

**THETFORD GREEN
INFRASTRUCTURE STUDY**

**Final Report
Prepared for Breckland Council
by
Land Use Consultants**

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**Thetford Green Infrastructure Study
Report by Land Use Consultants (September 2007)**

**Foreword by Cllr Ann Steward
Executive Member for Planning and Environment**

In October 2006, the Government awarded Thetford Growth Point Status.

The original bid to Government in 2005 was spearheaded by Breckland Council supported by Norfolk County Council and Thetford Town Council and aimed to make Thetford a sustainable community of regional significance.

This is an exciting time for Thetford; the funding, which this status brings, will help initiate investigation and delivery of infrastructure schemes to support housing and employment growth along with the regeneration of the town over the next 15-20 years.

The Growth Point initiative means that in the period to 2021 and beyond, Thetford and the surrounding localities will become one of the fastest growing areas in the East of England.

This Thetford Green infrastructure Study has been funded by the Government and seeks to identify what green infrastructure is likely to be required in the town to support regeneration of the town, future housing and employment growth. It also looks at opportunities to improve green areas of the town, create new ones and links to the forest. This document will form part of the evidence for the Breckland Local Development Framework and in particular Thetford Area Action Plan (TAAP) which will begin preparation later this year.

The Government requires that Breckland Council examines all the development options at an early stage. This report is an early technical study to examine these issues and has been undertaken by independent consultants to enable your Council to take informed decisions. The report itself is but part of the process and does not mean that the Council will automatically adopt any of the recommendations therein. This report should not therefore be read in isolation of other factors or taken as Breckland Council Policy.

Indeed, we would stress that all planning issues would have to be fully considered in detail, with the impact on local residents and communities forming a major part of this consideration before any recommendation is taken forward for consultation.

This document has no statutory status. It is not making decisions about development and is not a statement of the Council's intent.

Work will start on the Thetford Area Action Plan (TAAP) later this year and consultation will take place with the community and residents. The TAAP is the document in which policies for the development of Thetford will be formed and tested.

If you're interested in learning more about the consultation please email your details to thetford.growthpoint@breckland.gov.uk and we will let you know what consultation is taking place, where and when. Consultation is not a tick-box exercise. We want to reassure you that community needs will be taken into account. No plans will be finalised or adopted without public consultation.

I hope to see you at future events – Thetford is your town after all!

A handwritten signature in black ink that reads "Ann Stewart". The signature is written in a cursive, flowing style.

Ann Stewart

Executive Member for Planning and Environment

Breckland Council

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Consultation was undertaken with a range of stakeholders and the study was validated through Stakeholder Consultation Workshops.

The project was undertaken in close consultation with EDAW, to ensure that it developed and integrated with the Thetford Growth Framework and Infrastructure Study. However the views in the report are those of Land Use Consultants.

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Sustainable Movement: Image 2 – Oliver Dixon; Image 3 – Bob Jones;

Health and Well Being: Image 3 – Keith Evans; and

Cultural Heritage: Image 1- Bob Jones.

EXECUTIVE SUMMARY

1. Thetford Growth Point is located in the East of England, on the Norfolk-Suffolk border, and in close proximity to the Cambridgeshire sub region and the adjoining Growth Point at Norwich. The Regional Spatial Strategy requires some 6000 homes to be delivered in Thetford by 2021, of which approximately 1000 will have been built or granted planning consent by the end of 2007. Extrapolation of this figure for the next 10 year period (2021-2031) could see a further 3000 houses to 2031, although early work by EDAW as part of the Growth Framework and Infrastructure Study indicates that a limit could be reached earlier than 2031. Final housing numbers are subject to further investigation and may be lower in view of the environmental and ecological constraints of the landscape around Thetford. It is recognised that there is also limited capacity for new development within Thetford town (in the order of 700 dwellings), which may provide opportunities for contributions to green infrastructure provision. As part of the Growth Point status and the vision of the Moving Thetford Forward campaign, the future urban extensions are to be developed sustainably, with greenspace and environmental assets to be protected and planned for from the outset.
2. A key component of this will be the creation and enhancement of multi functional Green Infrastructure in Thetford, and extending strategic green links to valued existing environmental assets such as the Thet and Little Ouse Valleys, Thetford Forest and the Brecks. Fundamental to the study is the understanding of the significant international biodiversity interest of the Brecks and the nature conservation sites surrounding Thetford, and the need to alleviate pressures on these sites.
3. Land Use Consultants was commissioned by Breckland Council in April 2007 to undertake the preparation of the Green Infrastructure Study, which has been developed in parallel with EDAW's Thetford Growth Framework and Infrastructure Study as part of the evidence base for the Thetford Area Action Plan. A key aim within the two studies has been to ensure an holistic approach to the planning of the future urban extensions which reflects the need to protect and enhance key environmental assets. The vision and Green Infrastructure proposals, which form part of the strategy, set out a series of opportunities and priorities for innovative Green Infrastructure planning in Thetford for the next twenty years. The opportunities and projects address a varied range of functions, including biodiversity, landscape and cultural assets, recreation and sustainability concepts such as shading and cooling and functional floodplain in light of climate change.
4. The study has been informed by the draft Breckland District Open Space Audit which is currently being undertaken, in addition to the Breckland Ecological Network Mapping Project (EcoNet). Consultation has also been undertaken with key stakeholders representing social, environmental and developmental interests in the Thetford area. This has been reflected in the Green Infrastructure opportunities identified within this report.
5. Delivery and ultimate responsibility for the new Green Infrastructure network will rest with a number of organisations including Breckland Council, Thetford Town Council and developers and development corporations, in addition to partners such

as the Forestry Commission and the Brecks Partnership. Recommendations for delivery, management and funding are set out in the Implementation Strategy within this report.

I. INTRODUCTION

- I.1. The purpose of this study is to prepare a Green Infrastructure Strategy for Thetford Growth Point, both to enhance existing green infrastructure and strategic links and to consider green infrastructure needs for the potential areas of growth, in addition to implementation and management strategies for these.

GREEN INFRASTRUCTURE - DEFINITION

- I.2. For the purposes of this project green infrastructure is defined as:

‘..the sub regional network of protected sites, nature reserves, green spaces and greenway linkages which should be multi functional and operate at all spatial scales from urban centres through the open countryside’.

- I.3. Green infrastructure can provide a range of environmental, social and economic functions, including positive health benefits. The Town and Country Planning Association’s ‘Biodiversity by Design’ Guide¹ outlines the purpose of green infrastructure as follows:

Green infrastructure should provide for multi-functional uses i.e. wildlife, recreational and cultural experience, as well as delivering ecological services, such as flood protection and microclimate control. It should also operate at all spatial scales from urban centres through to open countryside.

- I.4. There are several policy drivers for green infrastructure, including the Sustainable Communities Plan which includes the following commitment:

We will promote more and better publicly accessible green space in and around our communities, for example through the creation of new country parks and networks of green spaces within towns and cities.

Relationship of Green Infrastructure to the Thetford context

- I.5. The value of appropriately planned and designed green space is being increasingly realised by central and local government and is an integral part of the new Growth Points identified by the Department of Communities and Local Government, of which Thetford is one. Thetford was awarded Growth Point Status in October 2006 and the Regional Spatial Strategy requires 6000 homes by 2021, of which approximately 1000 will have been built or granted planning consent by the end of 2007. Extrapolation of these figures for the subsequent 10 year period to 2031 would potentially deliver a further 3000 dwellings although it should be noted that total housing numbers may be reduced in light of the environmental constraints surrounding Thetford. The Growth Point status builds upon the work by the ‘Moving Thetford Forward’ Forum, which aims to develop Thetford as a sustainable settlement of regional significance, and has informed EDAW’s work with the Thetford Growth Framework and Infrastructure Study.

¹ Biodiversity by Design: A guide for sustainable communities, Town and Country Planning Association (2004)

- 1.6. In terms of its historic evolution Thetford was formerly a compact late medieval market town at the confluence of the rivers Little Ouse and Thet. It experienced significant urban growth in the later 20th century with the implementation of 'London overspill' housing development to the periphery, which effectively doubled the town's footprint from 1950-1975. Thetford is set against the backdrop of the Brecks, a landscape of significant cultural and ecological importance. Thetford Forest Park which surrounds the town is a major recreational resource for the Brecks.
- 1.7. EDAW have been appointed to assess and devise the options for Thetford's projected growth (*Thetford Growth Framework and Infrastructure Study* [June 2007]), which is, together with this parallel study, to form part of the Evidence Base for the Local Development Framework or LDF. The development of the two studies has therefore been mutually informative, and they have been drawn up through consultation between Land Use Consultants and EDAW.
- 1.8. This Green Infrastructure Study is therefore a timely exercise, not only to facilitate the creation of appropriately planned, well designed and truly multi functional green space for the new urban extension sites, but also to enhance connections to the existing significant strategic Green Infrastructure assets which surround the Growth Point.

Purpose of this study/objectives of the study brief

- 1.9. The overall aim of the strategy will be to support ecosystems, recreational and cultural needs and provide wider environmental benefits for Thetford and its context. The study brief identifies the following key objectives:
 - Bring together existing data on green infrastructure sites, including biodiversity and ecological assets, and map out and grade existing green infrastructure provision;
 - Identify a long-term (over 20 years) vision for Green Infrastructure for Thetford and its surrounding hinterland;
 - Identify specific future Green Infrastructure needs of the town and the sub-region up to 2021 and beyond. Categorise these needs in order of priority and deliverability with targets for implementation;
 - Working with the consultants preparing the Thetford Growth Framework and Infrastructure Study, undertake a Sensitivity Analysis of potential locations for growth and identify opportunities for green infrastructure within, adjacent to and links between major development sites, the town centre and the countryside beyond;
 - Identify opportunities for enhancement of existing green infrastructure sites;
 - Prepare an implementation strategy for identified opportunities (new and enhanced existing) including costs of developing projects and options for how they could be financed;

- Prepare a strategy for the long-term management and maintenance of new and enhanced green infrastructure post-implementation (including costs of developing projects and options for how they could be financed);
 - Prepare a justified set of ‘standards’ or principles aimed at developers outlining what is required for high quality environments associated with development and appropriate mitigation measures and long term management.
- 1.10. The analysis is based on three spatial Tiers (see **Figure 1**) with Tier 1 focussing on Thetford, Tier 2 on the surrounding parishes, and Tier 3 on a wider area extending out towards Norwich, Bury St Edmunds and Cambridge. This approach has been adopted to enable the study to consider the uniquely detailed requirements of a relatively small, single town focussed Growth Point. Tier 1 focuses on the urban extension sites and is almost site specific in nature, setting out a Green Infrastructure Framework for future masterplanning, supported by a costed implementation and management strategy with suggested revenue streams. A number of these projects overlap with Tier 2 (parish scale), which provides the link between the urban extension sites and their connections to the wider, strategic scale green infrastructure of Tier 3 (the Brecks). Efforts within Tier 3 are directed primarily towards enhancing strategic links and connections, with an overview of cross boundary relationships with adjoining Green Infrastructure Strategies.

Report Structure

- 1.11. This report is set out in the following manner:

Executive Summary

Evidence and Analysis

1. Introduction (this section)
2. Green Infrastructure Context
3. Methodology
4. Environmental Characterisation and Green Infrastructure Audit
5. Accessible Green Infrastructure Deficiency and Needs Analysis
6. Sensitivity Analysis

Strategy

7. Green Infrastructure Strategy
8. Proposed Green Infrastructure Network
9. Implementation and Management Strategy
10. Principles for Developers

EVIDENCE AND ANALYSIS

2. GREEN INFRASTRUCTURE CONTEXT

- 2.1. This chapter sets out the context in which the new Green Infrastructure Strategy for Thetford will sit, in terms of planning policy and adjoining Green Infrastructure initiatives.

NEED AND DEMAND FOR GREEN INFRASTRUCTURE IN THETFORD

- 2.2. Thetford is Norfolk's fourth largest settlement and currently has a population of over 22,000 (2001 Census). The town acts as a gateway to Norfolk from London, Cambridge, the Midlands and the south, and is located on the strategic A11 road, making it accessible from a large area. Breckland as a District is required to accommodate some 15,200 new homes in the period to 2021 (the eighth highest housing requirement in the East of England). The Norfolk Economic Growth Study which has been prepared to inform the East of England Plan has identified a need for significant employment provision within Breckland (6000 net jobs in the period to 2021). Furthermore, Thetford has been identified by the Department of Communities and Local Government (DCLG) as one of the 29 new Growth Points (December 2006). It is expected to accommodate up to 6000 new homes in the period to 2021. A Green Infrastructure Strategy is required for all Growth Points in light of this new status and related growth.
- 2.3. Growth Points represent a relationship between Central Government and local partners. They are based on the following core tenets or principles:
- Early delivery of housing as part of the growth plans;
 - Supporting local partners to achieve sustainable growth;
 - Working with local partners to coordinate infrastructure and service provision with growth (e.g. that the two occur in step with one another);
 - Ensuring effective delivery.
- 2.4. Provision of new Green Infrastructure and protection/enhancement of existing landscape and environmental assets, both to ensure they are not compromised by new growth and as part of the mitigation of development, is therefore an essential part of the process.
- 2.5. Thetford is surrounded by significant landscape and environmental assets, including the culturally and archaeologically important landscape of the Brecks and sites of European importance for Nature Conservation, including the Breckland Special Protection Area (SPA) and Special Area of Conservation (SAC). Breckland SPA is designated due to its internationally significant populations of rare bird species (wood lark, nightjar and stone curlew), whilst the SAC is designated to ensure the extensive tracts of lowland heath, semi-natural dry grasslands, marshes, bogs and ancient

woodland are protected². The Brecks is therefore a significant area in terms of green infrastructure provision and also for its landscape and heritage value.

- 2.6. However Thetford is currently cut off visually and in part physically from these environmental assets, and provision of accessible semi natural green space at the local level is deficient in parts of the town in terms of quantity and quality. It is therefore essential that new growth makes appropriate provision for accessible, well planned and designed semi natural green space. This strategy will be a vital component informing that framework and defining the level of provision as masterplanning of the growth options is undertaken.
- 2.7. In addition, Thetford's accessibility means that the surrounding area of the Brecks is likely to be an attractive destination for the new population of the surrounding Growth Points at Norwich, Haven Gateway and Cambridgeshire. The impact of this additional recreational pressure on the Brecks is a key driver for improved green infrastructure provision in the area.
- 2.8. The table below shows the existing Green Infrastructure strategy context in the East of England, both at sub regional and Growth Point Level. The following table outlines existing GI initiatives.

Table 2.1: Existing Green Infrastructure Context (July 2007)

Area	Category	GI Study	Description
Cambridgeshire	Sub regional	Cambridgeshire Horizons Green Infrastructure Strategy	Strategic level GI Study with identified options for funding and future management
Haven Gateway	Growth Point	In progress	
Greater Norwich	Growth Point	Norwich Green Infrastructure Strategy	Single Growth Point focussed strategy, with implementation plan
Kings Lynn	Growth Point	Awaiting decision on CLG funding bid. Study not set to start until late 2007 at the earliest	
Forest Heath	District	Forest Heath Green Space and Green Infrastructure Plan In progress	
St Edmundsbury	District	Currently considering the	

² Joint Nature conservancy Council (JNCC) website (2007) www.jncc.gov.uk

Area	Category	GI Study	Description
and Bury St Edmunds		need for a GI plan	

Table 2.2: Existing Green Infrastructure Projects and Initiatives

Project	Summary
Ecological Network Mapping	The Norfolk Ecological Network Map and emerging District level Ecological Network Maps identify key/priority habitats and proposals for re creation and creation of new corridors and links. They have informed the proposals within this study.
The Brecks Partnership Initiative	Regional partnership approach to help promote and protect the Brecks as a distinctive and valuable natural area.
Sustrans Cycle Network Regional Route 30 Extension	Sustrans aim to extend Regional Cycle Route 30 to the south or west of Thetford. Research into an appropriate route for the extension is ongoing.
The Brecks Heaths Partnership	A partnership that has been involved in the restoration and creation of new areas of heathland on areas of forest and arable land, linking up existing heathland areas.
Thetford Forest Recreation Strategy	This recent strategy outlines the Forestry Commission's approach to improving recreational provision and management within Thetford Forest.
Great Ouse Wetland Vision	This is a catchment/landscape scale project covering the Ouse from its source in Buckinghamshire to the Ouse Washes. It adopts a multifunctional approach to the management of rivers. The vision is for: Greenspace for people and wildlife; Habitats protected and restored; Enhanced environment for fish and wildlife.

- 2.9. The Green Infrastructure Strategy for Thetford has employed an holistic approach reviewing adjoining strategies as appropriate to ensure an appropriate cross boundary fit, and ensuring that the Green Infrastructure proposals take account of potential growth pressures and issues with implications for Green Infrastructure around the Thetford Growth Point.

PLANNING AND POLICY CONTEXT

- 2.10. Key policy considerations relevant to green infrastructure planning and provision in Thetford are set out at the national, regional and local level in the table below.

Policy Level	Policy Document
National	The Sustainable Communities Plan

Policy Level	Policy Document
	PPG 17: Planning for open space, sport and recreation (2002)
	PPS 3: Housing (2006)
	Housing Green Paper (2007)
Regional	The Draft East of England Plan (2004), Panel Report (2006), Secretary of State's Proposed Changes (2006) and EERA response to Proposed Changes
	Habitats Regulations Assessment of the Draft East of England Plan (ERM, 2006)
	East of England Regional Environment Strategy
	East of England Social Strategy
	East of England Integrated Regional Strategy
	East of England Regional Health Strategy
	Living with Climate Change in the East of England
County	Norfolk Structure Plan (1999)
	Suffolk Structure Plan (2001)
	Norfolk Public Rights of Way Improvement Plan
	Suffolk Public Rights of Way Improvement Plan
	Norfolk Biodiversity Action Plan
	Suffolk Biodiversity Action Plan
Local	Breckland Local Plan (1999)
	Breckland Local Development Framework Strategy (Core Policy Preferred Options, 2005)
	Forest Heath Local Plan (1995)
	Forest Heath Local Development Framework (Issues and Options)
	St Edmundsbury Local Plan (2006)
	St Edmundsbury Local Development Framework (In consultation)
	Moving Thetford Forward: Thetford's Vision and Development Strategy (2005)

National policy

- 2.11. PPG 17 - Planning for open space, sport and recreation, is based around the principle that open spaces and an attractive environment underpin residents' quality of life. The policy guidance requires that all local authorities undertake an audit of the existing provision for formal and informal recreation within the district or borough,

and that survey work and research is completed to assess to what extent areas of the borough are deficient in different types of open space. The policy document also promotes the multi-functional nature of urban greenspace as an important environmental as well as a social resource:

“Green spaces in urban areas perform vital functions as areas for nature conservation and biodiversity and by acting as 'green lungs' can assist in meeting objectives to improve air quality.”

- 2.12. The government’s planning policy in regard to housing is defined in PPS 3. The policy document asserts that borough housing plans should have regard to any local greening or design plans such as green infrastructure strategies. The document also sets out some clear principles to guide the consideration of the local environment in the design of new housing schemes. These principles include ensuring that the dominant landscape or ecological features of the area are retained in new development, as is any significant biodiversity value. The policy statement also reinforces the requirements of PPG 17 in terms of ensuring that existing and new residents are given adequate access to open space. The policy statement also requires that good practice in sustainable and environmentally friendly design is applied in all new development.
- 2.13. ‘Homes for the future’, the 2007 Government Green Paper on housing describes green infrastructure as an essential part of Growth Points such as Thetford, a key mechanism for delivering environmental improvements and confirms that it is central to plans for achieving sustainable new communities. The paper defines the value of green infrastructure in improving the urban rural fringe, protecting and restoring the countryside, providing better access to nature, and integration of green spaces into the urban environment.

Regional policy

- 2.14. With reference to the proposed growth within the Thetford study area, the East of England Plan highlights the prioritisation of Thetford town centre for regeneration, and the need to protect the ‘natural setting’ of the town centre in undertaking this³. The Plan identifies the need to achieve sustainable development and adapt to climate change by protecting and improving the environment, quality of life, local character and natural resources (Policy SS1). This approach is supported by the East of England Environment Strategy which sets the agenda for the promotion, protection and enhancement of our natural and historic environment⁴.
- 2.15. The East of England Plan asserts that it is the responsibility of local authorities (through Local Development Documents) to ensure that new development contributes to the improvement of the urban fringe. Local Development Documents should also identify connected networks of accessible green space and set targets for the provision of new greenspace alongside new development (Policy SS8). The supporting text for this policy identifies that strategies for the urban fringe should seek to understand its condition and role, and set out priorities for future management. In particular, the Plan states that such strategies should identify:

³ East of England Regional Assembly (December 2004) Draft revision to the Regional Spatial Strategy (RSS) for the East of England

⁴ East of England Regional Assembly (2003) Our Environment, Our Future

- Areas which have potential to contribute to sustainability objectives (e.g. Biodiversity Action Plan targets);
 - Areas that are suitable for certain land uses (e.g. recreation);
 - Areas where current land uses should be encouraged to continue (e.g. forestry areas).
- 2.16. The East of England Plan has a policy which focuses specifically on ‘environmental infrastructure’ (later amended to ‘green infrastructure’ by the Panel Report and Secretary of State Proposed Changes). Policy ENVI states that it is the role of Local Development Documents to:
- Provide substantial networks of multi-functional greenspace;
 - Introduce a multiple hierarchy of green infrastructure in terms of location, function, size and level of use;
 - Safeguard existing and deliver new green infrastructure;
 - Identify biodiversity conservation areas and deliver large-scale habitat enhancement for the benefits of wildlife and people;
 - Set targets for the provision of greenspace within development areas.
- 2.17. Policy SS8 of the Draft East of England Plan states that standards and targets for green infrastructure provision should be developed by local authorities and detailed in Local Development Documents as part of the LDF process. The Plan specifies that any targets for green space provision should contain a proportion of outdoor play space in line with National Playing Fields Association standards, as well as informal open space.
- 2.18. The Habitats Regulations Assessment of the East of England Plan Regional Spatial Strategy concludes that the Plan is not likely to have any adverse effect on the integrity of Natura 2000 sites including Breckland SPA/SAC, as it locates development in urban areas away from Natura 2000 sites. The assessment does conclude that in the case of Breckland SPA/SAC, consideration should be given to the potential impact of new housing allocation in Thetford. The assessment particularly refers to the potential for recreational pressure to cause disturbance to such sites. This assessment was completed prior to the identification of Thetford as a Growth Point, and therefore does not consider in detail the likely impacts of the proposed urban extensions on Breckland SPA/SAC. Green Infrastructure proposals affecting the SPA are subject to the Appropriate Assessment.
- 2.19. The Panel Report from the Examination in Public (EiP) of the East of England Plan⁵ reinforces the importance of identifying and protecting green infrastructure and asserts that the key benefit of such infrastructure is in relation to quality of life. The Secretary of State’s Proposed Changes to the East of England Plan⁶, and EERA’s

⁵ EERA (June 2006) East of England Plan Examination in Public – Report of the Panel

⁶ Government Office for the East of England (December 2006) The Secretary of State’s Proposed Changes to the Draft Revision to the Regional Spatial Strategy for the East of England and Statement of Reasons

response⁷ to this, uphold the proposals made at the EiP and also call for a comprehensive regional framework for green infrastructure.

- 2.20. Policy C5 of the East of England Plan is also relevant to the Thetford Green Infrastructure Strategy and outlines the need for local authorities to secure adequate access to recreational facilities, maximise the creation and enhancement of major regional recreation resources and ensure that informal recreation is provided in regeneration schemes for the benefit of the existing and new populations.
- 2.21. The Regional Woodland Strategy for the East of England⁸ identifies the plantations within the Brecks and Thetford Forest as being of major regional significance. The plan identifies Thetford Forest as one of the top three most important visitor attractions in the region, and highlights its important contribution and potential future contribution towards the health and education of the local population.
- 2.22. The East of England Regional Social Strategy⁹ supports the provision and enhancement of green infrastructure through highlighting the strong links between nature and social well-being. The strategy identifies new growth as a significant opportunity to create new habitats and improve the environment through innovative schemes, helping to improve our physical and mental well-being, as well as reducing stress levels. The strategy supports the approach promoted through the Regional Environment and Regional Woodland Strategies, and Natural England's Accessible Natural Greenspace model.
- 2.23. The East of England Integrated Regional Strategy¹⁰ promotes the implementation of 'creative solutions' to ensure that a high quality of life is achieved in new developments, including the provision of green infrastructure. The sustainable use of natural resources, and specifically in relation to green infrastructure, the integration of trees and woodlands into new developments is identified as a 'Crucial Regional Issue'.
- 2.24. The East of England Regional Health Strategy¹¹ identifies the need for a high quality natural environment as a core element of its vision for health in the East of England. The high level outcome identified in relation to this goal is to '*effect a step-change in the management of the Region's distinctive natural environmental assets*'. The strategy promotes the critical importance of green infrastructure in terms of both access to nature and recreation, and also the wider quality of life agenda and the significant contribution of the natural environment to mental health and well-being.
- 2.25. In their 2002 publication 'Living with Climate Change in the East of England'¹², EERA and the Sustainable Development Round Table (SDRT) define a number of sub-regional areas, each with their own key climate change considerations. Breckland and Thetford are located within the East of England Northern Heartland area. The key climate change issues for this area include fluvial flooding and agricultural impacts, including soil moisture availability and effects of temperature. Climate

⁷ East of England Development Agency (2007) Response to the Proposed Changes to the East of England Plan

⁸ EERA, Forestry Commission (November 2003) Woodlands for Life: The Regional Woodlands Strategy for the East of England

⁹ EERA (March 2004) East of England Regional Social Strategy

¹⁰ EERA (October 2005) Sustainable Futures: The Integrated Regional Strategy for the East of England

¹¹ EERA (2005) Healthy Futures: A regional health strategy for the East of England

¹² LUC, CAG and SQW on behalf of EERA and SDRT (2002) Living with climate change in the East of England

change will also impact on many other aspects of life in the region and the role of Green Infrastructure to address urban heat island effects, create carbon sinks and alleviate flood risk should be addressed.

County policy

- 2.26. Both the Norfolk and Suffolk Structure Plans support the creation and enhancement of green infrastructure in the counties. The Norfolk Structure Plan¹³ identifies environmental conservation as a high policy priority, and puts particular emphasis on the need for '*conservation and enhancement of areas of local landscape character, wildlife value, historic environments and the setting of urban areas*'. The Norfolk Structure Plan highlights the importance of protecting the character of the Norfolk countryside, and the habitats which are associated with it. Heathland is mentioned specifically as a habitat which should be extended and appropriately managed. The Norfolk Structure Plan requires that all new development should incorporate water and energy efficiency measures, but does not specify open space standards to which new development must adhere.
- 2.27. Strategic Aim I of the Suffolk Structure Plan¹⁴ outlines the need to 'sustain and enhance the health, quality and integrity of the built and natural environment, and to ensure that development does not result in material damage to critical environmental resources'. The Suffolk Structure Plan does not define any standards for the provision of open space.
- 2.28. The Norfolk Public Rights of Way Improvement Plan¹⁵ aims to increase the public benefits offered by countryside access and to provide access that is facilitated and available to all the community. The Suffolk Public Rights of Way Improvement Plan¹⁶ recognises the strong links between the right of way management and the provision of accessible greenspace as required by the East of England Plan and Suffolk's Community Strategy. The improvement of public rights of way can significantly contribute to the provision of accessible greenspace.
- 2.29. The Norfolk Biodiversity Action Plan¹⁷ identifies Breckland as an important location for a number of priority habitats within the county. The Brecks and parts of Thetford Forest are identified as important areas for calcareous grassland that is scarce elsewhere in the county. The main pressures on this important habitat type are poor management and agricultural intensification, although development including mineral extraction, road-building and housing development are also significant threats. Lowland heath is another priority habitat for which Breckland is a key part of the county, although the extent of this habitat is being threatened by woodland encroachment as a result of inappropriate management.
- 2.30. The Suffolk Biodiversity Action Plan¹⁸ identifies Breckland Heath as a unique type of heath comprising an unusual suite of species and plant communities. Areas of Breckland Heath are important due to the mix of acid grassland and lowland heath,

¹³ Norfolk County Council (1999) Norfolk Structure Plan

¹⁴ Suffolk County Council (2001) Suffolk Structure Plan

¹⁵ Norfolk County Council (2006) Norfolk Rights of Way Improvement Plan

¹⁶ Suffolk County Council (2006) Suffolk Rights of Way Improvement Plan

¹⁷ Norfolk County Council (2004) Norfolk Biodiversity Action Plan

¹⁸ Suffolk County Council (2003) Suffolk Biodiversity Action Plan

both of which are priority habitats within the county. The Suffolk BAP also notes that the main threats to heathland and acid grassland in the county are inappropriate management, neglect and urban development.

Local policy

- 2.31. Breckland District Council's Adopted Local Plan (1999) will soon be updated by the Core Strategy as part of the Local Development Framework. The Local Plan seeks to protect the open countryside for its own sake with particular priority given to areas of important landscape quality, historic parks and gardens and their settings (ENV1 & ENV3). The Local Plan also restricts any development on or close to any site with statutory protection or a county wildlife site which would significantly damage its scientific interest or nature conservation value (Policy ENV4 & ENV5). Policy ENV6 seeks, through development control and positive action, to protect habitats or other features which are of value for nature conservation or biodiversity, particularly where rare species are present. This includes encouraging the proper management of wildlife habitats and the designation of local nature reserves, where appropriate. Policy ENV7 states that where development is permitted which may have a significant harmful effect on a site of nature conservation value, appropriate mitigation measures must be put in place to preserve the site's nature conservation value and to provide environmental benefits such as replacement habitats or features where damage is unavoidable. The Local Plan identifies the need to protect important spaces in the built form and other areas of open space in the urban area due to their importance to the townscape, in the wider landscape and their amenity value to the locality (Policies ENV8 & 9). Policy ENV19 seeks to ensure the retention of healthy trees and hedgerow trees of amenity value through the imposition of Tree Preservation Orders. Policy ENV20 states that development would not be permitted if it would damage, lead to the loss of or adversely effect one or more trees that contribute to the character and appearance of a locality unless the desirability of the development outweighs the contribution made by the trees or removal of the trees is in the interest of good arboricultural practice.
- 2.32. Breckland's Core Strategy will be the overarching policy document within the Local Development Framework, and is due for adoption in 2008. Although not yet adopted, the Core Strategy¹⁹ is at an advanced stage and includes several key aims relevant to the Green Infrastructure Study. It identifies the need to maintain and enhance the biodiversity, water quality, heritage and landscape of Breckland, and to ensure development takes place without adverse environmental impact.
- 2.33. Policy REC2 of the Breckland Local Plan uses the National Playing Field Associations (NFFPA) standard for the provision of open space. Also known as the Six Acre Standard, the NFFPA requires the provision of open space within new development to a minimum of 2.4ha per thousand population. Policy REC3 of the Local Plan states that the change of use of existing open space will only be permitted where either equivalent or improved provision will be made elsewhere, or the development will result in the improvement of the range and quality of the existing facilities.

¹⁹ Breckland Council (August 2005) Local Development Framework Strategy and Core Policy Preferred Options

- 2.34. The Breckland Draft Core Strategy indicates that the use of the NPFA standard should continue until completion of the Open Space Audit, after which it may be modified to reflect local need. The Draft Core Strategy also notes that all new residential development should be required to provide open space to meet the standards set out by the council as an integral part of the development, and that off-site open space provision will only be considered as an alternative in exceptional circumstances.
- 2.35. The Forest Heath Adopted Local Plan²⁰ and the St Edmundsbury Local Plan also provide broad support for the conservation and enhancement of multifunctional green infrastructure in the study area. The Forest Heath Local Plan particularly promotes the creation and enhancement of wildlife corridors, made up of locally appropriate habitats such as grassland, heathland, woodland and wetland.
- 2.36. The St Edmundsbury Local Plan highlights the pockets of ancient woodland in the district as priorities for conservation and enhancement. There is no policy on green infrastructure in the Forest Heath Draft Core Strategy. Preferred Policy 42 requires that housing development with under 10 residential units contributes to the provision of local open space and recreational facilities, whilst housing developments with over 10 units must include 10% of the total developed area as accessible open space. The Draft Core Strategy sets out standards for the provision of open space based on the NPFA standards. Currently, there is no Core Strategy for St Edmundsbury district, and work on this strategy is scheduled to commence in autumn 2007.
- 2.37. Moving Thetford Forward's Masterplan Vision and Development Strategy²¹ quotes the recent Retail and Town Centre Study, which found that 31% of respondents thought a poor quality environment was the most significant constraint on trading performance by local businesses in Thetford. The document also identifies the potential of Thetford's waterfront as a focal point of the town.
- 2.38. The box below provides a summary of the key planning policies and strategies which should guide Green Infrastructure provision in and around Thetford.

²⁰ Forest Heath District Council (1995) Forest Heath Local Plan

²¹ Moving Thetford Forward (2005) Vision and Development Strategy

Key policy and strategy principles for Green Infrastructure provision

Green Infrastructure proposals should:

- be developed by local authorities and detailed in Local Development Documents as part of the LDF process;
- protect and enhance the natural setting of Thetford town centre and protect and enhance important spaces within the urban environment;
- respond to climate change by protecting and improving the environment, quality of life, local character and natural resources;
- consider the role of the urban-rural fringe;
- develop a hierarchy of green infrastructure in terms of location, function, size and level of use;
- secure adequate access to recreational green spaces for existing and future populations;
- ensure that the integrity of the Breckland SPA/SAC is maintained;
- protect and enhance nature conservation sites;
- encourage conservation and appropriate management of priority habitats as defined in the Norfolk and Suffolk Biodiversity Action Plans;
- ensure that ancient woodland is conserved and that heathland and wildlife corridors are enhanced and created;
- compliment the county-level Rights of Way Improvement Plans;
- reflect the National Playing Fields Association (NFPA) standards in terms of outdoor play space;
- set targets for the provision of new greenspace alongside new development;
- develop green infrastructure which is sustainable in terms of recreation and access and respecting the value of existing environmental resources.

3. METHODOLOGY

3.1. This chapter sets out the approach adopted to defining and categorising existing green infrastructure and calculating deficiencies and needs in the context of existing and future populations, together with the approach employed for project prioritisation, implementation and management costings.

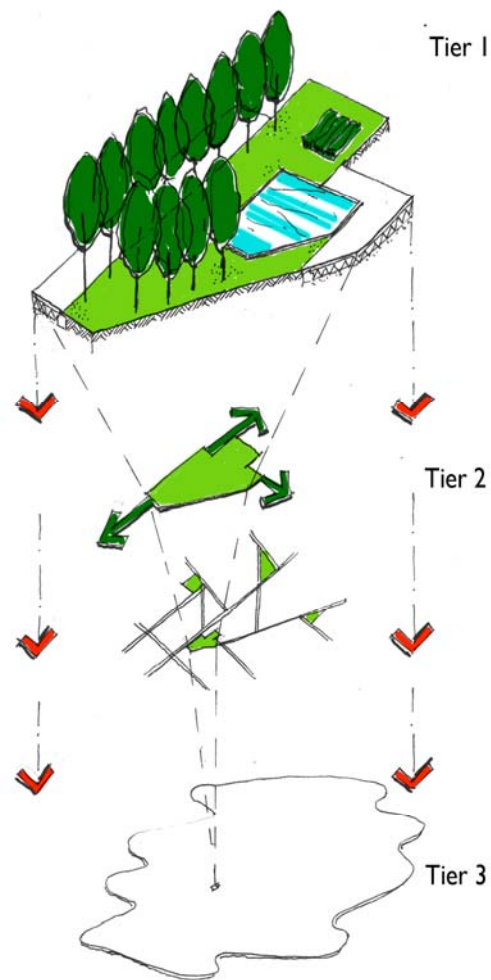
APPROACH – STUDY TIERS

- 3.2. A tiered approach has been devised for the study, both to take account of micro site needs and issues (and to tie in with EDAW’s work), and to consider the wider implications of Thetford’s growth on key environmental assets, together with the effects of pressures from adjoining areas of growth, such as the Cambridgeshire sub region and the Norwich Growth Point. At the most detailed level, this tiered approach considers in a spatial dimension the needs of the growth options sites (Tier 1), as a basis for justified Green Infrastructure principles and a costed implementation and management strategy. The tiered approach also allows for identification of strategic Green Infrastructure links and an holistic overview of Green Infrastructure provision and enhancement potential in and around Thetford (Tier 2 and 3), with reference to pressures from adjoining Sub Regions and Growth Points.
- 3.3. This tiered approach can be considered with reference to the table below and illustration overleaf.

Table 3.1:Outputs from each tier

Tier	Output
Tier 1: Thetford and its urban–rural fringe	<ul style="list-style-type: none"> • Review Open Space Audit and categorise/grade sites • Needs and deficiency analysis • GIS Map sites >0.5 hectares • Detailed opportunities for green infrastructure creation and enhancement • Implementation Strategy • Management Strategy • Principles for developers
Tier 2: The adjoining parishes (Barnham, Brettenham, Croxton, Elveden, Euston, Kilverstone)	<ul style="list-style-type: none"> • Review Open Space Audit and categorise/grade sites • Opportunities and constraints plan • Priorities for investment and management – strategic projects • Needs and deficiency analysis • GIS Map sites >0.5 hectares
Tier 3: Wider area, the Brecks	<ul style="list-style-type: none"> • Vision • Broad opportunities for green infrastructure creation and

Tier	Output
	enhancement <ul style="list-style-type: none"> • GIS datasets/audit + character layers • Identify strategic GI • Identify key sub-regional GI projects + broad cost bands • Potential to enhance linkages • Potential to relieve pressures • Identify pressures elsewhere, e.g. Cambridge sub region



Schematic illustration of the tiered approach

- 3.4. The above diagram illustrates how the masterplanning and design of greenspace, such as a pocket park, fits within a framework of linked greenspaces extending to the District and sub regional spatial scale. It demonstrates the holistic approach required by green infrastructure - a properly planned framework forming the setting for the design of new greenspace, as well as the enhancement of existing sites and links.

METHODOLOGY - STAGES

Inception

Inception Meeting

- 3.5. The project was initiated by an inception meeting with the steering group to define the study parameters.

Review of current policy and plans

- 3.6. A rapid desk based review was undertaken of current national, regional and local planning policy to understand the context for the Green Infrastructure Strategy, and this is set out in Chapter 2 of this report.

Initial Round Table Consultation

- 3.7. Early consultation was undertaken via a half day workshop (summary report at Appendix 2) to focus the direction and outputs of the study and to identify high priority projects for implementation.

Existing Green Infrastructure audit and environmental characterisation

Audit of open space and green infrastructure provision within Tier 1-3

- 3.8. A series of GIS maps of all sites over 0.5 hectare area was produced with reference to the draft Open Space Audit by Breckland Council. A list of the datasets used to create an integrated, comprehensive dataset is shown at Appendix 3.
- 3.9. The data within the Open Space Audit was used to categorise and grade the existing open space provision.
- 3.10. The wider study area (Tier 3) has enabled the identification of potential for multi functional Green Infrastructure green links and the type of Green Infrastructure that should be created at the strategic level.

Desk Based Environmental Characterisation

- 3.11. This built upon the extensive landscape characterisation work LUC have previously carried out within Breckland District²² to define the character of the environment within Tier 1 and 2 of the study area. For the purposes of this study characterisation was a desk based exercise including the following information:

²² Land Use Consultants *Breckland District Settlement Fringe Study – Landscape Assessment*, July 2007

- Landscape character;
 - Historic and cultural character (e.g. HLC, Scheduled Monuments, Listed Buildings, and conservation areas);
 - Ecology (e.g. BAP habitats, Ecological Network Mapping, Ecological Sites);
 - Socio-economic factors (e.g. population density and distribution, Index of Multiple Deprivation, priority ranking of regeneration areas, health deprivation ranking, mortality rates for circulatory diseases, IMD ranking of living environment);
 - Functional ecosystems character (e.g. flood plain, river systems and catchments);
 - Recreation and accessibility including linear links (e.g. public rights of way, publicly accessible open space).
- 3.12. In collating the evidence base data adequacy was reviewed and qualified where appropriate.

Green infrastructure deficiency and needs analysis

Deficiency Analysis

- 3.13. Building on the typology/function of open spaces identified within the Breckland Open Space Audit, this provision was evaluated against ANGSt standards to identify deficiency and therefore inform the needs analysis.
- 3.14. The mapping of deficiencies was considered primarily from human and access perspectives. Other studies such as the Water Cycle Study which may be relevant in respect of deficiency criteria have not yet been undertaken and as such have not been able to inform this study.
- 3.15. The deficiency analysis considers both the existing population and future populations (using the figures devised by EDAW in the evolution of the Thetford Growth Framework and Infrastructure Study) and their needs in terms of green infrastructure.

Needs Analysis

- 3.16. Green Infrastructure needs, including priorities for green infrastructure creation and opportunities for enhancement of existing provision, have been identified based on the deficiency analysis and locations of future growth. This involved analysis of the existing data and linking layers of information e.g. relationships between deficient areas of open space and social deprivation/health in order to prioritise needs.

Sensitivity analysis

Communication with EDAW

- 3.17. The Green Infrastructure Strategy evolved through consultation and communication with EDAW to ensure that it developed in parallel with their study and that the respective outputs of the two studies were mutually informative.

Sensitivity Analysis

- 3.18. Sensitivities of the two proposed growth option sites (Thetford North and Thetford South East) were identified to inform EDAW's work, drawing on LUC's earlier work with the Breckland District Landscape Character Assessment and the Settlement Fringe Landscape Assessment of the key market towns within Breckland District. In addition, sensitivity was considered from cultural and ecological parameters.
- 3.19. Sensitivities were confirmed through targeted field survey of key sites and elements, noting condition, potential pressures and key issues/opportunities.

Green Infrastructure Strategy

Green Infrastructure Vision and Functional Objectives

- 3.20. The deficiency and needs analysis have been used to focus the vision for Green Infrastructure in the study area, which sets out the priorities and opportunities for Green Infrastructure creation and enhancement including the small scale (Tier 1) components and linkages/access to the wider Brecks landscape and Thetford Forest within Tier 2 and 3. This vision should be used to inform future masterplanning of the growth options within Thetford and wider Green Infrastructure priorities as the Green Infrastructure network is implemented and existing provision enhanced.
- 3.21. The Green Infrastructure Vision has been underpinned by a Strategy which sets out a series of overarching concepts to guide Green Infrastructure planning, together with a series of functional objectives to be delivered by Green Infrastructure.

Proposed Green Infrastructure Network

- 3.22. Drawing on the evidence base, a long list of strategic (Tier 2 and 3) and local level (Tier 1) Green Infrastructure projects was drawn up, together with cost banding. The projects in the list were evaluated against the functional objectives in the Green Infrastructure Strategy, and prioritised according to need and the potential multi functional benefits they could offer.

Implementation Strategy

- 3.23. Options for appropriate funding sources were reviewed as part of the Implementation Strategy, including Section 106 agreements, roof taxes and public sector grant funding.
- 3.24. A 'long list' of larger scale projects which could be led by non developer organisations and key stakeholders (strategic links and connections between sites in Tier 3) was identified through stakeholder consultation and this was costed at a strategic level (broad costs/bands).
- 3.25. A series of deliverable high priority projects were identified for a phased Implementation Strategy, both for the growth options and in the town centre. Outline capital works costs estimates for these were prepared by a Quantity Surveyor.

Management Strategy

- 3.26. A review was undertaken of existing grounds maintenance and management costs and mechanisms for comparable works, together with a review of existing Breckland District Council commuted sums calculations, in order to determine appropriate rates and timescales for revenue budgets for the management and maintenance of growth options projects in the Implementation Strategy. This took account of development phasing and associated inflationary uplift and provided options for revenue costs and delivery of both Green Infrastructure and future maintenance.

Principles for Developers

- 3.27. From the overarching concepts and functional objectives underpinning the proposed Green Infrastructure projects a series of principles was devised. These set out the requirements on housing developers in terms of new Green Infrastructure provision, as well as ensuring that conservation and enhancement of existing environmental assets lies at the heart of any future development proposal. These principles have been informed by relevant technical and national standards and have been designed so that they can inform the Area Action Plan for Thetford and Green Infrastructure and Greenspace policy requirements for future residential allocations in Tier I. The principles considered a range of micro scale issues related to landscape, townscape and sense of place, recreation and amenity, biodiversity and protection of existing environmental assets, in addition to sustainability and energy efficiency.

Stakeholder Consultation

Stakeholder Consultation Workshops

- 3.28. Extensive stakeholder consultation has been undertaken to ensure that the study and supporting Green Infrastructure Strategy meet local needs and address local views and concerns where appropriate. Consultation took the form of an initial Roundtable Workshop in May 2007, to validate the Environmental Characterisation and Audit, to focus the Green Infrastructure Vision and appropriate strategies, and to steer the outputs of the study. This was reinforced with telephone consultation with appropriate organisations. A second Stakeholder Consultation workshop was held in September 2007, to validate the Green Infrastructure Vision and Strategy. Summaries of the findings from the workshops can be found at Appendix 2.

4. ENVIRONMENTAL CHARACTERISATION AND GREEN INFRASTRUCTURE AUDIT

- 4.1. This section provides an overview of the current green infrastructure assets and environmental character of the study area. This overview has been developed through review of relevant plans and documents, and through comprehensive mapping of Thetford's environmental and green infrastructure assets. For Tier 1 and 2 of the study area all green infrastructure assets over 0.5 hectares have been mapped and audited, whilst for Tier 3 features of strategic significance have been defined. The environmental characterisation and green infrastructure audit covers the following:
- Landscape character;
 - Biodiversity;
 - Functional ecosystems;
 - Cultural heritage;
 - Socio-economic characteristics;
 - Accessible open spaces;
 - Access links.
- 4.2. As part of the characterisation, each theme was described in terms of its principal elements and classified in terms of accessibility, e.g. whether free/open access or whether restricted (in terms of membership/entry and parking costs or opening hours).

LANDSCAPE CHARACTER

Tier 3: Strategic Landscape Character overview

- 4.3. The landscape context of Thetford is a large scale landscape of coniferous plantation, arable fields and remnant heathland. A landscape of simple elements and often open, exposed quality, although localised variety, interest and microclimate is created by plantation blocks and twisted scots pine windbreaks.
- 4.4. The landscape character assessment of Breckland District (LUC, 2007) has identified a series of distinct landscape types and discrete character areas, shaped by drift geology, land cover, cultural pattern and management to create a range of distinct habitats, such as acid heath and chalk grassland in close proximity, chalk river valleys and coniferous plantation.
- 4.5. Thetford's landscape context is a relatively simple large scale mosaic comprising of geometric blocks of coniferous plantation, arable farmland and heathland, both historic and reverting field parcels (e.g. 'Brecks'), in addition to lowland wetlands such as seasonally wet, groundwater dependant meres and broad shallow chalk river

valleys. The underlying geology creates a series of very distinct ‘striped’ habitats with bands of acid heath and calcareous grassland juxtaposed in close proximity.

- 4.6. Influence of settlement and human presence are rapidly lost as one moves away from the urban areas, giving rise to a calm, rural landscape of great tranquillity. This quality is further enhanced by the chalk river valleys and associated areas of wetland pasture and meadow. Views are often contained by the gently undulating landform arising from glacial drift and by the strong wooded skylines created by the angular plantation blocks and the visually distinctive, contorted Scots Pine windbreaks or ‘Deal Rows’ (a legacy of the historic attempts to stabilise the moving sand dunes which once characterised large areas of the Brecks). The presence of flints in the soils have also had marked expression on the historic vernacular and built grain of the town.
- 4.7. At the local level, the landscape character areas have been subdivided into local character areas covering a 3km radius from the settlement edge of Thetford as set out in the table below. These character areas, the extent of which largely corresponds with Tier 1 and 2 of the study area, form the basis for the categorisation and opportunity analysis.

Tier 1 and 2: Key sites/areas

- 4.8. The table below provides a brief description of the local character areas within Tier 1 & 2, which are defined on **Figure 3**.

Table 4.1: Landscape Character

Character area	Description	Accessibility (whether open/restricted e.g. paid)
Local Character Areas – Thetford settlement fringe		
TH1 Thet Valley (Tier 1-2)	A rural river valley with plantation. Secluded valley character, with the river following a natural meandering course within a shallow valley. Plantations and mixed woodland, sometimes on former common land, are part of the estate landscape, dominating the gently sloping valley sides.	There is currently very restricted river access, with only limited public rights of way.
TH2 Lower Thet – Little Ouse (Tier 1-2)	The river valley effectively contains the settlement of Thetford, although recent development has occurred on the east bank of the river aligned with the former railway line. Contrast is provided with the wider Thet Valley due to the comparative absence of plantations and the presence of open water bodies at Nunnery Lakes, a legacy of former mineral extraction. Nunnery Lakes incorporates a mosaic of land cover elements, including heathland, woodland and marsh. The close juxtaposition of acid heath and chalk grassland at Barnham Cross Common is locally distinctive.	More extensive river access is available in this character area, with permissive paths at Nunnery Lakes. Barnham Cross Common is open access land and registered common land, providing a notable opportunity for access. Any plans to increase access should be considered in light of the qualifying features of Breckland SPA, of which Barnham Cross Common is a part (e.g. to relieve pressure on these sites).
TH3 Thetford Warren (Tier 1-2)	The character area is dominated by dense mixed mature plantation woodland interspersed with small areas of heathland and acid grassland in clearings and along woodland rides. The A11 forms a harsh boundary,	The character area forms part of Thetford Forest, an important resource for recreation. Thetford Golf Course (members only access) lies within the character

Character area	Description	Accessibility (whether open/restricted e.g. paid)
	effectively severing the settlement area from its wider landscape, although further plantation woodland to the east of the road defines the landscape setting of the town at this point. Elements of the cultural landscape are evident in the areas of remaining heathland and in the medieval Thetford Warren Lodge. The dense plantation creates a dark, contained landscape with a clear 'Breckland' sense of place.	area. A network of drove roads and rights of way punctuates the character area, including St Edmunds Way, and parking and a picnic site are located at Thetford Warren Lodge.
TH4 Ringmere Plantation (Tier 1-2)	A dark, dense plantation landscape, similar in character to TH3 Thetford Warren, and forming part of Croxton plantation. It is surrounded by arable cultivation and remnant heathland, with the A11 some distance to the south.	Limited access is provided by drove roads and rights of way.
TH5 Little Ouse River (Tier 1-2)	This forms a localised variation within TH3 Thetford Warren, defined by the minor watercourse of the Little Ouse and associated wetland vegetation.	St Edmunds Way follows the course of the river.
TH6 Croxton (Tier 1-2)	An exposed, large scale landscape of simple composition. Arable farmland is interspersed with mixed, conifer dominated plantation and historic scots pine windbreak hedgerows. The low density, linear settlement of Croxton is distinctive, with knapped flint being the predominant building material. Little other settlement is evident and the character area is rural and tranquil in quality, although this is markedly reduced to the south due to the A11 and associated industrial estate.	Little of the character area is accessible with the exception of the few historic drove roads and Sustrans Route 13, which bisect the area.
TH7 Kilverstone (Tier 1-2)	Within the character area, coniferous plantation woodland is interspersed with farm coverts, arable fields and the historic scots pine tree lines which often define field boundaries. The planned estate influence of Kilverstone Park is evident in the layout and structure of plantation blocks.	Few opportunities are provided for access, other than the Sustrans Route which bisects the southern part of the character area east - west. A publicly accessible wildlife garden was formerly located in the grounds of Kilverstone Hall, although this has now closed.
TH8 Snare Hill – Seven Hills (Tier 1-2)	This character area is defined by relatively large scale arable fields interspersed occasionally with large blocks of plantation woodland and scots pine lines. Plantation belts and roundels are distinctive, providing a visual link both to the extensive woodland on the ridge at Oak Wood and to Snarehill Hall.	The Icknield Way intersects the character area and provides the primary opportunity for access. Snarehill Hall is not open to the public.
TH9 Nunnery Stud (Tier 1-2)	A gently undulating area of grazing land and paddocks, set in a loop of the Little Ouse River. Framed, wooded views are available to the eastern edge of Thetford with long views available from the elevated ground at the A1088 to the wooded skylines to the north and west. The industrial estates to the edge of Thetford are also visible. Tumuli (Scheduled Monuments) are features of the cultural landscape, as are the surviving scots pine windbreak hedgerows. The pine	No public rights of way cross the character area. Nunnery Stud is privately owned, with no public access.

Character area	Description	Accessibility (whether open/restricted e.g. paid)
	lines create a distinctive wooded skyline and an intimate small landscape structure, containing paddocks associated with Nuntery Stud.	

- 4.9. Whilst the scale and approach adopted in the draft Suffolk Landscape Character Assessment is different, a range of comparable landscape types are identified. In particular adjacent to the boundary between the two counties within Tier 2, plantation and valley fen are apparent in the Plateau Estate Sandlands and Valley Fens Landscape Character Types.

Key issues and opportunities

- 4.10. The landscape setting of Thetford and its interface with the wider landscape, particularly to the northern edge, which is characterised by industrial estate development and the A11 corridor, is a key component in informing the Green Infrastructure Strategy, to ensure that it responds appropriately to and reflects the sense of place. There is currently a relatively sparse distribution of access and green links, particularly between the Forest Park and the town.
- 4.11. Topography and wooded skylines are key visual sensitivities, particularly in the context of both Thetford's valley location and the nature of potential development. For example employment development to the north of Thetford around the elevated land at Gallows Hill would need to be carefully planned and sensitively designed to preserve the Brecks skyline. Similarly views from the eastern approach to Thetford are sensitive with the 40m ridgeline being a key viewpoint from which long views across to the existing industrial estates and the wooded Breckland skyline are possible.
- 4.12. Key opportunities are therefore presented in terms of landscape enhancement on the northern settlement edge, particularly along the A11 corridor, junctions and the adjoining Industrial Estate development at Gallows Hill. Such opportunities would need to be considered in the context of EDAW's work and potential capacity of these sites, whilst simultaneously informing the development of the Thetford Growth Framework and Infrastructure Study in terms of environmental constraints and requirements, in a way which best protects the environmental assets of Thetford's environs, before development layouts are planned and designed.
- 4.13. There is also the opportunity to increase green links and access to the wider landscape, and to promote green/pedestrian links between Thetford Forest and the town. The Rivers Little Ouse and Thet provide significant opportunities for access and therefore represent a significant green infrastructure enhancement opportunity. The A11 is a significant visual and physical barrier which effectively separates the open land within from its wider Brecks landscape.
- 4.14. The distinctive landscape structure of the Brecks, notably the ancient scots pine tree lines, provide an opportunity to set the template for/drive the layout of new development.

- 4.15. The need to screen/provide a foil for new development to the settlement edges provides the opportunity for structural planting design which imparts a clear sense of the Breckland landscape character and to create a setting/sense of place that is recognisably Thetford. The use of pine lines with understorey and the creation of grassy/bracken banks rather than uniformly profile bunds around employment development should be considered.
- 4.16. The Norfolk Ecological Network Mapping Project (see **Figure 8**) aims to create connectivity between habitats and to enhance opportunities for habitat creation. In the implementation of the Ecological Network Mapping objectives there is the potential to reinstate and enhance historic landscape types and elements, such as acid heathland, and to link this to proposal to enhance Thetford's landscape setting.
- 4.17. A 2003 LUC study (Breckland District and Kings Lynn and West Norfolk Wind Turbine Capacity Study) looked at the potential for the Breckland landscape to accommodate small-scale wind turbine development. The results of this assessment are shown on **Figure 4**. Large areas of the Thetford Green Infrastructure study area have a high capacity to accommodate such small scale wind turbine development, particularly the areas to the north and east of Thetford. In addition, there is a considerable area of land to the west and north-west of Thetford which has moderate capacity to support small scale wind turbine development. Green Infrastructure planning in these areas could potentially incorporate carefully designed renewable energy provision such as wind energy, solar power, biomass and wood fuel.

BIODIVERSITY

Breckland District Ecological Network Mapping.

- 4.18. The Breckland District Ecological Network Mapping report (Econet) - with input from the findings of the county-level ecological network²³ report - aims to identify and encourage development of ecological network priorities and ways in which they can be implemented. This report and its findings provide key guidance for biodiversity in the development of the Thetford Green Infrastructure Strategy.
- 4.19. The report summarises the key ecological characteristics including:
- The Brecks. Especially calcareous grassland and heathland.
 - River valleys. Especially fluctuating water bodies, chalk rivers, fen and reedbed.
 - Extensive areas of woodland. Especially ancient woodland.
 - Arable landscape features.
 - Urban area of Thetford.
- 4.20. It also emphasises that the Brecks crosses the county boundary and that the ecological network should be consistent across this.

²³ Report of the Ecological Network Mapping Project for Norfolk. 2006. Norfolk Wildlife Trust, on behalf of the Norfolk Biodiversity Partnership.

- 4.21. Priorities identified include enhancing and creating wetland habitats, heathland mosaic, wood pasture, and woodland within the Brecks and across the county border in addition to enhancing woodland connectivity. Importantly, Econet also emphasises the importance of protecting existing greenspace and the need to create new greenspace in and around Thetford.
- 4.22. Econet's key objectives include:
- 1) Restoring natural and functioning wetland habitats to major rivers;
 - 2) Significantly increasing the connectivity of woodland in core areas;
 - 3) Significantly increasing the area of calcareous and other grassland;
 - 4) Increasing the area of heathland; and
 - 5) Creating greenspace in urban areas and urban fringes in Thetford.
- 4.23. Strategic measures for the inclusion of the Econet concepts are also recommended. It states that Local Development Frameworks should include specific policies and identify opportunities for habitat creation and restoration. In addition, the use of Section 106 Agreements is proposed as a potential tool for guiding the provision of urban greenspace in line with a green infrastructure plan, and is therefore particularly relevant to the direction of the Thetford Green Infrastructure Study.
- 4.24. The Ecological Network Mapping report proposes several actions which may be useful in guiding conservation planning and implementation of projects. For example, it discusses the need to re-assess County Wildlife Sites (CWS) to identify possible opportunities for habitat creation and enhancement in addition to using ecological modelling to identify areas where connectivity between habitats can be successfully increased. Finally, the report discusses and promotes the need for a Green Infrastructure Plan for Thetford and recommends the creation of 'common land' for providing biodiversity benefits whilst creating accessible greenspace.

East of England Heathland Opportunity Mapping Project

- 4.25. The heathland opportunity mapping project uses Geographic Information System mapping tools and objective computer modelling to 'identify priority areas for heathland re-creation within the region'²⁴. The modelling uses a scoring system which considers those sites already recognised for their conservation importance and where subsequently heathland re-creation is unsuitable. Importantly this reduces the possibility of conflicting interests arising with other features of ecological importance.
- 4.26. Whilst the project focuses on the East of England region, several priority areas for heathland re-creation were identified within Thetford's urban growth Tier 1 and 2, including:
- Adjacent to Bridgham and Brettenham heaths;
 - West of Barnhamcross Common;

²⁴Website accessed 1/08/2007; <http://www.eastspace.net/heathland/DisplayArticle.asp?ID=2630>

- The far north of Tier 2 adjacent to Croxton Heath;
- North of Thetford Golf Course;
- East and west of East Wretham Heath;
- Barnham heath;
- Marmansgrave wood;
- North of the River Little Ouse at Seven Hills Tumuli;
- West of Knettishall Country Park;
- North of Kilverstone Heath.

4.27. The project considers economic, social and environmental impacts of habitat creation in addition to the more obvious ecological issues. Additionally the project highlights the need for a 'strategic planning approach to heathland re-creation' and subsequently offers a useful tool in applying appropriate guidance to heathland habitat creation opportunities within the Thetford Green Infrastructure Study.

Tier 3: Strategic overview

- 4.28. Lying within the heart of the Breckland Natural Area²⁵ as defined by Natural England, and characterised by a gently undulating plateau with sand and flint deposits over chalk bedrock, the Brecks' unique geology is reflected in its biodiversity, with many characteristic species dependent on specific habitat types. The area is renowned for its internationally important expanses of Breckland heathland. This is characterised by a mosaic of acid and calcareous grassland (habitats included within the Breckland Special Area of Conservation [SAC]) in addition to the largest area of commercial forestry in lowland England. The key biodiversity features within the study area are defined in **Figure 5**.
- 4.29. Thetford is surrounded on three sides by the Breckland Special Protection Area (SPA) (see **Figure 5**) which is notified for its assemblage of protected ground nesting birds. The vulnerability of these birds to disturbance is well recognised, and mitigating against potential impacts associated with public access remains one of the biggest ecological challenges facing Thetford's growth. Breckland District Council are currently working with Natural England, the Forestry Commission and the RSPB to undertake an assessment of the likely impacts of development on the SPA in light of the Habitat Regulations under which it is designated. The outcome of this study will influence the future approach to green infrastructure management in this area and will also influence the footprint of the proposed new development. EDAW have reflected the potential buffer zone to the SPA in their Growth Framework and Infrastructure Study.
- 4.30. In the context of Thetford's wider green infrastructure, notable sites of conservation interest include, in addition to the major heathland sites:

²⁵ Natural England (website accessed 2007) http://www.english-nature.org.uk/science/natural/NA_Details.asp?N=&R=8&NA_Id=46

- Ouse Washes SPA and Ramsar site 35 km to the west;
- Fenland SAC/Ramsar 25 km to the south west;
- Waveney and Little Ouse Fens SAC 15 km to the east;
- Norfolk Valley Fens SAC and Ramsar site to the north east; and
- The Wash SPA, SAC and Ramsar located 50 km to the north.

4.31. There are a number of other regional environmental initiatives (see table in chapter 2).

Tier 1 and 2: Key sites/areas

4.32. The table below provides a brief description of the key sites designated for biodiversity importance within Tier 1 and 2, which are illustrated in Figures 6 - 8.

Table 4.2: Ecological Character

Site	Description	Accessibility
Special Areas of Conservation (SAC's)		
E1 Breckland SAC (Tier 1,2,3)	Calcareous grassland and European dry heath with areas of inland dunes and eutrophic lakes. Comprises the following SSSI's within tier 1 & 2; E3, E4, E5, E6, E8, E13, E14, E15, E16, E18.	Restricted. Much of site comprised of private land.
Special Protection Areas (SPA's)		
E2 Breckland SPA (Tier 1,2,3)	Dry heath, grassland, conifer plantation and arable habitats which support internationally important populations of nightjar, stone curlew and woodlark. Comprises the following SSSI's within tier 1 & 2; E4, E4, E5, E6, E7, E8, E10, E12, E17.	Restricted. Much of site comprised of private land.
Sites of Special Scientific Interest (SSSI's)		
E3 Breckland Forest SSSI (Tier 1,2,3)	Comprising the largest commercial forest in lowland England, the site is dominated by conifer plantation with clear felled areas providing nesting habitat for important populations of woodlark and nightjar. The site supports several protected plant species, in addition to a rich invertebrate fauna and small populations of red squirrel and goshawk. The site is also of geological importance with various examples of interest from the Middle Pleistocene period.	Open access throughout much of the site.
E4 Breckland Farmland SSSI (Tier 1,2,3)	Arable agricultural land providing important nesting habitat for stone curlew.	Restricted.
E5 Berner's Heath, Icklingham SSSI (Tier 2,3)	Heather dominated heathland with lichen rich acidic grassland, calcareous grassland, scrub and secondary woodland. The site supports a rich assemblage of plants.	No public access to the majority of the site.

Site	Description	Accessibility
E6 Lakenheath Warren SSSI (Tier 2,3)	Largest surviving expanse of Breck grass-heath ²⁶ with a rich plant assemblage of both acidic and calcareous character. The site supports breeding populations of nightjar and woodlark and overwintering hen harrier.	No public access. Bridleway access only.
E7 Barnham Heath SSSI (Tier 2)	Breckland heath ²⁷ with a mosaic of scrub and grassland habitats. The site is notable for supporting a breeding population of stone curlew.	Unknown.
E8 Thetford Heath SSSI (Tier 1,2)	A large area of Breckland heath important for its physio-geographic interest and nationally rare plants associated with the peri-glacial 'patterned ground' character. The site also supports notably rare heathland birds. This site includes Thetford Heath NNR.	No public access to the army training area and restricted access to the NNR.
E9 Knettishall Heath SSSI (Tier 2,3)	Area of dwarf heath and acid grassland with nesting nightjar.	Road access, parking and waymarked trails.
E10 Weather & Horn Heaths, Eriswell SSSI (Tier 2,3)	An acid grassland/heath mosaic in close proximity to the A11 road. The site is open in character due largely to high levels of grazing from both sheep and rabbits.	Restricted. Access at Weather Heath only. No public access at Horn Heath. A11 divides the site.
E11 Fakenham Wood, Euston & Sapiston Great Grove SSSI (Tier 2)	Ancient broadleaved woodland. Widened woodland rides support a diverse flora and provide important habitat for butterflies including white admiral.	Rides through woodland provide access.
E12 Little Heath, Barnham SSSI (Tier 2)	A mixture of acid and calcareous grassland with areas of both coniferous and deciduous invasive woodland. The sward is kept short by rabbit grazing with locally rare plant species and locally scarce lichen species present. Stone curlews nest in short grazed areas of the site.	No public access to most of the site.
E13 East Wretham Heath SSSI (Tier 1,2)	Large areas of grassland/heath with pine woodland.	Restricted/mixed access.
E14 Barnham Cross Common SSSI (Tier 1)	Calcareous and acidic Breckland and grassland heath supporting a number of nationally rare and locally notable plant species. A large part of this site is also part of Breckland SPA. This site includes Barnham Cross Common LNR.	Open access.
E15 Stanford Training Area SSSI (Tier 2,3)	An extensive area of Breckland grassland and heath with a mosaic of acid and calcareous communities. The site also includes notable wetland habitats with reed dominated swamp, springs, streams and internationally important fluctuating	No public access.

²⁶ Natural England (website accessed 2007) http://www.english-nature.org.uk/citation/citation_photo/1004467.pdf

²⁷ Natural England (website accessed 2007) http://www.english-nature.org.uk/citation/citation_photo/1002331.pdf

Site	Description	Accessibility
	meres. The variety of wetland habitats are reflected in the diverse assemblage of invertebrates, most notably dragonfly species. Large areas of woodland are also present, including alder carr woodland. The site has a rich floral diversity with several rare species characteristic of the Breckland Natural Area. In addition, the site supports breeding stone curlew.	
E16 Bridgham & Brettenham Heaths SSSI (Tier 2,3)	Breckland grassland and heath with considerable areas of bracken. Calcareous grassland is associated with the periglacial 'patterned ground' character. The site supports breeding nightjar. This site includes Brettenham Heath NNR	Bridgham Heath is accessible whilst access to Brettenham Heath is restricted.
E17 Elm Road Field, Thetford SSSI (Tier 1)	Breckland calcareous grassland ²⁸ . The site is notable for its rich floral assemblage with the presence of several nationally endangered and scarce plants.	Yes.
E18 Thetford Golf Course & Marsh SSSI (Tier 1)	Breckland grassland and heath dominated by areas of both calcareous and acidic grassland in addition to examples of lichen dominated and heather dominated heathland.	Yes.
E19 Grimes Graves SSSI (Tier 3)	Designated for its geological importance. Characterised by a 4000 year old flint mine and an example of soil sorting during the ice thaw of the Devensian Glaciation which can be seen in the alternating strips of heathland and acid grassland.	Yes.
National Nature Reserves (NNR's) and Local Nature Reserves (LNR's)		
E20 Thetford Heath NNR (Tier 1,2)	A large area of Breckland heath important for its physiogeographic interest and nationally rare plants associated with the periglacial 'patterned ground' character. The site also supports notably rare heathland birds.	No public access.
E21 Brettenham Heath NNR (Tier 2)	Breckland grassland and heath with considerable areas of bracken. Calcareous grassland is associated with the periglacial 'patterned ground' character. The site supports breeding nightjar.	No public access.
E22 Barnham Cross Common LNR (Tier 1)	Breckland grassland and heath on periglacial patterned ground with interpretive boards along trails.	Open access. Car parking and trails.
County Wildlife Sites CWS's		
Thetford Rifle Range (CWS reference no. 2093), Seven Hills Plantation (741).	Breckland grassland and heath ²⁹ .	

²⁸ Natural England (website accessed 2007) http://www.english-nature.org.uk/citation/citation_photo/2000085.pdf

²⁹ Natural England (website accessed 2007) http://www.english-nature.org.uk/citation/citation_photo/1004467.pdf

Site	Description	Accessibility
Alder Carr (701), Oak wood (745), South Wood (750), The Forest (747). Woodland in East Wretham (768). Adjacent Bridgham Heath (769), Land Adjacent River Little Ouse (702).	Broad-leaved semi-natural woodland.	
Seven Hills Tumuli and Bombing Range (2060), Shadwell Court (2061), Brierhill Meadow (763), Grassland in Brettenham (749), River Little Ouse (706).	Basic grassland with interesting plant assemblages.	
Rushford Wood (2059).	Grassland of mixed soil types.	
Snarehill Meadow (752), Halfmoon Meadow (755), Adjacent River Thet (753, 758).	Wet grazing meadow.	
North of the Forest (746).	Poorly drained neutral grassland and blocks of diverse scrub.	
Shadwell Park Lake (751)	Mesotrophic ornamental lake.	
Brierhill meadow (763), Adjacent River Little Ouse (708, 702, 703), Adjacent River Thet (754, 757, 758).	Wet marshy grassland.	
The Forest (747), Old Jot Meadow (766), Kilverstone Meadow (716), South of Nun's Bridge (699), Adjacent River Little River Ouse (705, 708).	Acid grassland.	
South of Nun's Bridge (700), Adjacent River Little Ouse (707), Adjacent River Thet (754).	Tall fen vegetation.	
River Little Ouse (704) Adjacent River Little Ouse (705).	Vegetation over former mineral workings.	
Alder Carr (701), River Little Ouse (706), Adjacent River Little Ouse (742), Adjacent River Thet (754, 753, 756, 757, 761).	Wet alder carr woodland.	
Adjacent River Little Ouse (705, 740, 703), Adjacent River Thet	Willow scrub.	

Site	Description	Accessibility
(753, 754, 757, 761).		
Adjacent River Little Ouse (702, 703, 707, 708, 740, 742), Adjacent River Thet (757, 758, 761, 765).	River bank and running water.	
Adjacent River Little Ouse (705, 708), Adjacent River Thet (754, 756).	Open water bodies.	
Adjacent River Little Ouse (705), Rushford Wood (2059).	Disturbed ground and skeletal soils.	

Key issues

- Disturbance to protected bird species is a significant issue in the area. Internationally important breeding populations of nightjar, woodlark and stone curlew occur in many of the sites surrounding Thetford and are vulnerable to recreational disturbance associated with the population growth and improved promotion of the natural assets of Thetford Forest Park and The Brecks as recreational and leisure destinations. Stone curlew and woodlark in particular are extremely susceptible to such disturbance. Subsequently, recreational access to sites which are notable for populations of these species should be very carefully managed (see Opportunities section) including: Breckland SPA, Breckland SAC, Breckland Farmland SSSI, Barnham Heath SSSI, Little Heath SSSI and Stanford Training Area SSSI.
- A relatively large proportion of the sites have restricted public access which has left other sites vulnerable to excessive visitor pressure such as Barnham Cross Common SPA, SSSI and LNR.
- Sites notable for their acidic or calcareous floral assemblages, which are in close proximity to urban areas, such as Elm Road Field SSSI, may be vulnerable to nutrient enrichment associated with recreational activities such as dog walking.
- Sites with notable floral and bryophyte assemblages in close proximity to urban areas and major road links may be vulnerable to nutrient deposition through atmospheric pollution, for example Thetford Golf Course and Marsh SSSI.

Opportunities

Strategic

- There are opportunities for land bridges across major roads to improve habitat connectivity and create movement corridors for wildlife between sites. Such sites include Weather and Horn Heaths SSSI and Bridgham and Brettenham Heaths SSSI which are both bisected by the A11.
- The rivers provide an obvious and immediate green corridor from Thetford urban area and access should be encouraged. By encouraging human recreation along riverine habitat, access and movement are naturally focused and the

likelihood of people diverting into sensitive adjacent areas is reduced. In addition, species characteristic of riverine habitats (otter, water vole, Desmoulin's whorl snail and kingfisher) can be very tolerant of human activity provided certain mitigation measures are taken (for example, through the provision of frequent island refuges by diverting footpaths away from the river, and provision of regular shelter belts of habitat suitable for particular species). There may also be the opportunity to enhance habitats for BAP species e.g. through suitably graded and planted banks for water vole and artificial holt provision for otters.

Site specific

- There is an opportunity to increase linkages between sites of nature conservation value. The heaths to the south west of Thetford, including Lakenheath SSSI, Weather and Horn Heaths SSSI, and Berner's Heath SSSI would be prime sites to increase connectivity and encourage habitat restoration. Increasing connectivity between habitats by providing grassland edges to arable fields has the potential to retain all stone curlew nesting habitat whilst increasing foraging value. This would also benefit other birds for which the SPA is designated such as nightjar, by providing edge habitats favoured by invertebrates. Any proposals should be reviewed against the conservation objectives of the SPA to ensure they are compatible. Additionally, such areas would contribute to provision of habitat for BAP farmland bird species by providing areas rich in seeds and invertebrates. Furthermore, such edges would form movement corridors for species associated with grassland and heathland habitats such as reptiles and invertebrates.
- Encourage access to sites which are less notable for breeding populations of nightjar, woodlark and stone curlew. Such sites include Berner's Heath SSSI, Weather and Horn Heath SSSI, Fakenham Wood SSSI, East Wretham Heath SSSI, Barnham Cross Common SSSI, Elm Road Field SSSI and Thetford Golf Course SSSI. Whilst many of the sites mentioned face significant visitor pressure, improvements in infrastructure may help to address these pressures to some degree.
- Strengthen local adoption of the stone curlew as 'Thetford's bird' to encourage self policing of actions.
- Heathland sites which are noted only for nightjar may provide opportunities for access. Their nocturnal character and cryptic sedentary behaviour during the day ensure that the nightjar is vulnerable to disturbance only when it is prolonged or at close quarters. Therefore well routed trails, board walks, peripheral paths, hides and screening, directing visitors away from sensitive areas could be considered without significant impact. Bridgham and Brettenham Common SSSI could be considered for improvements to infrastructure for recreation whilst minimising disturbance to nightjar.
- Disturbance to stone curlew may be mitigated through the provision of screening by planting scrub species at the edges of suitable nesting habitat. In addition, a development buffer should be created around the SPA, within which development which could adversely affect the population of stone curlew would

not be permitted. If a buffer zone is deemed necessary, it should be managed to encourage habitats and species similar to those which occur on the SPA. Residential development is likely to have the most significant affect on the integrity of the SPA, through recreational disturbance and cat predation effects on ground nesting birds. Appropriate buffer distances should be considered on a case by case basis using an evaluative tool such as the Stone Curlew Access Response Evaluator (SCARE) developed in affiliation with the RSPB.

- Buffer zone and screening measures have the potential to contribute towards other Norfolk BAP species, such as corn bunting, grey partridge and tree sparrow.
- The rivers provide an obvious and immediate green corridor from Thetford urban area and access should be encouraged. By encouraging human recreation along riverine habitat, access and movement are naturally focused and the likelihood of people diverting into sensitive adjacent areas is reduced. In addition, species characteristic of riverine habitats (otter, water vole, Desmoulin's whorl snail and kingfisher) can be very tolerant of human activity provided certain mitigation measures are taken (for example, through the provision of frequent island refuges by diverting footpaths away from the river, and provision of regular shelter belts of habitat suitable for particular species). There may also be the opportunity to enhance habitats for BAP species e.g. through suitably graded and planted banks for water vole and artificial holt provision for otters.
- As mentioned in paragraph 4.18, the Norfolk Ecological Mapping Project (see **Figure 8**) will be a useful tool in the implementation of biodiversity objectives.

FUNCTIONAL ECOSYSTEMS

Tier I - 3

- 4.33. Ecosystems fulfil many roles, including the potential for control of air pollution, climate change control, local climate management, flood risk management and regulation of water quality. The following section provides a strategic overview of the functional ecosystems context for Thetford and surrounding area.

Air pollution

- 4.34. Pollution control is provided by woodlands and other vegetation, for example woodland can absorb large quantities of atmospheric pollution, especially 'particulates', as noted by *The Countryside in and around Towns*³⁰. Air quality within the study area is generally good – average, with the exception of central Thetford (around the priory and museum), where the air quality is poor³¹ (see **Figure 9**).

Flood risk management

- 4.35. Properly managed and protected flood plains and water meadows can store flood waters to help to protect nearby urban areas from flooding. Parts of the study area

³⁰ The countryside in and around towns, Countryside Agency and Groundwork (2004)

³¹ Office of National Statistics (2003) <http://www.statistics.gov.uk>

with the highest chance of flooding (i.e. Flood Zone 1) are restricted to the immediate vicinity of the Thet and Little Ouse rivers (See **Figure 10**). This means that parts of central Thetford are prone to flooding. Neither of the proposed areas of growth at Thetford North and Thetford South East is within the flood plain, however, Thetford South East borders the high flood risk zone, and flooding is an issue that needs to be considered with respect to this site.

- 4.36. Flood risk should be considered when identifying appropriate types of green infrastructure to promote within the flood plain. For example, the flood plain provides many opportunities for biodiversity and provision of wetland habitats to encourage Biodiversity Action Plan species and habitats. In terms of the other functions of green infrastructure, the flood plain is an appropriate place for semi-natural greenspace with informal public access, but is not appropriate for more formal recreational facilities such as sports pitches and access paths with hard surfaces (as these are prone to flooding and may also increase risk of flooding in the surrounding area).

Climate control

- 4.37. In the UK, buildings contribute almost half of the country's CO₂ emissions³². As well as removing CO₂ from the atmosphere directly, green infrastructure and trees in urban areas have the potential to improve microclimate and reduce heat stress during the summer months by provision of direct shade for people and by reducing the urban heat island effect. Greenspaces within Thetford currently perform an important climate control function, particularly where they are located within the urban area by reducing the urban heat island effect. This will become increasingly important with climate change.

Key issues and opportunities

- 4.38. There are opportunities to:
- Plant trees and create urban greenspaces to help disperse air pollution in Thetford, especially areas of identified poor air quality.
 - Ensure that appropriate types of greenspace are provided along the River Thet to the east of Thetford, to perform a flood risk and attenuation function. This is the area with the highest flood risk, and also where new development is proposed.
 - There is potential to improve the climate control function of existing greenspaces in the town centre, through planting appropriate vegetation. There is also potential to increase coverage of green spaces and trees within Thetford, which would result in increased climate control and reduction of the urban heat island effect within the town.
 - Assess the demand for allotments and community gardens to encourage food growing and promote related self-sufficiency, recreation and education benefits.

³² DEFRA (2004) *Sustainable Energy*. [Online] Available from: <http://www.defra.gov.uk/Environment/energy/betterbuildings.htm> [Accessed 12 February 2007].

- Incorporate allotments, community gardens and greenhouses as part of new developments.

CULTURAL HERITAGE

Tier 3: Strategic Cultural and Historic Landscape overview

- 4.39. The cultural landscape of Thetford, the Brecks and the wider study area is significant in terms of archaeology, Early (Neolithic and Bronze Age) settlement and landscape management which have markedly affected the visual character and sense of place of the Brecks (for example, forestry plantation on the site of former heathland, unstable sand dunes, declining landed estates and farms, and MOD land ownership at Stanta Heath).
- 4.40. The cultural landscape illustrates a continuous pattern of settlement and migration following a timeline in excess of 4000 years, ranging from the prehistoric flint mine at Grimes Graves to the Sikh Trail, a route of Sikh pilgrimage to estates and sites formerly owned by Maharajah Duleep Singh, together with a number of parklands and associated estates/planned landscapes. This continuity is also evident in the townscape of Thetford, ranging from the historic Saxon town site to the Cluniac priory and the castle, later medieval buildings and many fine Georgian Houses within the town, in addition to later 19th Century development such as the railway and station. Thetford grew significantly in the 20th Century, notably in the post war era, with extensive London overspill housing estate development effectively doubling the town's footprint.
- 4.41. In order to build up a picture of the cultural landscape of Thetford, the following datasets have been described and mapped (See **Figure 12**):
- Registered parks and gardens of historic interest;
 - Local parks and gardens (unlisted but forming the setting to important/listed buildings);
 - Scheduled Monuments;
 - Other important, non scheduled archaeological sites;
 - Aspects of the wider cultural townscape and landscape.

Tier 1 and 2: Key sites/areas

- 4.42. The table overleaf provides a brief description of the key cultural heritage sites within Tier 1 and 2, which are defined on **Figure 12**.

Table 4.3: Cultural Heritage Character

Cultural assets	Description	Accessibility
Registered parks and gardens		
C1 Shadwell Park (Tier 2)	Forms the setting to Teulon and Blore's elaborate 1860s 'Perpendicular style' remodelling of an early 18 th century house. Park incorporates a range of estate buildings/features including a grotto and a distinctive clay lump bothy. 18 th century parkland with 19 th century ornamental gardens by house. Listed GII, 200ha approx.	In private ownership. No public access.
C2 Euston Park (Tier 2)	Forms the setting to the late 17 th Century Euston Hall, seat of the Earls of Euston/Dukes of Grafton. 30ha parkland of late 17 th Century original with important designed landscape by William Kent (1730s), modified by Capability Brown in the 1760s. Listed GII.	In private ownership. Open to the public February-September (paid entry).
Parks and gardens of local historic/landscape interest (unlisted)		
C3 Croxton Park (Tier 2)	Forms the landscape setting to an early 18 th century 7 bay house.	
C4 Kilverstone Park (Tier 1)	Forms the landscape setting to an early 17 th Century house much altered in the 19 th and early 20 th Centuries.	In private ownership. Part of the grounds was formerly a publicly accessible wildlife park, now closed. The farm buildings are subject to an extant planning consent for business /employment uses.
C5 Elveden Park (Tier 2)	Forms the landscape setting to Elveden Hall (modified by Norton in the 1860s), former English seat of the Sikh ruler Maharajah Duleep Singh and his family. Focus for Sikh pilgrimages and the 'Sikh Trail'.	Not open to the public, although the estate churchyard (and burial place of the Maharajah) on the A11 is open.
Scheduled Monuments		
C6 Grimes Graves (Tier 3)	Neolithic Flint Mine of international significance.	In the guardianship of English Heritage. Seasonally open (entry charge).
C7 Santon Warren Bowl Barrow (Blood Hill) (Tier 3)	Prehistoric funerary and ritual site.	Within Thetford Forest Park. Not directly accessible although a network of Forest Rides pass the site.
C8 Site of St Helen's Church (Tier 2)	Incorporates earthworks and Holy Well.	Is located on St Edmunds Way.
C9 Thetford Warren Lodge (Tier 2)	14th Century Warreners lodge, perhaps built by the Prior of Thetford Priory. Comparable to the one at Mildenhall.	Open/free access.
C10 Saxon Planned Town north of Red Castle (Tier 2)	Earthworks/site of planned Saxon settlement.	Incorporated within 20 th Century housing development at Redcastle Furze.

Cultural assets	Description	Accessibility
l)		
C11 Red Castle Medieval Ring Work, church and Saxon town site (Tier 1)	Relics of embankment/defences of Saxon town.	Incorporated within 20 th Century housing development at Redcastle Furze and areas of open space.
C12 Town ditch (Tier 1)	Relics of embankment/defences of Saxon town.	Located within an area of open space - accessible.
C13 Saxon Town site at Nun's Bridges (Tier 1)	Relics of embankment/defences of Saxon town.	Is located within an area of open space - accessible.
C14 Castle Hill (Tier 1)	Bronze Age fort earthworks and remains of an early Norman Motte and Bailey Castle, together with the site of an Augustinian Friary.	Located off Melford Common - open access.
C15 Thetford Priory (Tier 1)	Extensive ruins of a cluniac priory of 12th century foundation, including flint gatehouse and remains of the church/monastic buildings.	In the guardianship of English Heritage – open access.
C16 Holy Sepulchre (Tier 1)	Circular nave church ruins.	English Heritage – open access.
C17 Atomic Bomb Store, Thetford Heath (Tier 2)	Represents part of Thetford's significant 20 th Century military history.	No access.
Important non scheduled archaeological sites		
C18 Gallows Hill (Tier 1)	Bronze Age geology/earthworks. Reputed site of Queen Boudicca's camp.	No public access.
Wider cultural townscape and landscape		
C19 Thetford old town (Tier 1)	Extensive range of late medieval and later listed buildings on High Street and town centre with timber framed and wattle lime plaster infill, red/gault brick and knapped flint all evident.	Frontages/exterior only.
C20 Sikh Trail (Tier 1,2)	Site of Sikh pilgrimage, due to the past land ownerships of Maharajah Duleep Singh/Prince Frederick e.g. at Ancient House and Elveden.	Ancient House Museum is open to the public.
C21 Pine lines (Tier 1,2,3)	Extensive network of outgrown and contorted scots pine tree lines/windbreak hedgerows, planted as part of agricultural enclosure from the 18 th Century. Emblematic symbol of the Brecks. Notable examples at Cockley Cley and Lynford/Mundford Road, in addition to the old south A11 approach to the town.	No public access except where they form part of a right of way. Clearly visible within the landscape and from the roads.
C22 Thetford	Commercial plantation laid out from the 1920s on the sites of former heathland,	Part of Thetford Forest Park and Forestry Commission Open

Cultural assets	Description	Accessibility
Forest (Tier 1,2,3)	unproductive landed estates and unstable sand dunes. Incorporates part of the former parkland buffer belt of West Tofts.	Access Land.
C23 Stanta Heath/Battle Ground (Tier 2,3)	Intact historic Breckland Heathland, now part of the MOD Stanford Training Area. Incorporates a number of redundant churches associated with 'lost' villages e.g. Wretham and remnant parkland features from now largely demolished country houses.	No public access.

Key issues and opportunities

- 4.43. Key issues include the general lack of awareness of the significant cultural assets of the town and its surroundings. There is also currently a lack of connectivity in terms of pedestrian/green transport links between the cultural sites, in particular the Scheduled Monuments within the town.
- 4.44. There is potential to create and enhance pedestrian links between these sites, as well as shared green links (e.g. for cyclists and horse riders. Attractive routes could potentially be created using the cultural sites as destination points/foci (which could be an incentive to use green routes/links).
- 4.45. Currently relatively few sites, with the exception of the better publicised/more central attractions, make provision for interpretation and education. The value of the cultural and historic landscape assets for education, tourism and the rural economy is potentially significant.
- 4.46. The long continuity of human settlement, migration and intervention in Thetford offers scope for further marketing and promotion and also the enhancement of the setting of the town and its key approaches. For example the Gallows Hill site has scope for further excavation, recording and interpretation and should be conserved, with its setting, to form a positive gateway from the A11 linking Thetford visually and culturally with its wider Neolithic/Bronze Age landscape heritage. This site also offers the potential for views to the Bronze Age earthworks at the Castle Hill site within the town. English Heritage is currently considering whether this site should be designated as a Scheduled Monument.
- 4.47. Features of the cultural landscape, e.g. the pine lines, should be conserved and managed to create a focus for new green infrastructure and structural landscape features within development, and as enhancements to the wider townscape/landscape. Appropriate arboricultural management should be undertaken to prolong their lifespan and opportunities should be taken not only to retain existing pine lines within development to set the framework in which development can occur but also to plant new lines to create developments with a clear 'Thetford' sense of place and identity.

SOCIO-ECONOMIC CHARACTER

Tier 3: Strategic overview

- 4.48. The following section provides a strategic overview of the socio-economic context for Thetford and the surrounding area (Tier 3).

Population (Density and Age)

- 4.49. The predominantly rural nature of the wider area around Thetford means that population densities are low throughout (See **Figure 13**).
- 4.50. As noted in the EDAW Stage I Report³³, Thetford's population is relatively young in comparison to the rest of the County, with lower proportions of people over 65 years of age. Both the Sustainability Appraisal for Breckland Core Strategy (the "Breckland Core Strategy SA") and the EDAW Stage I Report also note that Thetford's population is becoming more ethnically diverse.

Health Deprivation

- 4.51. The Breckland Core Strategy Sustainability Appraisal notes that Breckland's residents have a life expectancy that compares favourably with the regional and national average³⁴. The percentage of residents living with limiting longterm illness also compares favourably with Norfolk, but is higher than the East of England as a whole. However, district wide statistics hide pockets of relative health and disability deprivation, in particular Thetford Abbey Ward. The wider study area falls mainly within the two least deprived percentiles in terms of health deprivation, with the urban areas such as Brandon tending to fall into the mid percentile for health deprivation (**Figure 14**).

Multiple Deprivation

- 4.52. Thetford district is characterised by pockets of relatively high deprivation in comparison to its surrounding area according to the Index of Multiple Deprivation 2004³⁵ (**Figure 15**). The Sustainability Appraisal of the Breckland Core Strategy³⁶ found that for Breckland as whole, the wards in the Thetford area suffer from the highest levels of deprivation. Three Thetford wards (Abbey, Barnham Cross and Saxon) ranked amongst the most deprived wards in Norfolk with regards to deprivation in housing, education and skills, disability, employment and income. Thetford is the most deprived Parish in the District. However, Breckland compares quite favourably to the rest of Norfolk³⁷.

Living Environment

- 4.53. **Figure 16** presents data on the living environment, which bases deprivation on both the 'indoor' (quality of housing) and 'outdoor' (e.g. air quality and road traffic

³³ Growth Framework and Infrastructure Study. Stage I Working Report, Draft Report, April 2007. p. 39

³⁴ Breckland Local Development Framework, Core Strategy and General Principles, Sustainability Appraisal Report (2005)

³⁵ Growth Framework and Infrastructure Study. Stage I Working Report, Draft Report, April 2007. p. 37

³⁶ Breckland Local Development Framework, Core Strategy and General Principles, Sustainability Appraisal Report (2005)

³⁷ P.16 of the core strategy

accidents) environments. Most of the wider study area falls into the two least deprived percentiles for living environment. Towards the three urban areas beyond Thetford to the northeast, south and south west, there are bands where living environment scored less favourably.

Income Deprivation

- 4.54. **Figure 17** suggests that the wider study area falls into the least deprived percentiles on the England-wide rank of Super Output Areas. Income deprivation increases towards the urban areas.

Crime

- 4.55. The Breckland Core Strategy Sustainability Appraisal Report notes that the East of England region has the third lowest rate of recorded crime per 1000 population. However, it also notes that there are localised pockets of crime and disorder within Breckland District. Unfortunately, violent crime in the region is on the increase with Breckland having a 26% rise in violent crime in the periods of 2002/3-2003/4. This was the highest percentage in the region. Crime is one of the factors considered under the Indices of Multiple Deprivation. Detailed crime statistics are temporarily unavailable for the Thetford area, although the 2004 Breckland Crime, Disorder and Drugs Audit³⁸ has been reviewed in order to define the areas of Breckland and Thetford which are most affected by crime. The types of crime most relevant to the management of Thetford's network of public open spaces and access routes have been determined to be criminal damage, anti-social behaviour and violent crime. In terms of all types of crime, the key areas of concern within Thetford are the Abbey Estate and Guildhall followed by the Saxon and Barnham Cross areas. The findings of this review, which are set out below, should help inform priorities for greenspace investment and management, and help define the type of management needed in some areas. The principles of good greenspace management should begin with the provision of appropriately designed, vandal resistant infrastructure, street furniture and external works. Open space should be designed to facilitate natural surveillance and to improve perceptions of safety. The presence of wardens and camera surveillance is further recommended to minimise criminal activity, as is a positive and proactive approach to management which involves the local community and thereby fosters a sense of ownership and responsibility in new greenspace.

Violent crime

- 4.56. The categories of violent crime are violence against the person, robbery and sexual offences. Instances of violent crime in Breckland are lower than the Norfolk, East of England and national average. However, of all violent crime committed in Breckland, almost 40% was committed either on highways or in public open spaces. The majority of violent crime committed in Breckland is identified as 'less serious wounding', the other types of violent crime being harassment offences and 'more serious violence'. Thetford accounts for a significant proportion of violent crime committed in Breckland, with 57% of all sexual offences committed in Breckland recorded in Thetford.

³⁸ Breckland Crime and Disorder Reduction Partnership (2004) Breckland Crime, Disorder and Drugs Audit

- 4.57. Overall, the areas of Thetford where the largest percentage of violence against a person occurred were in the Abbey and Guildhall areas. The Abbey Estate area suffers from high levels of social deprivation and is the most socially-deprived area in Breckland, whilst the Guildhall area is only recognised as suffering moderate social deprivation. Green infrastructure located in these areas includes the Little Ouse path near Abbey Estate. Any access improvement proposals along the River Thet adjacent to the Guildhall area would also need to consider the higher rate of violent crime in this area.

Criminal damage

- 4.58. The four areas within Breckland where recorded criminal damage (which includes damage to dwellings, other buildings, vehicles and public infrastructure) was highest are all within Thetford. The areas within the highest criminal damage instances were the Abbey and Guildhall areas, with the Saxon and Barnham Cross areas also recording high criminal damage levels. A quarter (24.5%) of all instances of criminal damage recorded in the district involved highways and open spaces, with a further 2% targeted at sports and leisure facilities. Analysis of incident reports indicates that most criminal damage occurs between 5pm and 12am, i.e. during the hours of darkness. This high occurrence of criminal damage during the evening/night should be considered in management of open spaces, particularly with regard to surveillance and access to open spaces at night.

Anti-social behaviour

- 4.59. Whilst there is no official definition of all offences which are regarded as anti-social behaviour, this category can include verbal harassment and intimidation, noise and rowdy behaviour, shouting and disputes, drunkenness and drugs. Almost a quarter (23%) of all anti-social behaviour in Breckland occurred in a public place. A number of locations within Thetford had 3 or more instances of anti-social behaviour reported over the year. Many of these instances were recorded around the Abbey Estate, central Thetford and Guildhall, and around the Barnham Cross Common and Saxon areas. Overall, the Abbey Estate and surrounding amenity open space areas were the site of the highest number of recorded incidents of anti-social behaviour, including a high number of malicious fires started on the open space. This issue needs to be considered when planning for future management of the open space in these areas.

Tier 1 and 2: Key sites/areas

- 4.60. The EDAW Stage I Report³⁹ (see above) identifies 19 spatial 'sectors' within Thetford's built environment based on infrastructure, built fabric, and land use. These sectors have been used as reference points in the table below for the socio-economic characterisation of Thetford.

³⁹ Thetford Growth Framework and Infrastructure Study. Stage I Working Report, Draft Report, April 2007.

Table 4.4: Socio-Economic Character

Socio-economic characterisation	Description
Population (Density and Age)	Figure 13 shows that as expected, population densities are higher in Thetford urban area than elsewhere within the two Tier. The most densely populated areas of Thetford are Station Road, Priory, the southern corner of the area East of Norwich Road, and a small northern part of the London Road area, as defined in the EDAW Stage 1 Report ⁴⁰ . The population density map suggests that the Fison Way Industrial Estate and Abbey Estate also have population densities of 260-1449 people per km ² . The southern area of the Stephenson Way Industrial Estate and the area adjacent to the A13 as it approaches Thetford from the West are the least densely populated parts of the urban area.
Health Deprivation	Figure 14 shows that the south-eastern areas of Tier 1, and the east and south west areas of Tier 2 are in the least deprived percentile. The Woods and Stephenson Way Industrial Estate areas to the south of the River, and the Motte & Bailey area to the north of the river, together with most of the built area to the West of Croxton Road are in the mid percentile of deprivation. The most deprived part of the study area is the very western edge of Thetford to the north of the river. This pocket follows the Chisley Vale north along the railway line.
Multiple Deprivation	Figure 15 shows that within the two inner Tier of the study area there are clear distinctions between the most and least deprived areas. There is a broad trend from east to west within the two Tier, with the least deprived pockets to the east and the most deprived area to the west. The southern and eastern parts of both Tier fall within the second to least deprived percentile, with two pockets within Tier 1 that fall within the least deprived percentile. These areas are the southern edge of the 'East of Norwich Road' area, and part of the area 'West of Norwich Road'. The Motte & Bailey area of Thetford Centre and the northern part of both Tier 1 and 2 are in the mid percentile for deprivation. The western part of both Tier 1 and 2, from Norwich Road sweeping west towards Thetford Warren falls into the second most deprived percentile. The most deprived part of the study area is the very western edge of Thetford to the north of the river. This pocket follows the Chisley Vale north along the railway line from the western edge of Abbey Estate area and the very western tip of the Fison Way Industrial Estate.
Living Environment	Figure 16 shows that both Tier 1 & 2 of the study area fall within the mid to least deprived percentiles in relation to living environment. There are small, connected pockets in the London and Bury Road areas which fall into the least deprived percentile. The Chisley Vale area to the east of the Little Ouse River and most of the northern part of the Thetford's built area also falls into the least deprived percentile for living environment. The Motte & Bailey area and the south west area of Tier 1, as well as most of the southern area of Tier 2 (excluding the south-western tip) fall within the mid-percentile in terms of the living environment. Whilst this indicates that Thetford does not have significant problems in terms of living environment, the southern area is relatively worse off.

⁴⁰ Growth Framework and Infrastructure Study. Stage 1 Working Report, Draft Report, April 2007.

Socio-economic characterisation	Description
<i>Income Deprivation</i>	Figure 17 shows that most of the two Tier fall into the least deprived percentiles. The areas to the east and west of Norwich Road and the Nunnery, are the least deprived in terms of income. The Abbey Estate area and most of the south of Thetford urban area between the Stephenson Way Industrial Estate and the town centre falls into the two most deprived percentiles.



Sectoral Analysis of Thetford (taken from EDAW study)

Thetford Spatial Sectors

The spatial sectors as defined in EDAW's Thetford GFIS³ are listed below:

1. Abbey Estate
2. London Road
3. East of Croxton Road
4. West of Norwich Road
5. Vicarage Road
6. Station Road
7. Priory
8. Bury Road
9. Town Centre
10. Motte and Bailey
11. Red Gate
12. East of Norwich Road
13. Arlington Way
14. The Nunnery
15. The Woods
16. Stephenson Way Industrial Estate
17. Red Castle
18. Fison Way Industrial Estate
19. West of Croxton Road

Key issues and opportunities

- The north western part of Thetford urban area (parts of Abbey Estate and The Fison Way Industrial Estate) are the most deprived in terms of multiple deprivation, health and income deprivation.

- The statistics suggest that deprivation in terms of health varies greatly across Thetford, despite access to informal recreation in the form of Thetford Warren. This suggests possible issues with accessibility to these areas.
- It is arguable that the relatively young population will require particularly high levels of informal recreation provision.
- With the exception of the town centre and Motte & Bailey areas, the eastern side of Thetford urban area was least deprived.
- Generally speaking, Thetford does not suffer from significant levels of environmental deprivation.
- There is no clear correlation between deprivation and living environment in Thetford based on the ONS statistics. However, Stephenson Way Industrial Estate area appears to be among the most deprived and scored less favourably in terms of living environment. The 'Living Environment' indicator is split into two 'sub-domains'; the 'indoor' living environment (concerning housing), and the 'outdoor' living environment (concerning air quality and road traffic accidents)⁴¹. While the indoor living environment indicators are not relevant in reference to the Stephenson Way Industrial Estate, people working at and visiting the Industrial Estate would be affected by local air quality and road traffic accidents.
- The 'Breckland Prospectus 2006+' Report (referred to in EDAW's 2007 report) highlights the following as 'Key Drivers for Change' in the District:
 - Inadequate infrastructure and utilities considering population growth;
 - Social exclusion and de-motivation;
 - The need to raise the employability of the socially excluded.

ACCESSIBLE OPEN SPACE

Tier 3: Strategic overview

- 4.61. Thetford Forest represents the most significant recreational resource in the area, covering 18,500 hectares, of which 14,320 hectares is publicly accessible. Thetford Forest is accessible from the Cambridgeshire sub region, the Thetford Growth Point and other towns where significant growth is expected including Norwich, Bury St Edmunds and Kings Lynn. The additional population of these growth locations will place additional recreational pressure on Thetford Forest. Nationally significant recreational resources outside Tier 3 include the North Norfolk Coast and the Broads. These are illustrated in **Figure 1**. Other regional recreational resources within Tier 3 include Knettishall Heath, Milton and Nowton Country Parks.
- 4.62. There is considerable urban growth proposed within Tier 3, including within the Cambridge sub-region, the recently identified Growth Point at Norwich, as well as Thetford and Bury St Edmunds, which has recently been identified as a Key Centre

⁴¹ The English Indices of Deprivation 2004: Summary (Revised). Office of the Deputy Prime Minister, 2004. http://www.communities.gov.uk/pub/443/Indicesofdeprivation2004summaryrevisedPDF154Kb_id1128443.pdf

of Development Change within the Regional Spatial Strategy. Green Infrastructure Strategies are also underway for the Norwich Growth Point and completed for the Cambridgeshire sub-region.

- 4.63. Thetford lies within the Brecks, a unique landscape incorporating Thetford Forest. Thetford Forest Park borders the town to the north and west, and parts of the Forest also stretch round to the south and east of Thetford. The Forest Park is managed by the Forestry Commission and is largely accessible to the public (with the exception of areas of land where the freehold is owned by Crown Estate), however the A11 which skirts the town to the west and north represents a major barrier to use of the Forest Park by the population of Thetford through impeding access.
- 4.64. Within the extensive area covered by Thetford Forest Park, destination sites include the attractive village of Santon Downham, Brandon Country Park, Knettishall Heath Country Park, Grimes Graves and the Forest Park Visitor Centre at High Lodge, along with many small picnic sites, car parks, walks and rides. The stretch of the Little Ouse which runs through the Forest Park near Santon Downham is also a popular site for water-based recreation activities, particularly canoeing. There are also major recreational facilities with paid entry such as the Go Ape! activity centre and the Centre Parcs at Elveden Forest Holiday Centre.
- 4.65. For the purpose of this work, spaces and places in Thetford have been categorised as follows, including semi natural greenspace in both public and private ownerships:
- Country Parks
 - Natural and semi-natural greenspace
 - Amenity greenspace
 - Formal recreation spaces and sports facilities
 - Historic parks and gardens (some of which are not publicly accessible)
 - Allotments
 - Cemeteries and churchyards.

Tier 1 and 2: Key spaces and places

- 4.66. The sites listed below are identified by number in **Figure 18** and **18a**.

Table 4.5: Open Space Character

Site	Description	Accessibility
Country Parks		
S1. Thetford Forest Park (Tiers 1,2,3)	Thetford Forest Park covers 18,500 hectares, of which 14,320 hectares are accessible to the public, and is managed by the Forestry Commission. Whilst there is some more formal open space around the visitor centre at High Lodge, the majority of the site is informal semi-natural open space including habitats such as woodland and heath. There is a range of pedestrian and cycle routes through the Forest which are graded in terms of the level of fitness required for each. There are formal	Public access to cyclists and pedestrians. Motor vehicles must pay a small toll to access the Forest Park at High Lodge, although access is otherwise

Site	Description	Accessibility
	and informal education facilities at the Forest Park, as well as play areas and disabled access.	unrestricted. Access time restricted for some facilities (e.g. 9-5pm), although the majority of the freehold site are open at any time to pedestrians, horseriders and cyclists.
S2. Brandon Country Park (Tier 3, 1.5km from Tier 2 boundary)	Brandon Country Park is located just outside Brandon about 6km north west of Thetford, and is managed by Suffolk County Council and Forest Heath District Council. Facilities at the park include a visitor centre, tearoom, a range of walks, interactive interpretation facilities and disabled toilets. The park was originally a manor house with extensive parkland, and is now actively managed for informal access and nature conservation. The Country Park is a gateway to Thetford Forest, forming an urban-rural link between Brandon and Thetford (road/rail/river).	Public Access Access time restricted for some facilities (e.g. 9-5pm).
S3. Knettishall Heath Country Park (tier 3, border of tier 2)	Knettishall Heath Country Park is located to the south east of Thetford and is managed by Suffolk County Council. Much of the site is a SSSI, due to its importance for heathland flora and fauna. The site offers informal recreational access and is a hub of long-distance paths that cross the area, including Peddar's Way, Angler's Way and the Icknield Way, which dates back to 4000BC and is possibly the oldest route in Britain. There is also a concessionary bridleway which crosses the park. The park offers educational visits for schools and groups.	Public Access. Car parking is charged at £1. The site is open year round from 9am until dusk.
S4. West Stow Country Park (Tier 2)	West Stow Country Park is located to the southern edge of Kings Forest, forming another gateway to Thetford Forest. The Park is 52 hectares in size and has a range of amenities including a visitor centre, café and car park, a play area, picnic site and woodland trails and paths. It is connected to Thetford by the Icknield Way and byways.	Public Access.
Natural and semi natural greenspace		
S5. Nunnery Lakes Nature Reserve (Tier 1)	Nunnery Lakes Nature Reserve is managed by the British Trust for Ornithology and is open to the public year round. The site has a good range of habitats including woodland, flood-meadows, reedbeds and heathland, and supports about 60 species of birds and many other types of fauna. The site is in Tier 1 of the study area to the south of Thetford, and links with neighbouring Barnham Cross Common could be enhanced to provide a continuous green corridor from central Thetford to the surrounding countryside. Proposals would have to be assessed against the qualifying features of Breckland SPA, of which Barnham Cross Common is part.	Public Access.
S6. Spring Walk (Tier 1)	Spring Walk is a small area of semi-natural greenspace which is close to River Meadows and Mill Lane and has potential to provide a green link between Barnham Cross Common and Thetford town centre. Spring Walk is a pretty riverside walk and its history dates back to	Public Access.

Site	Description	Accessibility
	attempts to make Thetford a spa town.	
S7. River Meadows (Tier 1)	River Meadows is a small area of semi-natural greenspace which runs adjacent to the Little Ouse and provides riverside access. It is close to Spring Walk and Mill Lane and has potential to provide a green link between Barnham Cross Common and Thetford town centre. There is potential to link with Riverside on the east of Thetford town centre.	Public Access.
S8. Mill Lane (Tier 1)	Mill Lane is almost 3ha in size and is an area of semi-natural greenspace which runs along the Little Ouse. Mill Lane incorporates features including an historic gun battery and part of the ancient Icknield Way. It is close to River Meadows and has potential to provide a green link between Barnham Cross Common and Thetford town centre.	Public Access.
S9. Barnham Cross Common (Tier 1)	Barnham Cross Common is the most significant area of semi-natural open space within the urban area of Thetford. The common is 70ha in size and is made up of a mosaic of woodland, chalk grassland and gorse scrub. The site is managed by Thetford Town Council and forms part of a chain of greenspaces running into Thetford from the south, including Mill Lane, River Meadows and Spring Walk. The site is also an SSSI (and part of the Breckland SPA) which supports a number of rare floral species, and it will be important to ensure recreation at this site does not damage the sensitive habitat.	Public Access. Accessible at all times.
S10. Woodland rear of St Martins Way (Tier 1)	This site is a woodland corridor covering more than 2ha. It has potential to act as a green corridor from Barnham Cross Common to Thetford Forest.	Public Access.
S11. Redcastle Plantation & Brandon Road (Tier 1)	This area of semi-natural greenspace forms a corridor along the southern bank of the Little Ouse and is over 7ha in size.	Public Access.
S12. Riverside & North Riverside (Tier 1)	An area of semi-natural greenspace, this site forms a corridor along the northern bank and part of the southern bank of the Little Ouse and is over 8ha in size. To the south west along the bank is the Brandon Road and Redcastle Plantation area, which in combination form a solid corridor of semi-natural greenspace along this stretch of the Little Ouse. The plantation has historic interest as it lies on the site of an early Saxon settlement. There is potential to link with River Meadows on the west of Thetford town centre.	Public Access.
S13. Abbey Estate (Tier 1)	The woodlands adjoining the Abbey Estate are owned by Breckland District Council and access is provided to residents of the estate but not to the general public. The accessible areas of the woodland are well-used by residents for informal recreation. The Abbey Estate is linked to the 'Woodlands adjacent to the river' below, but the land is for use by residents of the Estate and not accessible to all.	Access to residents only.

Site	Description	Accessibility
S14. Woodlands adjacent to river (Tier 1)	These woodlands create a green corridor linking the Riverside area to the east with the Abbey Estate to the north west.	Public Access.
S15. Melford Common (Tier 1)	Melford Common is a small area of common land covering almost 2ha on the east of Thetford. The site is close to the semi-natural area North of Foxglove Road and could function as a green corridor on this side of the town.	Public Access.
S16. Norwich Road (Tier 1)	This site is a linear piece of semi-natural greenspace which runs along the Norwich Road in a north-easterly direction. The site links Thetford centre with a public right of way which skirts the north of the urban area.	Public Access.
S17. North of Foxglove Road (Tier 1)	This site is a linear piece of semi-natural greenspace which runs along the River Thet to the east of the town. The site has potential to link Melford Common with the rural areas to the east of the town.	Public Access.
S18. The Covert (Tier 1)	The Covert is a small, isolated area of deciduous woodland which covers about 1.5ha of land. The site adjoins the children's' play area at Fairfields and there are footpaths running through the site.	Public Access.
S19. Woodland R/O Ladies Estate (Tier 1)	This site is a linear area of deciduous woodland to the north of Thetford. The woodland adjoins the Ladies Estate amenity greenspace and has footpaths running through the site. The site is currently affected by illegal use as a dumping ground.	Public Access.
Amenity greenspace		
S20. Abbey Estate (Tier 1)	There are a number of very small linear amenity greenspaces within this estate. They are currently of little value as a recreational resource, as each is less than a hectare in size. These amenity grassland areas also hold little biodiversity value.	Access to residents only.
S21. Off Bluebell Close, Arlington Way, Adjacent to Fir Road and Nun's Bridge Road (Tier 1)	Each of these independent sites is an area of amenity greenspace which is less than 1ha in size and likely to be of limited value for access and recreation. These sites should be enhanced in terms of their recreational and environmental value and provision of urban green infrastructure functions including shade, climate control, air pollution dispersal, biodiversity, visual amenity and access to nature.	Public Access.
S22. Ladies Estate (Tier 1)	There is an area of amenity greenspace of about 1.3ha within this estate. This site should be enhanced in terms of its recreational and environmental value and provision of urban green infrastructure functions.	Public Access.
S23. Barnham Common Playing Fields (Tier 1)	The playing fields are in a degraded condition. An HLF application (the Peoples' Million) was recently made to reinstate the playing fields by Thetford Town Council.	Public Access.

Site	Description	Accessibility
Formal recreation spaces and sports facilities		
S24. Castle Meadow/Hill (Tier 1)	Castle Meadow and Hill represent the largest outdoor amenity space within Thetford, is 5.7ha in size and located in central Thetford. Castle Hill is an historic site, and the area also incorporates features such as public toilets and children's play facilities. This site is to become a flagship play area with new work underway.	Public Access.
S25. Thetford Golf Club (Tier 1,2)	The golf club is situated to the west of Thetford surrounded by the Forest Park, and covers a 93ha area of land.	Access to this site is restricted to members.
S26. Breckland Leisure Centre (Tier 1)	The leisure centre comprises an outdoor area which covers 7.7ha and includes football, tennis, cricket and netball facilities.	Access to this site is restricted to members.
Parks and gardens		
S27. Shadwell Park (Tier 2)	Situated to the south-east of Thetford along the south bank of the Thet, this 18 th century park is listed on the Parks and Gardens Register but is not open to the public.	In private ownership. No public access.
S28. Euston Park (Tier 2)	Euston Park is a 17 th century parkland listed on the Parks and Gardens Register, which is open to the public between February and September.	In private ownership. Open to the public (paid entry).
S29. Kilverstone Park	Kilverstone Park forms the landscape setting to an early 17 th Century house. Part of the grounds was a wildlife park, now closed. The farm buildings within the Kilverstone Estate are subject to an extant planning consent for change of use to business/employment.	In private ownership.
S30. Croxton Park (Tier 2)	Croxton Park is an 18 th Century park which is not publicly accessible	In private ownership. No public access.
S31. Elveden Park (Tier 2)	The park forms the grounds of Elveden Hall, which is privately owned and not open to the public.	Not open to the public, although the estate churchyard on the A11 is open.
Allotments		
S32. Bury Road (Tier 1)	These allotments cover approximately 1.3ha	Restricted access - tenants only.
S33. Croxton Road (British Rail and Mundford Road sites – Tier 1)	These allotments cover approximately 3.6ha	Restricted access - tenants only.
S34. Magdelan Street (Tier 1)	These allotments cover approximately 0.1 ha.	Restricted access - tenants only.

Site	Description	Accessibility
S35. London Road (Tier I)	These allotments cover approximately 1.1ha.	Restricted access - tenants only.
S36. Ickniel Way (Tier I)	These allotments cover approximately 0.3ha.	Restricted access - tenants only.
Churchyards and cemeteries		
S37. London Road Cemetery (Tier I)	The cemetery and chapel at London Road is the only site within this category. It is approximately 3.5 ha in size.	Public Access.

Key issues and opportunities

4.67. There is considerable provision of large scale informal recreation areas around Thetford, due to its proximity to Thetford Forest, and nearby country parks. There are significant barriers to access however, that are currently limiting the potential of these important recreational sites (as discussed below under Access). However, there appear to be some areas of Tier 1 and 2 that are deficient in access to local open space. Where this is identified as an issue through the deficiency analysis (Section 5), additional provision of high quality open space and enhanced links to existing green infrastructure will be recommended.

4.68. Other specific recreational issues within the study area include:

- Thetford Forest Park is a significant recreational resource which should be managed to maximise its recreational benefits to the population of Thetford. Barriers to accessing this important site must be overcome as a strategic priority, and links to existing routes and the town enhanced.
- Parts of Thetford Forest are owned by Crown Estate and leased/rented to the Forestry Commission, notably the 'ransom strip' to the A11. There is a potential opportunity for Crown Estate to dedicate this as land as Open Access Land.
- Where parts of the urban area are deficient in local open space, the provision of access to sites which are currently inaccessible to the public, such as Loxia Woods and Trafalgar Woods, should be considered as an option for improved open space provision.
- There is potential to create a consolidated green corridor along the Little Ouse and River Thet where they pass through the town. This will require improvements to existing access and creation of new access infrastructure and should be complemented by appropriate interpretation facilities. Proposed access improvements along the river should also respect sensitive habitats along some stretches of river corridor.
- With the exception of Castle Meadow/Hill, which is already undergoing significant enhancement, there is considerable potential to enhance existing amenity greenspace within Thetford. Priorities for enhancement should be the

subject of community consultation, but may include creating naturalistic areas to provide access to nature, and improving the appearance of such sites through appropriate planting.

- In addition to enhancements to ensure that local open space is attractive to the local community, improvements may also need to be made to ensure that public safety and perception of safety is adequate at these sites. Future consultation on the ongoing PPG17 assessment should be used to inform priorities for improving community safety within the green infrastructure network.
- There are several areas of informal greenspace which could be linked and managed to act as green corridors for the benefit of people and wildlife. Examples include Melford Common and the land to the rear of Foxglove Road, North Riverside to Thetford Forest, and Riverside to River Meadows.
- There are currently five allotment sites in central Thetford and expansion of the town is likely to create the need for allotments on the northern and eastern edges of the town.

LINEAR ACCESS LINKS

Tier 3: Strategic Access Overview

- 4.69. There are a number of strategic footpaths which cross parts of the study area (See **Figure 19**). Those which are significant to the Green Infrastructure Study include the Peddar's Way National Trail, which runs along the eastern boundary of Tier 2. The Peddar's Way National Trail starts at Knettishall Heath Country Park and follows the route of a Roman road to the Norfolk Coast Path (some 150km). The St Edmund Way is a regional route which runs for 140km from Manningtree to Brandon across Essex, Suffolk and Norfolk. The path runs through Thetford along the route of the Little Ouse River. The Icknield Way is a regional route which runs to the south and east of Thetford and is one of the oldest routes in Britain, dating back to 4000BC. The Icknield Way runs 206km from Buckinghamshire to Knettishall Heath past many sites of historic and archaeological interest. The Hereward Way is another regional route which skirts the northern boundary of Tier 2 of the study area, and has a total length of 166km.
- 4.70. Some of the strategic footpaths, including the Icknield Way, are open to cyclists. In addition, both the national and regional cycle networks transect the study area. Route 13 of the National Cycle Network runs from Hackney in London, down to the Thames and then east, via Chelmsford, to Thetford. In addition, Regional Cycle Route 30 also runs through Thetford and the northern and eastern parts of the study area.
- 4.71. For the purpose of this work, access routes and infrastructure in Thetford have been categorised as follows:
- Strategic footpaths (national trails and regional routes);
 - Local footpaths;

- Cycleways;
- Riverways;
- Other routes/links.

4.72. The relevant Rights of Way officers in Norfolk and Suffolk County Councils were consulted regarding mapping of drove roads but were unable to provide any information or mapping at the time of writing.

Tier 1 and 2: Key links and access

4.73. The routes and paths listed below are identified by number in **Figure 19**.

Table 4.6: Key Links

Route	Description	Accessibility
Strategic footpaths		
A1 Peddar's Way National Trail	This national trail runs along the route of an ancient Roman road and starts at Knettishall Heath Country Park and follows the route of a Roman road to the north Norfolk coast.	Public access to walkers, cyclists and horse-riders
A2 Icknield Way	The Icknield Way runs 206km from Buckinghamshire to Knettishall Heath past many sites of historic and archaeological interest. The route runs through the southern part of Tier 2 within the study area, and is also open to cyclists.	Public access to walkers, cyclists and horse-riders
A3 Hereward Way	This path has a total length of 166km and skirts the northern boundary of Tier 2.	Public access to walkers, cyclists and horse-riders
A4 St Edmund Way	This path runs for 140km from Manningtree to Brandon via Thetford along a stretch of the Little Ouse River then through Thetford Forest. The route crosses Barnham Cross Common, part of the Breckland SPA.	Public access
A5 Angles Way	This 123km path meanders along with the river Little Ouse river from the Broads to the Brecks.	Public access
Local footpaths		
A6 Little Ouse Path	A 16 km linear walk from Brandon to Thetford.	Public access
A7 Harling Drove	16 km linear walk from Roudham Heath to Weeting.	Public access
A8 The Sheepwalk	Whilst not identified within the formal PROW network, the Sheepwalk to the north east of Thetford is an ancient public right of way providing a link between Thetford and Brettenham Heath, East Wretham Heath and Peddar's Way.	Permissive public access
A9 Thetford Forest Network	There are a number of trails maintained by the Forestry	Public access (permissive paths)

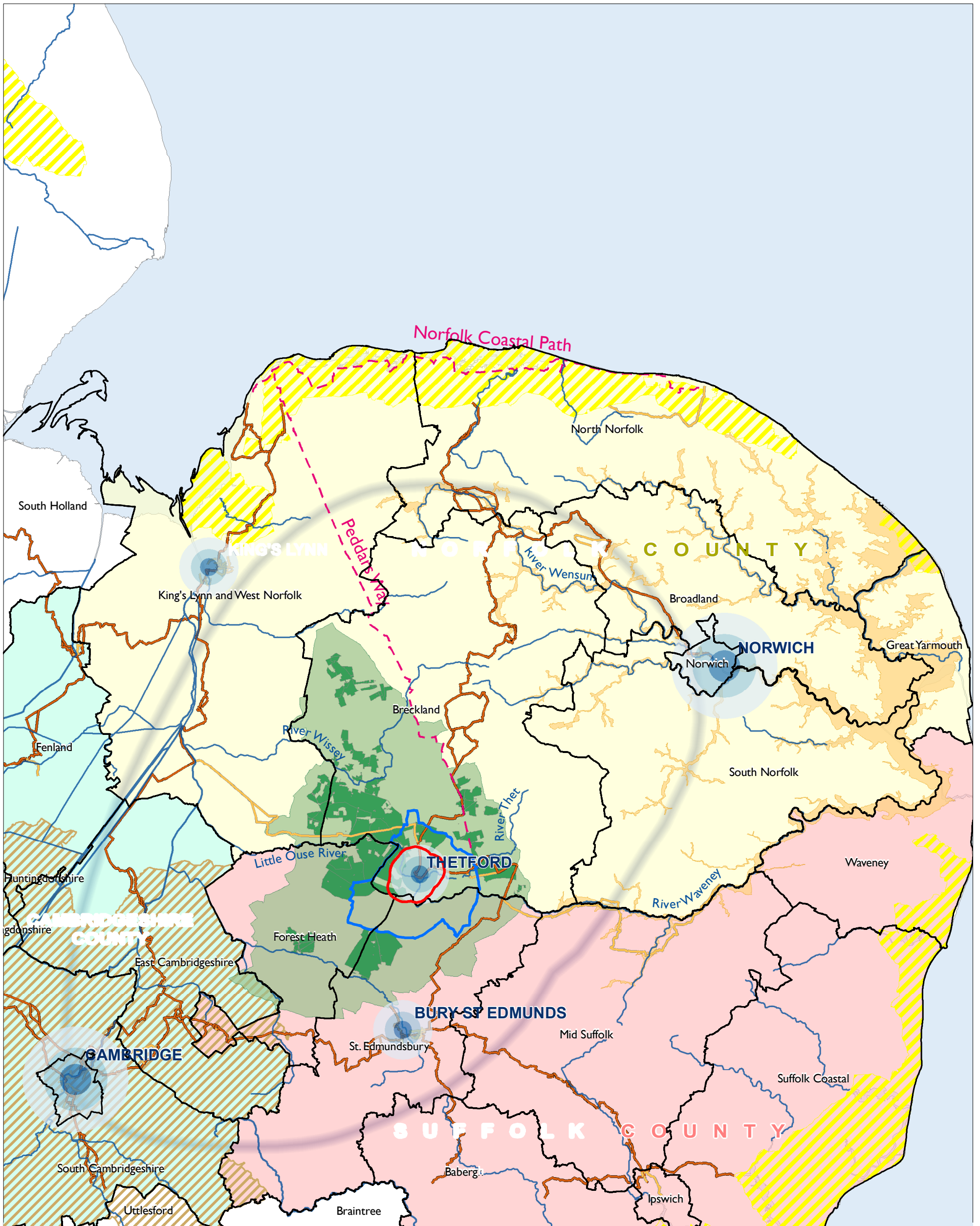
Route	Description	Accessibility
	Commission throughout Thetford Forest. These provide good access within the Forest but there is a need to link these with the urban area and with other public rights of way.	
Local footpath network	In terms of coverage, there is a fairly good network of footpaths across Tier 1 & 2, with only a couple of areas where there are notable gaps in the network. These gaps include a lack of links from Thetford to the countryside and settlements south east of the town, between the rivers Thet and Little Ouse and from Thetford north to the countryside and villages such as Croxton.	Public access
Cycleways		
A10 National Route 13	Route 13 of the National Cycle Network runs from Hackney in London, down to the Thames and then East via Thetford to Chelmsford in Essex. The route travels through Croxton Heath, and enters Thetford from the north and travels through the historic centre, exiting the town to the east past Kilverstone Hall toward Brettenham.	Public access
A12 Regional Route 30	Regional Cycle Route 30 also runs through Thetford and overlaps the NCN Route 13. This route enters the study area from Weeting in the west, and goes down Croxton Road to overlap with Route 13 at Croxton through to Brettenham where the routes separate.	Public access
A13 Thetford Forest Cycle Network	There are a number of cycle routes which make up a cycle network within the Forest to the west of Thetford. These routes vary in difficulty and include the Brandon Loop, the High Lodge Loop and the Black Route. The routes are separate to the footpath provision and link the Forest to Brandon Country Park.	Public access (permissive)
Riverways – access to the river/navigation		
R1 River Thet	The River Thet flows from Brettenham and Bridgham to central Thetford. The Thet at Bridgham is a popular location for coarse fishing, although membership is needed for this. In 2003, the former English Nature undertook a study which considered the potential for a 32km route for canoeists along the Thet and Little Ouse around Thetford.	There is access to some parts of the waterway for recreation use, but expansion is needed.
R2 Little Ouse	Also known as the Brandon River,	There is access to the waterway

Route	Description	Accessibility
	the source of the Little Ouse is at Lopham to the south east of Thetford, and it flows via Rushford and Knettishall Country Park down towards Thetford, which has developed at the confluence of the Little Ouse and the Thet. West of Thetford, the Little Ouse continues towards Brandon and through Thetford Forest. The stretch of river near Santon Downham is a popular location for water sports, especially canoeing.	for recreational use.
Riverways – access along the waterway (pedestrian/cycle access)		
R1 River Thet	Access for pedestrians, cyclists and horse-riders along the Thet in Tier 1 & 2 is currently poor. Public access improves in Tier 3 where the Angles Way follows the route of the Thet.	Partially accessible, but some stretches have no formal public access.
R2 Little Ouse	There is public access along the length of the Little Ouse within Tier 1, 2 & 3. The footpaths along some stretches of the river are in need of improvements to provide greater access for all.	Public access via St Edmund Way and the Little Ouse Path between Thetford and Brandon. There is also access along the river east of Knettishall Country Park in Tier 3, but not between Thetford and Knettishall Country Park. Part of the Little Ouse was subject to a Navigation Feasibility Study.
Other		
A14 Great Eastern Pingo Trail	Edge of Tier 2. Link to periglacial features and sites of geo diversity interest at Thompson, accessed via Peddars Way.	Publicly accessible. Mapping of pingos in Breckland District is ongoing.

Key issues and opportunities

- 4.74. In general, there are a number of strategic routes which run through the study area and provide good cycling and walking opportunities for the local population. There are issues related to the quality of routes in some places however, and a review should be undertaken to identify priorities for improving the quality of footpaths and cycle routes. In addition, the provision of a comprehensive footpath network is limited by gaps in the network, and by barriers to movement such as the A11, other fast roads and the river corridors. Overcoming these barriers and bridging gaps in the network should be a priority for future access management.
- 4.75. Some specific issues include:
- Peddar's Way is dissected at Brettenham Heath by the A11, a fast road which is a significant detractor from the appeal of the path and poses a threat to uses. An improved crossing point at this location should be considered, not just on safety grounds but also to promote access to periglacial features of geodiversity interest within the Great Eastern Pingo Trail. In addition, there are parts of this National Trail which are impassable in certain seasons due to localised flooding (e.g. at the River Thet).

- The St Edmund Way runs along part of the Little Ouse, but there is potential for a continuous path along the Little Ouse and the River Thet to allow access along the length of the river via Thetford town centre.
- There is currently no strategic cycle route which travels south from Thetford. Previous consideration has been given to a route which connects Thetford town centre to Barnham Cross Common, Elveden and Kings Forest before continuing south. Consultation should be undertaken to agree the appropriate route for this extension to the cycle network.
- There is a need to link Thetford with the extensive countryside to the south east, including Euston Park and Fakenham. Thetford would benefit from a strategic footpath and cycle route linking it with Bury St Edmunds. This could be achieved through linking Angles Way, which runs along the Little Ouse south of Thetford, to the Icknield Way which continues into the countryside around Euston and across to Kings Forest.
- The St Edmunds Way currently crosses Barnham Cross Common, a stretch of the path which is likely to be heavily used due to its proximity to the town. If it becomes apparent that recreational use is causing significant damage to the integrity of the SPA, there may be an option to divert the route along the Little Ouse River to the south east of Barnham Cross Common.
- A cycle link should also be created between Thetford and Knettishall Heath Country Park, potentially along the Little Ouse River. This would promote sustainable access to this attractive site.
- There are some good quality strategic paths in Thetford and these are complemented by the network of permissive paths maintained by the Forestry Commission in Thetford Forest. In order to link the town with the recreational resource at Thetford Forest, there will need to be considerable investment in bridges and crossing points to overcome barriers to access such as the A11. The Thetford Forest Recreation Strategy has suggested a number of crossing points. Potential crossing point locations have been reviewed in terms of the potential multi functional benefits they provide, as part of the Green Infrastructure Strategy.
- The county-level Rights of Way Improvement Plans should identify where significant improvements are required in order to make footpaths attractive to users.

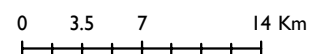


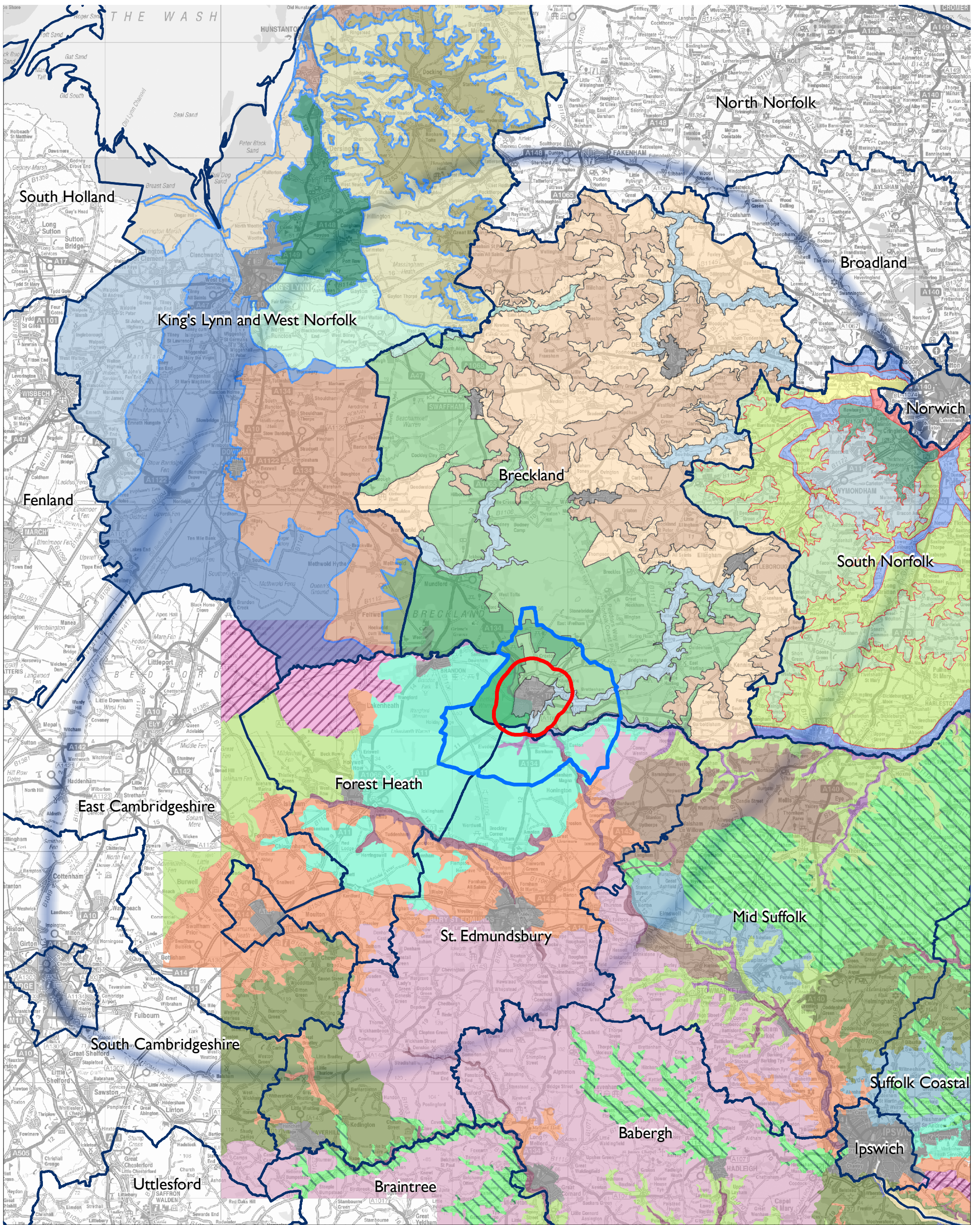
Thetford Green Infrastructure - Figure I: Strategic Green Infrastructure

Key

- | | | | | | |
|--|------------------------------------|--|-------------------------------------|--|-------------------------------|
| | Growth Centres | | Recreational routes | | Tier1 |
| | Area of Outstanding Natural Beauty | | Peddar Way and Norfolk Coastal Path | | Tier2 |
| | Norfolk Broads ESS | | National Cycle Network Route | | Tier3 |
| | Thetford Forest Park | | Regional Cycle Route | | Cambridge Sub Region Boundary |
| | The Brecks ESS | | Main River | | District Boundaries |
| | | | Secondary River | | |

Source: Breckland Council
 Natural England
 Sustrans
 Date: 25/09/2007
 Revision:





Thetford Green Infrastructure - Figure 2: Strategic LCA

Source: Breckland Council, LUC
Suffolk CC, King's Lynn DC, South Norfolk DC
Date: 25/09/2007

0 2.5 5 10 Km

Key

 Tier 1	 E - Plateau Farmland	 Estate Farmlands with Ancient Woods	 Urban Area	 10. Plateau Farmland	 F: Valley Urban Fringe
 Tier 2	 F - Chalk Rivers	 Open Meadow	 1. Open Coastal Marshes	 11. Settled Tributary Farmland	 G: Fringe Farmland
 Tier 3	 G - Settled Farmland with Plantation	 Open Meadow with Trees	 2. Drained Coastal Marshes	 12. The Brecks - Heathland and Plantations	
Breckland Landscape Character Type	 H - Rolling Open Farmland	 Open Wildland	 3. Coastal Slopes	 13. The Brecks - Plantations	
 Urban	Suffolk Landscape Character Types	 Planned with Estate Plantations	 4. The Fens - Settled Inland Marshes	 14. River Valleys	
 A - River Valleys	 Clustered with Ancient Woods	 Planned with Tree Groups	 5. The Fens - Open Inland Marshes	South Norfolk Landscape Character Types	
 B - Settled Tributary Farmland	 Clustered with Trees	 Settled with Ancient Woods	 6. Wooded Slopes with Estate Land	 A: Rural River Valley	
 C - The Brecks - Plantations	 Dispersed with Ancient Woods	 Settled with Trees	 7. Farmland with Woodland and Wetland	 B: Tributary Farmland	
 D - The Brecks - Heathland with Plantation	 Estate Farmlands	 Urban	 8. Settled Farmland with Plantations	 C: Tributary Farmland with Parkland	
		 Wooded Meadow	 9. Rolling Open Farmland	 D: Settled Plateau Farmland	
				 E: Plateau Farmland	

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