁹; and
- Improve air quality within the City of Lincoln (particularly within the Air Quality Management Areas) and also within Sleaford and Gainsborough urban areas.

Climate Change Adaptation

- 3.6.20 The Report '*Adapting through Natural Interventions*'²²⁰ provides a useful overview of the predicted impact of Climate Change in the East Midlands and Central Lincolnshire:

'The UK Government predicts that the East Midlands will face considerable impacts from a changing climate. Projections indicate that average temperatures will increase throughout the year and that precipitation patterns will change, resulting in wetter winters and longer dry spells in summer. The consequences of climate change will be felt across the region, with different landscapes facing their own unique sets of impacts. The most significant vulnerabilities identified include:

- *An increased probability of severe flooding in winter due to prolonged periods of rainfall;*
- *Greater pressure on water resources, caused by reduced summer rainfall coupled with increasing water demands from development and agriculture;*
- *Heightened risk of coastal inundation due to rising sea levels and tidal surges;*
- *Inner cities becoming vulnerable to problems associated with urban heat islands in summer;*
- *Severe weather events, including flash floods.*

The East Midlands is already subject to occasional severe weather events. Flooding, water abstraction limits and coastal defence are existing planning considerations. Climate change will exacerbate these underlying challenges, with both the frequency and severity increasing over time.'

²¹⁸ River Witham Catchment Abstraction Management Strategy (2004, Environment Agency)

²¹⁹ Delivering a Sustainable Future for Central Lincolnshire: Portrait of Place (April 2011, AECOM)

²²⁰ Adapting through Natural Interventions (2010, AECOM for Climate East Midlands)

3.6.21 The following key needs have been identified within the Study Area:

- Implement climate change adaptation measure in order to combat or protect against the negative effects of climate change such as sea level rises and an increased frequency and intensity of extreme weather²²¹;
- Reduce the urban heat island effect, which is evident within large urban areas. Urban areas often have a temperature over 5 degrees Celsius higher than the countryside around them, as countryside areas benefit from higher levels of natural cover²²²;
- Avoid development in flood risk zones to decrease the flood damage to key infrastructure and communities²²³; and
- Ensure that flood risk and water management issues are fully taken into account when new development is considered²²⁴.

Key GI Assets and Opportunities

- Seek opportunities to deliver GI measures linked to flood risk management options identified within the River Trent, Witham and Grimsby/Ancholme CFMPs;
- Where appropriate, manage floodplains as multi-functional green corridors/create green corridors through flood risk zones to enable sustainable water resource management, create wildlife corridors and encourage increased movement by walking and cycling and access to nature;
- Where appropriate, encourage a proactive 'ecosystems approach' to flood protection by promoting initiatives²²⁵ for the creation, restoration, enhancement and protection of more natural flood management systems (e.g. re-naturalising rivers, managed retreat, improving/restoring floodplain functionality and maintenance of natural processes);
- Improve and/or incorporate flood risk management/mitigation measures within potential new developments (it should be noted that mitigation measures should be considered as a last resort after avoidance of flood risk areas²²⁶), e.g. creating flood storage areas²²⁷; using innovative building designs²²⁸/raising floor levels of new developments, with parking at ground-level and residential or other intensive uses above the flood level; and raising land by civil engineering operations;
- Seek opportunities to deliver GI/natural systems measures within the River Witham, Trent and Ancholme catchments to reduce or protect against flooding, conserve water resources and enhance water quality, including protection of the flood zone from development and land management practices (delivered for example through agri-environment schemes) that reduce discharge rate and the level of diffuse pollution;
- Seek a satisfactory balance between productive agriculture and the long term protection of the environment, for example through increasing uptake and improved effectiveness of agri-environment schemes and encouraging a variety of different livestock and grazing schemes (of different scales and type) in order to achieve benefits such as food, habitat diversity and water quality improvement²²⁹;

²²¹ Adapting to Climate Change, Future World Images, Defra <http://www.defra.gov.uk/adaptation>

²²² Delivering a Sustainable Future for Central Lincolnshire: Portrait of Place (April 2011, AECOM)

²²³ Delivering a Sustainable Future for Central Lincolnshire: Portrait of Place (April 2011, AECOM)

²²⁴ Central Lincolnshire Core Strategy Issues and Options Consultation Document (October 2010, CLJSPC)

²²⁵ Such as the On Trent Initiative's Rural Land Management Solutions Programme, <http://www.ontrent.org>

²²⁶ North Kesteven Strategic Flood Risk Assessment (2008 Revision, North Kesteven District Council)

²²⁷ Central Lincolnshire Water Cycle Study Detailed Strategy (2010, City of Lincoln, West Lindsey District Council and North Kesteven District Council)

²²⁸ Adapting to Climate Change, Future World Images, Defra <http://www.defra.gov.uk/adaptation>

²²⁹ Adapting to Climate Change, Future World Images, Defra <http://www.defra.gov.uk/adaptation>

- Seek opportunities to adapt agricultural land management practices to accommodate the projected effects of flooding and desiccation²³⁰;
- Diversify the types of crops that are grown (e.g. olives, grapes) in order to make the most of longer growing seasons and reduced frost and cope with hotter, drier summers²³¹;
- Improve land management to prevent soil erosion and ensure that drainage can cope with increased rainfall by planting trees/hedges and creating sustainable drainage such as porous surfaces and ponds²³²;
- Retain and increase woodland in locations appropriate to local landscape character in order to reduce soil erosion, improve water quality, increase biodiversity, store carbon and use as a renewable fuel²³³;
- Increase tree planting within the urban/urban fringe areas of Lincoln, Gainsborough and Sleaford to help control air pollution. Target tree planting within and adjoining those areas where air quality has been identified as an issue (e.g. Air Quality Management Areas within Lincoln);
- Promote the creation of new greenspaces and the planting of street trees within the urban/urban fringe areas of Lincoln, Gainsborough and Sleaford, growth areas and other smaller settlements to provide natural shade and help counteract the urban heat island effect²³⁴. The inclusion of natural features is a key strategy for the East Midlands in adapting to climate change²³⁵;
- Ensure that potential new large-scale commercial and industrial buildings incorporate green roofs to help counteract the urban heat island effect or solar panels to harness the sun's energy²³⁶;
- Incorporate balancing ponds into the masterplanning of growth areas to maximise the potential to create opportunities for wildlife in ponds and reedbeds²³⁷;
- Promote the inclusion/use of Sustainable Urban Drainage Systems (SUDS) (e.g. green roofs, permeable pavements, filter drains, swales, basins and ponds²³⁸) as a more sustainable approach to draining surface water, mitigating flood risks and as key landscape and nature conservation features²³⁹. Guidance from the Environment Agency²⁴⁰ in relation to managing surface water and using water wisely is provided in **Appendix A19**;
- Promote the use of the Lincoln Good Drainage Guide and liaison with the Lincoln Drainage Group in relation to implementing sustainable urban drainage solutions within potential new developments²⁴¹;
- Within potential new buildings, incorporate features designed to reduce the negative impacts of climate change, such as sustainable drainage, grey water recycling, heat pumps and cooling systems, solar panels and wind turbines²⁴²; and
- Seek opportunities, where appropriate in Central Lincolnshire, to deliver natural (climate change) adaptation interventions listed in '*Adapting through Natural Interventions*'²⁴³ (see **Appendix A20** for details).

²³⁰ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

²³¹ Adapting to Climate Change, Future World Images, Defra <http://www.defra.gov.uk/adaptation>

²³² Adapting to Climate Change, Future World Images, Defra <http://www.defra.gov.uk/adaptation>

²³³ Adapting to Climate Change, Future World Images, Defra <http://www.defra.gov.uk/adaptation>

²³⁴ Adapting to Climate Change, Future World Images, Defra <http://www.defra.gov.uk/adaptation>

²³⁵ Delivering a Sustainable Future for Central Lincolnshire: Portrait of Place (April 2011, AECOM)

²³⁶ Adapting to Climate Change, Future World Images, Defra <http://www.defra.gov.uk/adaptation>

²³⁷ Central Lincolnshire Water Cycle Study Detailed Strategy (2010, City of Lincoln, West Lindsey District Council and North Kesteven District Council)

²³⁸ Central Lincolnshire Water Cycle Study Detailed Strategy (2010, City of Lincoln, West Lindsey District Council and North Kesteven District Council)

²³⁹ Adapting to Climate Change, Future World Images, Defra <http://www.defra.gov.uk/adaptation>

²⁴⁰ Building a Better Environment: a guide for developers – practical advice on adding value to your site (2006, Environment Agency)

²⁴¹ Lincoln Integrated Urban Drainage Pilot SLD2309 Final Report (June 2008, Faber Maunsell)

²⁴² Adapting to Climate Change, Future World Images, Defra <http://www.defra.gov.uk/adaptation>

3.7 Target Areas for Environmental Benefits

3.7.1 As illustrated on **Figure 3.5**, within Central Lincolnshire, Natural England has defined four target areas within which applications for public funding under the Higher Level Environmental Stewardship scheme are encouraged:

- Limewoods;
- Lincolnshire Wolds;
- Trent; and
- Witham.

3.7.2 The target areas represent strategic areas, which would benefit from investment in sustainable environmental land management to address specific needs for biodiversity, landscape character and historic environment conservation and enhancement, and for natural resource protection. A brief summary of each of the target areas is provided in Natural England's individual Higher Level Stewardship Target Area Statements²⁴⁴ (see **Appendix A21**) and is set out below:

Limewoods

'The Limewoods Target Area is important for its significant contribution to the following Higher Level Stewardship objectives: Biodiversity and Historic Environment. This area falls between Apley, Gaultby and Bardney and is focussed on the nationally important Lincolnshire Limewoods. Within this area important concentrations of ancient semi-natural woodland and old meadows and pastures occur as a mosaic within woodland blocks. The surrounding area also has nationally important assemblages of arable and wetland birds. Finally this area is of significant historic importance and contains a range of medieval features including priories, abbeys and associated earthworks.'

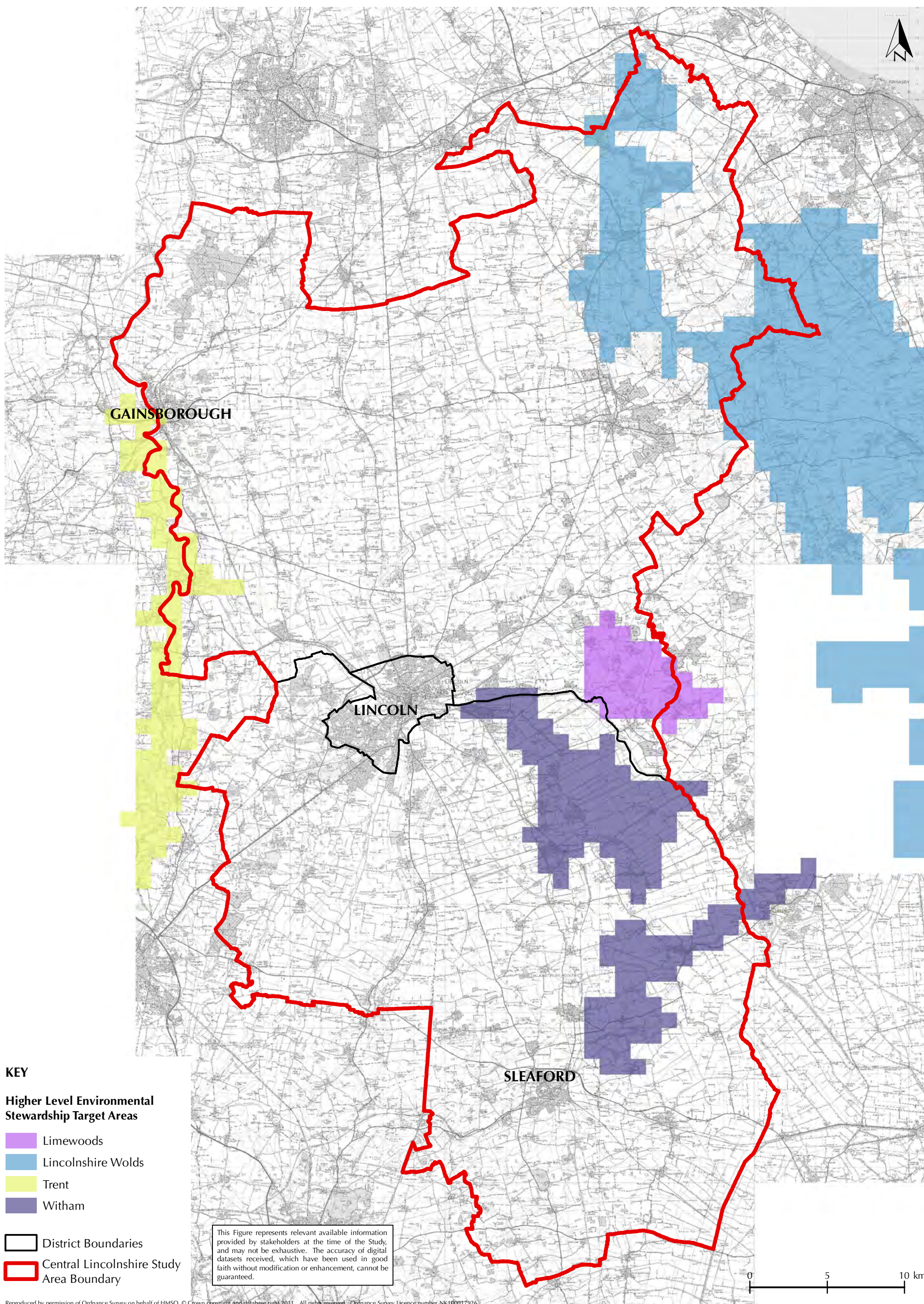
Lincolnshire Wolds

'The Lincolnshire Wolds Target Area is important for its significant contribution to the following Higher Level Stewardship objectives: Landscape, Historic Environment, Resource Protection and Biodiversity.'

This area extends from Kirmington to Revesby and contains approximately 75% of the Lincolnshire Wolds Area of Outstanding Natural Beauty (AONB). The area is noted for its biodiversity occur, particularly several nationally scarce chalk streams, designated for their importance, and lowland meadows and chalk grassland. There is a significant concentration of high value and priority archaeological features including medieval earthworks and Neolithic and Bronze age barrows. Also, there are a number of large estates in the area, which provides the area with many historic parklands. This area forms part of the Lincolnshire Coast Rivers coastal catchment and is a priority for resource protection due to its several water quality issues.'

²⁴³ Adapting through natural Interventions (2010, AECOM for Climate East Midlands)

²⁴⁴For further information see: East Midlands Higher Level Stewardship Theme Statement and individual HLS Target Area Statements – <http://www.naturalengland.org.uk/ourwork/farming/funding/es/hls/targeting/default.aspx>



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Trent

'The Trent Target Area is important for its significant contribution to the following Higher Level Stewardship objectives: Biodiversity, Historic Environment and Access.

The area follows the River Trent between Burton on Trent and Gainsborough covering a significant proportion of the regions existing grazing marsh habitat and provides important habitats for several species of important farmland bird, including lapwing, snipe and redshank. Lagoons created by the aggregates industry from sand and gravel extraction have provided regionally important habitats for over wintering wildfowl and breeding bird populations and parts of the area have been identified as being priority areas for provision of permissive access. The Trent area is particularly rich in important historic features, associated with human use and occupation of the Trent and its floodplain over several millennia.'

Witham

'The Witham Target Area is important for its significant contribution to the following Higher Level Stewardship objectives: Biodiversity, Resource Protection and Access.

This area extends between Cherry Willingham, Tattershall and Ewerby and includes the productive arable fenland of the Witham valley below Lincoln to Tattershall and the dip slope villages to the west of the valley floor. Throughout this area nationally important assemblages of arable and breeding wading birds occur along with locally important areas of floodplain grazing marsh. This area is also a priority for resource protection as it contains peat soils that are vulnerable to wind erosion through arable cultivation. There are also opportunities for new permissive access creation due to the proximity to Lincoln.'

3.8 Public Benefit Mapping

Strategic Public Benefits of Green Infrastructure Provision

3.8.1 It is increasingly recognised that investment in GI such as accessible greenspace networks and other 'green assets' can provide a wide range of multiple public benefits for both rural and urban communities. The East Midlands Public Benefit Mapping Project²⁴⁵ gathered evidence from 27 different sectors, all relevant to the East Midlands Integrated Regional Strategy's objectives, in order to map where:

- There is the greatest need for the public benefits GI brings;
- There is the greatest opportunity for GI to support sustainable economic growth;
- Such needs and opportunities can be met in parallel; and
- Greatest multiple public benefit in terms of social, environmental, economic and multiples outcomes exist.

3.8.2 The maps are presented, each with a narrative, outlining areas of particular priority for GI together with a short discussion on the limitations of the data. Inevitably there are limitations

²⁴⁵Green infrastructure for the East Midlands – A Public Benefit Mapping Project (2006, East Midlands Regional Assembly)

imposed by the geographic focus of the data, and in some cases, time has passed since data was collected. The East Midlands's public benefit maps provide a strategic overview of where investment in GI is most likely to deliver greatest public benefit in the region. It should be noted that these maps should be considered in the context of the East Midlands Public Benefit Mapping Project as a whole, in particular in relation to the Project's constraints and limitations²⁴⁶. The public benefits mapping can help target actions in relation to:

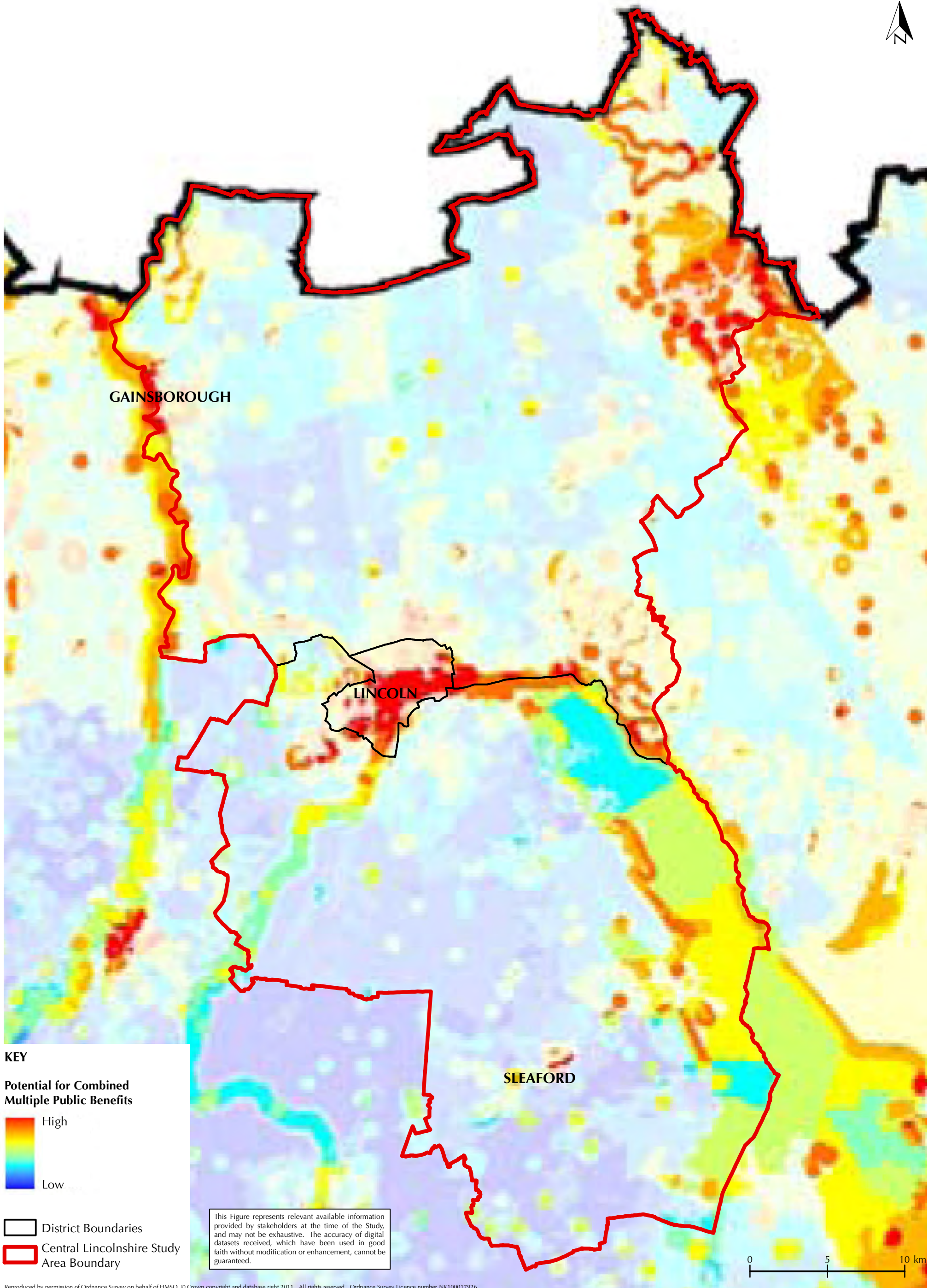
- Provision of new or enhanced GI for areas of present and future deficit;
- Management of existing GI resources to increase their usefulness (multifunctionality);
- Conservation of key GI resources which contribute to the region's environmental infrastructure; and
- Improving connectivity of existing GI resources where they are presently fragmented.

3.8.3 The areas with greatest potential to provide combined multiple public benefits (emphasising top 30% environmental benefits) from investment in GI provision within the Study Area are shown on **Figure 3.6**. Key areas include:

- A substantial corridor running through Lincoln and along the River Witham;
- A corridor running through Gainsborough, along the River Trent; and
- A series of areas within the Lincolnshire Wolds AONB area.

3.8.4 It should be noted that these areas generally correlate with the most deprived areas of Central Lincolnshire, as shown on **Figure 2.18a**.

²⁴⁶ Green infrastructure for the East Midlands – A Public Benefit Mapping Project can be downloaded from <http://www.emra.gov.uk/publications/housing-planning-and-transport/environment/green-infrastructure-in-the-east-midlands-a-public-benefit-mapping-project>



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4.0 GREEN INFRASTRUCTURE ZONE ASSESSMENT

4.1 General

4.1.1 This section provides an analysis of key needs and opportunities for provision of GI in Central Lincolnshire within the context of 30 specific 'GI Zones' defined for the purposes of the Study on the basis of common environmental characteristics and assets. The GI Zones (location and name) are illustrated on **Figure 4.1**.

4.1.2 The following information is provided for each of the GI Zones:

- Existing strategic GI initiatives, which fall partly within each zone;
- Key needs/deficiencies, examined under the following GI functions:
 - Wildlife habitat provision
 - Landscape/townscape setting and historic context
 - Sustainable access, recreation and movement
- Key GI assets and opportunities.

4.1.3 This section should be read in conjunction with **Section 3.0**, which provides an assessment of GI needs and opportunities at the Central Lincolnshire scale.

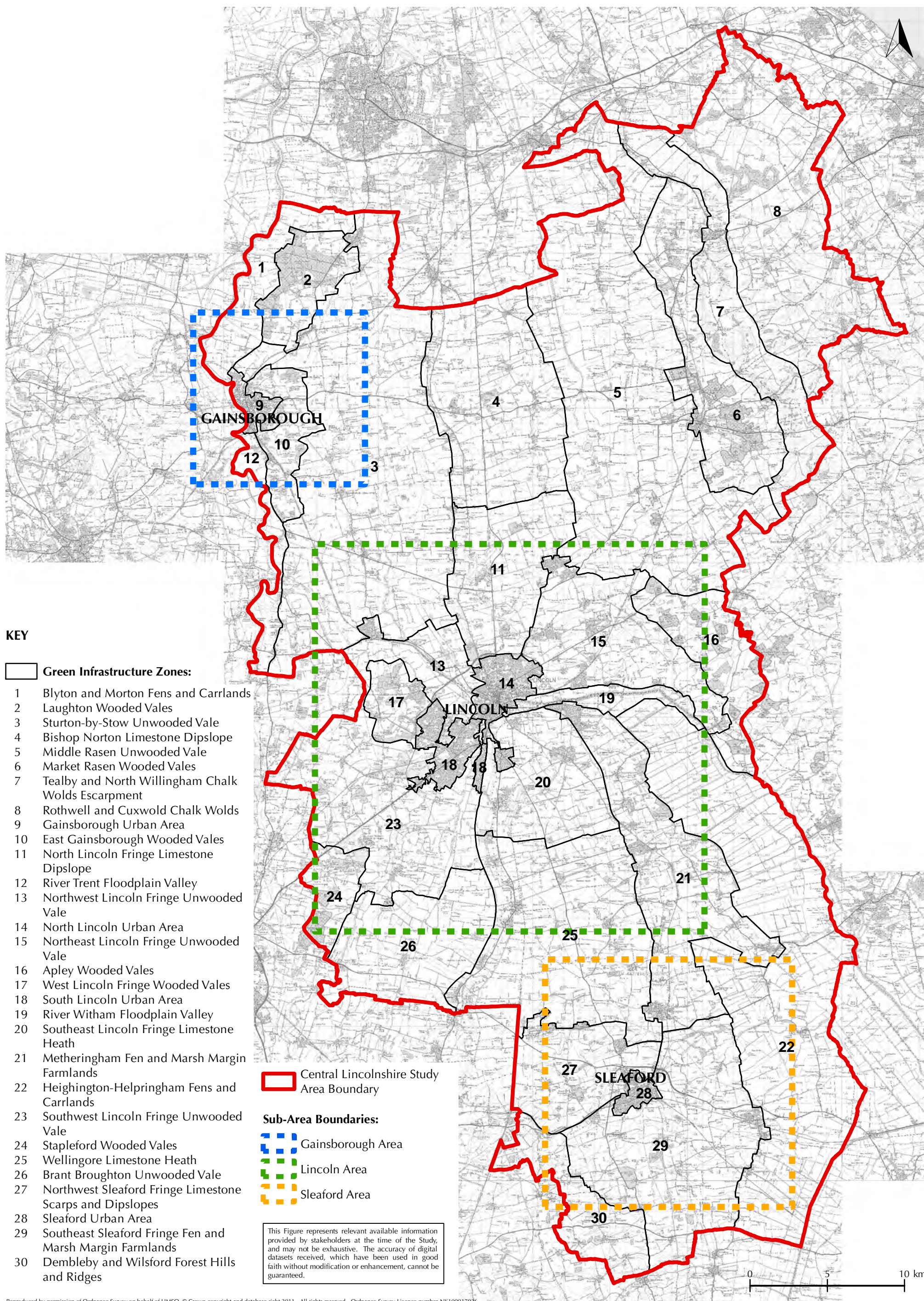
4.2 Zone 1: Blyton and Morton Fens and Carrlands

Overview

4.2.1 This zone is situated at the north-western edge of West Lindsey Borough, adjacent to the north-western edge of Gainsborough. The Fens and Carrlands encompass low lying terrain, with a rigid geometry of field drainage ditches and roads, extensive arable farms and limited settlements. The land is highly productive and is particularly well suited to intensive modern arable agriculture.

Existing Strategic Green Infrastructure Initiatives

- Humberhead Levels; and
- Trent Vale (including On-Trent and Trent Vale Landscape Partnership).



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Key Needs/Deficiencies

Wildlife Habitat Provision

- 4.2.2 There have been historic losses of unimproved floodplain grassland as a result of agricultural improvement and conversion to intensive arable. Eutrophication or nutrient enrichment is a widespread issue in water bodies and water courses, including the extensive ditch network. The hedgerow network is limited and fragmentary, except in the in the northeast of the zone near Scottersthorpe, and woodland tends to be limited to very small areas and strips, for example near farms and dwellings.

Landscape/Townscape Setting and Historic Context

- 4.2.3 Piecemeal development along rural roads is reducing the overall sense of remoteness and creating visual intrusion in places. There is also evidence of farm amalgamation and agricultural intensification in the form of improvements to embankments and dykes²⁴⁷. Several of the settlements along the River Trent have little vegetation screening and would benefit from tree and hedgerow planting²⁴⁸. There is a need to protect the open character of the landscape and consider the visual impact of potential new structures, such as new large scale agricultural buildings, which should be carefully sited to avoid visually prominent locations²⁴⁹.

Sustainable Access, Recreation and Movement

- 4.2.4 There is a deficiency of neighbourhood scale accessible natural greenspace throughout the zone and a notable lack of access links, particularly between Gainsborough and Laughton Woods and along parts of the River Trent.

Key GI assets and Opportunities

- Where appropriate, strengthen and extend the hedgerow network. Soften the edges of existing settlements and new developments with tree and hedgerow planting;
- Use the historic landscape characterisation information to identify potential heritage assets within the agricultural landscapes of this zone;
- Habitat enhancement and creation, especially floodplain grassland and wetland, along and adjoining the River Trent;

²⁴⁷ East Midlands Regional Landscape Character Assessment (2010, LDA Design for East Midlands Landscape Partnership)

²⁴⁸ West Lindsey Landscape Character Assessment (August 1999, Environmental Resources Management for West Lindsey District Council)

²⁴⁹ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

- Improve and enhance the condition and potential of the dyke and ditch network, for example through management and development of adjoining buffer strips (subject to drainage maintenance requirement), to create biodiversity and visual interest;
- Manage the floodplain/flood risk zones as multi-functional green corridor to enable sustainable water resource management (in line with the drainage authority and relevant IDB requirements), create wildlife corridors and where appropriate encourage access to nature and increased sustainable movement; and
- Work with the 'On Trent' initiative and the Trent Vale Landscape Partnership to identify and implement enhancements to the environment and waterside access along the Lincolnshire bank of the River Trent and strengthen walking and cycling links into Nottinghamshire²⁵⁰.

4.3 Zone 2: Loughton Wooded Vales

Overview

- 4.3.1 This zone is situated in the northwest of West Lindsey District. The Wooded Vales are generally characterised by high levels of woodland cover, interspersed with a pattern of productive mixed agriculture, set within an enclosed landscape of well-maintained hedgerows, sometimes marking ancient assarts. Wide areas are under permanent pasture.

Existing Strategic Green Infrastructure Initiatives

- Humberhead Levels; and
- Trent Vale (On-Trent and Trent Vale Landscape Partnership projects).

Key Needs/Deficiencies

Wildlife Habitat Provision

- 4.3.2 There have been historic losses of heathland to agriculture, and especially through conversion to conifer plantations, including much of Loughton and Scotton Commons. There has also been neglect of remaining heathland areas leading to further habitat loss or loss of condition. Although a hedgerow network is present throughout much of the zone the integrity and functional value of this has been significantly reduced through a combination of piecemeal removal and neglect. The structural and biological diversity of woodlands within this zone needs to be improved, with a higher proportion of native species²⁵¹.

²⁵⁰ Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

²⁵¹ West Lindsey Landscape Character Assessment (August 1999, Environmental Resources Management for West Lindsey District Council)

Landscape/Townscape Setting and Historic Context

Landscape/Townscape Setting

- 4.3.3 Traditional patterns of field boundaries, remnants of ridge and furrow and grasslands are being lost or damaged as a result of agricultural intensification and farm amalgamation, resulting in a more homogenous landscape²⁵². There is a need to restore denuded heathlands within woodland clearings and soften the existing harsh woodland edges of conifer plantations²⁵³. The high sensitivity and distinctiveness of landscape features within the Area of Great Landscape Value should be protected.

Historic Environment

- 4.3.4 There is a need to protect the integrity and setting of heritage assets (see definition in **paragraph 3.3.6**), including Laughton Common (which is post-medieval in origin), pockets of semi-natural ancient woodland within the southeast corner of Laughton Woods, Grade II Listed Buildings within Laughton village.

Sustainable Access, Recreation and Movement

- 4.3.5 There is a lack of a coherent access network between Laughton Woods, a key recreational destination, and surrounding settlements - particularly Gainsborough.

Key GI assets and Opportunities

- Encourage positive management of landscape features which are under threat, including traditional field boundaries, remnants of ridge and furrow and grasslands through potential agri-environmental agreements in liaison with landowners. Priority should also be given to strengthening the field pattern and enhancing linkages between woodlands²⁵⁴;
- Increase overall woodland coverage (avoiding the disruption of long distance views) and manage existing trees and woodland to enhance biodiversity value and age structure²⁵⁵;
- Modify management of conifer plantations to benefit wildlife, including, where possible, greater use of native species;
- Continue the work of the Coversands Project (which has now come to an end) to restore, extend, link and enhance areas of heathland through targeted removal of conifer plantation, for example through ride widening, enlargement of existing heathland areas and the introduction of appropriate management;
- Strengthen and extend the hedgerow network;

²⁵² East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

²⁵³ West Lindsey Landscape Character Assessment (August 1999, Environmental Resources Management for West Lindsey District Council)

²⁵⁴ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

²⁵⁵ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

- Provide historic interpretation of and increase access to Laughton Common;
- Develop and promote circular routes linking the River Trent with local settlements, other tourist attractions, bus routes and railway stations (this zone falls within a wider area of search for circular cycle routes)²⁵⁶; and
- Improve access links between Laughton Woods and Gainsborough.

4.4 Zone 3: Sturton-by-Stow Unwooded Vale

Overview

- 4.4.1 This zone is situated in the west of West Lindsey District and spans north to south across the Study Area. The Unwooded Vales are characterised by productive mixed agriculture, set within an enclosed landscapes of low, well maintained hedgerows. Wide areas are under permanent pastures, often grazed by dairy herds.

Existing Green Infrastructure Initiatives

- Trent Vale (On-Trent and Trent Vale Landscape Partnership).

Key Needs/Deficiencies

Wildlife Habitat Provision

- 4.4.2 There have been historic losses of habitats, especially unimproved grassland. Generally, semi-natural habitats, mostly woodlands, are small in number and extent. There is a need for management (thinning, replanting and the development of structured edges) of existing small farm woodlands²⁵⁷. Although hedgerows are present throughout much of the zone the integrity and functional value of the network has been significantly reduced through a combination of removal and neglect. The trend for ploughing up areas of pasture for cereals, for example, has resulted in the removal of hedgerows and an increase in field sizes to accommodate large machinery.

²⁵⁶ Objective 61 of the Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

²⁵⁷ West Lindsey Landscape Character Assessment (August 1999, Environmental Resources Management for West Lindsey District Council)

Landscape/Townscape Setting and Historic Context

Landscape/Townscape Setting

- 4.4.3 Existing rural assets that are under threat need to be protected, including hedgerows/hedgerow trees and small-scale pasture fields (which often date from the early medieval period)²⁵⁸. The settings of villages also need protecting to prevent coalescence, particularly in the cases of Stow and Sturton by Stow²⁵⁹. There is pressure within this zone for the redevelopment of redundant airfields. Whilst this provides opportunities for new housing and employment uses, it has the potential to reduce the sense of remoteness and tranquillity in sparsely settled areas²⁶⁰.

Historic Environment

- 4.4.4 There is a need to protect the integrity and setting of heritage assets (see definition in **paragraph 3.3.6**), including Listed Buildings, which occur in most of the villages throughout the zone; Scheduled Monuments (including medieval settlements, deserted medieval villages, moated sites and medieval Deer Parks); Conservation Areas within the villages lining the eastern boundary of the Zone, including Springthorpe, Hemswell, Ingham and Brattlebly; and the course of the Fosdyke canal - a key historic feature within this zone. There is a need to carry out remedial works to reduce the number of heritage assets identified as being at risk, such as the Gate, mounting block and wall at Kettlethorpe Hall.

Sustainable Access, Recreation and Movement

- 4.4.5 There is a deficiency of accessible natural greenspace, at all tiers of the ANGSt hierarchy, across the majority of this zone. Access links are very fragmented and the railway line which crosses this zone to the north forms a barrier to movement. Recreational/visitor facilities along the Fosdyke Canal have the potential to be improved to better cater for existing users and attract a wider range of users.

Key GI assets and Opportunities

- Strengthen and extend the hedgerow network and accompany potential new development on the fringes of villages with new native tree and hedgerow planting to integrate with surrounding field patterns;

²⁵⁸ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

²⁵⁹ West Lindsey Landscape Character Assessment (August 1999, Environmental Resources Management for West Lindsey District Council)

²⁶⁰ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

- Habitat enhancement and creation, particularly woodland, grassland and wetland (the latter two along and adjoining the River Till), targeted especially at extending existing habitats where present;
- Manage redundant airfields, ensuring that any potential redevelopment is of an appropriate scale and type and incorporates landscape features. There may be opportunities to retain existing infrastructure, providing a historic link with those that had a wartime role²⁶¹;
- Seek opportunities to reduce the number of heritage assets currently identified as being at risk;
- Highlight the significance of cultural heritage assets in the zone (focusing on settlement and use of the landscape in the medieval period and the Fosdyke Canal²⁶²) and increase public access and understanding of them in liaison with landowners;
- Seek the creation of new accessible natural greenspace (of at least 2ha), close to where people live, to address deficiencies;
- Manage the floodplain/flood risk zones as multi-functional green corridor to enable sustainable water resource management (in line with the drainage authority and relevant IDB requirements), create wildlife corridors and where appropriate encourage access to nature and increased sustainable movement;
- Develop and promote a number of circular routes linking the River Trent with local settlements, other tourist attractions, bus routes and railway stations (this zone falls within a wider area of search for circular routes)²⁶³; and
- Develop a series of nodes along the Fosdyke, which provide a variety of visitor facilities for boaters, anglers and other users²⁶⁴.

4.5 Zone 4: Bishop Norton Limestone Dipslope

Overview

- 4.5.1 This zone is situated in the north of West Lindsey District and forms part of an escarpment which is known locally as the Lincolnshire Edge or Cliff. This zone rises above the Trent Vale and forms a prominent and distinctive landscape feature and backdrop to views eastwards from the neighbouring vale. It encompasses large scale arable land uses, superimposed by a pattern of stone built villages along the lower scarp slopes.

²⁶¹ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

²⁶² See The Lincolnshire Waterways Development Framework, Lincolnshire County Council, the Environment Agency and British Waterways

²⁶³ Objective 61 of the Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

²⁶⁴ Objective 80 of the Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

Key Needs/Deficiencies

Wildlife Habitat Provision

- 4.5.2 There have been historic losses of habitats, especially limestone grassland. Generally semi-natural habitats, mostly woodlands, are small in number and extent. There is also a need to manage (including thinning, possibly coppicing and replanting trees²⁶⁵) and connect small, isolated woodlands on the ridgeline. Although hedgerows are present throughout much of the zone the integrity and functional value of the network has been significantly reduced through a combination of removal and neglect.

Landscape/Townscape Setting and Historic Context

Landscape/Townscape Setting

- 4.5.3 Within this zone, villages are under increasing pressure from development which is damaging settlement character and pattern. The expansion of ridgeline villages has a particularly detrimental impact on landscape and visual character as a result of their visually prominent locations. There is a need to protect views to Lincoln Cathedral and village churches as these are distinctive regional/local landmarks²⁶⁶. There is pressure within this zone for the redevelopment of redundant airfields. Whilst this provides opportunities for new housing and employment uses, it has the potential to reduce the sense of remoteness and tranquillity in sparsely settled areas²⁶⁷.
- 4.5.4 There is a need to protect the high sensitivity and distinctiveness of landscape features within the Area of Great Landscape Value which runs north-south along the western edge of the Zone. The pressure for the installation of telecommunications infrastructure and wind energy schemes (due to the strength of winds across the more elevated and open dip slope) could result in the creation of visually prominent features within the predominantly open landscape of this zone and a reduction in the overall sense of remoteness and isolation²⁶⁸. The effects of intensification of arable cultivation have also resulted in field enlargement and a decline in or loss of ridge and furrow, limestone grassland and earthworks of deserted settlements²⁶⁹.

²⁶⁵ West Lindsey Landscape Character Assessment (August 1999, Environmental Resources Management for West Lindsey District Council)

²⁶⁶ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

²⁶⁷ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

²⁶⁸ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

²⁶⁹ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

- 4.5.5 The distinctive historic network of Roman and enclosure roads is threatened by lack of management and inappropriate planting²⁷⁰. There is a need to protect the integrity and setting of heritage assets (see definition in **paragraph 3.3.6**), including Listed Buildings, situated within villages and farmsteads throughout most of the zone; Scheduled Monuments (including barrows, Roman settlements and Deserted Medieval Villages); Conservation Areas within the villages along the western boundary of the zone, including Fillingham, Glentworth, Hemswell and also villages in the south and east of the zone including Spridlington and Glentham; and Fillingham Castle, a Grade II Historic Park and Garden.
- 4.5.6 There is a need to carry out remedial works to reduce the number of heritage assets identified as being at risk, such as the Owmbly Roman settlement (Scheduled Monument), Bridge over lakes at Norton Place (Grade II* Listed Building) and D-shaped barrow and enclosure 250m east of New Close Plantation (Scheduled Monument).

Sustainable Access, Recreation and Movement

- 4.5.7 There is a deficiency of accessible natural greenspace, at all tiers of the ANGSt hierarchy, across this zone. Access links are fragmented, particularly between settlements and the River Ancholme. The A16, which crosses the zone south to north, forms a barrier to east-west movement.

Key GI assets and Opportunities

- Restore hedgerows and stone walls to create a stronger field pattern and help to integrate new development into the landscape²⁷¹;
- Expand existing small and scattered woodlands. Also plan for new woodlands²⁷² which take full advantage of opportunities to enhance the scarp slope, integrate new development into the landscape and contain future growth²⁷³;
- Seek opportunities to reduce the number of heritage assets currently identified as being at risk;
- Restore or create limestone grassland, especially on more steeply sloping areas such as the Lincolnshire Edge escarpment;
- Manage and provide interpretation of the historic road network (including the Ermine Street Roman Road corridor) and Scheduled Monuments and ensure that potential redevelopment of redundant airfields provides a historic link with former wartime roles²⁷⁴;

²⁷⁰ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

²⁷¹ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

²⁷² In liaison with the Forestry Commission

²⁷³ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

²⁷⁴ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

- Increase interpretation and intellectual access opportunities, in liaison with landowners within Fillingham Castle Historic Park and Garden, to link with similar parkland landscapes within Central Lincolnshire;
- Develop and promote circular routes linking the River Ancholme with local settlements, other tourist attractions, bus routes and railway stations (this zone falls within a wider area of search for circular cycle routes)²⁷⁵; and
- Seek the creation of new accessible natural greenspace (of at least 2ha), close to where people live, to address current deficiencies.

4.6 Zone 5: Middle Rasen Unwooded Vale

Overview

- 4.6.1 This zone is situated in the north of West Lindsey District and is characterised by productive mixed agriculture, set within an enclosed landscape of low, well maintained hedgerows. Wide areas are under permanent pastures, often grazed by dairy herds.

Existing Green Infrastructure Initiatives

- Lincolnshire Limewoods; and
- Lincolnshire Wolds National Character Area (Life on the Verge and Lincolnshire Wolds Chalk Stream projects).

Key Needs/Deficiencies

Wildlife Habitat Provision

- 4.6.2 There have been historic losses of habitats, especially unimproved grassland. Semi-natural habitats, mostly woodlands, are generally small in number and extent. Although hedgerows are present throughout much of the zone the integrity and functional value of the network has been significantly reduced through a combination of removal and neglect. The trend for ploughing up of areas of pasture for cereals has resulted in the removal of hedgerows/hedgerow trees and increase in field sizes to accommodate large machinery.

²⁷⁵ Objective 61 of the Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

Landscape/Townscape Setting and Historic Context

Landscape/Townscape Setting

- 4.6.3 There is pressure on the farmland landscape from the introduction of large agricultural structures and a need to ensure that developments of this kind are associated with native planting schemes of sufficient scale to integrate with the surrounding landscape pattern²⁷⁶. Existing rural assets that are under threat need to be protected, including hedgerows/hedgerow trees and small-scale pasture fields (which often date from the early medieval period)²⁷⁷. In order to prevent settlement coalescence, there is a need to protect the Market Rasen Settlement Break.

Historic Environment

- 4.6.4 There is a need to protect the integrity and setting of heritage assets (see definition in **paragraph 3.3.6**), including Grade II Listed Buildings within villages and Grade II* Listed Buildings associated with farmsteads; Scheduled Monuments (including medieval villages and moated sites); and small pockets of semi-natural ancient woodland (much of which dates from the Early Medieval Period).

Sustainable Access, Recreation and Movement

- 4.6.5 There is a deficiency of accessible natural greenspace, at all tiers of the ANGSt hierarchy, across the majority of this zone, with the exception of an area west of Market Rasen, where residents have access to at least one county scale site. The access network is particularly fragmented in the eastern half of the zone and there is a need for links to the River Ancholme.

Key GI assets and Opportunities

- Strengthen and extend the hedgerow network and introduce limited tree planting in and around settlements to integrate new development into the landscape and maintain the perception of a 'well treed' landscape²⁷⁸;
- Highlight the significance of cultural heritage assets in the zone (focusing on Listed Buildings and Scheduled Monuments) and increase public access and understanding of them in liaison with landowners;
- Habitat enhancement and creation, particularly woodland, grassland and wetland (targeted especially at extending existing habitats where present). In relation to woodlands, seek to

²⁷⁶ West Lindsey Landscape Character Assessment (August 1999, Environmental Resources Management for West Lindsey District Council)

²⁷⁷ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

²⁷⁸ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

expand and link woodlands in the Faldingworth-Snelland area, in the south of the zone, guided by the Lincolnshire Limewoods habitat opportunity mapping²⁷⁹;

- Seek the creation of new accessible greenspace (of at least 2ha), close to where people live, to address deficiencies.
- There is scope to restore/create chalk grassland in areas adjoining existing chalk grassland on road verges identified as part of the 'Life on the verge' project²⁸⁰ (these could contribute to meeting accessible natural greenspace needs);
- Manage the floodplain as a multi-functional green corridor to enable sustainable water resource management (in line with the drainage authority and relevant IDB requirements), create wildlife corridors and encourage access to nature and increased movement by walking and cycling ;
- Develop a winding hole and visitor facilities at the Bell public house at Bishopbridge²⁸¹ and circular routes linking the River Ancholme with local settlements, other tourist attractions, bus routes and railway stations²⁸²; and
- There is a long term aspiration to develop a major new waterway link between the River Witham and the River Ancholme²⁸³ and new access links i) between the Witham Valley Country Park/Whisby Nature Park and Natural World Centre, the River Witham/Water Rail Way and the Lincolnshire Limewoods area and ii) north-south between National Cycle Route 1 and the River Witham/Water Rail Way.

4.7 Zone 6: Market Rasen Wooded Vales

Overview

- 4.7.1 This zone is situated in the northeast of West Lindsey District and includes the market town of Market Rasen. It extends north-south across the north-eastern corner of the Study Area. The Wooded Vales are generally characterised by high levels of woodland cover, interspersed with a pattern of productive mixed agriculture, set within an enclosed landscape of well-maintained hedgerows, sometimes marking ancient assarts. Wide areas are under permanent pasture.

Existing Green Infrastructure Initiatives

- Lincolnshire Wolds National Character Area (Life on the Verge and Lincolnshire Wolds Chalk Stream projects); and
- Within the Lincolnshire Wolds AONB, the AONB Unit are overseeing various different Community-scale landscape and conservation projects²⁸⁴.

²⁷⁹ Wildlife corridors in the Lincolnshire Limewoods: Habitat creation and opportunities and constraints map (2008, Ecological Services Ltd for the Lincolnshire Wildlife Trust and Lincolnshire Limewoods Project)

²⁸⁰ http://lifeontheverge.org.uk/media/lotv/images/maps/LotV_2009_2010_results_map.jpg

²⁸¹ Objective 41 of the Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

²⁸² Objective 61 of the Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

²⁸³ Long term proposal identified in the Inland Waterways Amenity Advisory Council report. This is not proposed within the timescale of the Lincolnshire Waterways Partnership's Development Framework

²⁸⁴ <http://www.lincswolds.org.uk/communitygrants1.htm>

Key Needs/Deficiencies

Wildlife Habitat Provision

- 4.7.2 There have been historic losses of heathland, especially through conversion to conifer plantations, in the area to the east of Market Rasen and near Nettleton. There is also pressure for development on remnant heathland areas and, in places, remnant heathland is being colonised by regenerating birch. Ancient Woodland has also been converted to conifer plantation to the south of Market Rasen. Although hedgerows are present throughout much of the zone the integrity and functional value of the network has been significantly reduced through a combination of removal and neglect.

Landscape/Townscape Setting and Historic Context

Landscape/Townscape Setting

- 4.7.3 Traditional patterns of field boundaries, remnants of ridge and furrow and grasslands are being lost or damaged as a result of agricultural intensification and farm amalgamation, resulting in a more homogenous landscape²⁸⁵. There are pressures for a mixture of land uses at the edges of Market Rasen, including golf course, nurseries, light industrial areas and recreational uses. There is a need to protect the high sensitivity and distinctiveness of landscape features within the Area of Great Landscape Value and Lincolnshire Wolds AONB²⁸⁶.

Historic Environment

- 4.7.4 There is a need to protect the historic integrity of the pattern of semi-natural ancient woodlands including Legsby Woods, Lynwode Wood and Eleanor Wood (some of which have been continuously treed from the early medieval period). There is also a need to protect the integrity and setting of other heritage assets (see definition in **paragraph 3.3.6**), including Grade II Listed Buildings within Market Rasen and on isolated farmsteads; Scheduled Monuments, including Chapel Hill medieval moated site within Willingham Woods and Bleasby medieval settlement at the southern edge of the Zone; and Tealby Thorpe, Tealby and Market Rasen Conservation Areas (including Listed Buildings within them).

²⁸⁵ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

²⁸⁶ In line with the Lincolnshire Wolds AONB Management Plan <http://www.lincswolds.org.uk/managmentplan.htm>

Sustainable Access, Recreation and Movement

- 4.7.5 There is a deficiency of neighbourhood and sub-regional scale accessible natural greenspace sites across the entire zone. Residents in the northern half of the zone also do not have access to a county scale site. There are noticeable gaps in the rights of way network in the northern part of the zone. The railway, which runs across the length of the zone, forms a barrier to movement.

Key GI assets and Opportunities

- Continue the work of the Coversands Project (which has now come to an end) to restore, extend, link and enhance areas of heathland through targeted removal of conifer plantation, for example through ride widening, enlargement of existing heathland areas and the introduction of appropriate management;
- Modify the management of conifer plantations to benefit wildlife, including, where possible, greater use of native species. Replace conifers with native species in Legsby, Lynwode and Eleanor Woods (Ancient Woodlands);
- Plant deciduous trees at the edges of conifer plantations (to aid their integration with the surrounding landscape²⁸⁷ and increase biodiversity and green links) and new trees and hedgerows at the edges of Market Rasen to help integrate potential new development into the landscape;
- Strengthen and extend the hedgerow network;
- There is scope to restore/create chalk grassland in areas adjoining existing chalk grassland on road verges identified as part of the 'Life on the verge' project²⁸⁸ (these could contribute to meeting accessible natural greenspace needs).
- Highlight the significance of cultural heritage assets in the Zone (focusing on Listed Buildings, moated sites and medieval settlements) and increase public access and understanding of them in liaison with landowners;
- Develop and promote circular routes linking the River Ancholme with local settlements, other tourist attractions, bus routes and railway stations (this zone falls within a wider area of search for circular cycle routes)²⁸⁹; and
- Seek the creation of new accessible greenspace (of at least 2ha), close to where people live, to address deficiencies.

4.8 Zone 7: Tealby and North Willingham Chalk Wolds Escarpment

Overview

- 4.8.1 This zone is situated in the northeast of West Lindsey District and contains the town of Caistor. The landscape displays a mosaic of rough pasture, scrub vegetation and intermittent woodland.

²⁸⁷ West Lindsey Landscape Character Assessment (August 1999, Environmental Resources Management for West Lindsey District Council)

²⁸⁸ http://lifeontheverge.org.uk/media/lotv/images/maps/LotV_2009_2010_results_map.jpg

²⁸⁹ Objective 61 of the Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

There is often a hummocky appearance with the landform encompassing a sequence of valleys associated with springs that rise on the scarp slopes.

Existing Green Infrastructure Initiatives

- Lincolnshire Wolds National Character Area (Life on the Verge and Lincolnshire Wolds Chalk Stream projects); and
- Within the Lincolnshire Wolds AONB, the AONB Unit are overseeing various different Community-scale landscape and conservation projects²⁹⁰.

Key Needs/Deficiencies

Wildlife Habitat Provision

- 4.8.2 There have been historic losses of habitat, notably unimproved grassland, through conversion to arable or other forms of agricultural improvement. Losses of such grassland and reduction in their condition have also occurred due to a lack of or inappropriate management. Chalk streams have deteriorated, for example due to abstraction and nutrient enrichment from adjoining land uses. Although hedgerows are present throughout much of the zone the integrity and functional value of the network has been significantly reduced through a combination of removal and neglect.

Landscape/Townscape Setting and Historic Context

Landscape/Townscape Setting

- 4.8.3 There is a need to protect the historic character of villages and hamlets which is being eroded by residential development²⁹¹. There is also a need protect the open and undeveloped character of the landscape and limit the visual impact of any new development by siting potential new development close to existing settlement and encouraging planning solutions which take inspiration from local distinctiveness and character whilst utilising eco-friendly and high quality design²⁹².
- 4.8.4 Visual intrusion and the loss of landscape features is also an issue within this zone, associated with settlement margins. Localised settlement infilling and expansion has often occurred following formulaic designs with minimal consideration to the local vernacular²⁹³. Road

²⁹⁰ <http://www.lincswolds.org.uk/communitygrants1.htm>

²⁹¹ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

²⁹² East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

²⁹³ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

improvements, which have an urbanising effect on the landscape²⁹⁴, are also an issue within this zone. Chalk grassland and field boundaries are being lost or damaged as a result of agricultural intensification, which is resulting in a weakened landscape pattern and a more homogenous landscape²⁹⁵. These and other rural assets therefore need protecting. The restoration of hedgerows should be given priority in order to reinforce landscape pattern²⁹⁶. New developments associated with countryside recreation such as camping sites and picnic areas are also causing visual intrusion and a loss of landscape features²⁹⁷. There is a need to protect the existing character of the rural road network and manage historic routes to ensure their continued contribution as biodiversity and recreational corridors²⁹⁸. There is also a need to protect the high sensitivity and distinctiveness of landscape features within the Area of Great Landscape Value and Lincolnshire Wolds AONB.

Historic Environment

- 4.8.5 There is a need to protect the integrity and setting of heritage assets (see definition in **paragraph 3.3.6**), including Grade II Listed Buildings within linear settlements along the northwestern side of the zone and within Walesby and Tealby in the south of the Zone; Grade I and II* Listed Buildings within Caistor Roman town (the centre of which is also designated as a Conservation Area); and Scheduled Monuments (predominantly Neolithic long barrows which are spread across much of the zone). There is also a need to conserve the small pockets of semi-natural ancient woodland such as Claxby Wood. There is a need to carry out remedial works to reduce the number of heritage assets identified as being at risk, such as the Neolithic long barrow 480m south east of Acre House (Scheduled Monument).

Sustainable Access, Recreation and Movement

- 4.8.6 There is a deficiency of accessible natural greenspace, at all tiers of the ANGSt hierarchy, across the northern half of the zone. The access network is fragment in places.

Key GI assets and Opportunities

- Enhance chalk streams, for example through appropriate land management in adjoining areas. Where appropriate, reintroduce grazing to increase the extent and quality of chalk grassland²⁹⁹;

²⁹⁴ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

²⁹⁵ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

²⁹⁶ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

²⁹⁷ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

²⁹⁸ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

²⁹⁹ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

- Enhance existing grassland, especially between Nettleton and Tealby, through appropriate management. Restore or create species-rich grassland elsewhere, especially on the steeper slopes such as the escarpment;
- Focus new planting schemes on historic boundaries (increasing the connectivity between woodland and copses) and in/around settlements to integrate new development into the landscape and contain future growth³⁰⁰;
- Improve presentation and interpretation opportunities within Caistor Roman Town to add further dimension to visitor experience; and improve interpretation of and access to Neolithic long barrows (Scheduled Monuments) in liaison with landowners;
- Seek opportunities to reduce the number of heritage assets currently identified as being at risk;
- Remove conifers from Ancient Woodland, such as Claxby Wood, and replace with native species;
- Strengthen and extend the hedgerow network;
- There is scope to restore/create chalk grassland in areas adjoining existing chalk grassland on road verges identified as part of the 'Life on the verge' project³⁰¹) (these could contribute to meeting accessible natural greenspace needs);and
- Seek the creation of new accessible natural greenspace (of at least 2ha), close to where people live, to address deficiencies.

4.9 Zone 8: Rothwell and Cuxwold Chalk Wolds

Overview

- 4.9.1 This zone is situated in the northeast of the West Lindsey District. It encompasses open and elevated rolling plateau, broad sweeping views, and intensively managed arable land with its seasonally changing field and cropping patterns. A network of steep valleys including numerous dry valleys dissects the plateau area resulting in the pronounced rolling landform.

Existing Green Infrastructure Initiatives

- Lincolnshire Wolds National Character Area (Life on the Verge and Lincolnshire Wolds Chalk Stream projects); and
- Within the Lincolnshire Wolds AONB, the AONB Unit are overseeing various different Community-scale landscape and conservation projects³⁰².

³⁰⁰ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

³⁰¹ http://lifeontheverge.org.uk/media/lotv/images/maps/LotV_2009_2010_results_map.jpg

³⁰² <http://www.lincswolds.org.uk/communitygrants1.htm>

Key Needs/Deficiencies

Wildlife Habitat Provision

- 4.9.2 There have been historic losses of habitat, notably unimproved grassland, through conversion to arable or other forms of agricultural improvement. Losses of such grassland and reduction in condition have also occurred due to lack of or inappropriate management. Chalk streams have deteriorated, for example due to channel modification, abstraction and nutrient enrichment from adjoining land uses. Although hedgerows are present throughout much of the zone the integrity and functional value of the network has been significantly reduced through a combination of removal and neglect.

Landscape/Townscape Setting and Historic Context

Landscape/Townscape Setting

- 4.9.3 The pattern and character of rural settlements is being affected by new development, particularly on village margins, creating visual intrusion and resulting in the loss of surrounding landscape features³⁰³. There is therefore a need to protect the distinctive character of the landscape and nucleated settlement pattern, ensuring that development is appropriate in terms of design and scale³⁰⁴. The conversion of traditional farm buildings into housing is also evident within this Zone³⁰⁵. There is a resultant need to protect the predominantly rural character from increases in noise and light pollution, particularly where there is potential for redevelopment of hilltop settlements, brownfield sites and disused airfields. There is a need to protect grass verges associated with the network of drovers roads which are under threat from lack of management and inappropriate planting³⁰⁶.
- 4.9.4 There is pressure within this zone for the introduction of telecommunications infrastructure which can create visual landmarks within this predominantly open landscape and reduce the overall sense of remoteness and isolation³⁰⁷. Agricultural intensification and farm amalgamation associated with a move towards arable production has resulted in the loss or damage of many typical landscape features including field boundaries, areas of pasture and semi-natural habitats. Loss of pasture is particularly evident around settlements³⁰⁸. New developments associated with countryside recreation such as camping sites and picnic areas

³⁰³ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

³⁰⁴ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

³⁰⁵ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

³⁰⁶ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

³⁰⁷ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

³⁰⁸ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

are also causing visual intrusion and a loss of landscape features³⁰⁹. There is also a need to protect the high sensitivity and distinctiveness of landscape features within the Area of Great Landscape Value and Lincolnshire Wolds AONB.

Historic Environment

- 4.9.5 There is a need to protect the integrity and setting of heritage assets (see definition in **paragraph 3.3.6**), including Brocklesby Park Grade I Historic Park (including Grade I and Grade II* Listed Buildings), which is in private ownership, and its pattern of semi-natural ancient woodlands; Great Limber Conservation Area; Scheduled Monuments (including Neolithic long barrows, deserted medieval villages and the site of a medieval nunnery); and several Grade II* and Grade II Listed Buildings within villages, hamlets and associated with farmsteads. There is a need to carry out remedial works to reduce the number of heritage assets identified as being at risk, such as the Holgate Monument (Grade I Listed Building), Brocklesby Park (Grade I Registered Park and Garden) and Cromwell's Grave, a Neolithic long barrow 300m west of Hoe Hill Farm (Scheduled Monument).

Sustainable Access, Recreation and Movement

- 4.9.6 There is a deficiency of accessible natural greenspace, at all tiers of the ANGSt hierarchy, across the entire zone. The access network is fragmented.

Key GI assets and Opportunities

- Encourage the positive management and restoration of landscape features which are under threat such as field boundaries (particularly within the north of the Zone³¹⁰), areas of pasture and semi-natural habitats;
- Seek opportunities to reduce the number of heritage assets currently identified as being at risk;
- Restore or create species-rich grassland, especially on steeper slopes;
- Expand and link existing small woodlands in the south of the zone as long as this does not threaten other habitats or features of nature conservation interest such as unimproved or semi-improved grassland;
- Enhance chalk streams, for example through naturalisation of channels and appropriate land management in adjoining areas;
- Strengthen and extend the hedgerow network;
- There is scope to restore/create chalk grassland in areas adjoining existing chalk grassland on road verges identified as part of the 'Life on the verge' project³¹¹) (these could contribute to meeting accessible natural greenspace needs);

³⁰⁹ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

³¹⁰ West Lindsey Landscape Character Assessment (August 1999, Environmental Resources Management for West Lindsey District Council)

- Increase interpretation and intellectual access opportunities within Brocklesby Historic Park and Garden and its setting (in liaison with landowners) to link with other parkland landscapes throughout Lincolnshire. Ensure that historic parkland features are not lost within the adjacent agricultural landscape; and
- Seek the creation of new accessible natural greenspace (of at least 2ha), close to where people live, to address deficiencies.

4.10 Zone 9: Gainsborough Urban Area

Overview

- 4.10.1 This zone is situated in the northwest of the Study Area and contains the market town of Gainsborough, which is the second largest settlement in Central Lincolnshire. The town is situated on the eastern bank of the River Trent and is Britain's most inland port dating back to the 6th Century.

Existing Green Infrastructure Initiatives

- Trent Vale (including On-Trent and Trent Vale Landscape Partnership projects).

Key Needs/Deficiencies

Wildlife Habitat Provision

- 4.10.2 The town comprises largely developed areas with little in the way of semi-natural habitat.

Landscape/Townscape Setting and Historic Context

Landscape/Townscape Setting

- 4.10.3 The closure of a number of large factories in the town resulted in a decline in traditional industries within the town. The loss of an industrial base for Gainsborough has resulted in the subsequent deterioration in the fabric of the town, including some of the housing stock. As a consequence of the physical decay there has been a decline in the social fabric of the town. The result of the physical and social decline of Gainsborough has left a number of sizable vacant previously developed sites around the core of the town³¹². The character of much of the housing within Gainsborough is terraced, much of which is in poor condition/private

³¹¹ http://lifeontheverge.org.uk/media/lotv/images/maps/LotV_2009_2010_results_map.jpg

³¹² West Lindsey Local Plan First Review (Adopted June 2006, West Lindsey District Council)

rented³¹³. There is therefore a need for regeneration and redevelopment of the urban fabric and vacant sites.

- 4.10.4 The Gainsborough Growth Point Programme of Delivery identifies the creation of three new sustainable urban extensions (SUEs) to the town. West Lindsey District Council has been granted outline planning permission for one of these to the south, for 2,500 new homes, employment, retail, open space and community facilities³¹⁴. In light of planned development around Gainsborough, there is a need to protect and enhance the towns' setting (most of which is within an Area of Great Landscape Value). There is a need to carry out remedial works to reduce the number of heritage assets identified as being at risk, such as the Gainsborough Conservation Area.

Historic Environment

- 4.10.5 There is a need to protect the integrity and setting of heritage assets (see definition in **paragraph 3.3.6**), including Grade II* and II Listed Buildings within the historic core of Gainsborough, in the southwest of the town and also dotted throughout the rest of the urban fabric (of particular note is the Grade 1 listed Old Hall situated on Gladstone Street, which is one of the most impressive 15th Century timber built medieval manor houses found within the UK); and Gainsborough Conservation Area. There is also a need to reconnect the historic relationship of the historic core with the River Trent.

Sustainable Access, Recreation and Movement

- 4.10.6 There is a deficiency of neighbourhood, district and county scale accessible natural greenspace for the majority of Gainsborough's residents. There is a need to consider current and future needs in relation to accessible natural greenspace and also other types of formal/informal open space (the quality, quantity and accessibility of which may need enhanced). Sustainable access between Gainsborough and the wider countryside (including key visitor sites such as Laughton Woods and parts of the River Trent) is very poor.

Key GI assets and Opportunities

- Plant new native woodland or hedgerows to help integrate new development, promote the use of best practice innovative architectural and planning solutions that take inspiration from local distinctiveness and character; and incorporate existing trees remnant hedgerows and ponds into the landscape structure of potential new neighbourhoods;

³¹³ Central Lincolnshire Core Strategy Issues and Options Consultation Document (October 2010, CLJSPC)

³¹⁴ Central Lincolnshire Core Strategy Issues and Options Consultation Document (October 2010, CLJSPC)

- When planning for new development within or at the edges of the zone, there is an opportunity to protect views east-west across the Trent Valley from the prominent escarpment and avoid development on prominent slopes and ridgetops;
- Develop and regenerate sizeable derelict former industrial sites in around the town centre, incorporating where possible, existing historic buildings, and intellectual heritage links with the past;
- Restore and enhance the historic core and reconnect it with the River Trent;
- Seek opportunities to reduce the number of heritage assets currently identified as being at risk;
- Promote gardening for wildlife in residential areas;
- Improve links to habitats, especially woodland and the River Trent, immediately outside the town;
- Seek the creation of new accessible natural greenspace (of at least 2ha), close to where people live (within/adjacent to the urban area), to address deficiencies. Improve links to habitats immediately outside the town;
- Safeguard and enhance, where appropriate, areas of formal/informal open space within and on the edge of the town to meet current and future needs and develop green links between them;
- Improve/provide sustainable access links and connectivity between Gainsborough, potential areas of development and the wider countryside (including key visitor sites and other settlements);
- Manage the floodplain as a multi-functional green corridor to enable sustainable water resource management (in line with the drainage authority and relevant IDB requirements), create wildlife corridors and encourage access to nature and increased movement by walking and cycling;
- Work with the 'On Trent' initiative and the Trent Vale Landscape Partnership to identify and implement enhancements to the environment and waterside access along the Lincolnshire bank of the River Trent and strengthen walking and cycling links into Nottinghamshire³¹⁵;
- Develop and promote circular routes linking the River Trent with local settlements, other tourist attractions, bus routes and railway stations (this zone falls within a wider area of search for circular cycle routes)³¹⁶; and
- Identify the demand for reinstating rowing on the River Trent at Gainsborough³¹⁷.

4.11 Zone 10: East Gainsborough Wooded Vales

Overview

- 4.11.1 The zone is situated in the northwest of West Lindsey Borough, adjacent to the eastern edge of Gainsborough Urban Area. The Wooded Vales are generally characterised by high levels of woodland cover, interspersed with a pattern of productive mixed agriculture, set within an

³¹⁵ Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

³¹⁶ Objective 61 of the Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

³¹⁷ Objective 74 of the Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

enclosed landscape of well-maintained hedgerows, sometimes marking ancient assarts. Wide areas are under permanent pasture.

Existing Green Infrastructure Initiatives

- Trent Vale (including On-Trent and Trent Vale Landscape Partnership projects).

Key Needs/Deficiencies

Wildlife Habitat Provision

- 4.11.2 Although this zone supports relatively large amounts of woodland, including Ancient Woodland, some of this has been converted to plantation. Whilst hedgerows are present throughout much of the zone the integrity and functional value of the network has been significantly reduced through a combination of removal and neglect. Gainsborough has been identified as a Growth Point and a number of potential areas of development have been identified around the edge of the town³¹⁸. There is therefore a need during development planning to ensure that valuable semi-natural habitats, especially woodland, and habitat links between them are safeguarded.

Landscape/Townscape Setting and Historic Context

Landscape/Townscape Setting

- 4.11.3 Existing rural landscape features such as traditional patterns of field boundaries, remnants of ridge and furrow and grasslands are being lost or damaged as a result of agricultural intensification and farm amalgamation. The resultant effect is a more homogenous landscape, which is particularly evident around settlements. There is therefore a need to protect existing rural landscape features and encourage positive management, such as restoring hedgerows to strengthen the field pattern and enhancing linkages between woodlands³¹⁹. Heavy vehicles are eroding the character of rural roads, especially at junctions where hedgerows have been removed to improve sight lines. There is potential for new woodland planting to disrupt long distance open views and extensive panoramas which are often framed by large areas of woodland³²⁰. The edges of small woodlands are also vulnerable to damage by the impacts of

³¹⁸ Central Lincolnshire Core Strategy Issues and Options Consultation Document (October 2010, CLJSPC)

³¹⁹ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership & West Lindsey Landscape Character Assessment (August 1999, Environmental Resources Management for West Lindsey District Council)

³²⁰ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

agricultural machinery³²¹. This zone contains several potential areas of development ³²², which could change existing landscape and settlement character; and result in the coalescence of Gainsborough and Lea. There is therefore a need to protect the Settlement Break between Gainsborough and Lea.

Historic Environment

- 4.11.4 There is a need to protect the integrity and setting of heritage assets (see definition in **paragraph 3.3.6**). Expansion within the potential areas of development could affect the settings of Grade II and II* Listed Buildings within villages to the southeast of Gainsborough and the three Scheduled Monuments (Site of Heynings Priory, Hermit Dam Moated Site and Castle Hills Wood Ringwork and Baileys) and woodland (much of which is semi-natural, ancient). Pressure for new development could also result in the loss of ancient field boundaries and historic field pattern, particularly the fields of early medieval origin within the northeast and east of the Zone and post medieval fields within the south.

Sustainable Access, Recreation and Movement

- 4.11.5 There is a deficiency of neighbourhood scale accessible natural greenspace across this zone and of district, county and sub-regional accessible natural greenspace for residents in the southern half. Access links/connectivity between this zone and Gainsborough is very limited.

Key GI assets and Opportunities

- Prioritise an increase in grassland reversion to increase the occurrence of semi-natural habitats³²³ and manage existing trees and woodland (much of which is semi-natural, ancient) to enhance biodiversity value and age structure;
- Protect the high sensitivity and distinctiveness of landscape features within the Area of Great Landscape Value³²⁴, particularly in relation to the potential areas of development around Gainsborough where there is an opportunity for trees, remnant hedgerows and ponds to form the basis for the landscape structure within planned new neighbourhoods³²⁵;
- Highlight the significance of cultural heritage assets in the zone (including Listed Buildings and Scheduled Monuments) and increase public access and understanding of them in liaison with landowners. Also, incorporate historic field boundaries of early medieval and post medieval origin into the layout of potential new developments where possible;
- Strengthen and extend the hedgerow network;

³²¹ West Lindsey Landscape Character Assessment (August 1999, Environmental Resources Management for West Lindsey District Council)

³²² Central Lincolnshire Core Strategy Issues and Options Consultation Document (October 2010, CLJSPC)

³²³ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

³²⁴ West Lindsey Local Plan First Review (June 2006, West Lindsey District Council)

³²⁵ Gainsborough (West Lindsey) Growth Point – Programme of Development 2009-2026 (October 2008, West Lindsey District Council)

- Expand and link existing woodlands through habitat creation and restore woodlands converted to plantations (especially Ancient Woodlands to a native species composition);
- Seek the creation of new accessible natural greenspace (of at least 2ha), close to where people live, to address current future needs. There is scope to link/extend the arc of woodlands to the east of Gainsborough and manage them as accessible natural greenspace. Woodland edge habitats could also be created;
- In relation to the potential areas of development, provide a variety of linked formal/informal open spaces within/between neighbourhoods. Provide sustainable access links and connectivity between potential areas of development, Gainsborough/key services and the wider countryside (including key visitor sites and other settlements); and
- Develop and promote circular routes linking the River Trent with local settlements, other tourist attractions, bus routes and railway stations (this zone falls within a wider area of search for circular cycle routes)³²⁶.

4.12 Zone 11: North Lincoln Fringe Limestone Dipslope

Overview

- 4.12.1 This zone is situated within the south of West Lindsey District and abuts the northern edge of Lincoln City. It forms part of an escarpment which is known locally as the Lincolnshire Edge or Cliff. This Zone rises above the Trent Vale and forms a prominent and distinctive landscape feature and backdrop to views eastwards from the neighbouring vale. It encompasses large scale arable land uses, superimposed by a pattern of stone built villages along the lower scarp slopes. Due to the proximity to Lincoln City, urban fringe characteristics are also visible.

Key Needs/Deficiencies

Wildlife Habitat Provision

- 4.12.2 There have been historic losses of habitats, especially limestone grassland, and generally semi-natural habitats, mostly woodlands, are small in number and extent. There is a need to manage (including thinning, possibly coppicing and replanting trees) and connect small, isolated woodlands on the ridgeline. Although hedgerows are present throughout much of the zone the integrity and functional value of the network has been significantly reduced through a combination of removal and neglect. Lincoln has been identified as a Growth Point and a number of potential areas of development have been identified around the edge of the town, including one within this zone³²⁷. There is therefore a need during development planning to ensure that valuable semi-natural habitats and habitat links between them are safeguarded.

³²⁶ Objective 61 of the Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

³²⁷ Central Lincolnshire Core Strategy Issues and Options Consultation Document (October 2010, CLJSPC)

Landscape/Townscape Setting and Historic Context

Landscape/Townscape Setting

- 4.12.3 Within this zone, villages are under increasing pressure from development which is damaging settlement character and pattern. The expansion of ridgeline villages has a particularly detrimental impact on landscape and visual character as a result of their visually prominent locations. There is a need to protect the setting of Lincoln and views to Lincoln Cathedral and village churches as these are distinctive regional/local landmarks³²⁸. There is pressure within this zone for the redevelopment of redundant airfields. Whilst this provides opportunities for new housing and employment uses, it has the potential to reduce the sense of remoteness and tranquillity in sparsely settled areas³²⁹. Within the landscape fringes of Lincoln there is also evidence of the loss of landscape features and the gradual introduction of mixed used development which is creating visual intrusion. This zone contains potential areas of development, which could change existing landscape and settlement character. The edge of the urban area within Lincoln has strong impermeable boundaries³³⁰ which results in a need to increase connectivity with adjacent areas of landscape setting. There is also a need to protect the Settlement Break/Green Wedge along the northern edge of Lincoln to prevent settlement coalescence between Lincoln and adjacent settlements.
- 4.12.4 There is pressure within this zone for the installation of telecommunications infrastructure and wind energy schemes (due to the strength of winds across the more elevated and open dip slope). This could result in the creation of visually prominent features within this predominantly open landscape and a reduction in the overall sense of remoteness and isolation³³¹. The effects of intensification of arable cultivation have also resulted in field enlargement and a decline in or loss of ridge and furrow, limestone grassland and earthworks of deserted settlements³³².

Historic Environment

- 4.12.5 The distinctive historic network of Roman and enclosure roads is threatened by a lack of management and inappropriate planting³³³. There is a need to protect the integrity and setting of heritage assets (see definition in **paragraph 3.3.6**), including Grade II Listed Buildings within Scampton RAF base and the numerous Grade I, II* and II Listed Buildings within the other villages in the Zone (including South Carlton, Scampton, Hackthorn, Burton by Lincoln and

³²⁸ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

³²⁹ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

³³⁰ Lincoln Townscape Assessment: Hawkshead Inherited Character Statement (July 2007, City of Lincoln Council)

³³¹ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

³³² East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

³³³ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

Riseholme); Scheduled Monuments (including South Carlton shrunken village, moated manors, medieval settlements and deserted medieval villages); Conservation Areas within the villages of Hackthorn, Scampton, South Carlton and Burton by Lincoln; and Hackthorn Hall and Riseholme Hall Grade II Historic Parks and Gardens. There is also a need to carry out remedial works to reduce the number of heritage assets identified as being at risk, such as the Gates and piers to Nettleham Hall (Grade I Listed Building).

Sustainable Access, Recreation and Movement

- 4.12.6 There is a deficiency of neighbourhood, district and sub-regional scale accessible natural greenspace across this zone (which includes residents living in the northern urban fringe of Lincoln). There is a need to consider current and future needs in relation to accessible natural greenspace and also other types of formal/informal open space (the quality, quantity and accessibility of which may need enhanced). Access links out of north Lincoln are limited and the A16, which severs this zone vertically, forms a barrier to east-west movement.

Key GI assets and Opportunities

- Within potential areas of development, incorporate remnant hedgerows and ponds to form the basis for the landscape structure within each of the planned new neighbourhoods³³⁴ and encourage the use of best practice innovative architectural solutions and planning solutions that take inspiration from local distinctiveness and character whilst utilising eco-friendly and high quality design³³⁵;
- Manage the historic road network (in particular Ermine Street³³⁶) to ensure its continued contribution to landscape/historic character and biodiversity;
- Highlight the significance of cultural heritage assets in the zone (including historic villages, Listed Buildings and Scheduled Monuments) and increase public access and understanding of them in liaison with landowners;
- Seek opportunities to reduce the number of heritage assets currently identified as being at risk;
- Expand and link existing habitats, especially woodland and parkland;
- Strengthen and extend the hedgerow network;
- Seek the creation of new accessible natural greenspace (of at least 2ha), close to where people live, to address deficiencies. There is scope to restore/create limestone grassland (especially on more steeply sloping areas such as the Lincolnshire Edge escarpment) which could contribute to meeting accessible natural greenspace needs;
- In relation to the potential areas of development, provide a variety of linked formal/informal open spaces within/between neighbourhoods to meet existing and future needs. Provide sustainable access links and connectivity between potential areas of development, Lincoln/key services and the wider countryside (including key visitor sites and other settlements); and

³³⁴ Gainsborough (West Lindsey) Growth Point – Programme of Development 2009-2026 (October 2008, West Lindsey District Council)

³³⁵ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

³³⁶ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

- Improve/provide 'green' access links and connectivity between Lincoln, potential areas of development and the wider countryside.

4.13 Zone 12: River Trent Floodplain Valley

Overview

- 4.13.1 This zone follows the eastern edge of the Trent River Valley, which runs along the south-western edge of West Lindsey District. Historically, the floodplain valley would have encompassed permanent pasture on riverside meadows and arable fields on drier gravel terraces. Whilst many stretches of permanent pasture and riverside meadows remain, increasing arable and silage production, and the influence of large urban areas and sand and gravel extraction have changed the historic character.

Existing Green Infrastructure Initiatives

- Trent Vale (including On-Trent and Trent Vale Landscape Partnership projects).

Key Needs/Deficiencies

Wildlife Habitat Provision

- 4.13.2 There have been historic losses of unimproved floodplain grassland as a result of agricultural improvement, including drainage and conversion to intensive arable. Eutrophication or nutrient enrichment is a widespread issue in water bodies and water courses, including the extensive ditch network. Although hedgerows are present throughout much of the zone the integrity and functional value of the network has been significantly reduced through a combination of removal and neglect.

Landscape/Townscape Setting and Historic Context

Landscape/Townscape Setting

- 4.13.3 Urban edge characteristics are extending into the floodplain at the margins of settlements such as Gainsborough. Large-scale industrial development such as sewage treatment works and power stations (for example West Burton adjacent to the Study Area within the Trent Valley) are particularly prominent in this otherwise flat and open landscape³³⁷. There is therefore, a need to protect the open and unsettled character of the landscape and limit the visual impact of

³³⁷ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

any new structures by locating development on previously developed land or close to existing settlements and avoiding development on greenfield sites. Floodplain areas should also be avoided in accordance with government planning policy³³⁸. There is also a need to encourage sustainable management and ensure that the type and location of new woodland and tree planting is appropriate to local landscape character, ensuring that large-scale tree planting is generally avoided.

- 4.13.4 There has been a loss in the natural character of the river floodplain as a result of the introduction of concrete flood walls and embankments to canalise the river channel. In some cases, the height of the defences screens the river from view, reducing the sense of openness and sense of place³³⁹. There is on-going pressure for sand and gravel extraction sites within this zone, which are in contrast to the pastoral floodplain, creating short to medium term visual intrusion during the extraction period and reducing the overall sense of tranquillity³⁴⁰. There is also evidence within this zone of agricultural intensification in tandem with a move from pastoral to arable farming which has resulted in the loss of many typical landscape features such as riverside meadows that would previously have defined river channels³⁴¹. There is therefore a need to protect existing river valley features. This zone is vulnerable to the effects of climate change which has the potential to lead to increased flooding, changing river channels and summer desiccation of wetlands³⁴². There is a need to protect the high sensitivity and distinctiveness of landscape features within the Area of Great Landscape Value.

Historic Environment

- 4.13.5 There is a need to protect the integrity and setting of heritage assets (see definition in **paragraph 3.3.6**), including Grade I and II Listed Buildings within Torksey, Lea and Newton on Trent; and Scheduled Monuments (including the Roman Fort and camp in the south of the Zone, the Site of the medieval Town to the south of Torksey and the Roman Fort in the north of the Zone). There is also a need to carry out remedial works to reduce the number of heritage assets identified as being at risk, such as the Roman Fort and Camp at Newton on Trent (Scheduled Monument) and the Torksey Viaduct over the River Trent (Grade II* Listed Building).

³³⁸ East Midlands Regional Landscape Character Assessment, April 2010, LDA Design for East Midlands Landscape Partnership)

³³⁹ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

³⁴⁰ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

³⁴¹ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

³⁴² East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

Sustainable Access, Recreation and Movement

- 4.13.6 There is a deficiency of accessible natural greenspace, at all tiers of the ANGSt hierarchy, across the entire zone. Access links across this zone and along parts of the River Trent are limited. Better connectivity between this zone and zone 9 and 10 is also needed.

Key GI assets and Opportunities

- Manage existing woodland³⁴³ and plant new native woodland, shelterbelts or hedgerows (including field maple, hawthorn, ash and oak³⁴⁴) in order to link existing woodland, particularly those with semi-natural or ancient woodland status;
- Plan for the restoration of extraction sites restoration and after-use in keeping with local landscape character, including the creation of wetland habitats such as meadows, reedbeds and marshland which maximise biodiversity benefits and have previously been lost along the floodplain. The restoration of extraction sites also offers opportunities for access to nature and other recreational uses;
- Habitat enhancement and creation, especially floodplain grassland and wetland. Prioritise³⁴⁵ the restoration of riverside meadows to strengthen the character of river channels and provide a wide range of habitats³⁴⁶;
- Improve and enhance the condition and potential of the dyke and ditch network, for example through management, and development of adjoining buffer strips (subject to drainage maintenance requirements);
- Strengthen and extend the hedgerow network;
- Increase interpretation and intellectual access opportunities within this Zone, focussing on the themes of Roman Forts and medieval settlements, to link with similar historic features/landscapes within Central Lincolnshire;
- Seek opportunities to reduce the number of heritage assets currently identified as being at risk;
- Develop and promote circular routes linking the River Trent and Fossdyke Canal with local settlements, other tourist attractions, bus routes and railway stations (this zone falls within a wider area of search for circular cycle routes)³⁴⁷;
- Extend the Lincoln to Saxilby cycle route to Torksey and across the River Trent into Nottinghamshire³⁴⁸. The Torksey viaduct across the River Trent is an important structure, which provides the opportunity for a traffic-free, multi user crossing to the Trent;
- Work with the 'On Trent' initiative and the Trent Vale Landscape Partnership to identify and implement enhancements to the environment and waterside access along the Lincolnshire bank of the River Trent and strengthen walking and cycling links into Nottinghamshire³⁴⁹;

³⁴³ West Lindsey Landscape Character Assessment (August 1999, Environmental Resources Management for West Lindsey District Council)

³⁴⁴ West Lindsey Landscape Character Assessment (August 1999, Environmental Resources Management for West Lindsey District Council)

³⁴⁵ These proposals may be supported by Environmental Stewardship Grants

³⁴⁶ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

³⁴⁷ Objective 61 of the Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

³⁴⁸ Objective 58 of the Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

³⁴⁹ Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

- Work with local hire boat operators to develop a piloting scheme that will enable hire boats to gain access to the Fosdyke from the Trent at Torksey³⁵⁰; and
- Manage the floodplain as a multi-functional green corridor to enable sustainable water resource management (in line with the drainage authority and relevant IDB requirements), create wildlife corridors and encourage access to nature and increased movement by walking and cycling.

4.14 Zone 13: Northwest Lincoln Fringe Unwooded Vale

Overview

- 4.14.1 This zone is situated within the south of West Lindsey District and also partly within the City of Lincoln. It is characterised by productive mixed agriculture, set within an enclosed landscapes of low, well maintained hedgerows. Wide areas are under permanent pastures, often grazed by dairy herds. The zone also contains the course of the River Till and associated flooded lakes/ponds. Urban fringe land uses are also apparent.

Existing Green Infrastructure Initiatives

- Witham Valley Country Park.

Key Needs/Deficiencies

Wildlife Habitat Provision

- 4.14.2 There have been historic losses of unimproved floodplain grassland in the River Till and Fosdyke Navigation floodplains as a result of agricultural improvement and conversion to intensive arable. Although hedgerows are present throughout much of the zone the integrity and functional value of the network has been significantly reduced through a combination of removal and neglect. Lincoln has been identified as a Growth Point and a number of potential areas of development have been identified around the edge of the town, including within this zone³⁵¹. There is therefore a need during development planning to ensure that valuable semi-natural habitats and habitat links between them are safeguarded.

³⁵⁰ Objective 50 of the Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

³⁵¹ Central Lincolnshire Core Strategy Issues and Options Consultation Document (October 2010, CLJSPC)

Landscape/Townscape Setting and Historic Context

Landscape/Townscape Setting

- 4.14.3 There has been a trend for the ploughing up of areas of pasture for cereals which has resulted in the removal of hedgerows and an increase in field sizes to accommodate large machinery. There is also pressure on the farmland landscape from the introduction of large agricultural structures and a need to ensure that developments of this kind are associated with native planting schemes of sufficient scale to integrate with the surrounding landscape pattern³⁵². There is therefore a need to protect existing rural assets that are under threat, including hedgerows, hedgerow trees and small-scale pasture fields. There is also pressure for the construction of new roads or road alteration schemes such as the A46 widening scheme. There is therefore a need to ensure that new road schemes, road widening or the realignment of existing roads are carefully integrated into the landscape³⁵³.
- 4.14.4 There is a need to protect the integrity of West Common at the western edge of the City of Lincoln (which forms a continuous swathe of open space from agricultural areas on the boundary of the city to the city centre) and wide views towards the Cathedral and the northern escarpment³⁵⁴. This zone contains potential areas of development³⁵⁵, which could change existing landscape and settlement character. There is therefore a need to conserve the Settlement Break/Green Wedges at the western edge of Lincoln and between Skellingthorpe and Lincoln in order to continue to *'link the built-up area to the countryside'*³⁵⁶.

Historic Environment

- 4.14.5 There is a need to protect the integrity and setting of heritage assets (see definition in **paragraph 3.3.6**), including the Skellingthorpe Duck Decoy Scheduled Monument. There is also a need to conserve post-medieval field boundaries within fields to the west of Lincoln and protect the course of the Fosdyke canal as key historic feature. There is also a need to carry out remedial works to reduce the number of heritage assets identified as being at risk, such as Bridge Street Conservation Area.

³⁵² West Lindsey Landscape Character Assessment (August 1999, Environmental Resources Management for West Lindsey District Council)

³⁵³ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

³⁵⁴ Lincoln Townscape Assessment (West Common Inherited Character Area Statement) (November 2008, City of Lincoln Council)

³⁵⁵ Central Lincolnshire Core Strategy Issues and Options Consultation Document (October 2010, CLJSPC)

³⁵⁶ City of Lincoln Local Plan (Adopted 1998) Policies & Explanatory Text, http://www.lincoln.gov.uk/topic_results.asp?kw_id=1057

Sustainable Access, Recreation and Movement

- 4.14.6 There is a deficiency of neighbourhood and sub-regional scale accessible natural greenspace across most of this zone, which includes residents living in the western urban fringe of Lincoln. There is a need to consider current and future needs in relation to accessible natural greenspace and also other types of formal/informal open space (the quality, quantity and accessibility of which may need enhanced). Access along parts of the Fossdyke Canal is restricted and the A46/railway form barriers to movement out of the City.

Key GI assets and Opportunities

- Within potential areas of development, there is an opportunity for trees, remnant hedgerows and ponds to form the basis for the landscape structure within each of the planned new neighbourhoods; and for the introduction of new tree and hedgerow planting (of native species) to integrate with surrounding field patterns³⁵⁷;
- Strengthen and extend the hedgerow network;
- Highlight the significance of the Fossdyke Canal (which has origins in the Roman Colonia) and West Common and increase public access and understanding of these historic assets in liaison with landowners;
- Seek opportunities to reduce the number of heritage assets currently identified as being at risk;
- Seek the creation of new accessible natural greenspace (of at least 2ha), close to where people live, to address deficiencies. The Witham Valley Country Park offers opportunities for improved access to nature. This zone contains several 'core areas' of the proposed Country Park, including the 'Swanpool Link', which provides a 'key site between the City and countryside' and provides opportunities for 'active recreation as part of development proposals, plus links to other areas through connections to a sustainable public transport network'³⁵⁸;
- There are opportunities within the proposed Country Park to provide interpretation of landscape and heritage features and enhance overall sense of place through the provision of 'attractive signage, lively interpretation, engaging experiences and robust branding'³⁵⁹;
- Expand and link existing habitats, for example, restore and create floodplain grassland and wetland in areas adjoining the River Till and Fossdyke Navigation and in the Swanpool area (this offers opportunities for improved access to nature);
- Manage the floodplain as a multi-functional green corridor to enable sustainable water resource management (in line with the drainage authority and relevant IDB requirements), create wildlife corridors and encourage access to nature and increased movement by walking and cycling;
- In relation to the potential areas of development, provide a variety of linked formal/informal open spaces within/between neighbourhoods. Provide sustainable access links and connectivity between potential areas of development, Lincoln/key services and the wider countryside (including key visitor sites and other settlements); and

³⁵⁷ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

³⁵⁸ Witham Valley Country Park Strategy 2010-2020

³⁵⁹ Witham Valley Country Park Strategy 2010-2020

- Develop and promote circular routes linking the River Trent and Fossdyke Canal with local settlements, other tourist attractions, bus routes and railway stations (this zone falls within a wider area of search for circular cycle routes)³⁶⁰; and
- Develop a series of nodes along the Fossdyke, which provide a variety of visitor facilities for boaters and other users³⁶¹.

4.15 Zone 14: North Lincoln Urban Area

Overview

- 4.15.1 This zone contains the northern half of Lincoln City Urban Area, including the historic core which is centred on the medieval Cathedral and Close, adjacent late Victorian/Edwardian suburbs and at further distance from the historic core inter-war/post war and mixed age residential and industrial areas.

Existing Green Infrastructure Initiatives

- Witham Valley County Park.

Key Needs/Deficiencies

Wildlife Habitat Provision

- 4.15.2 Although this part of Lincoln includes a relatively large number of greenspaces there is little in the way of semi-natural habitat.

Landscape/Townscape Setting and Historic Context

Landscape/Townscape Setting

- 4.15.3 There is a need to protect the integrity of the historic core (dating to the medieval period), and historic buildings scattered within the urban fabric; and to protect the historic and visual relationship between the historic core and setting of the City (for example surviving areas medieval agricultural ridge and furrow on West Common³⁶²). The Cathedral-crowned hilltop and historic core³⁶³ is the visual focal point and dominant element of the city due to its scale

³⁶⁰ Objective 61 of the Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

³⁶¹ Objective 80 of the Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

³⁶² Lincoln Townscape Assessment (November 2008, City of Lincoln Council)

³⁶³ City of Lincoln Local Plan (Adopted August 1998, City of Lincoln Council)

and outstanding architectural style³⁶⁴, which make it prominent within views across and to the city, for example from and to the north and south escarpments and to/from surrounding areas of landscape setting. There is a need to protect and enhance these views, which contribute to instantly recognisable sense of place and identity. There is also a need to maintain and protect links between the city centre and key open spaces at the edges of the city such as South and West Commons and the Witham Valley to the east³⁶⁵. Linked to this, there is a further need to protect the Green Wedges, Settlement Breaks and Visual Amenity Breaks within and at the edges of the city in order prevent settlement coalescence.

Historic Environment

- 4.15.4 There is a need to protect the integrity and setting of heritage assets (see definition in **paragraph 3.3.6**). Lincoln Cathedral and Close (built largely during the High Medieval Era³⁶⁶), the Castle and Bishop's Palace are key landmarks within the historic core of this Zone, which also contains a dense concentration of Grade I, II* and II Listed Buildings and is designated as a Conservation Area. The Cathedral also straddles the line of the eastern defences of the upper Roman city or colonia (*Lindum*) (from which parts of the fortifications survive and are designated as a Scheduled Monument). Other Scheduled Monuments include earthworks and abbeys. There is a need to conserve³⁶⁷ the integrity and setting of the Cathedral and Close complex (as a well-preserved example of High Medieval religious centre, including pockets of open space/greens)³⁶⁸; and the integrity and setting of surviving parts of the Roman city. The distinctive street pattern³⁶⁹, variety in the form and architectural style of buildings, and shape/size of building plots should also be protected. In addition, there is a need to conserve the integrity and setting of Listed Buildings and Conservation Areas along roads radiating out from the historic core and also within Bracebridge Heath to the south. Lincoln Arboretum Grade II Historic Park and Garden is also a key historic asset within this zone, the integrity and setting of which should be protected.
- 4.15.5 Within areas of Late Victorian/Edwardian residential suburbs, there is a need to protect the overall coherency of built form, including regularly connected grid-like pattern of streets, small urban blocks, high building density, uninterrupted rows of terraced houses and decorative eaves, gable ends and window lintels. There is also a need to conserve the consistency and

³⁶⁴ Lincoln Townscape Assessment (Cathedral and Close Inherited Character Area Statement) (November 2008, City of Lincoln Council)

³⁶⁵ Lincoln Townscape Assessment (November 2008, City of Lincoln Council)

³⁶⁶ Lincoln Townscape Assessment (Cathedral and Close Inherited Character Area Statement) (November 2008, City of Lincoln Council)

³⁶⁷ See existing Conservation Plans for Lincoln's historic buildings

[http://www.lincoln.gov.uk/Info_page_two_pic_2_det.asp?sec_id=2996&art_id=9816#Lincoln Cathedral & Close](http://www.lincoln.gov.uk/Info_page_two_pic_2_det.asp?sec_id=2996&art_id=9816#Lincoln%20Cathedral%20&%20Close)

³⁶⁸ Lincoln Townscape Assessment (Cathedral and Close Inherited Character Area Statement) (November 2008, City of Lincoln Council)

³⁶⁹ Lincoln Townscape Assessment (Cathedral and Close Inherited Character Area Statement) (November 2008, City of Lincoln Council)

original design details of residential areas which were built as part of the 'Garden Suburb movement'. Interconnected public streets, squares, greens and parks, which provide a continuous and varied public realm, overlooked by buildings that provide natural surveillance and contact from their occupants/users, should be provided within exiting/planned new neighbourhoods³⁷⁰.

- 4.15.6 There is a need to carry out remedial works to reduce the number of heritage assets identified as being at risk, such as the Cathedral and City Centre Conservation Area, Gowts Bridge Conservation Area and the Cathedral Church of the Blessed Virgin Mary (Grade I Listed Building).

Sustainable Access, Recreation and Movement

- 4.15.7 There is a deficiency of neighbourhood and sub-regional scale accessible natural greenspace throughout this zone and also of district scale sites for residents in the north part of Lincoln. There is a need to consider current and future needs in relation to accessible natural greenspace and also other types of formal/informal open space (the quality, quantity and accessibility of which may need enhanced). Access links between the centre of Lincoln, the rest of the urban fabric and the wider countryside are limited and roads such the A46 form barriers to movement within and out of the City. There is also a gap in the National Cycle Route Network in the centre of Lincoln.

Key GI assets and Opportunities

- Protect, enhance, manage and increase interpretation and intellectual access to Lincoln's key historic assets and their settings, including the Cathedral and Close, Castle, Bishop's Palace and surviving Roman fortifications in line with existing Conservation Plans³⁷¹;
- Enhance key views between the historic core of the city and its landscape settings (including views to the Cathedral from surrounding Zones);
- Seek opportunities to improve the condition of heritage assets currently identified as being at risk;
- Enhance and incorporate open space green wedges into planning for potential new development and ensure that this incorporates best practice innovative architectural solutions and planning solutions that take inspiration from local distinctiveness and character whilst utilising eco-friendly and high quality design; and incorporates a robust planting strategy;
- Improve links to habitats immediately outside the town;
- Promote gardening for wildlife in residential areas;

³⁷⁰ Lincoln City Centre Regeneration: Linking Lincoln (April 2006, Enquiry by Design)

³⁷¹ [http://www.lincoln.gov.uk/Info_page_two_pic_2_det.asp?sec_id=2996&art_id=9816#Lincoln Cathedral & Close](http://www.lincoln.gov.uk/Info_page_two_pic_2_det.asp?sec_id=2996&art_id=9816#Lincoln%20Cathedral%20&%20Close)

- Seek the creation of new accessible natural greenspace (of at least 2ha), close to where people live (within/adjacent to the urban area), to address deficiencies. Improve links to habitats immediately outside the town;
- Safeguard and enhance, where appropriate, areas of formal/informal open space within and on the edge of the town to meet current and future needs and develop green links between them;
- Improve/provide sustainable access links and connectivity between Lincoln, potential areas of development and the wider countryside (including key visitor sites and other settlements);
- Manage the floodplain as a multi-functional green corridor to enable sustainable water resource management (in line with the drainage authority and relevant IDB requirements), create wildlife corridors and encourage access to nature and increased movement by walking and cycling;
- Develop a series of nodes along the Fossdyke, which provide a variety of visitor facilities for boaters and other users³⁷²;
- Develop and promote circular routes linking the River Witham and Fossdyke Canal with local settlements, other tourist attractions, bus routes and railway stations (this zone falls within a wider area of search for circular cycle routes)³⁷³; and
- Deliver the proposed extension to National Cycle Route 64, linking it to National cycle Route 1, through the centre of Lincoln.

4.16 Zone 15: Northeast Lincoln Fringe Unwooded Vale

Overview

- 4.16.1 This zone is situated within the southeast of West Lindsey District, adjacent to the City of Lincoln and is characterised by productive mixed agriculture, set within an enclosed landscapes of low, well maintained hawthorn hedgerows. Wide areas are under permanent pastures, often grazed by dairy herds. Urban fringe land uses are also apparent with approaches to settlements generally dominated by the built form. Views to Lincoln Cathedral are also a key feature.

Existing Green Infrastructure Initiatives

- Lincolnshire Limewoods.

³⁷² Objective 80 of the Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

³⁷³ Objective 61 of the Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

Key Needs/Deficiencies

Wildlife Habitat Provision

- 4.16.2 There have been historical losses of habitat, such as unimproved grassland, and remaining semi-natural habitats, mainly woodland are small in number, size and extent. Although hedgerows are present throughout much of the zone the integrity and functional value of the network has been significantly reduced through a combination of removal and neglect. Lincoln has been identified as a Growth Point and a number of potential areas of development have been identified around the edge of the town, including one within this zone³⁷⁴. There is therefore a need during development planning to ensure that valuable semi-natural habitats, such as those at Greetwell Hollow, and habitat links between them are safeguarded.

Landscape/Townscape Setting and Historic Context

Landscape/Townscape Setting

- 4.16.3 There is pressure on the farmland landscape for the introduction of new built development. There is therefore a need to protect existing rural assets that are under threat, including hedgerows and hedgerow trees. There is also pressure for the construction of new roads or road alteration schemes such as the A46 widening scheme. There is therefore a need to ensure that new road schemes, road widening or the realignment of existing roads are carefully integrated into the landscape³⁷⁵. This zone contains potential areas of development, which could change existing landscape and settlement character. There is therefore a need to conserve the Green Wedges to the east of Lincoln and the Settlement Breaks/Green Wedges to the northeast of Lincoln and between Lincoln and Reepham in order to prevent settlement coalescence.

Historic Environment

- 4.16.4 There is a need protect the historic integrity of the pockets of semi-natural ancient woodlands. There is also a need to protect the integrity and setting of other heritage assets (see definition in **paragraph 3.3.6**), including Grade II Listed Buildings within the Conservation Areas of Welton, Nettleham, Reepham, Cherry Willingham, Fiskerton and Stainton by Langworth; Scheduled Monuments, including Bishop's Manor, the remains of a Medieval Bishop's Palace, Greetwell Medieval Village, cultivation and post-Medieval garden remains, a Priory, round barrows and an Abbey; and historic cores of villages (many of which date from the early medieval period).

³⁷⁴ Central Lincolnshire Core Strategy Issues and Options Consultation Document (October 2010, CLJSPC)

³⁷⁵ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

There is also a need to carry out remedial works to reduce the number of heritage assets identified as being at risk, such as the Round barrows and ring ditches 530m south east of Barlings Abbey - part of Barlings-Stainfield barrow cemetery (Scheduled Monuments).

Sustainable Access, Recreation and Movement

- 4.16.5 There is a deficiency of accessible natural greenspace, at all tiers of the ANGSt hierarchy, across this zone. Residents living in Lincoln's north-eastern urban fringe, however, have access to at least one county site. There is a need to consider current and future needs in relation to accessible natural greenspace and also other types of formal/informal open space (the quality, quantity and accessibility of which may need enhanced). Access between Lincoln and the wider countryside is limited and roads such the A158 form barriers to movement out of the City. Better connectivity between Lincoln and the Lincolnshire Limewoods area is needed.

Key GI assets and Opportunities

- Restore and manage existing hedgerows and wide verges of historic enclosure roads, particularly at the entrances to villages; and seek opportunities for extensive hedgerow and tree planting to strengthen local landscape character and create a more robust setting for recent (and future) development (using suitable native species such as hawthorn, dog rose, dogwood, hazel, oak, ash, crab apple, field maple and blackthorn)³⁷⁶;
- Ensure that potential new development continues the historic development pattern and includes new greens, tree groups and other local landmarks to create a distinctive identity, sense of place and community³⁷⁷;
- Highlight the significance of cultural heritage assets in the zone (including Listed Buildings and Scheduled Monuments) and increase public access and understanding of them in liaison with landowners;
- Seek opportunities to reduce the number of heritage assets currently identified as being at risk;
- Strengthen habitat links between Greetwell Hollow and woodland elsewhere in the zone and the River Witham floodplain;
- Restore and create floodplain grassland and wetland in areas adjoining the Barlings Eau;
- Habitat creation, including woodland expansion and linking in the eastern part of the zone guided by the Lincolnshire Limewoods habitat opportunity mapping³⁷⁸;
- Seek the creation of new accessible natural greenspace (of at least 2ha), close to where people live, to address deficiencies. There is scope to enhance access to nature in the floodplain;
- In relation to the potential areas of development, provide a variety of linked formal/informal open spaces within/between neighbourhoods. Provide sustainable access links and

³⁷⁶ West Lindsey Landscape Character Assessment (August 1999, Environmental Resources Management for West Lindsey District Council)

³⁷⁷ West Lindsey Landscape Character Assessment (August 1999, Environmental Resources Management for West Lindsey District Council)

³⁷⁸ Wildlife corridors in the Lincolnshire Limewoods: Habitat creation and opportunities and constraints map (2008, Ecological Services Ltd for the Lincolnshire Wildlife Trust and Lincolnshire Limewoods Project)

connectivity between potential areas of development, Lincoln/key services and the wider countryside (including key visitor sites and other settlements); and

- Develop and promote circular routes linking the River Witham with local settlements, other tourist attractions, bus routes and railway stations (this zone falls within a wider area of search for circular cycle routes)³⁷⁹.

4.17 Zone 16: Apley Wooded Vales

Overview

- 4.17.1 This zone is situated in the south-eastern corner of West Lindsey District and encompasses high levels of ancient lime woodland which caps shallow hills and forms contrasts to surrounding arable fields. The landscape is crossed by many rivers and streams and wide areas are under permanent pasture. Dispersed settlements and individual farms are linked by an extensive network of minor roads and lanes.

Existing Green Infrastructure Initiatives

- Lincolnshire Limewoods.

Key Needs/Deficiencies

Wildlife Habitat Provision

- 4.17.2 A substantial part of a nationally significant concentration of lime dominated woodlands, located in the Lincolnshire Limewoods area, is present in this zone. However, some areas of Ancient Woodland have been converted to plantation and a number of invasive non-native species, including sycamore and rhododendron, are present in some woods. There have also been historical losses of other habitats, such as unimproved grassland. Whilst hedgerows are present throughout much of the zone the integrity and functional value of the network has been significantly reduced through a combination of removal and neglect. There has however been a concerted effort in many parts of Central Lincolnshire to replace hedgerows, for example, in the Lincolnshire Limewoods area 25km of new hedgerows have been planted to restore links between important wildlife habitats

³⁷⁹ Objective 61 of the Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

Landscape/Townscape Setting and Historic Context

Landscape/Townscape Setting

- 4.17.3 Traditional patterns of field boundaries, woodlands, remnants of ridge and furrow and grasslands are being lost or damaged as a result of agricultural intensification and farm amalgamation, resulting in a more homogenous landscape³⁸⁰. There is therefore a need to protect and manage the ancient lime woods which are valuable historic woodlands of nature conservation value and which provide a distinctive visual landscape structure³⁸¹. There is also a need to enhance the diversity of river and stream corridors³⁸² and protect the existing settlement pattern of small, dispersed settlements³⁸³.

Historic Environment

- 4.17.4 There is a need to protect the integrity and setting of heritage assets (see definition in **paragraph 3.3.6**), including small clusters of Grade II Listed Buildings at Stainfield, Kingsthorpe and Goltho Halls and Scheduled Monuments including a medieval settlement, nunnery and priory.

Sustainable Access, Recreation and Movement

- 4.17.5 There is a deficiency of sub-regional scale accessible natural greenspace across this zone. The access network is fragmented and better connectivity between accessible woodlands and National Cycle Route 1 is needed.

Key GI assets and Opportunities

- Encourage positive management of landscape features which are under threat, including traditional field boundaries, remnants of ridge and furrow, grasslands and heathlands. Priority should be given to strengthening the field pattern and creating/linking habitats, including expansion and linking of woodland, grassland and hedgerow planting guided by the Lincolnshire Limewoods habitat opportunity mapping³⁸⁴. The removal of non-native species in woodlands and replacement with appropriate native species composition should be encouraged;
- Linking/extending woodlands in the Lincolnshire Limewoods area offers opportunities to meet deficiencies in large scale accessible natural greenspace;

³⁸⁰ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

³⁸¹ West Lindsey Landscape Character Assessment (August 1999, Environmental Resources Management for West Lindsey District Council)

³⁸² West Lindsey Landscape Character Assessment (August 1999, Environmental Resources Management for West Lindsey District Council)

³⁸³ West Lindsey Landscape Character Assessment (August 1999, Environmental Resources Management for West Lindsey District Council)

³⁸⁴ Wildlife corridors in the Lincolnshire Limewoods: habitat creation and opportunities and constraints map (2008, Ecological Services Ltd for the Lincolnshire Wildlife Trust and Lincolnshire Limewoods Project)

- Plant new trees and shrubs (of suitable riparian species) along rivers and streams to enhance the diversity of the landscape and introduce new habitats³⁸⁵;
- Highlight the significance of cultural heritage assets in the zone (including Listed Buildings and Scheduled Monuments) and increase public access and understanding of them in liaison with landowners; and
- There is a long term aspiration to develop the following access links i) between the Witham Valley Country Park/Whisby Nature Park and Natural World Centre, the River Witham/Water Rail Way and the Lincolnshire Limewoods area and ii) north-south between National Cycle Route 1, the Lincolnshire Limewoods and the River Witham/Water Rail Way.

4.18 Zone 17: West Lincoln Fringe Wooded Vales

Overview

- 4.18.1 This zone is situated in the northwest of North Kesteven District and is dominated by woodland blocks and hedgerow trees, interspersed with permanent pasture and overlain with a scattered pattern of settlements and roads. The eastern edge of the zone abuts the Birchwood area within the City of Lincoln.

Existing Green Infrastructure Initiatives

- Witham Valley County Park.

Key Needs/Deficiencies

Wildlife Habitat Provision

- 4.18.2 Some areas of Ancient Woodland, including parts of Skeelingthorpe Big Wood, have been converted to plantation. Woodland (much of which is semi-natural – ancient) is a significant component of this zone and there is need to improve the structural and biological diversity of the woodland, with a higher proportion of native species³⁸⁶. Although hedgerows are present throughout much of the zone the integrity and functional value of the network has been significantly reduced through a combination of removal and neglect.

³⁸⁵ West Lindsey Landscape Character Assessment (August 1999, Environmental Resources Management for West Lindsey District Council)

³⁸⁶ West Lindsey Landscape Character Assessment (August 1999, Environmental Resources Management for West Lindsey District Council)

Landscape/Townscape Setting and Historic Context

Landscape/Townscape Setting

- 4.18.3 Traditional patterns of field boundaries, remnants of ridge and furrow and grasslands are being lost or damaged as a result of agricultural intensification and farm amalgamation, resulting in a more homogenous landscape³⁸⁷. The A46 corridor cuts through the east of the zone and is a visual detractor. Land adjacent to this corridor is also potentially vulnerable to development pressure. There is therefore a need to ensure widening or the realignment of existing A46 road corridor is carefully integrated into the landscape³⁸⁸. There is a need to protect mature avenues of roadside trees and trees which provide the settings to villages such as Doddington³⁸⁹. There is also a need to manage aging trees within Doddington parkland and remove existing leylandii hedges along residential boundaries which are visual detractors where they occur in the open countryside³⁹⁰.

Historic Environment

- 4.18.4 There is a need to protect pockets of historic (early medieval) small-scale fields at the edges of villages to preserve the historic field pattern. There is also a need to protect the integrity and setting of other heritage assets (see definition in **paragraph 3.3.6**), including Doddington Hall Grade II* Historic Park and Garden which is a key historic asset, numerous Grade II Listed Buildings within Skellingthorpe; and Doddington Conservation Area.

Sustainable Access, Recreation and Movement

- 4.18.5 There is a deficiency of neighbourhood and sub-regional scale accessible natural greenspace in this zone. There is a need to consider current and future needs in relation to accessible natural greenspace and also other types of formal/informal open space (the quality, quantity and accessibility of which may need enhanced). The A46 forms a barrier to movement and access to the wider countryside from Lincoln is limited.

Key GI assets and Opportunities

- Encourage positive management of landscape features which are under threat, including traditional field boundaries, remnants of ridge and furrow and woodlands. Priority should

³⁸⁷ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

³⁸⁸ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

³⁸⁹ North Kesteven Landscape Character Assessment (September 2007, David Tyldesley and Associates for North Kesteven District Council)

³⁹⁰ North Kesteven Landscape Character Assessment (September 2007, David Tyldesley and Associates for North Kesteven District Council.)

also be given to strengthening the field pattern, enhancing linkages between woodlands and increasing overall woodland coverage³⁹¹;

- Increase interpretation and intellectual access opportunities within this zone, focussing on Doddington Hall Historic Park and Garden, to link with similar parkland landscapes within Central Lincolnshire;
- This zone contains ‘core areas’ of the Witham Valley Country Park, including the ‘Skellingthorpe Woods’. The latter, which is located along a National Cycle Route provides ‘opportunities for additional access to this nationally important ancient limewood’³⁹²;
- There are opportunities within the proposed Country Park to provide interpretation of landscape and heritage features and enhance overall sense of place through the provision of ‘attractive signage, lively interpretation, engaging experiences and robust branding’³⁹³;
- Restore woodland converted to plantation, especially Ancient Woodland, to a native species composition;
- Strengthen and extend the hedgerow network;
- Seek the creation of new accessible natural greenspace (of at least 2ha), close to where people live, to address deficiencies. The proposed Country Park offers opportunities for improved access to nature with the creation of new/enhanced links and sites;
- In relation to the potential areas of development, provide a variety of linked formal/informal open spaces within/between neighbourhoods. Provide sustainable access links and connectivity between potential areas of development, Lincoln/key services and the wider countryside (including key visitor sites and other settlements); and
- Develop and promote circular routes linking the Fosdyke Canal with local settlements, other tourist attractions, bus routes and railway stations (this zone falls within a wider area of search for circular cycle routes)³⁹⁴.

4.19 Zone 18: South Lincoln Urban Area

Overview

- 4.19.1 This zone contains the southern half of Lincoln City urban area, including late Victorian/Edwardian residential suburbs, inter-war/post-war and modern residential and industrial areas. It also contains Bracebridge Heath and Waddington urban areas in the southeast and the suburb of North Hykeham in the southwest.

Existing Green Infrastructure Initiatives

- Witham Valley Country Park.

³⁹¹ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

³⁹² Witham Valley Country Park Strategy 2010-2020

³⁹³ Witham Valley Country Park Strategy 2010-2020

³⁹⁴ Objective 61 of the Lincolnshire Waterways Partnership Development Framework ‘Lincolnshire Waterways for the Future 2009 – 2018’

Key Needs/Deficiencies

Wildlife Habitat Provision

- 4.19.2 Although this part of Lincoln includes some greenspaces there is little in the way of semi-natural habitat.

Landscape/Townscape Setting and Historic Context

Landscape/Townscape Setting

- 4.19.3 There is a need to maintain the existing mixed pattern of historic and more modern developments which create a vibrant environment. There is also a need to increase visual and access connections between residential areas and their landscape setting within this zone³⁹⁵. Mature street trees are key townscape features along many road corridors, amongst housing areas and within key public open spaces. There is a need to protect these as key contributors to GI corridors and links. In addition, there is a need to protect and enhance the distinctive arts and crafts architectural styles/details of housing and 'leafy' appearance with hedges, gardens, grass verges and mature trees along roads in keeping with Garden City ideals in areas such as Swanpool³⁹⁶. There is a further need to protect the Green Wedges, Settlement Breaks and Visual Amenity Breaks within and at the edges of the city in order prevent settlement coalescence and to maintain and enhance the appearance of areas which form the foreground or background of key views from the historic core. There is a need to provide interconnected public streets, squares, greens and parks which provide a continuous and varied public realm, overlooked by buildings that provide natural surveillance and contact from their occupants/users within exiting/planned new neighbourhoods³⁹⁷.

Historic Environment

- 4.19.4 There is a need to protect historic features within the existing urban fabric such as historic road corridors (e.g. Brant Road³⁹⁸), traces of field boundaries associated with enclosure during the early Industrial period and occasional Grade II Listed Buildings which are scattered within the urban fabric. There is also a need to protect the integrity and setting of other heritage assets (see definition in **paragraph 3.3.6**), including Boultham Park and Hartsholme Park Grade II Historic Parks and Gardens, which are key historic landscape features within this zone.

³⁹⁵ Lincoln Townscape Assessment (Western-Hunt Lea Inherited Character Area Statement) (August 2007, City of Lincoln Council)

³⁹⁶ Lincoln Townscape Assessment (Swanpool Garden Suburb Inherited Character Area Statement) (November 2008, City of Lincoln Council)

³⁹⁷ Lincoln City Centre Regeneration: Linking Lincoln (April 2006, Enquiry by Design)

³⁹⁸ Lincoln Townscape Assessment (Brant Road Inherited Character Area Statement) (February 2009, City of Lincoln Council)

- 4.19.5 There is a need to carry out remedial works to reduce the number of heritage assets identified as being at risk, such as the Swanpool Conservation Area.

Sustainable Access, Recreation and Movement

- 4.19.6 There is a deficiency of neighbourhood and sub-regional scale accessible natural greenspace across this zone and of county and district scale sites for residents in the southern tip of the zone. There is a need to consider current and future needs in relation to accessible natural greenspace and also other types of formal/informal open space (the quality, quantity and accessibility of which may need enhanced). Links to Whisby Nature Park and Natural World Centre/other greenspaces and the wider countryside are needed. Connectivity between different housing areas within this zone and also with the city centre is generally limited as a result of linear road, railway and river corridors. The River Witham Valley off road cycle route does however provide some connectivity between the edge of this zone to the city centre.

Key GI assets and Opportunities

- Increase visual and physical connectivity between residential areas within this zone, with the city centre to the north and adjacent key areas of open space within the landscape setting;
- Highlight the significance of cultural heritage assets in the zone (focusing on Listed Buildings and Boultham and Hartsholme Park Historic Parks and Gardens) and increase public access and understanding of them in liaison with landowners;
- Enhance and incorporate open space green wedges into planning for potential new development and ensure that this incorporates best practice innovative architectural solutions and planning solutions that take inspiration from local distinctiveness and character whilst utilising eco-friendly and high quality design; and incorporates a robust planting strategy;
- Seek opportunities to reduce the number of heritage assets currently identified as being at risk;
- Promote gardening for wildlife in residential areas;
- Seek the creation of new accessible natural greenspace (of at least 2ha), close to where people live (within/adjacent to the urban area), to address deficiencies. Improve links to habitats immediately outside the town;
- Manage the floodplain as a multi-functional green corridor to enable sustainable water resource management (in line with the drainage authority and relevant IDB requirements), create wildlife corridors and encourage access to nature and increased movement by walking and cycling;
- Safeguard and enhance, where appropriate, areas of formal/informal open space within and on the edge of the town to meet current and future needs and develop green links between them;
- Improve/provide sustainable access links and connectivity between Lincoln, potential areas of development and the wider countryside (including key visitor sites and other settlements); and

- Develop and promote circular routes linking the River Witham and Fossdyke Canal with local settlements, other tourist attractions, bus routes and railway stations (this zone falls within a wider area of search for circular cycle routes)³⁹⁹.

4.20 Zone 19: River Witham Floodplain Valley

Overview

- 4.20.1 This zone contains a section of the corridor of the River Witham and is situated partly within the southeast of West Lindsey District and the northeast of North Kesteven District. It abuts the eastern edge of Lincoln City and encompasses low-lying flat fen-like landscapes alongside the river and large agricultural fields, with clumps of shrubby vegetation at field boundaries. Large-scale agricultural buildings and the River Witham flood defence bund is a prominent landscape feature and generally there is little riparian planting along rivers, dykes or ditches.

Existing Green Infrastructure Initiatives

- Lincolnshire Limewoods.

Key Needs/Deficiencies

Wildlife Habitat Provision

- 4.20.2 There have been historic losses of unimproved floodplain grassland as a result of agricultural improvement and conversion to intensive arable. Eutrophication or nutrient enrichment is a widespread issue in water bodies and water courses, including the extensive ditch network.

Landscape/Townscape Setting and Historic Context

Landscape/Townscape Setting

- 4.20.3 There is a need to protect the open and unsettled character of the landscape and limit the visual impact of any new structures by locating development on previously developed land or close to existing settlements and avoiding development on greenfield sites. Floodplain areas should also be avoided in accordance with government planning policy⁴⁰⁰. Within this zone there is evidence of agricultural intensification in tandem with a move from pastoral to arable farming which has resulted in the loss of many typical landscape features such as riverside

³⁹⁹ Objective 61 of the Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

⁴⁰⁰ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

meadows that would previously have defined river channels⁴⁰¹. There is therefore a need to protect existing river valley features such as remaining trees and riparian vegetation⁴⁰². This zone is vulnerable to the effects of climate change which has the potential to lead to increased flooding, changing river channels and summer desiccation of wetlands⁴⁰³. There is pressure for potential new development within this zone due to the close proximity to the edges of Lincoln City. The proposed Eastern Bypass corridor also crosses the zone from north-south⁴⁰⁴. There is therefore a need to protect the Green Wedge at the eastern edge of Lincoln Urban Area, the Canwick/Washingborough Green Wedge, the Cannick/Bracebridge Heath Green Wedge and the Waddington/Bracebridge Heath Green Wedge to prevent settlement coalescence and '*link the built-up area to the countryside*'⁴⁰⁵. There is also a need to conserve and frame key views to the historic village centres of Bardney and Fiskerton.

Historic Environment

- 4.20.4 There is a need to protect the integrity and setting of heritage assets (see definition in **paragraph 3.3.6**), including Grade II Listed Buildings throughout the zone and the Grade II* Listed Building within Greetwell Hall, the surroundings of which are also designated as a Scheduled Monument (Greetwell Medieval Village).

Sustainable Access, Recreation and Movement

- 4.20.5 There is a deficiency of neighbourhood and sub-regional scale accessible natural greenspace across the zone and of county and district scale sites in the central part of the zone. There is limited access along parts of the River Witham and between the River and the Lincolnshire Limewoods area.

Key GI assets and Opportunities

- Plant more riparian vegetation, where appropriate, along rivers, dykes and ditches to provide opportunities for habitat creation and mark their presence in the landscape⁴⁰⁶;
- Subject to drainage maintenance requirement, encourage the introduction of buffer strips, beetle banks and linear wetland features in drainage channels (such as ledges which can be colonised by aquatic plants)⁴⁰⁷;

⁴⁰¹ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

⁴⁰² West Lindsey Landscape Character Assessment (August 1999, Environmental Resources Management for West Lindsey District Council)

⁴⁰³ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

⁴⁰⁴ Central Lincolnshire Core Strategy Issues and Options Consultation Document (October 2010, CLJSPC)

⁴⁰⁵ City of Lincoln Local Plan (Adopted 1998) Policies & Explanatory Text, http://www.lincoln.gov.uk/topic_results.asp?kw_id=1057

⁴⁰⁶ West Lindsey Landscape Character Assessment (August 1999, Environmental Resources Management for West Lindsey District Council)

⁴⁰⁷ West Lindsey Landscape Character Assessment (August 1999, Environmental Resources Management for West Lindsey District Council)

- Highlight the significance of cultural heritage assets in the zone (focusing on the numerous Listed Buildings and Scheduled Monuments) and increase public access and understanding of them in liaison with landowners;
- Habitat enhancement and creation, especially floodplain grassland and wetland;
- Seek the creation of new accessible natural greenspace (of at least 2ha), close to where people live, to address deficiencies. There is scope to enhance access to nature/create accessible natural greenspace in the floodplain;
- Manage the floodplain as a multi-functional green corridor to enable sustainable water resource management (in line with the drainage authority and relevant IDB requirements), create wildlife corridors and encourage access to nature and increased movement by walking and cycling;
- Develop and promote circular routes linking the River Witham with local settlements, other tourist attractions, bus routes and railway stations (this zone falls within a wider area of search for circular cycle routes)⁴⁰⁸; and
- There is an aspiration to develop new marina facilities in the Cherry Willingham area to increase boating use⁴⁰⁹.

4.21 Zone 20: Southeast Lincoln Fringe Limestone Heath

Overview

- 4.21.1 This zone is situated in the north of North Kesteven District, adjacent to the south-eastern edge of Lincoln City. It encompasses a predominantly open landscape with wide views to the skyline in all directions. Intensive arable agriculture dominates land use, with large rectilinear fields and denuded field boundaries. Urban fringe land uses are also apparent.

Existing Green Infrastructure Initiatives

- Southern Lincolnshire Edge and Kesteven Uplands National Character Areas (Life on the Verge project).

Key Needs/Deficiencies

Wildlife Habitat Provision

- 4.21.2 There have been historic losses of habitats, especially limestone grassland, and generally semi-natural habitats, mostly woodlands, are small in number and extent. Although hedgerows are present throughout much of the zone the integrity and functional value of the network has been significantly reduced through a combination of removal and neglect. There is also a need to

⁴⁰⁸ Objective 61 of the Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

⁴⁰⁹ Objective 67 of the Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

protect and manage (including thinning, possibly coppicing and replanting trees⁴¹⁰) and connect small, isolated woodlands on the ridgeline. Lincoln has been identified as a Growth Point and a number of potential areas of development have been identified around the edge of the town, including one within this zone⁴¹¹. There is therefore a need during development planning to ensure that valuable semi-natural habitats, such as remaining unimproved or semi-improved grassland on the Lincolnshire Edge escarpment, and habitat links between them are safeguarded.

Landscape/Townscape Setting and Historic Context

Landscape/Townscape Setting

- 4.21.3 Villages within this zone are under increasing pressure from development, which is damaging settlement character and pattern. The expansion of ridgeline villages has a particularly detrimental impact on landscape and visual character as a result of their visually prominent locations. There is a need to avoid the use of inappropriate non-vernacular materials such as red brick and tiles which have been used in recent housing developments⁴¹² and protect views to Lincoln Cathedral and village churches as these are distinctive regional/local landmarks⁴¹³. There is pressure within this zone for the installation of telecommunications infrastructure and wind energy schemes (due to the strength of winds across the more elevated and open dip slope). This could result in the creation of visually prominent features within this predominantly open landscape and a reduction in the overall sense of remoteness and isolation⁴¹⁴. The effects of intensification of arable cultivation have also resulted in the loss of or neglect of field boundaries of hedgerows or limestone walls⁴¹⁵. Large RAF airbases, such as Waddington, have a major visual impact on the landscape as a result of the large-scale aircraft hangars, concrete runways, tall radio masts and vast perimeter fences. There is therefore a need to improve the dominant appearance of such features where possible⁴¹⁶. This zone contains potential areas of development and there is therefore a need to consider options which are in keeping with local landscape and settlement character.

⁴¹⁰ West Lindsey Landscape Character Assessment (August 1999, Environmental Resources Management for West Lindsey District Council)

⁴¹¹ Central Lincolnshire Core Strategy Issues and Options Consultation Document (October 2010, CLJSPC)

⁴¹² North Kesteven Landscape Character Assessment (September 2007, David Tyldesley and Associates for North Kesteven District Council)

⁴¹³ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

⁴¹⁴ East Midlands Regional Landscape Character Assessment, April 2010, LDA Design for East Midlands Landscape Partnership)

⁴¹⁵ North Kesteven Landscape Character Assessment (September 2007, David Tyldesley and Associates for North Kesteven District Council)

⁴¹⁶ North Kesteven Landscape Character Assessment (September 2007, David Tyldesley and Associates for North Kesteven District Council)

- 4.21.4 There is a need to protect the integrity and setting of heritage assets (see definition in **paragraph 3.3.6**), including Grade II Listed Buildings within Branston, Canwick, Waddington and also associated with farmsteads. Many of the villages within this zone have early medieval cores and there is a need to protect the integrity of these, including the integrity and setting of Branston and Waddington Conservation Areas.

Sustainable Access, Recreation and Movement

- 4.21.5 There is a deficiency of neighbourhood and sub-regional scale accessible natural greenspace across most of the zone and of county and district scale sites for residents outside of Lincoln. There is a need to consider current and future needs in relation to accessible natural greenspace and also other types of formal/informal open space (the quality, quantity and accessibility of which may need enhanced). The access network is fragmented in places and the A15 and railway cause barriers to movement.

Key GI assets and Opportunities

- Within potential areas of development, there is an opportunity for trees and remnant hedgerows to form the basis for the landscape structure in potential planned new neighbourhoods, to plant new trees to assist the integration of new development into the landscape and to use best practice innovative architectural and planning solutions that take inspiration from local distinctiveness and character⁴¹⁷;
- Plan for new woodlands⁴¹⁸, ensuring that new planting schemes take full advantage of opportunities to enhance the scarp slope, integrate new development into the landscape and contain future growth⁴¹⁹;
- Highlight the significance of cultural heritage assets in the zone (focusing on the numerous Listed Buildings and Scheduled Monuments) and increase public access and understanding of them in liaison with landowners;
- Expand and link existing habitats, including grassland and woodland;
- Strengthen and extend the hedgerow network;
- There is scope to restore/create limestone grassland (especially on more steeply sloping areas such as the Lincolnshire Edge escarpment and in areas adjoining existing limestone grassland on road verges identified as part of the 'Life on the verge' project⁴²⁰) which could contribute to meeting accessible natural greenspace needs.
- Seek the creation of new accessible natural greenspace (of at least 2ha), close to where people live, to address deficiencies;
- In relation to the potential areas of development, provide a variety of linked formal/informal open spaces within/between neighbourhoods. Provide sustainable access links and

⁴¹⁷ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

⁴¹⁸ In liaison with the Forestry Commission

⁴¹⁹ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

⁴²⁰ http://lifeontheverge.org.uk/media/lotv/images/maps/LotV_2009_2010_results_map.jpg

connectivity between potential areas of development, Lincoln/key services and the wider countryside (including key visitor sites and other settlements); and

- Develop and promote circular routes linking the River Witham and Fossdyke Canal with local settlements, other tourist attractions, bus routes and railway stations (this zone falls within a wider area of search for circular cycle routes)⁴²¹.

4.22 Zone 21: Metheringham Fen and Marsh Margin Farmlands

Overview

- 4.22.1 This zone is situated within North Kesteven District and extends north-south from the River Witham corridor to the southern District Boundary. It encompasses a predominantly rural landscape which encompasses a patchwork of medium sized fields enclosed by hedgerows and ditches and interspersed with woodlands, copses and plantations. There is a more intimate character than within neighbouring Fens.

Existing Green Infrastructure Initiatives

- Southern Lincolnshire Edge and Kesteven Uplands National Character Areas (Life on the Verge project).

Key Needs/Deficiencies

Wildlife Habitat Provision

- 4.22.2 There has been historical habitat loss, especially of unimproved grassland and some areas of woodland, including Ancient Woodland have been converted to plantations. Although hedgerows are present throughout much of the zone the integrity and functional value the network has been significantly reduced through a combination of removal and neglect. There is a need to replace these where lost or degraded⁴²².

Landscape/Townscape Setting and Historic Context

Landscape/Townscape Setting

- 4.22.3 Residential development on settlement margins and infill development is affecting the historic character of villages and hamlets, resulting in the loss of landscape features and gradual

⁴²¹ Objective 61 of the Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

⁴²² North Kesteven Landscape Character Assessment (September 2007, David Tyldesley and Associates for North Kesteven District Council)

settlement coalescence. There is a need to protect the rural character of the landscape and limit the visual impact of any new development by locating it close to existing settlements⁴²³. There is also a need to protect the distinctive open character of the landscape and consider the visual impacts of potential new structures and changes to agricultural practices⁴²⁴. This zone is likely to be particularly vulnerable to the effects of climate change and there is therefore a need to adapt agricultural land management practices to accommodate the projected effects of climate change in association with the planned process of sustainable management options for adjacent Fenland Zones⁴²⁵. There are two large limestone quarries within this zone at Blankney and Metheringham. Although these sites are generally well screened, there is a need to provide additional visual enhancements to reduce the visual impact⁴²⁶.

Historic Environment

- 4.22.4 There is a need to protect the numerous large areas of semi-natural ancient woodland along the eastern boundary of the zone as key historic and landscape features. There is also a need to protect the integrity and setting of other heritage assets (see definition in **paragraph 3.3.6**), including groups of Grade II Listed Buildings (within Heighington, Washingborough, Potterhanworth, Nocton, Dunston, Metheringham, Blankney, Scopwick, Ruskington, Digby, Walcton, Martin, Timberland, Billingham and Anwick); the historic cores (generally dating to the early medieval period) of Heighington, Washingborough, Potterhanworth, Nocton, Dunston, Metheringham, Blankney and Scopwick Conservation Areas; and Scheduled monuments, including Car Dyke Scheduled Monument (following Car Dyke to the east of Martin and north of Washingborough), moated sites and a priory.

Sustainable Access, Recreation and Movement

- 4.22.5 There is a deficiency of accessible natural greenspace, at all tiers of the ANGSt hierarchy, across this zone. Whilst the access is a generally good within this zone, the railway forms a barrier to movement.

Key GI assets and Opportunities

- Promote the use of best practice innovative architectural ideas and planning solutions that minimise impact on local landscape and townscape character, encourage the use of

⁴²³ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

⁴²⁴ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

⁴²⁵ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

⁴²⁶ North Kesteven Landscape Character Assessment (September 2007, David Tyldesley and Associates for North Kesteven District Council)

appropriate local vernacular styles⁴²⁷ (including traditional limestone building stock⁴²⁸) and restore hedgerows as a priority, in locations where lost or degraded⁴²⁹;

- Highlight the significance of cultural heritage assets in the zone (focusing on the numerous Listed Buildings and Scheduled Monuments) and increase public access and understanding of them in liaison with landowners;
- Remove non-native species from woodlands and restore to a native species composition;
- Expand and link remaining semi-natural habitats, especially woodland;
- There is scope to restore/create limestone grassland in areas adjoining existing limestone grassland on road verges identified as part of the 'Life on the verge' project⁴³⁰ (these could contribute to meeting accessible natural greenspace needs).
- Seek the creation of new accessible natural greenspace (of at least 2ha), close to where people live, to address deficiencies;
- There is a long term aspiration to develop new access links between the Witham Valley Country Park/Whisby Nature Park and Natural World Centre, the River Witham/Water Rail Way and the Lincolnshire Limewoods area; and
- Develop and promote circular routes linking the River Witham/Sleaford Navigation with local settlements, other tourist attractions, bus routes and railway stations (this zone falls within a wider area of search for circular cycle routes)⁴³¹.

4.23 Zone 22: Heighington-Helpringham Fens and Carrlands

Overview

- 4.23.1 This zone is situated in the southeast of North Kesteven District and runs north-south from the corridor of the River Witham in the north to the District boundary in the south. Wider Fen and Carr landscapes continue outside the Study Area to the southeast. It encompasses low lying terrain (some of which lies below sea level) and a rigid geometry of field drainage ditches, roads, extensive arable farms and limited settlements.

Existing Green Infrastructure Initiatives

- Southern Lincolnshire Edge and Kesteven Uplands National Character Areas (Life on the Verge project).

⁴²⁷ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

⁴²⁸ North Kesteven Landscape Character Assessment (September 2007, David Tyldesley and Associates for North Kesteven District Council)

⁴²⁹ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

⁴³⁰ http://lifeontheverge.org.uk/media/lotv/images/maps/LotV_2009_2010_results_map.jpg

⁴³¹ Objective 61 of the Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

Key Needs/Deficiencies

Wildlife Habitat Provision

- 4.23.2 The Fens is one of the most intensively farmed areas in England and there have been historic losses of unimproved grassland as a result of agricultural improvement and conversion to intensive arable. As a result semi-natural habitats are very sparsely distributed. Eutrophication or nutrient enrichment is a widespread issue in water bodies and water courses, including the extensive ditch network.

Landscape/Townscape Setting and Historic Context

Landscape/Townscape Setting

- 4.23.3 Piecemeal development, such as garages and workshops, along arterial roads is reducing the sense of remoteness and creating visual intrusion, therefore there is a need to protect the distinctive character of the landscape and guide potential new development within and around existing settlements in order to limit incremental development⁴³². There is also pressure on this zone for the introduction of wind energy schemes as a result of the strength of the prevailing winds off the North Sea. New wind energy schemes create visual landmarks within this predominantly flat landscape and there is a need to protect the open character by siting wind energy schemes away from visually prominent or sensitive locations⁴³³. There is strong evidence of agricultural intensification and farm amalgamation within this zone, linked to a move towards arable production. This is evident in improvements to dykes and embankments. In addition there is also a proliferation of new large scale agricultural buildings which reflect the loss of smallholdings and the general increases in farm size⁴³⁴. There is therefore a need to ensure that new large scale agricultural buildings are carefully sited away from visually prominent locations and amongst existing buildings where possible⁴³⁵. Fast growing conifer trees such as *Cupressocyparis leylandii* are particularly common as screening features for new development and as shelterbelts. There is need to site these carefully in order to avoid unnecessary visual intrusion into this flat and open landscape⁴³⁶.

⁴³² East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

⁴³³ East Midlands Regional Landscape Character Assessment, April 2010, LDA Design for East Midlands Landscape Partnership)

⁴³⁴ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

⁴³⁵ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

⁴³⁶ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

- 4.23.4 There is a need to protect the integrity and setting of heritage assets (see definition in **paragraph 3.3.6**), including Grade I, II* and II Listed Buildings within North Kyme and throughout the Zone. The historic pattern of semi-natural ancient woodland should also be conserved, along with post-medieval field boundaries. The integrity and setting of Scheduled Monuments which include settlement sites and medieval moated sites should also be protected. There is also a need to carry out remedial works to reduce the number of heritage assets identified as being at risk, such as the Settlement site 600m east of Holme House (Scheduled Monument) and the Manor House (Grade II* Listed Building).

Sustainable Access, Recreation and Movement

- 4.23.5 There is a deficiency of accessible natural greenspace, at all tiers of the ANGSt hierarchy, across the entire zone (residents in Martin Dale have access to at least one county scale site). The access network across this zone is poor/fragmented– links between settlements (e.g. North Kyme and Billinghay), the Sleaford Navigation and the River Witham/National Cycle Network are limited.

Key GI assets and Opportunities

- Adapt agricultural land management practices to accommodate the projected effects of sea level rise and inundation and flooding in locations where this is anticipated⁴³⁷;
- Allow natural vegetative cover to grow up along embankments, dykes or field margins where it would not interfere with flood management or drainage priorities;
- Enhance and create habitats, especially floodplain grassland and wetland along the River Witham;
- Improve and enhance the condition and potential of the dyke and ditch network, for example through management, and development of adjoining buffer strips (subject to drainage maintenance requirements);
- There is scope to restore/create limestone grassland in areas adjoining existing limestone grassland on road verges identified as part of the 'Life on the verge' project⁴³⁸ (these could contribute to meeting accessible natural greenspace needs);
- Seek the creation of new accessible natural greenspace (of at least 2ha), close to where people live, to address deficiencies;
- Manage the floodplain as a multi-functional green corridor to enable sustainable water resource management (in line with the drainage authority and relevant IDB requirements), create wildlife corridors and encourage access to nature and increased movement by walking and cycling;

⁴³⁷ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

⁴³⁸ http://lifeontheverge.org.uk/media/lotv/images/maps/LotV_2009_2010_results_map.jpg

- Highlight the significance of cultural heritage assets in the zone (focusing on the Listed Buildings and Scheduled Monuments) and increase public access and understanding of them in liaison with landowners;
- Seek opportunities to reduce the number of heritage assets currently identified as being at risk;
- Develop and promote circular routes linking the River Witham/Sleaford Navigation with local settlements, other tourist attractions, bus routes and railway stations (this zone falls within a wider area of search for circular cycle routes) ⁴³⁹;
- There is an aspiration to develop waterway infrastructure at Chapel Hill where the Sleaford Navigation meets the River Witham⁴⁴⁰;
- Carry out a review of the towpath and linking routes to develop and implement proposals to promote the Sleaford Navigation as a facility for walking, cycling, canoeing and horse riding⁴⁴¹;
- Proposals by the Environment Agency to link the Witham with the Fens and beyond. This project will link the Witham at Boston to the Nene near Peterborough, via the South Forty Foot Drain and the rivers Welland and Glen – this would provide an important leisure/tourism attraction; and
- The restoration of Horncastle Canal⁴⁴², which lies immediately adjacent to but outside the Study Area, has the potential to provide as a recreational facility for residents in Central Lincolnshire.

4.24 Zone 23: Southwest Lincoln Fringe Unwooded Vale

Overview

- 4.24.1 This zone is situated within the northwest of North Kesteven District and abuts the western edge of Lincoln City. It encompasses productive mixed agriculture, set within an enclosed landscapes of low, well maintained hawthorn hedgerows. Wide areas are under permanent pastures, often grazed by dairy herds. Urban fringe land uses are also apparent within close proximity to Lincoln.

Existing Green Infrastructure Initiatives

- Witham Valley County Park.

⁴³⁹ Objective 61 of the Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

⁴⁴⁰ Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

⁴⁴¹ Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

⁴⁴² Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

Key Needs/Deficiencies

Wildlife Habitat Provision

- 4.24.2 There have been historic losses of habitat, such as floodplain grassland along the River Witham, and apart from a small number of moderate sized woodlands semi-natural habitats are mostly small in number, extent and are isolated. Some woodlands, including Ancient Woodlands have been converted to plantations. Although hedgerows are present throughout much of the zone the integrity and functional value the network has been significantly reduced through a combination of removal and neglect. Lincoln has been identified as a Growth Point and a number of potential areas of development have been identified around the edge of the town, including one within this zone⁴⁴³. There is therefore a need during development planning to ensure that valuable semi-natural habitats and habitat links between them are safeguarded.

Landscape/Townscape Setting and Historic Context

Landscape/Townscape Setting

- 4.24.3 There is pressure on the farmland landscape for the introduction of new built development. Agricultural intensification has resulted in the loss of hedgerows and hedgerow trees which has weakened the definition between fields and roadsides. There is therefore a need to protect existing rural assets that are under threat, including hedgerows and hedgerow trees. There is also pressure for the construction of new roads or road alteration schemes such as the A46 widening scheme. There is therefore a need to ensure that new road schemes, road widening or the realignment of existing roads are carefully integrated into the landscape⁴⁴⁴. This zone contains potential areas of development, which could change existing landscape and settlement character. There is therefore a need to conserve the Hykeham Pits Green Wedge and the Witham Valley Green Wedge in order to prevent settlement coalescence. There is particular pressure around the edges of North Hykeham where there is the potential for the growth in urban fringe land uses.

Historic Environment

- 4.24.4 There is a need protect the historic integrity of the pockets of semi-natural ancient woodlands. There is also a need to protect the integrity and setting of other heritage assets (see definition in **paragraph 3.3.6**), including numerous Grade II Listed Buildings within the villages and hamlets of North Scarle, Eagle, Haddington, Auborn, Bassingham, South Hykeham, Swinderby and

⁴⁴³ Central Lincolnshire Core Strategy Issues and Options Consultation Document (October 2010, CLJSPC)

⁴⁴⁴ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

Thorpe on the Hill (including the Conservation Areas in North Scarle and Bassingham which date back to the early medieval period).

Sustainable Access, Recreation and Movement

- 4.24.5 There is a deficiency of accessible natural greenspace, at all tiers of the ANGSt hierarchy, across almost this entire zone. There is a need to consider current and future needs in relation to accessible natural greenspace and also other types of formal/informal open space (the quality, quantity and accessibility of which may need enhanced). Links between Lincoln's southern urban fringe, the wider countryside and key recreational sites such as the Whisby Nature Park and Natural World Centre are limited. The A46 forms a barrier to movement.

Key GI assets and Opportunities

- There is an opportunity for trees and remnant hedgerows to form the basis for the landscape structure within potential areas of development⁴⁴⁵;
- There are opportunities within the proposed Country Park to provide interpretation of landscape and heritage features and enhance overall sense of place through the provision of *'attractive signage, lively interpretation, engaging experiences and robust branding'*⁴⁴⁶;
- Highlight the significance of cultural heritage assets in the zone (focusing on the Listed Buildings and Scheduled Monuments) and increase public access and understanding of them in liaison with landowners;
- Restore or create floodplain grassland and wetland in areas adjoining the River Witham;
- Remove non-native species from woodlands and restore to a native species composition and expand/link woodlands;
- Strengthen and extend the hedgerow network;
- Seek the creation of new accessible natural greenspace (of at least 2ha), close to where people live, to address deficiencies. This zone contains several 'core areas' of the proposed Country Park, including Whisby, which focuses on *'existing facilities and the nature conservation of the lakes and their surroundings and provides a principal gateway to the Park'*⁴⁴⁷, and future quarry restoration sites to the west of Whisby⁴⁴⁸ which could *'provide opportunities for more active water-based recreation and the creation of more wildlife habitat to give wetland plants and animals a better chance of survival in a changing climate'*⁴⁴⁹. There may be opportunities for habitat creation, including wetland, on current and future mineral extraction sites;
- In relation to the potential areas of development, provide a variety of linked formal/informal open spaces within/between neighbourhoods. Provide sustainable access links and connectivity between potential areas of development, Lincoln/key services and the wider countryside (including key visitor sites and other settlements); The proposed Country Park offers opportunities for improved access to nature with the creation of new links and new/enhance site. There is a long term aspiration to develop new access links between the

⁴⁴⁵ North Kesteven Landscape Character Assessment (September 2007, David Tyldesley and Associates for North Kesteven District Council)

⁴⁴⁶ Witham Valley Country Park Strategy 2010-2020

⁴⁴⁷ Witham Valley Country Park Strategy 2010-2020

⁴⁴⁸ See Hykeham and Whisby Pits Management Plan

⁴⁴⁹ Witham Valley Country Park Strategy 2010-2020

proposed Country Park, the River Witham/Water Rail Way and the Lincolnshire Limewoods area;

- Manage the floodplain as a multi-functional green corridor to enable sustainable water resource management (in line with the drainage authority and relevant IDB requirements), create wildlife corridors and encourage access to nature and increased movement by walking and cycling; and
- Develop and promote circular routes linking the River Witham/Fosdyke Canal with local settlements, other tourist attractions, bus routes and railway stations (this zone falls within a wider area of search for circular cycle routes)⁴⁵⁰.

4.25 Zone 24: Stapleford Wooded Vales

Overview

- 4.25.1 This zone is situated within the south-western corner of North Kesteven District and encompasses a patchwork of woodland (both broadleaf and conifer plantation) interspersed with pockets of grassy pasture, arable fields and flooded gravel pits. Hedgerow trees are common within hedgerows and settlement pattern is scattered.

Existing Green Infrastructure Initiatives

- Witham Valley County Park.

Key Needs/Deficiencies

Wildlife Habitat Provision

- 4.25.2 Although there is a relatively large amount of woodland in the zone, much of this comprises coniferous plantations, and some of this was historically planted on heathland. Although hedgerows are present throughout much of the zone the integrity and functional value of the network has been significantly reduced through a combination of removal and neglect.

Landscape/Townscape Setting and Historic Context

Landscape/Townscape Setting

- 4.25.3 Sand and gravel extraction is a pressure within this zone. There is a need to avoid the creation of incongruous features within the landscape through consideration of sensitive reclamation of

⁴⁵⁰ Objective 61 of the Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

former sand and gravel extraction sites in accordance with wider landscape features⁴⁵¹. Active mineral working sites are generally screened by bund walking which is not harmonious with local landscape character. There is therefore a need to treat bunds/bund walling in a more natural manner⁴⁵². There is also pressure for the construction of new roads or road alteration schemes such as the A46 widening scheme. There is therefore a need to ensure that new road schemes, road widening or the realignment of existing roads are carefully integrated into the landscape⁴⁵³.

Historic Environment

- 4.25.4 There is a need to protect the integrity and setting of heritage assets (see definition in **paragraph 3.3.6**), including occasional Listed Buildings which are often associated with farmsteads and Norton Disney Hall (a Scheduled Monument). There is also a need to protect the historic pattern of large areas of semi-natural ancient woodland including Stapleford Wood and woodland around Norton Disney Hall, which contributes to historic landscape pattern and current character. There is also a need to carry out remedial works to reduce the number of heritage assets identified as being at risk, such as the Roman villa west of Hill Holt Farm (Scheduled Monument).

Sustainable Access, Recreation and Movement

- 4.25.5 Access links across this zone and between the Stapleford Woods and settlements located in adjacent zones are very limited.

Key GI assets and Opportunities

- Ensure that sensitive reclamation of former sand and gravel extraction sites focuses on heathland and acid grassland mosaics, hedgerow patterns and some restoration of former native woodland expanses where locally appropriate. Large water bodies should generally be avoided in future reclamation schemes⁴⁵⁴;
- Ensure that plans for new road schemes, road widening or the realignment of existing road include sensitive alignment, detailing and planting;
- This zone forms part of the wider Witham Valley Country Park and there are therefore opportunities to provide interpretation of landscape and heritage features and enhance overall sense of place through the provision of '*attractive signage, lively interpretation, engaging experiences and robust branding*'⁴⁵⁵;

⁴⁵¹ North Kesteven Landscape Character Assessment (September 2007, David Tyldesley and Associates for North Kesteven District Council)

⁴⁵² North Kesteven Landscape Character Assessment (September 2007, David Tyldesley and Associates for North Kesteven District Council)

⁴⁵³ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

⁴⁵⁴ North Kesteven Landscape Character Assessment (September 2007, David Tyldesley and Associates for North Kesteven District Council)

⁴⁵⁵ Witham Valley Country Park Strategy 2010-2020

- Highlight the significance of cultural heritage assets in the zone (focusing on the Listed Buildings and Norton Disney Hall) and increase public access and understanding of them in liaison with landowners;
- Seek opportunities to reduce the number of heritage assets currently identified as being at risk;
- Restore areas of heathland within coniferous plantations, especially where heathland features remain, through targeted removal of conifers, for example along rides and by creating and extending clearings;
- Modify management of conifer plantations to benefit wildlife, including, where possible, greater use of native species; and
- Strengthen and extend the hedgerow network.

4.26 Zone 25: Wellingore Limestone Heath

Overview

- 4.26.1 This zone is situated in the south of North Kesteven District and encompasses a predominantly open landscape with wide views to the skyline in all directions. Intensive arable agriculture dominates land use, with large rectilinear fields and denuded field boundaries.

Existing Green Infrastructure Initiatives

- Southern Lincolnshire Edge and Kesteven Uplands National Character Areas (Life on the Verge project).

Key Needs/Deficiencies

Wildlife Habitat Provision

- 4.26.2 There have been historic losses of habitats, especially limestone grassland, and generally semi-natural habitats, mostly woodlands, are small in number and extent. Although hedgerows are present throughout much of the zone the integrity and functional value of the network has been significantly reduced through a combination of removal and neglect.

Landscape/Townscape Setting and Historic Context

Landscape/Townscape Setting

- 4.26.3 Within this zone, villages are under increasing pressure from development which is damaging settlement character and pattern. The expansion of ridgeline villages has a particularly detrimental impact on landscape and visual character as a result of their visually prominent

locations. There is a need to avoid the use of inappropriate non-vernacular materials such as red brick and tiles which have been used in recent housing developments⁴⁵⁶. There is also pressure for the installation of telecommunications infrastructure and wind energy schemes (due to the strength of winds across the more elevated and open dip slope). This could result in the creation of visually prominent features within this predominantly open landscape and a reduction in the overall sense of remoteness and isolation⁴⁵⁷. The effects of intensification of arable cultivation have also resulted in the loss of or neglect of field boundaries of hedgerows or limestone walls⁴⁵⁸. There is also a need to protect and manage and connect small, isolated woodlands on the ridgeline⁴⁵⁹.

Historic Environment

- 4.26.4 There is a need to protect the integrity and setting of heritage assets (see definition in **paragraph 3.3.6**), including clusters of Grade II* and II Listed Buildings within villages along the western edge of the zone, including Welbourn, Wellingore, Navenby, Boothby Graffoe, Coleby, Leadenham and Harmston. The historic cores of several of these villages (dating from the early medieval period or earlier), designated as Conservation Areas, should also be protected. The historic integrity and setting of Coleby Hall Grade II Historic Park and Garden should also be protected as a key historic asset within the zone. There is also a need to carry out remedial works to reduce the number of heritage assets identified as being at risk, such as Somerton Castle and outbuildings (Grade I Listed Building/Scheduled Monument).

Sustainable Access, Recreation and Movement

- 4.26.5 There is a deficiency of accessible natural greenspace, at all tiers of the ANGSt hierarchy, across the majority of this zone. The A15 forms a barrier to movement.

Key GI assets and Opportunities

- Strengthen, enhance and reinstate field boundaries to restore historic landscape pattern, including hedgerows where these have been lost or degraded and stone walls at the outskirts of settlements⁴⁶⁰;
- Incorporate indigenous tree belts and appropriate boundary treatment, such as dry stone walling at the edges of potential new development⁴⁶¹; and plant new native trees to assist the integration of new development into the landscape⁴⁶²;

⁴⁵⁶ North Kesteven Landscape Character Assessment (September 2007, David Tyldesley and Associates for North Kesteven District Council)

⁴⁵⁷ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

⁴⁵⁸ North Kesteven Landscape Character Assessment, September 2007, David Tyldesley and Associates for North Kesteven District Council)

⁴⁵⁹ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

⁴⁶⁰ North Kesteven Landscape Character Assessment (September 2007, David Tyldesley and Associates for North Kesteven District Council)

- Expand and link existing habitats, including grassland and woodland (notably the small scattered woodland). Plan for new woodlands⁴⁶³, ensuring that new planting schemes take full advantage of opportunities to enhance the scarp slope, integrate new development into the landscape and contain future growth⁴⁶⁴;
- Strengthen and extend the hedgerow network;
- Highlight the significance of cultural heritage assets in the zone (focusing on the Listed Buildings and Scheduled Monuments) and increase public access and understanding of them in liaison with landowners;
- Seek opportunities to reduce the number of heritage assets currently identified as being at risk;
- Seek the creation of new accessible greenspace (of at least 2ha), close to where people live, to address deficiencies. There is scope to restore/create limestone grassland (especially on more steeply sloping areas such as the Lincolnshire Edge escarpment and in areas adjoining existing limestone grassland on road verges identified as part of the 'Life on the verge' project⁴⁶⁵) which could contribute to meeting accessible natural greenspace needs; and
- Develop and promote circular routes linking the River Witham/Sleaford Navigation with local settlements, other tourist attractions, bus routes and railway stations (this zone falls within a wider area of search for circular cycle routes)⁴⁶⁶.

4.27 Zone 26: Brant Broughton Unwooded Vale

Overview

- 4.27.1 This zone is situated in the south-western corner of North Kesteven District and is characterised by productive mixed agriculture, set within an enclosed landscapes of low, well maintained hedgerows. Wide areas are under permanent pastures, often grazed by dairy herds.

Existing Green Infrastructure Initiatives

- Witham Valley County Park.

Key Needs/Deficiencies

Wildlife Habitat Provision

- 4.27.2 There have been historic losses of habitat, notably of grassland, including floodplain grassland along the River Witham, and semi-natural habitats are now very small and sparsely distributed.

⁴⁶¹ North Kesteven Landscape Character Assessment (September 2007, David Tyldesley and Associates for North Kesteven District Council)

⁴⁶² East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership

⁴⁶³ In liaison with the Forestry Commission)

⁴⁶⁴ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

⁴⁶⁵ http://lifeontheverge.org.uk/media/lotv/images/maps/LotV_2009_2010_results_map.jpg

⁴⁶⁶ Objective 61 of the Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

Although hedgerows are present throughout much of the zone the integrity and functional value of the network has been significantly reduced through a combination of removal and neglect.

Landscape/Townscape Setting and Historic Context

Landscape/Townscape Setting

- 4.27.3 The trend for ploughing up areas of pasture for cereals has resulted in the removal of hedgerows and an increase in field sizes to accommodate large machinery. This process is particularly noticeable around settlements where there is often a strong pattern of small-scale pasture fields (which often date from the early medieval period)⁴⁶⁷. The resultant need is to protect the settings of villages in order to prevent coalescence. There is a need to protect existing rural assets that are under threat, including hedgerows and hedgerow trees and manage small farm woodlands⁴⁶⁸.

Historic Environment

- 4.27.4 There is a need to protect the integrity and setting of heritage assets (see definition in **paragraph 3.3.6**), including Grade I, II* and II Listed Buildings, which occur in Brant Broughton and Beckingham; Somerton Castle Scheduled Monument; and the historic cores of villages within the Zone, several of which date from the early medieval period or earlier. There is a need to carry out remedial works to reduce the number of heritage assets identified as being at risk, such as All Saints Church (Grade I Listed Building).

Sustainable Access, Recreation and Movement

- 4.27.5 There is a deficiency of accessible natural greenspace, at all tiers of the ANGSt hierarchy, across the eastern half of this zone and of neighbourhood and sub-regional scale sites in the western half. Access links to the north-west are limited as well as between Brant Broughton and Stapleford Wood.

Key GI assets and Opportunities

- Highlight the significance of cultural heritage assets in the zone (focusing on the Listed Buildings and Scheduled Monuments) and increase public access and understanding of them in liaison with landowners;

⁴⁶⁷ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

⁴⁶⁸ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

- Seek opportunities to reduce the number of heritage assets currently identified as being at risk;
- The restoration of hedgerows should be given priority where in decline and there is an opportunity to create new hedgerows and permanent pasture along watercourses to increase the occurrence of semi-natural habitats (potentially through agri-environment schemes) and the visibility of streams and dykes ⁴⁶⁹; and on the fringes of villages to integrate potential new developments with surrounding field patterns⁴⁷⁰;
- This zone forms part of the wider Witham Valley Country Park and there are therefore opportunities to provide interpretation of landscape and heritage features and enhance overall sense of place through the provision of *'attractive signage, lively interpretation, engaging experiences and robust branding'*⁴⁷¹;
- Restore or create floodplain grassland and wetland alongside the River Witham, especially targeted at expanding and linking any remaining areas of habitat, for example near Beckingham;
- Manage the floodplain as a multi-functional green corridor to enable sustainable water resource management (in line with the drainage authority and relevant IDB requirements), create wildlife corridors and encourage access to nature and increased movement by walking and cycling;
- Expand existing small woods;
- There is scope to restore/create grassland habitats in and around Beckingham ranges;
- Seek the creation of new accessible greenspace (of at least 2ha), close to where people live, to address deficiencies. The proposed Country Park offers opportunities for improve access to nature with the creation of new/enhanced links and sites.

4.28 Zone 27: Northwest Sleaford Fringe Limestone Scarps and Dipslopes

Overview

- 4.28.1 This zone is situated in the southwest of North Kesteven District, adjacent to the north western edge of Sleaford urban area. It encompasses a well-managed agricultural landscape which is interspersed with small copses of mixed woodland. Avenues of mature trees and substantial hedgerows run along the lanes leading to North and South Rauceby, giving an enclosed feel to the area. Adjacent to these villages, smaller fields and paddocks remain.

Existing Green Infrastructure Initiatives

- Southern Lincolnshire Edge and Kesteven Uplands National Character Areas (Life on the Verge project).

⁴⁶⁹ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

⁴⁷⁰ West Lindsey Landscape Character Assessment (August 1999, Environmental Resources Management for West Lindsey District Council)

⁴⁷¹ Witham Valley Country Park Strategy 2010-2020

Key Needs/Deficiencies

Wildlife Habitat Provision

- 4.28.2 There have been historic losses of habitats, especially limestone grassland, and generally semi-natural habitats, mostly woodlands, are small in number and extent. Although hedgerows are present throughout much of the zone the integrity and functional value of the network has been significantly reduced through a combination of removal and neglect. Sleaford has been identified as a Growth Area and a number of potential areas of development have been identified around the edge of the town, including two within this zone⁴⁷². There is therefore a need during development planning to ensure that valuable semi-natural habitats and habitat links between them are safeguarded.

Landscape/Townscape Setting and Historic Context

Landscape/Townscape Setting

- 4.28.3 In many places limestone walls have been lost or are in a poor state of repair⁴⁷³. There is therefore a need to reinstate or repair them. Large RAF airbases, such as Cranwell, have a major visual impact on the landscape as a result of the large-scale aircraft hangers, concrete runways, tall radio masts and vast perimeter fences. There is therefore a need to improve the dominant appearance of such features where possible. There is a need to improve the integration of the A15 Sleaford bypass corridor and the A17 road corridors into the landscape, as they are currently appear unnatural in appearance. This zone contains potential areas of development and there is therefore a need to consider options which are in keeping with local landscape and settlement character. In line with this, there is also a need to protect the Sleaford Visual Amenity Break to the northeast of the town in order to prevent settlement coalescence.

Historic Environment

- 4.28.4 There is a need to protect the integrity and setting of heritage assets (see definition in **paragraph 3.3.6**), including Grade II Listed Buildings within RAF Cranwell airbase; Conservation Areas in North and South Rauceby, Leasingham and Holdingham; Rauceby Hall Grade II Historic Park and Garden (which is key historic asset); and the Scheduled Monument settlement and enclosure at Holdingham.

⁴⁷² Central Lincolnshire Core Strategy Issues and Options Consultation Document (October 2010, CLJSPC)

⁴⁷³ North Kesteven Landscape Character Assessment (September 2007, David Tyldesley and Associates for North Kesteven District Council)

Sustainable Access, Recreation and Movement

- 4.28.5 There is a deficiency of accessible natural greenspace, at all tiers of the ANGSt hierarchy, across this entire zone, including Sleaford's north-western urban fringe. Better links between Cranwell and Sleaford are needed.

Key GI assets and Opportunities

- Replace hedgerows where these have been lost or degraded, reinstate and repair dry stone walls⁴⁷⁴ and manage existing trees and woodland (much of which is semi-natural, ancient) to enhance biodiversity value and age structure and encourage the creation of woodland edge habitats⁴⁷⁵;
- There is an opportunity, within potential areas of development, for trees and remnant hedgerows to form the basis for the landscape structure within potential planned new neighbourhoods;
- Increase interpretation and intellectual access opportunities, in liaison with landowners within Rauceby Hall Historic Park and Garden, to link with similar parkland landscapes within Central Lincolnshire; and increase public access and understanding of Scheduled Monuments in liaison with landowners;
- Expand and link existing habitats, including grassland, parkland, woodland and the hedgerow network;
- There is significant scope to restore/create limestone grassland at Cranwell;
- Seek the creation of new accessible greenspace (of at least 2ha), close to where people live, to address deficiencies. There is scope to restore/create an arc/corridor of limestone grassland (especially on more steeply sloping areas and in areas adjoining existing limestone grassland on road verges identified as part of the 'Life on the verge' project⁴⁷⁶) which could contribute to meeting accessible natural greenspace needs;
- In relation to the potential areas of development, provide a variety of linked formal/informal open spaces within/between neighbourhoods. Provide sustainable access links and connectivity between potential areas of development, Sleaford/key services and the wider countryside (including key visitor sites and other settlements);
- Develop and promote circular routes linking the Sleaford Navigation with local settlements, other tourist attractions, bus routes and railway stations (this zone falls within a wider area of search for circular cycle routes)⁴⁷⁷; and
- Long term proposal to develop a major new waterway link between Grantham and Sleaford to form a new boating ring⁴⁷⁸.

⁴⁷⁴ North Kesteven Landscape Character Assessment (September 2007, David Tyldesley and Associates for North Kesteven District Council)

⁴⁷⁵ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

⁴⁷⁶ http://lifeontheverge.org.uk/media/lotv/images/maps/LotV_2009_2010_results_map.jpg

⁴⁷⁷ Objective 61 of the Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

⁴⁷⁸ Long term proposal identified in the Inland Waterways Amenity Advisory Council report. This is not proposed within the timescale of the Lincolnshire Waterways Partnership's Development Framework

4.29 Zone 28: Sleaford Urban Area

Overview

- 4.29.1 This zone is situated in the South of North Kesteven District and encompasses the historic market town of Sleaford, which is situated on the River Slea.

Existing Green Infrastructure Initiatives

- Southern Lincolnshire Edge and Kesteven Uplands National Character Areas (Life on the Verge project).

Key Needs/Deficiencies

Wildlife Habitat Provision

- 4.29.2 Although this part of Lincoln includes some greenspaces there is little in the way of semi-natural habitat.

Landscape/Townscape Setting and Historic Context

- 4.29.3 A large part of the town centre, including the principal shopping street - Southgate, is set within a Conservation Area which is home to a number of significant Listed Buildings. There is a need to protect the integrity and setting of heritage assets (see definition in **paragraph 3.3.6**), including a cluster of Grade I, II* and II Listed Buildings to the northeast of the Castle. There is also a need to improve the setting of the Station buildings (many of which are Listed) which are surrounded by poor public realm and undistinguished surroundings⁴⁷⁹. There is an overall need to integrate and re-use buildings of historic and townscape value into potential new developments and future regeneration schemes.
- 4.29.4 There is a need to reduce the impact of vehicles on the setting of the Handley Monument⁴⁸⁰. In addition, there is a need to regenerate the former Bass Malting site, which is of key cultural heritage importance for the town⁴⁸¹. A Masterplan for the Sleaford Area is currently being prepared which will feed into the Core Strategy and growth options for the town. The Central Lincolnshire Core Strategy Issues and Options Consultation Document identifies seven options for potential directions of growth in terms of expansion into the countryside⁴⁸². There is

⁴⁷⁹ Sleaford Town Centre Regeneration Supplementary Planning Document (SPD), North Kesteven District Council

⁴⁸⁰ Sleaford Town Centre Regeneration Supplementary Planning Document (SPD), North Kesteven District Council

⁴⁸¹ Central Lincolnshire Core Strategy Issues and Options Consultation Document (October 2010, CLJSPC)

⁴⁸² Central Lincolnshire Core Strategy Issues and Options Consultation Document (October 2010, CLJSPC)

therefore a need to ensure that within potential growth areas, development is integrated with existing landscape and settlement character; and takes into account the existing Visual Amenity Breaks to avoid settlement coalescence. There is also a need to carry out remedial works to reduce the number of heritage assets identified as being at risk, such as the former maltings of Bass Industrial Estate (Grade II* Listed Building).

Sustainable Access, Recreation and Movement

- 4.29.5 There is a deficiency of accessible natural greenspace, at all tiers of the ANGSt hierarchy, across the majority of this zone across this entire zone (small pockets of residents in the north, centre and south of Sleaford have access to at least one neighbourhood scale site).

Key GI assets and Opportunities

- Promote high quality and distinctive architectural design incorporating buildings of historic interest of a scale appropriate to the historic setting⁴⁸³;
- Enhance the setting of the Handley Monument through the redevelopment of Monument Gardens capitalising on the existing built heritage to create a successful transition between new development and the historic core⁴⁸⁴;
- Protect, enhance, manage and increase interpretation and intellectual access to Sleaford's key historic assets and their settings;
- Seek opportunities to reduce the number of heritage assets currently identified as being at risk;
- Promote gardening for wildlife in residential areas;
- There is scope to restore/create limestone grassland in areas adjoining existing limestone grassland on road verges identified as part of the 'Life on the verge' project⁴⁸⁵;
- Seek the creation of new accessible greenspace (of at least 2ha), close to where people live (within/adjacent to the urban area), to address deficiencies (there is scope to create an arc/corridor of accessible limestone grassland close to Sleaford). Improve links to habitats immediately outside the town;
- Safeguard and enhance, where appropriate, areas of formal/informal open space within and on the edge of the town to meet current and future needs and develop green links between them;
- Manage the floodplain as a multi-functional green corridor to enable sustainable water resource management (in line with the drainage authority and relevant IDB requirements), create wildlife corridors and encourage access to nature and increased movement by walking and cycling;
- Develop and promote a number of circular routes linking the Sleaford Navigation with local settlements, other tourist attractions, bus routes and railway stations (this zone falls within a wider area of search for circular cycle routes)⁴⁸⁶; and

⁴⁸³ Sleaford Town Centre Regeneration Supplementary Planning Document (SPD), North Kesteven District Council

⁴⁸⁴ Sleaford Town Centre Regeneration Supplementary Planning Document (SPD), North Kesteven District Council

⁴⁸⁵ http://lifeontheverge.org.uk/media/lotv/images/maps/LotV_2009_2010_results_map.jpg

⁴⁸⁶ Objective 61 of the Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

- Carry out a review of the towpath and linking routes to develop and implement proposals to promote the Sleaford Navigation as a facility for walking, cycling, canoeing and horse riding⁴⁸⁷.

4.30 Zone 29: Southeast Sleaford Fringe Fen and Marsh Margin Farmlands

Overview

- 4.30.1 This zone is situated in the south of North Kesteven District and encompasses a predominantly open landscape with wide views to the skyline in all directions. Intensive arable agriculture dominates land use, with large rectilinear fields and denuded field boundaries. The northern edge of the zone abuts the southern edge of Sleaford Urban Area.

Existing Green Infrastructure Initiatives

- Southern Lincolnshire Edge and Kesteven Uplands National Character Areas (Life on the Verge project).

Key Needs/Deficiencies

Wildlife Habitat Provision

- 4.30.2 There have been historic losses of habitats, for example of limestone grassland in the western part of the zone and floodplain grassland along the River Slea. Remaining semi-natural habitats, mostly woodlands, are small in number and some areas of Ancient Woodland have been converted to plantation. Although hedgerows are present throughout much of the zone the integrity and functional value of the network has been significantly reduced through a combination of removal and neglect. Sleaford has been identified as a Growth Area and a number of potential areas of development have been identified around the edge of the town, including five within this zone⁴⁸⁸. There is therefore a need during development planning to ensure that valuable semi-natural habitats and habitat links between them are safeguarded.

Landscape/Townscape Setting and Historic Context

Landscape/Townscape Setting

- 4.30.3 Residential development on settlement margins and infill development is affecting the historic character of villages and hamlets, resulting in the loss of landscape features and gradual

⁴⁸⁷ Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

⁴⁸⁸ Central Lincolnshire Core Strategy Issues and Options Consultation Document (October 2010, CLJSPC)

settlement coalescence. There is a need to protect the rural character of the landscape and limit the visual impact of any new development by locating it close to existing settlements⁴⁸⁹. There is also a need to protect the distinctive open character of the landscape and consider the visual impacts of potential new structures and changes to agricultural practices⁴⁹⁰. This zone is likely to be particularly vulnerable to the effects of climate change and there is therefore a need to adapt agricultural land management practices to accommodate the projected effects of climate change in association with the planned process of sustainable management options for adjacent Fenland Zones⁴⁹¹. This zone contains a potential area of development and there is therefore a need to consider options which are in keeping with local landscape and settlement character. In line with this, there is also a need to protect the Sleaford Visual Amenity Break to the northeast of the town in order to prevent settlement coalescence.

Historic Environment

- 4.30.4 There is a need to protect the integrity and setting of heritage assets (see definition in **paragraph 3.3.6**), including Grade II* Grade II Listed Buildings within Screddington, Aswarby, Osbournby and Silk Willoughby and alongside the historic pockets of ancient woodland such as at Aswarby Thorns; Conservation Areas within the historic core of Osbournby and Aswarby Hall; and Scheduled Monuments (including moated manorial granges, sites and barrows). There is also a need to carry out remedial works to reduce the number of heritage assets identified as being at risk, such as Haverholme Priory (Scheduled Monument) and Silkby Chapel remains, Butt Lees (Scheduled Monument).

Sustainable Access, Recreation and Movement

- 4.30.5 There is a deficiency of accessible natural greenspace, at all tiers of the ANGSt hierarchy, across this entire zone. Better links between Sleaford and Grantham (which lies outside the Study Area) are needed. The railway and A15 form barriers to access.

Key GI assets and Opportunities

- Highlight the significance of cultural heritage assets in the zone (focusing on the Listed Buildings and Scheduled Monuments) and increase public access and understanding of them in liaison with landowners;
- Within potential areas of development, there is an opportunity for trees and remnant hedgerows to form the basis for the landscape structure. There are also opportunities to incorporate new trees and use best practice innovative architectural and planning solutions

⁴⁸⁹ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

⁴⁹⁰ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

⁴⁹¹ East Midlands Regional Landscape Character Assessment (April 2010, LDA Design for East Midlands Landscape Partnership)

that take inspiration from local distinctiveness and character whilst utilising high quality and eco-friendly design within potential planned new neighbourhoods;

- Strengthen, enhance and reinstate field boundaries to restore historic landscape pattern, including hedgerows where these have been lost or degraded and stone walls at the outskirts of settlements⁴⁹²;
- Seek opportunities to reduce the number of heritage assets currently identified as being at risk;
- Restore or create limestone grassland, especially in the western part of the zone on more steeply sloping areas and in areas adjoining existing limestone grassland on road verges identified as part of the 'Life on the verge' project⁴⁹³;
- Restore or create floodplain grassland and wetland in areas adjoining the River Sleas;
- Expand and link existing habitats, including woodland and parkland. Remove non-native species from areas of woodland converted to plantation and restore to a native species composition;
- Seek the creation of new accessible greenspace (of at least 2ha), close to where people live, to address deficiencies. There is scope to restore/create an arc/corridor of limestone grassland (especially on more steeply sloping areas and in areas adjoining existing limestone grassland on road verges identified as part of the 'Life on the verge' project⁴⁹⁴) which could contribute to meeting accessible natural greenspace needs;
- In relation to the potential areas of development, provide a variety of linked formal/informal open spaces within/between neighbourhoods. Provide sustainable access links and connectivity between potential areas of development, Gainsborough/key services and the wider countryside (including key visitor sites and other settlements);
- Manage the floodplain as a multi-functional green corridor to enable sustainable water resource management (in line with the drainage authority and relevant IDB requirements), create wildlife corridors and encourage access to nature and increased movement by walking and cycling;
- Develop and promote circular routes linking the Sleaford Navigation with local settlements, other tourist attractions, bus routes and railway stations (this zone falls within a wider area of search for circular cycle routes)⁴⁹⁵;
- Establish use of the river by providing a small trip boat to link the Hub (National Centre for Craft & Design) with Cogglesford Mill⁴⁹⁶ and carry out a review of the towpath and linking routes to develop and implement proposals to promote the Sleaford Navigation as a facility for walking, cycling, canoeing and horse riding⁴⁹⁷;
- Deliver the proposed extension to National Route 15, linking Grantham to Sleaford; and
- Work towards the full restoration of the Sleaford Navigation from Sleaford to the River Witham by restoring it in stages, taking into account water resources and seeking to achieve significant benefits for biodiversity⁴⁹⁸.

⁴⁹² North Kesteven Landscape Character Assessment (September 2007, David Tyldesley and Associates for North Kesteven District Council)

⁴⁹³ http://lifeontheverge.org.uk/media/lotv/images/maps/LotV_2009_2010_results_map.jpg

⁴⁹⁴ http://lifeontheverge.org.uk/media/lotv/images/maps/LotV_2009_2010_results_map.jpg

⁴⁹⁵ Objective 61 of the Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

⁴⁹⁶ Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

⁴⁹⁷ Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

⁴⁹⁸ Objective 34-7 of the Lincolnshire Waterways Partnership Development Framework 'Lincolnshire Waterways for the Future 2009 – 2018'

4.31 Zone 30: Dembleby and Wilsford Forest Hills and Ridges

Overview

- 4.31.1 This zone is situated in the south of North Kesteven District and is characterised by a series of interlocking, rolling low hills and gently rounded ridges which are cut by small river valleys with steep lower reaches. Small wooded areas contribute a sense of enclosure within this otherwise agricultural landscape which is dominated by intensive arable agriculture.

Existing Green Infrastructure Initiatives

- Southern Lincolnshire Edge and Kesteven Uplands National Character Areas (Life on the Verge project).

Key Needs/Deficiencies

Wildlife Habitat Provision

- 4.31.2 There have been historic losses of habitats, notably of limestone grassland, and remaining semi-natural habitats, mostly woodlands, are small in number and extent. Although hedgerows are present throughout much of the zone the integrity and functional value of the network has been significantly reduced through a combination of removal and neglect.

Landscape/Townscape Setting and Historic Context

Landscape/Townscape Setting

- 4.31.3 Whilst the agricultural landscape is generally well maintained within this zone, there is a need to replace hedgerows where these have been lost or degraded⁴⁹⁹. There is also a need to maintain protect the distinctive rural character within this zone and the pattern of agricultural hamlets⁵⁰⁰. Distinctive wide verges and associated avenues of trees should be conserved as a key feature of this zone.

⁴⁹⁹ North Kesteven Landscape Character Assessment (September 2007, David Tyldesley and Associates for North Kesteven District Council)

⁵⁰⁰ North Kesteven Landscape Character Assessment (September 2007, David Tyldesley and Associates for North Kesteven District Council)

- 4.31.4 There is a need to protect the integrity and setting of heritage assets (see definition in **paragraph 3.3.6**), including clusters of Grade I and II Listed Buildings in Newton, Haceby and Walcot settlements, Haceby Roman Villa, medieval fish ponds; and Holdingham Scheduled Monuments.

Sustainable Access, Recreation and Movement

- 4.31.5 There is a deficiency of accessible natural greenspace, at all tiers of the ANGSt hierarchy, across this entire zone.

Key GI assets and Opportunities

- Strengthen, enhance and reinstate field boundaries to restore historic landscape pattern, including hedgerows where these have been lost or degraded;
- Ensure that any potential new development uses materials and design principles that respect and reflect the existing traditional limestone building stock so that they are sympathetic to place and established vernacular⁵⁰¹;
- Highlight the significance of cultural heritage assets in the zone (focusing on the Listed Buildings and Scheduled Monuments) and increase public access and understanding of them in liaison with landowners;
- Restore or create limestone grassland, especially on more steeply sloping areas and in areas adjoining existing limestone grassland south of Ancaster and on road verges identified as part of the 'Life on the verge' project⁵⁰²;
- Expand and link existing woodlands; and
- Seek the creation of new accessible greenspace (of at least 2ha), close to where people live, to address deficiencies.

⁵⁰¹ North Kesteven Landscape Character Assessment (September 2007, David Tyldesley and Associates for North Kesteven District Council)

⁵⁰² http://lifeontheverge.org.uk/media/lotv/images/maps/LotV_2009_2010_results_map.jpg

