## APPENDIX 1 – ANALYSIS OF KEY ISSUES AND OPPORTUNITIES

### 1.0 INTRODUCTION

### 1.1 General

1.1.1 This appendix sets out an analysis of the key issues and opportunities associated with the future provision of green infrastructure within the Greater Norwich Area in relation to the following:

- Green Infrastructure Policy Context
- Environmental Character and Local Distinctiveness
- Biodiversity and the Natural Environment
- Greenspaces and Access Networks

### 2.0 GREEN INFRASTRUCTURE POLICY CONTEXT

### 2.1 General

2.1.1 This section sets out a review of the existing and emerging policy context to determine support for green infrastructure provision and identify specific policy requirements and targets that are of direct relevance to green infrastructure.

### 2.2 National Level

2.2.1 The Government's ***Sustainable Communities Plan***[1] sets out a national long-term programme of action for delivering sustainable communities and places in both urban and rural areas within England. It aims to address housing supply issues in the South East, low demand in other parts of the country, and deliver a better quality of life for communities throughout the country. The Plan contains two key elements that are of direct relevance to green infrastructure:

- *Livability* - the Plan sets out how the Government intends to intensify efforts to improve the local environment of all communities including cleaner streets, improved parks and better public spaces.

- *Protecting the countryside* - the Plan outlines how land will be used more effectively.

2.2.2 The Government's focus on delivering a better quality of life or 'livability' for communities and the emphasis on countryside protection supports the principles that underpin green infrastructure, and reinforces its importance in creating a healthy and enhanced environment. The Green Infrastructure Strategy will support delivery of the Government's objectives for building sustainable communities in the Greater Norwich Area, provided the necessary resources become available.

2.2.3 The national planning policy framework includes a number of statements and guidance notes that demonstrate the Government's commitment to meeting sustainable development objectives related to the protection, enhancement and use of green infrastructure through the planning system. Of particular significance is ***Planning Policy Statement (PPS) 1 - Delivering Sustainable Development***, which requires development plans and planning decisions to have due regard to environmental issues in meeting sustainable development objectives. ***PPS7 – Sustainable Development in Rural Areas*** sets out the Government's planning policies for rural areas, including country towns and villages and the wider, largely

[1] Sustainable Communities: Building for the Future (ODPM, 2003)

undeveloped countryside up to the fringes of larger urban areas. ***Planning Policy Guidance (PPG) 17 – Planning for Open Space, Sport and Recreation*** highlights the requirement to undertake open space audits and strategies, which can inform green infrastructure plans at both the strategic and local scale, and requires polices to be developed based on standards for provision of public open spaces, including greenspaces. ***PPS9 – Biological and Geological Conservation*** requires local authorities to maintain functioning ecological networks of natural habitats by avoiding or repairing the fragmentation and isolation of habitats, undertaken as part of a wider strategy for the protection and extension of open spaces and access routes.

2.2.4 Green infrastructure is now widely recognised as having an essential role to play in both meeting Government aspirations to provide a better quality of life for sustainable communities, and supporting its commitment to environmental protection and sustainable development through the planning system.

2.2.5 The green infrastructure approach is also increasingly reflected in the work of many Government agencies[2]. For example, *Natural England* recently confirmed its commitment to helping deliver high quality, locally distinctive and environmentally sustainable development, including the provision of multi-functional green infrastructure - for which it has set a target of establishing green infrastructure strategies in all of England's key areas for growth by 2007. Likewise, *English Heritage* has also made its commitment to green infrastructure clear, by stating that green infrastructure offers significant opportunities for the protection and enhancement of the historic environment through site specific projects and integrated landscape conservation initiatives, and that it facilitates the use of historic and cultural elements of the landscape for education and for promoting tourism. The *Environment Agency* has highlighted opportunities through integration of green infrastructure for implementation of creative solutions arising from flood risk assessment and management schemes, and water resource planning and conservation, that can generate the provision of green infrastructure links and wider benefits. The *Commission for Architecture and the Built Environment* (CABE) and *CABE Space* (the Government's advisor on parks and green space) see the establishment of green infrastructure within the built environment as an integral process that supports many of their aims and aspirations for securing quality in the design of parks and public spaces, the built environment and through the planning system.

## 2.3 Regional Level

***The Regional Spatial Strategy for the East of England***

2.3.1 Taking into account the Secretary of State's proposed changes[3], Policy ENV1 of the draft East of England Plan sets out the following requirements for Green Infrastructure:

*'Policy ENV1: Green infrastructure*

*Areas and networks of green infrastructure should be created, protected and managed to ensure that an improved and healthy environment is available for the benefit of present and future communities. This will be particularly important in those areas identified to accommodate the largest amounts of growth.*

*Local development documents should:*

[2] See statements of commitment set out in 'Green Infrastructure: Making the Connection – Strategic Framework Study for Northamptonshire' (River Nene Regional Park, November 2006)

[3] The Secretary of State's Proposed Changes to the Draft Revision to the Regional Spatial Strategy for East of England and Statement of Reasons (Government Office for the East of England, December 2006)

*- define a multiple hierarchy of green infrastructure, in terms of location, function, size and levels of use, at every spatial scale and across all areas of the region based on analysis of existing natural, historic, cultural and landscape assets, including the identification of new assets required to deliver green infrastructure;*
*- identify and require the retention and provision of substantial connected networks of green space, in urban, urban fringe and adjacent countryside areas to serve the new communities in the sub-region by 2021; and*
*- ensure that policies have regard to the economic and social as well as environmental benefits of green infrastructure assets.*

*Opportunities should be taken to develop green infrastructure so that, as part of a package of measures, it contributes to achieving carbon neutral development.*

*Assets of particular regional significance for the retention, provision and enhancement of green infrastructure include:*

*- The Norfolk and Suffolk Broads, the Norfolk Coast, Suffolk Coast and Heaths, Dedham Vale and Chilterns Areas of Outstanding Natural Beauty, and the Heritage Coasts (shown on the key diagram);*
*- Other areas of landscape, ecological and recreational importance, notably the Community Forests (Thames Chase, Marston Vale and Watling Chase), the Brecks, Epping Forest, Hatfield Forest, the Lee Valley Regional Park and areas around the Stour Estuary; and*
*- Strategically significant green infrastructure projects and proposals, such as the Great Fen Project, Wicken Fen Vision, the Milton Keynes to Bedford Waterway Park, and green infrastructure projects around the fringes of Greater London.'*

2.3.2 The proposed Green Infrastructure Strategy will provide guidance for Local Development Documents within the Greater Norwich Area, therefore aiding in the implementation of Policy ENV1.

***The Regional Environment Strategy for the East of England***

2.3.3 The Regional Environment Strategy[4] underpins the Draft RSS by providing a summary of the current state of the environment in the East of England and describes the main environmental challenges facing the region and provides a series of strategic aims for responding to these challenges. The strategy presents a number of key actions that should be implemented to meet the strategic aims. The Green Infrastructure Strategy will contribute to the following strategic aims:

SA1: Accommodate population and economic growth whilst protecting and enhancing the environment
SA4: Reduce the vulnerability of the region to climate change
SA8: Promote the environmental economy
SA10: Maintain and enhance landscape and townscape character
SA11: Enhance biodiversity
SA12: Conserve and enhance the historic environment
SA14: Increase understanding and ownership of environmental issues

***The Regional Economic Strategy for the East of England***

2.3.4 The Regional Economic Strategy[5] underpins the Draft RSS by setting the long-term vision for sustainable economic development in the East of England. The relevant goal is to provide

[4] Our Environment, Our Future: The Regional Environment Strategy for the East of England (EERA and EEEF, 2003)
[5] A Shared Vision: The Regional Economic Strategy for the East of England (EERA and EEDA, 2004)

high quality places to live, work and visit. A key priority within this goal is to develop and enhance greenspaces and infrastructure to support economic growth. The key actions identified to achieve this key priority include the following:

- The development and management of green networks of infrastructure for the region;
- The investment in and enhancement of key environmental assets;
- The development of a high quality and accessible urban-rural fringe.

2.3.5 The protection and provision of green infrastructure can deliver significant benefits in relation to economic contribution/encouragement and employment. As such, the Green Infrastructure Strategy will help support the Norfolk Economic Partnership in delivering the Regional Economic Strategy at a County level.

***The Regional Social Strategy***

2.3.6 The Regional Social Strategy[6] underpins the Draft RSS by setting out a vision, objectives and actions to achieve a fair and inclusive society for the East of England. A key objective presented is SO6 – 'to support the development of sustainable communities'. The strategy highlights the strong links between proximity to nature and social well-being. Action Point 3 of the Regional Social Strategy is '*To directly promote the development of strategic networks of greenspace that benefit physical and mental well being, particularly in areas of deprivation, by providing for more contact with nature for all across the Sustainable Communities Plan growth areas'.*

***The Regional Woodland Strategy for the East of England***

2.3.7 The Regional Woodland Strategy[7] underpins the Draft RSS by setting out a vision and a series of action plans to enable trees and woodlands to deliver high quality and sustainable benefits within the region. Key themes include:

- Quality of life;
- Spatial planning;
- Economic development;
- Renewable energy;
- Education and learning;
- Natural environment.

2.3.8 The Regional Woodland Strategy considers the advantages that trees can bring to the urban fringe and the built environment, stating that trees and woodlands in and around the built environment can contribute towards creating places where people want to live and work and help to define the cultural identity of urban areas. Trees and woodlands will be an essential consideration within the implementation of the Green Infrastructure Strategy for the Greater Norwich Area.

## 2.4 Local Level

***Local Development Frameworks***

2.4.1 As part of the Local Development Framework (LDF), a Joint Core Strategy is currently being prepared by Broadland DC, Norwich City Council and South Norfolk DC in partnership with

[6] The Regional Social Strategy: A strategy to achieve a fair and inclusive society in the East of England (EERA, ODPM and EEDA, 2004)
[7] Woodland for Life: The Regional Woodland Strategy for the East of England (EERA and the Forestry Commission, 2003)

Norfolk County Council. Together with the recently approved Broads Authority's Core Strategy, this will provide the overarching planning framework for the Greater Norwich Area to 2026.

2.4.2 The Draft Spatial Vision for the Joint Core Strategy is as follows:

*'Draft Spatial Vision*

*Greater Norwich will see significant change and development by 2026 which will be planned and managed so that our neighbourhoods and communities will be sustainable, prosperous, safe and healthy. The major growth in homes and jobs will be located within or close to the Norwich urban area in the most sustainable locations and will be matched by investment in appropriate infrastructure. People will thus be able to enjoy:*

- *access to a wider variety of services and facilities and high value, fulfilling jobs, based on enhanced education and skills, and thus increased prosperity and reduced deprivation;*
- *high quality surroundings in accommodation they can afford and which meets their needs both in the city centre and the outlying locations;*
- *living in a distinctive locality, whether part of the historic urban area, a market town, village or countryside, and in an enhanced environment where assets are protected - assets such as the spaces between Norwich, villages and the rural environment;*
- *an environmentally friendly way of life contributing to reducing their carbon footprint;*
- *improved communications within and between Norwich and its hinterland, to neighbouring areas within Norfolk (including the Broads and coastal areas), to the rest of the UK and abroad with an acknowledgment that we must presume quality and opportunities for rural dwellers;*

*Within this vision – the urban area of Norwich will be:*

- *the social, economic and cultural driver of this part of the region with a pre-eminent focus for services, jobs, shopping and leisure activities;*
- *a place which treasures its rich historic, cultural and architectural heritage, while embracing visionary new landmark developments (the "Contemporary Medieval City")*
- *a 'green city', in appearance and in environmental performance;*
- *an area with reduced intrusion of traffic, using high quality public transport including enhanced express services serving major new developments and where walking and cycling are an easy first choice for shorter journeys;*
- *marked by a distinct boundary between urban and rural.*

*and beyond the Norwich urban area there will be:*

- *prosperous market towns and rural village centres which are a focal point for local people to access jobs, facilities, services and for meeting local housing needs;*
- *a working and tranquil countryside which remains unmistakably part of eastern Norfolk, looking to the Broads and to other enhanced habitats suitable for biodiversity and wildlife.'*

2.4.3 In order to support the draft Vision, the following draft Spatial Planning Objectives have been developed for the Joint Core Strategy:

*A. To involve the greatest number of people in the community in both the development and implementation of planning policy*

*B. To be a place where people feel safe in their communities*

C. *To encourage the development of healthy and active lifestyles*

D. *To allocate adequate quantities of land for housing in the most sustainable settlements*

E. *To promote economic growth and diversity and provide a wide range of local employment opportunities within the Greater Norwich Area, for the existing and future population (in line with the East of England Plan)*

F. *To ensure that people have ready access to services*

G. *To allow people to develop to their full potential and provide educational facilities to support the needs of a growing population*

H. *To protect, manage and enhance the natural, built and historic environment- including key landscapes, natural resources and areas of natural habitat or nature conservation value*

I. *To minimise the contributors to climate change and address its impact*

J. *To enhance infrastructure provision to meet the needs of existing and future populations*

K. *To reduce the need to travel*

L. *To positively protect and enhance Norwich's individual character and unique cultural infrastructure.'*

2.4.2 The Core Strategies will set out the general strategic growth locations and identify the likely levels of growth and associated infrastructure requirements for each five-year period. They will also provide integrated land use and transport policies that will guide planning decisions and action in the Greater Norwich Area. The Core Strategies will be required to conform to both the regional spatial strategy and the range of polices set out in the East of England Plan. This includes the requirement for green infrastructure to accompany new development to deliver social, economic and environmental benefits in areas subject to growth proposals.

2.4.3 Norfolk County Council is responsible for and is currently developing the countywide Minerals and Waste LDF, which comprises a suite of documents identifying policies and preferred areas for minerals development and waste management in the county. The after-use of minerals extraction sites presents future opportunities for creating new green infrastructure within the Greater Norwich Area.

2.4.4 The Green Infrastructure Strategy will complement and support the LDFs for the Greater Norwich Area, by providing guidance on green infrastructure protection, enhancement and provision needs and priorities.

***Community Strategies/Plans***

2.4.5 Community strategies provide the framework for joint action by public, private and voluntary organisations within local authority areas. Community strategies have been prepared by each of the Local Strategic Partnerships within the Greater Norwich Area[8] within the context of

[8] A New Vision for Norwich : The Sustainable Community Strategy 2007 – 2020 (City of Norwich Partnership, Draft for Consultation, 2007)
[8] The Community Strategy for South Norfolk 2004-2007 (South Norfolk Partnership, 2004) – NB. A Sustainable Community Strategy 2008 – 2011 is currently in preparation.
[8] The Broadland Community Plan 2004 – 2014 (Broadland Community Partnership, 2004)

the countywide Norfolk Community Strategy[9]. The main themes within the four Sustainable Community Strategies can be summarised as:

- For individuals to play an active part in community life and to be involved in decision making
- To have healthy and safer places and a high quality environment that is protected and respected for everyone's enjoyment
- To have access to suitable housing, jobs, facilities and services for all, whatever their needs
- To provide opportunities for people to learn at all stages of life
- To develop the right infrastructure so that people can travel around using varied forms of transport.

2.4.6 The Green Infrastructure Strategy for the Greater Norwich Area will support a number of these key themes and priorities set out by the community strategies.

***Norfolk Biodiversity Action Plan***

2.4.7 Biodiversity is the biological diversity of organisms that inhabit the earth and the complex ecosystems they make up. In a local context, biodiversity is important in giving a distinctive character to an area whether it is heathland, woodland, river valley or an urban wildlife habitat. The conservation of biodiversity has an emphasis on the importance of all species, from the commonplace to the critically endangered.

2.4.8 The Biodiversity Action Plan (BAP) for Norfolk proposes a framework for action to conserve the County's wildlife, produced by the Norfolk Biodiversity Forum as the County's response to the UK BAP. The Norfolk BAP seeks to target resources for appropriate habitat management and for large-scale habitat restoration and creations to increase the existing biodiversity resource and reverse the effects of habitat fragmentation.

2.4.9 The Norfolk BAP identifies a number of Habitat and Species Action Plans based on priorities for conservation and enhancement in the County. Each plan sets out a series of actions and targets for delivery by an identified Lead Agency and Partner.

2.4.10 The Norfolk Biodiversity Partnership has undertaken biodiversity opportunity mapping within the Greater Norwich Area to create a spatial framework for the delivery of the County-level BAP targets (as described in Section 4.0).

***Norfolk Draft Rights of Way Improvement Plan***

2.4.11 The Countryside and Rights of Way (CRoW) Act 2000 required every local highway authority to publish a draft Rights of Way Improvement Plan (ROWIP) by July 2005. The Act specifically requires a ROWIP to assess:

- The extent to which local rights of way meet the present and likely future needs of the public;
- The opportunities provided by rights of way for exercise and other forms of open-air recreation and the enjoyment of the area; and
- The accessibility of rights of way to the blind or partially sighted and those with mobility problems.

2.4.12 As the local highway authority in Norfolk, the County Council has published a draft ROWIP as part of the Norfolk Local Transport Plan. The draft ROWIP sets out the County Council's

[9] Norfolk Ambition (The Community Strategy for Norfolk 2003-2023)

key aims and priorities, key partners (e.g. The Broads Authority), timescales for action and resources for securing an improved rights of way network. The draft ROWIP has informed the strategic framework for green infrastructure set out in this study.

***Norfolk Local Transport Plan***

2.4.13 The Norfolk Local Transport Plan (LTP) is based on a twenty-year transport vision. The LTP contains a number of policy objectives related to public transport and promotion of cycling and walking that are of relevance to the green infrastructure strategy. The LTP is supported by the Norwich Area Transport Strategy (NATS), which sets out proposals for improving transportation in and around the City.

***District Open Space Assessments***

2.4.14 In accordance with Government guidance[10], the local authorities within the Greater Norwich Area are encouraged to undertake assessments of open space provision in their areas. PPG17 assessments have been completed by South Norfolk District[11] and Broadland District[12]. This work has informed the identification of deficiencies in the provision, quality and accessibility of open spaces within the areas outside of the City of Norwich, for which a PPG17 assessment is currently in preparation by the Council.

***Norwich River Valley Strategy***

2.4.15 The Norwich River Valley Strategy was prepared by a wide partnership in 2000 to provide a framework for co-ordinating landscape, wildlife and access projects for the benefit of the river valleys of the Wensum, Yare, Tud and Tas in and around Norwich. The Norwich River Valley Strategy's vision and objectives chime well with the concept of green infrastructure, and provide a useful mechanism for delivering green infrastructure benefits within the river valleys focussed on the City.

***Socio-Economic Profile of the Greater Norwich Area*** [13]

*Population*

- Norwich City has an estimated population of 127,600 (ODS Mid-2005 estimates) an increase from 121,550 in 2001 with a population density of 32.7 persons per hectare, c.63.7% (2001 census data) of which is of a working age.

- Broadland District has an estimated population of 121,100 (ODS Mid-2005 estimates) an increase from 118,500 in 2001 with a population density of 2.19 persons per hectare, c.59.6% (2001 census data) of which is of a working age.

[10] Planning Policy Guidance (PPG) 17 – Planning for Open Space, Sport and Recreation (ODPM, 2004)
[11] South Norfolk District PPG17 Open Spaces, Indoor Sports and Community Recreation Assessment (Strategic Leisure Ltd, Final Report, July 2007)
[12] Broadland District PPG17 Open Spaces, Indoor Sports and Community Recreation Assessment (Strategic Leisure Ltd, Draft Report, July 2007)
[13] Based on the following principal sources - EERA 2005. Healthy Futures: A regional Health Strategy for the East of England 2005-2010; South Norfolk Alliance 2004. Community Strategy for South Norfolk 2004-2007; City of Norwich Partnership 2007. A New Vision For Norwich: The Sustainable Community Strategy Draft for Consultation 2007-2020; Norfolk Ambition: The Community Strategy for Norfolk 2003-2023; The County Economic Development Partnership, June 2006. Shaping Norfolk's Future Strategy 2006-2015; Broadland Local Plan Replacement 2006; South Norfolk Local Plan 2003; Norwich City Local Plan Replacement 2004; County of Norfolk Crime and Disorder and Drugs Audit 2004 - Norfolk Crime and Disorder Reduction Partnerships.

- South Norfolk District has an estimated population of 115,300 (ODS Mid-2005 estimates) an increase from 110,710 in 2001 with a population density of 1.27 persons per hectare, c.59.1% (2001 census data) of which is of a working age.

- The Greater Norwich Area comprises the data from all three districts and it can therefore be estimated that the overall population of the Area is around 364,000 (using ODS Mid-2005 estimates). The higher density of population in Norwich City and the relatively low working age percentages present in Broadland and South Norfolk districts (as opposed to the National population statistic of 61.5% of a working age, 2001 census data), suggests that Norwich City is the focal point of the Greater Norwich Area for economic activity.

*Employment*

- The employment rate of the working age population in Norwich City is 72.4%, slightly lower than the British rate of 74.2%. Unemployment rates are high at 6.7% when compared with the British average of 5.2% of the working age population (NOMIS Official Labour Market Stats ONS, calculated between July 2005 – June 2006).

- The employment rate of the working age population in Broadland District is 81.2%, higher than the British rate of 74.2%. Unemployment rates are relatively low at 3.3% when compared with the British average of 5.2% of the working age population (NOMIS Official Labour Market Stats ONS, calculated between July 2005 – June 2006).

- The employment rate of the working age population in South Norfolk District is 79.7%, slightly higher than the British rate of 74.2%. Unemployment rates are, like Broadland, relatively low at 3.5% when compared with the British average of 5.2% of the working age population (NOMIS Official Labour Market Stats ONS, calculated between July 2005 – June 2006).

- Between 1998 and 2004 employment in Norwich City decreased by 10.4% as opposed to an increase of 27.6% in Broadland District and 31.4% in South Norfolk District. However, between the same period the number of workplaces in all 3 districts increased by 8% in Norwich City, 13.7% in Broadland and 16.7% in South Norfolk.

- Norfolk Ambition identifies that over 90% of firms in Norfolk employ fewer than 25 people, but provide only 25% of the business employment. Whereas firms employing more than 200 people are 1% of the stock but provide almost 50% of the jobs.

- The Greater Norwich Area provides half of all jobs in Norfolk County, with the average daytime population roughly 130% of the resident population. There is a significant amount of inward commuting.

- The Greater Norwich Area comprises of employment statistics from the 3 district councils. Overall Norwich City is the main employment centre for the Greater Norwich Area with heavy inward commuting from Broadland and South Norfolk Districts, although it also produces the highest unemployment rates for the Area. Despite incorporating part of the Broads National park, statistics from the 3 district councils suggest that only a small percentage of employment within the Greater Norwich Area is in the tourism sector making up only 9% of the share of jobs in Norwich City (A New Vision for Norwich 2007-2020).

*Education*

- Norwich City has a population of 89,832 within the age range of 16-74 years old, 29.9% of which have no qualifications compared with the National statistic of 28.9%. 16.8% of this population have their highest qualification attained at NVQ level 2 compared with the National average of 19.4% (2001 Census data ONS).

- Broadland District has a population of 86,322 with an age range of 16-74 years old, 27.6% of which have no qualifications compared with the National statistic of 28.9%. 21.7% of this population have their highest qualification attained at NVQ level 2 compared with the National average of 19.4% (2001 Census data ONS).

- South Norfolk District has a population of 79,883 with an age range of 16-74 years old, 28.7% of which have no qualifications compared with the National statistic of 28.9%. 20.8% of this population have their highest qualification attained at NVQ level 2 compared with the National average of 19.4% (2001 Census data ONS).

- School results in Norwich City (according to A New Vision for Norwich 2007-2020) remain consistently well below the Norfolk and National Averages.

*Deprivation*

- The County of Norfolk as a whole has an above average rate of deprivation

- Norwich City District is divided into 79 Super Output Areas (SOA's) when assessing deprivation at small area level. In terms of the Index of Multiple Deprivation 29 are in the 20% most deprived SOA's in England and 38 (11%) are in the 10% most deprived SOA's in the East of England (2001 Census data ONS).

- Broadland District is divided into 84 SOA's when assessing deprivation at small area level. In terms of the Index of Multiple Deprivation none are in the 20% most deprived SOA's in England and none are in the 10% most deprived SOA's in the East of England (2001 Census data ONS).

- South Norfolk District is divided into 79 SOA's when assessing deprivation at small area level. In terms of the Index of Multiple Deprivation none are in the 20% most deprived SOA's in England and none are in the 10% most deprived SOA's in the East of England. However, 26 are in the 20% least deprived SOA's Nationally (2001 Census data ONS).

- Broadland and South Norfolk are the least deprived Norfolk Districts. On the Rank of Local Concentration measure Broadland is among the 10 per cent least deprived of all districts, with South Norfolk only just outside (2001 Census data ONS).

- Five of Norwich City's wards (Bowthorpe, Wensum, Mile Cross, Mancroft and Lakenham) rank in the most deprived 5% of wards in the country with regards to education, skills and training; six wards are in the worst 10% (the previous wards plus Catton Grove) (A New Vision for Norwich 2007-2020).

*Crime*

- The Greater Norwich Area is generally a safe place to live, as Norfolk has a lower overall rate of crime than the National average (Norfolk Ambition). There are an average of 87 incidences of all crime per 1000 population in Norfolk (2003-2004) compared with 113.1 in England and Wales (2003-2004).

- Within the Greater Norwich Area, Norwich City has by far the highest crime rate out of the three districts with an average of 184.3 incidences of all crime per 1000 population, more than double that of the Norfolk average and considerably higher than the National average (County of Norfolk Crime and Disorder and Drugs Audit 2004).

- The crime rate in Broadland and South Norfolk districts are much lower than the Norfolk and National averages at 45.7 and 51.8 respectively (2003-2004) (County of Norfolk Crime and Disorder and Drugs Audit 2004).

- Violence against a person and criminal damage make up almost half of all crimes committed in the county (County of Norfolk Crime and Disorder and Drugs Audit 2004)

*Accessibility*

- The strategic accessibility into and from Norfolk is relatively poor. Norwich is the largest city in England not to have a continuous dual carriageway connecting it to the motorway network. (Norfolk Ambition)

- A lack of investment in the past has meant that infrastructure in Norfolk is in need of considerable upgrading and modernisation. There is a high reliance on the car particularly in rural areas of Broadland and South Norfolk districts and public transport links are poor. (Norfolk Ambition)

- 34% of the population in the Norwich City district do not own a car compared with the National average of 30.6% (2001 Census ONS).

- 9.9% and 9.6% of the population in South Norfolk and Broadland Districts respectively do not own a car, considerably lower percentages than Norwich City and district and the National average (2001 Census ONS)

*Health Issues*

- Generally Norfolk County is quite healthy and has an above average life expectancy, but people's health varies significantly across the districts.

- Norwich City has the highest level of deprivation in the Eastern region and this links significantly to the health of the district. 9.8% of the population in Norwich describe their health as not good, which is above the National percentage of 9% (2001 Census ONS). 19.4% of the population have a limiting long-term illness, significantly higher than the National average of 17.9% (2001 Census ONS). Almost 22% of the population have mental Health problems

- The health of the population in Broadland district is generally better than in Norwich City. 7.7% of the population describe their health as not good, much lower than the National average of 9% (2001 Census ONS). 17.5%[14] of the population have a limiting long-term illness, which is only slightly lower than the National average of 17.9% (2001 Census ONS).

- The health of the population in South Norfolk is also generally better than in Norwich City. 7.6% of the population describe their health as not good, much lower than the

[14] It is important to note that this figure may be misleading when compared with the National and Norwich statistics as the average age of the populations in Broadland and South Norfolk districts is much older than the average age in Norwich and England (2001 Census)

National average of 9% (2001 Census ONS). 17%[1] of the population have a limiting long-term illness, which is lower than the National average of 17.9% (2001 Census ONS).

- Within the Greater Norwich Area, health in the rural districts is generally above the National averages, whereas the predominantly urban Norwich City has significant health issues that are linked to the high deprivation levels within the district.

***Existing Development Allocations in the Greater Norwich Area[15]***

*Housing Site Allocations*

- The East of England Draft Plan identifies the city of Norwich as a key centre for development and change in the region. It states that Norwich should be a regional focus for housing and employment reflecting its identification as a new growth point. The plan sets an overall target of 33,000 net additional dwellings in the Norwich Policy Area in the period 2001-2021.

- The locations of existing allocated development land are shown in the Norwich City Replacement Local Plan 2004, the Broadland District Local Plan (Replacement) 2006 and the South Norfolk Local Plan 2003.

- Within the rural areas of Broadland District (outside of the Norwich Policy Area) the Norfolk Structure Plan sets a target of 2400 dwellings between the periods 2001-2011. The highest concentration of existing allocated development land is in the north of the District around existing urban areas such as the town of Aylsham.

- Within the rural areas of South Norfolk District (outside of the Norwich Policy Area) the South Norfolk Local Plan 2003 requires that major provision for housing development be in selected locations along strategic routes (A47 and A140). The towns of Diss and Harleston have the highest concentration of existing allocated development land.

*Employment Site Allocations*

- The draft East of England Plan proposes that planning for employment growth in the Norwich Policy Area should focus on:

  * the City Centre, particularly media and creative industries, finance and insurance
  * information communication technologies
  * Thorpe St Andrew and Longwater, Costessey (business park use)
  * Colney/Cringleford (significant expansion of the research park reserved for research and development, higher education, and hospital/health related uses)
  * Norwich Airport (uses benefiting from an airport-related location); and Wymondham/A11 corridor (high-tech development and rail-related uses).

- The Norfolk Structure Plan's overarching strategy for economic development in the county is to promote economic growth and provide local employment opportunities for the existing and future population, consistent with the strategy for sustainable development, which emphasises a closer relationship between development for housing and employment to help reduce travel-to-work distances.

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[15] Based on the following principal sources - Figure 4.21 - Existing Development Allocations; Greater Norwich Housing Strategy 2005-2010 – March 2005; East of England Draft Proposed Changes – December 2006; Broadland District Local Plan (Replacement) 2006; South Norfolk Local Plan 2003; Norwich City Replacement Local Plan 2004; The East of England Regional Housing Strategy 2005 –2010.

- Proposed Employment sites within Norwich City are identified in the Norwich City Replacement Local Plan 2004 and generally follow the proposed East of England Plan strategic sites. Most of the large employment site allocations are situated on the urban fringe of the City.

- The Broadland District Local Plan (Replacement) 2006 identifies that the main locations for employment growth as the Norwich Policy Area, Aylsham, Acle, Lenwade and Alderford.

- The South Norfolk Local Plan 2003 proposes employment sites at Norwich Research Park, Harleston, Loddon, Diss, Hingham, Longwater-Costessey, Wymondham and Long Stratton.

*Transport Infrastructure Proposals*

- The safeguarded route corridors for the proposed Northern Distributor Road and the Long Stratton Bypass are shown on Figure 4.19 (see Annex A).

## 2.5 Other Strategic Green Infrastructure Initiatives

2.5.1 A Green Infrastructure Strategy is currently in preparation for the Thetford Growth Point Area by the Moving Thetford Forward Partnership. The Strategy seeks to establish an holistic and co-ordinated spatial framework for the delivery of high quality multi-functional green infrastructure over the next 20 – 25 years, complementing and supporting planned housing and employment growth in the Growth Point Area. The Strategy is intended to inform the preparation of Local Development Frameworks, and be used by land use and transport planners; promoters of housing and employment schemes; local communities; and those in the public and private sectors who will develop and manage the green infrastructure and provide funding for it. The Thetford Growth Point Area Green Infrastructure Strategy provides potential opportunities for connectivity at the sub-regional scale with green infrastructure in the Greater Norwich Area.

2.5.2 Other strategic green infrastructure initiatives planned in Norfolk include the ***King's Lynn and the Wash Green Infrastructure Strategy***. It is understood that a study to underpin the development of a strategy for green infrastructure in this area is to be commissioned by Norfolk County Council during 2007.

## 2.6 Summary of Key Issues and Opportunities

2.6.1 The key issues and opportunities arising from the analysis of the policy context for green infrastructure in the Greater Norwich Area for the Green Infrastructure Strategy are summarised as:

- Green infrastructure is now widely recognised at the national level as having an essential role to play in providing a better quality of life for sustainable communities, and supporting environmental protection and sustainable development through the planning system.
- The East of England Plan requires that areas and networks of green infrastructure should be created, protected and managed to ensure that an improved and healthy environment is available for the benefit of present and future communities.
- A key priority for regional economic policy is to provide high quality places to live, work and visit, through the development and management of green networks of infrastructure for the region; investment in and enhancement of key environmental assets; and the development of a high quality and accessible urban-rural fringe.

- Regional social policy promotes the development of strategic networks of greenspace that benefit physical and mental well being, particularly in areas of deprivation, by providing for more contact with nature for all.
- The need to protect, manage and enhance the natural, built and historic environment - including key landscapes, natural resources and areas of natural habitat or nature conservation value; minimise the contributors to climate change and address its impact; enhance infrastructure provision to meet the needs of existing and future populations; reduce the need to travel; and to positively protect and enhance Norwich's individual character and unique cultural infrastructure - are clear spatial planning objectives for the emerging Greater Norwich Growth Area Joint Core Strategy.
- The importance afforded by regional and local policy to woodlands and trees, community involvement, biodiversity, rights of way, transport, open space and the river valleys in and around Norwich.
- The potential opportunities for connectivity at the sub-regional scale between green infrastructure provision in the Greater Norwich Area and the Thetford Growth Point Area.

## 3.0 ENVIRONMENTAL CHARACTER AND LOCAL DISTINCTIVENESS

### 3.1 General

3.1.1 This section provides a strategic level analysis of the environmental character and local distinctiveness of the Greater Norwich Area in relation to its countryside character, the character of Norwich in its landscape setting and the cultural heritage of the Area as a whole. It also presents an analysis and interpretation of the key issues and opportunities for green infrastructure provision related to these resources.

### 3.2 Countryside Character

***Principal Sources***

- Figure 4.1 - Countryside Character (see Annex A);
- Figure 4.2 - Settlement Pattern & Woodland (see Annex A);
- The Character Map of England, (The Countryside Agency, 2006);
- Broadland District Landscape Assessment and Review of Areas of Important Landscape Quality, (Chris Blandford Associates, 1999);
- South Norfolk Landscape Assessment – Volume 1: Landscape Types of South Norfolk District (Land Use Consultants, 2001);
- South Norfolk Landscape Assessment – Volume 2: Landscape Character Areas of the Norwich Policy Area (Land Use Consultants, 2001);
- South Norfolk Landscape Assessment – Volume 4: Landscape Character Areas of the Rural Policy Area (Land Use Consultants, 2006);
- Norwich Southern Fringe Landscape Character Assessment, (Norwich Fringe Countryside Project, 1991);
- Norwich River Valleys Strategy, (Norwich City Council, 2000);
- Green Infrastructure Strategy Stakeholder Workshop Comments (see Appendix 2).

***The Existing Resource***

- The Greater Norwich Area is a gently undulating landscape with low relief.

- River valleys are a key feature and provide a distinct contrast to the more open and undulating landscape generally characteristic of the Greater Norwich Area.

- The Bure and Wensum river valleys introduce the most significant changes in relief, forming shallow convex valleys.

- The river valleys also give rise to variations in land use, such as traditional grazing pastures and valley fens in the floodplains and arable cultivation on the drier slopes.

- Located to the east of the Greater Norwich Area, the Norfolk Broads are the UK's largest nationally protected wetland landscape created from the floodplains of the rivers Bure, Yare and Waveney and their tributaries. The Norfolk Broads are part of the Norfolk and Suffolk Broads established in 1989, which is now afforded equivalent status and statutory protection as a National Park. Wooded horizons delineating the boundary of adjacent arable land with the surrounding low-lying Broads landscape are a distinctive element. The designated area of the Norfolk Broads extends generally to the eastern edge of Norwich, although it penetrates to the heart of the City along the River Wensum to the head of navigation at New Mills.

- The northern part of the Greater Norwich Area lies within Broadland District, a predominantly rural area that embraces large areas of low lying arable land and some pasture farmland. The gently undulating topography created by the presence of rivers and tributaries cut through the landscape, providing a variety of open and intimate spaces and occasional long framed views of the Norwich Cathedral spire. Large blocks of mixed woodland and coniferous plantations are a key characteristic of the district, particularly north of Horsford.

- Woodlands are a strong and unifying characteristic in the Greater Norwich Area, particularly in the central areas of Broadland District. Parts of the steep wooded ridges still remain as a striking and attractive backdrop to the built form of Norwich. Large areas of woodland blocks on the Wensum Valley sides coupled with distinctive poplar avenues on the valley floor contribute to a natural and wooded valley character west of Norwich. A distinctive green gateway in approaches to Norwich from the west is created by woodland on the upper valley slopes of the River Tud, and is an important component of the landscape adjoining the A47 Southern Bypass. This has been somewhat reduced due to major developments associated with the Broadland Business park located at the junction of the A47 and the A1042, and the Longwater Retail Park located at the A47 and A1074 interchange.

- Changes in agricultural practices have affected the character of the countryside throughout the Greater Norwich Area. Loss of field boundaries, hedgerows and woodland coupled with the greater use of pesticides has resulted in a more uniformed landscape. Loss of and fragmentation to hedgerows, particularly in arable farmland areas, has accentuated the openness of the landscape.

- The settlement pattern within the Greater Norwich Area is dominated by the main urban area of Norwich, which is surrounded by a number of historic market towns (such as Aylsham and Wymondham) and smaller villages.

- The landscape is predominantly rural, with a dispersed pattern of settlements ranging in size from large market towns and villages, to small hamlets and numerous isolated farmsteads. In recent years, housing has developed in small clusters along busy roads that pass through the Greater Norwich Area, particularly those that link to Norwich. Many villages on the outskirts of Norwich have expanded, due to their proximity to the city centre. Some have become suburbs of the city, for example, New Costessey.

- Vernacular buildings and settlements are important features in the landscape, including shaped gables, steeply pitched barns, pantile roofs and brick and flint walling. Ancient

churches within small settlements or isolated amongst farmlands are a key characteristic. In some cases, the integrity of vernacular buildings is diluted by more recent encroaching developments.

- The Wensum valley and its floodplain provide an attractive landscape setting to the north west of Norwich. Significant elements of the valley have non-agricultural uses, such as the sand and gravel extraction sites at Pockthorpe, Pensthorpe and Beetley. Former mineral extraction workings on the floodplain have resulted in a series of lakes, often with reeded margins and wildfowl, providing contrast with the more typical grazing meadows. The Wensum valley provides an important recreational resource and is of significant ecological and historical value.

- The floodplain of the River Yare extends from the southern edge of the Norwich urban area via Brundall and Reedham towards the estuary landscapes at the coast. The Yare valley is largely a pastoral landscape with water meadows and reed-filled dykes; footpaths and quiet lanes provide access to the river, nature reserves and villages.

- Trees, hedgerows and woodland make a significant and positive contribution to the appearance of the landscape. They help to break up extensive tracts of land into a more human scale, thus creating greater visual interest. They also provide valuable screening for new developments, allowing better integration with the existing landscape. This is particularly important in the open and undulating landscape, characteristic of many parts of the Greater Norwich Area. However, the loss of field boundaries, hedgerows and woodland and the greater use of pesticides and herbicides have resulted in a more uniform landscape. South Norfolk is recognised for having many hedgerows patterns that are of ancient origin.

- Private parkland estates associated with large country houses established in the early nineteenth century are a key feature of the countryside. Whilst not generally accessible to the public, these parklands greatly contribute to the character, heritage and landscape of the Greater Norwich Area. Examples include Keswick Hall, Whitlingham Hall, Catton Hall, Sprowston Hall and Costessey Hall.

***Analysis – Needs, Opportunities and Constraints***

- Landscapes that contribute to the setting of Norwich and other urban areas, and play an integral role in maintaining a separation between settlements, need to be protected (e.g. areas of greenspace that provide important 'green wedges' within the built-up areas, or areas of countryside outside urban areas that maintain a physical separation or gap between settlements - such as the valleys of the River Tas, Tud, Wensum and Yare and their tributary corridors, and the open countryside separating Cringleford, Hethersett and Wymondham).

- The protection and enhancement of areas of greenspace that provide important amenity values within built-up areas, and in some cases, help to define the urban edge to the built-up area or check unrestricted urban sprawl.

- New development needs to respect and enhance the existing historic landscape character e.g. minimise adverse effects on architectural and designed landscape features of historic interest, historic landscape features in general and archaeological remains.

- New and widened transportation corridors need to consider the scale of land take, topographic changes (cut and fill) and potential for large-scale severance or barriers that may affect historic landscape character and features.

- Within and around Norwich, 'green wedges' of countryside that stretch into the city have the potential to be strengthened and enhanced (i.e. enhance Norwich's image as a visually green city with wooded hinterland and river valleys).

- Promote or establish management plans and strategies to protect semi-natural features including trees, woodland, hedgerows, heathland, rivers, streams, lakes and ponds, river flood plain marshes and other areas rich in wildlife such as former railway land, meadows and roadside verges.

- Promote new development that utilise the characteristics of the local landscape setting to inform decisions regarding the position and design of proposals and the integration of appropriate mitigation measures, taking into account the Norfolk Residential Design Guide 1997, Highway Corridor Environmental Best Practice Guide 2005, and Norwich City, South Norfolk and Broadland District Council Design Guides.

- There are opportunities to support innovative pilot projects that promote a green identity and create more attractive, efficient and liveable communities i.e. encourage carbon neutral, clustered, mixed-use, multi-nodal neighbourhoods.

- Re-creation of historic landscapes e.g. restoration of a mosaic of heathland, woodland and grassland between the Broads and Norwich to provide a landscape buffer.

- Strengthening and linking areas of woodland, particularly to the north of Norwich to provide a substantial landscape buffer to growth of the City.

- Generate an education plan for the Greater Norwich Area, promoting the Area's unique countryside character and locally distinctive places as an educational resource for schools and the wider community (e.g. Mousehold Heath could provide a major resource for environmental education).

- Increase the number of trees in general within Norwich, strengthening its identity as a 'city of trees' and a 'city in an orchard, or an orchard in a city'.

- River corridors within the Greater Norwich Area have a key role in contributing towards landscape character and the quality of urban environments. They provide a wealth of opportunities for recreation and public access to a growing population, especially in and around Norwich along the Rivers Yare, Wensum, Tas and Tud. There are a number of opportunities arising from the expansion of Norwich, in association with needs for management and enhancement of the natural, cultural and historic environment of the region's strategic river corridors and improved provision of greenspace networks and connectivity. Specific opportunities include:

    * Restoration of the rivers and waterfront, congenial to the local character and wildlife habitats along the river;
    * Encouraging the use of river valleys for active and passive recreation, consistent with the protection of environmental resources and character;
    * Retention of those relatively unmodified areas of the river valleys that have not been developed for urban purposes;
    * Reconcile the needs to improve the experience of accessing Norwich by river and enhancing navigational activities with protecting the 'natural' river character, particularly riverbanks;
    * Promotion of the Waveney Valley Project, Wensum Valley Project, Norwich Urban Fringe Project and associated enhancements to the landscape, wildlife habitats and countryside amenities (i.e. to steer recreational pressures away from the northern Broads and provide an alternative for visitors and local residents);

* Retention or restoration of key waterside heritage buildings, spaces and structures that contribute to the character of river corridor landscapes.

## 3.3 Norwich Urban Area and Fringes Character

***Principal Sources***

- Figure 4.3 - Norwich Urban Area Character – Settlement Evolution, Street Pattern & Woodland (see Annex A);
- Figure 4.4 - Norwich Urban Area Character – Visual Connectivity & Landmarks (see Annex A);
- Figure 4.5 - Norwich Urban Area Character – Urban Rural Interface (see Annex A);
- Figure 4.6 Norwich Urban Area Character – Movement, Nodes & Gateways (see Annex A);
- Norwich River Valleys Strategy, (Norwich City Council, 1999);
- Norwich Local Plan (Replacement), (Norwich City Council, 2005).
- Green Infrastructure Strategy Stakeholder Workshop Comments (see Appendix 2).

***The Existing Resource***

*Settlement Evolution, Street Pattern and Woodland*

- Norwich lies at the head of the navigable waters of the River Yare and its major tributary the Wensum. These two main river valleys, along with the smaller river valleys of the Tud and Tas, have had a significant influence on the development of Norwich. Its strategic location at the meeting of the Rivers Yare and Wensum has been a focus for land and water routes since before the Roman period.

- Norwich is the largest settlement within the County and owes its existence and much of its past prosperity to its mercantile function as an inland port, and also as a centre for the textile industry and the wool trade.

- Norwich is a compact city within a rural setting, characterised by prominent shallow river valleys, a network of wooded ridges, historic parkland and informal open space.

- The City's urban parks were created in the 1920s and 30s in response to population growth. These municipal parks were designed by Sandys-Winsch primarily for the people of Norwich.

- The historic city core is a significant resource, comprising a largely intact medieval street pattern, Norman castle and cathedral, 900-year-old market place and many fine religious and secular buildings from a variety of periods. The cathedral and castle are important and prominent features, which make a major contribution to the City's image and local distinctiveness.

- Norwich has experienced rapid urban growth in recent decades. It is the largest economy in the county, attracting 43% of the County's employment. New housing development is primarily focused on urban brownfield sites, sites on the urban fringe and areas beyond the City but with good access to public transport. New inner-city mixed-use developments are playing a key role in the regeneration of the City, as well as improving the quality, security and attractiveness of the built environment, particularly within inner-city areas along the river e.g. the 'Riverside'.

- The centre of Norwich has a very strong identity linked to its medieval history. The entire city centre is a Conservation Area, yet its modern commercial functions have been accommodated within a protected historic environment and is easily accessed by car, public transport and cycle/pedestrian routes. It has significantly benefited for example from Lottery funded projects, providing economic benefits to the area (e.g. The Forum, the Castle refurbishment, Riverside swimming pool).

- Beyond the city centre there has been extensive development, almost exclusively built during the last 100 years. Key areas around Norwich under pressure for further development and growth include:

  * Norwich International Airport and its surrounding commercial infrastructure immediately south of the airport;
  * Commercial/industrial areas around Sweet Briar road in western Norwich;
  * Longwater Retail Park and industrial estate between Norwich and Easton;
  * St Andrews and Broadland Business Park, east of Norwich;
  * Queen's Hills residential site west of Costessey near the Tud River Valley;
  * Norwich Research Park, southwest of Norwich;
  * Markets towns that have a role as local employment centres.

- These peripheral developments provide significant opportunities for housing, employment and business expansion; however, they are posing complex commuting patterns for the Greater Norwich Area and increasing pressure to parts of the existing road network.

- Located west of Norwich close to the River Yare, the University of East Anglia (UEA) together with the Norwich Research Park and Norfolk and Norwich University Hospital, is experiencing rapid growth.

- The rivers Wensum and Yare have been crucial to the development of Norwich. Due to the difficulties in building on flood prone land, the valley floor within Norwich has remained largely intact as a continuous ribbon of grazing marshes and other wetlands. These valuable habitats follow the river valleys in the Greater Norwich Area, except where the Wensum goes through Norwich city centre, and where mills are located in the Yare at Trowse and Lakenham.

- The immediate landscape setting to Norwich is an agricultural landscape comprising arable fields, woodland and historic parklands interspersed by a limited number of settlements and shallow river valleys. Fragmented, although sometimes extensive, areas of woodland broadly located on valley sides and ridgelines, are prominent features in the landscape setting of the Norwich urban area. They define a striking and attractive backdrop to the built form of Norwich.

- Located west of Norwich, the valley of the River Tud creates an important green landscape corridor separating Costessey and New Costessey, and extending into the urban fringe areas of Norwich. The woodland present on the upper valley slopes provide a distinctive wooded gateway to Norwich, and is an important component of the landscape setting to the A47 Southern Bypass.

- The establishment of Norwich as an inland port at the head of the navigable River Wensum has created a strong and evolving land use pattern. Settlement and industry have accordingly grown on both banks of the river, resulting in almost entirely artificial riverbanks through the city centre. In contrast, the River Yare is not navigable beyond its confluence with the Wensum, acting as a barrier to development. Thus there is a stark contrast between the urbanised Wensum and rural Yare.

- Prior to the industrial revolution, the main form of transport was along the rivers, hence many historical buildings are found fronting the river within the city centre. Residential areas were built slightly higher and away from the river. Transport by water gave way to railways and roads during the industrial revolution, creating a distinctive radial road network developed with reference to the river, its tributaries, fording points and bridges.

- In the past, large stretches of the River Wensum within Norwich declined and become derelict, inaccessible and polluted. However, the location of the river corridor close to the city centre is playing a pivotal role in urban regeneration schemes e.g. 'Norwich Riverside'.

- Several allotment sites are located adjacent to the river valleys near Norwich (e.g. Marston Lane, Sweet Briar Road and Martineau Lane). They have a distinct appearance within the landscape setting, forming a patchwork of rectangular plots with regular rows of vegetables and fruit. Some allotment sites are under pressure from development.

*Visual Connectivity and Landmarks*

- Strategic long and short distance views to the built edge of Norwich from the main movement corridors comprise:

    * Views northwards to Norwich from the elevated A47 Southern Bypass;
    * Views to woodlands along Thorpe Ridge (including Lion Wood and the Telegraph Plantation), which remain as an important landscape feature following the city's 25m contour line;
    * Views and glimpses of the Cathedral spire;
    * Views to the wooded ridge parallel to Whitlingham Lane from both the city and the A47 Southern Bypass;
    * Views to the electrical substation and associated telecommunication towers from the southern approach to Norwich, particularly seen from the A146.

- There are a number of strategic landmarks / memorable features in Norwich, including the Castle, the Cathedral, St Peter Mancroft Church, St Giles on the Hill Church, City Hall clock tower and several medieval churches. These form important features of Norwich's historic fabric and provide good legibility.

- The view of the City and the cathedral from St James Hill on the edge of Mousehold Heath is of particular note. This view was immortalised by the paintings of the 'Norwich School' painters – including Cotman, Crome and Ninham.

- 'Green wedges' of open space are a significant feature within the setting of Norwich. They also contribute in maintaining the segregation and individual identities of some urban areas within the Greater Norwich Area (e.g. between Costessey and Easton). Mousehold Heath is an important element within the City. The wooded slopes at the western end of the heath can be seen from the City Centre Conservation Area.

- Norwich is a 'city of trees'. Its mature street trees and areas of woodland are a significant feature of the city, which enhance the structure and layout of the city and play an important role in the amenity of urban areas.

*Urban Rural Interface*

- The landscape setting is essentially of a rural character. In some cases where peripheral expansion in the form of modern housing estates has progressed over a number of years, the transition can be abrupt.

- The southern edge of Norwich is well defined by the Yare Valley, and there has been little peripheral expansion of the main built-up area into South Norfolk beyond the River Yare.

- To the west of Norwich, urban development has continued along Earlham and Dereham Roads, merging former individual settlements to form a continuous suburban belt.

- The urban rural interface to Norwich is generally abrupt at Sprowston and Thorpe St. Andrew in the northeastern fringes of the City, where arable fields and blocks of woodland provide sharp transition in land use.

- The abrupt visual interface created by the Norwich and Norfolk Hospital, and to a lesser extent the UEA buildings.

- The urban rural interface to Norwich is more gradual at Taverham/Drayton/Costessey in the northwest, and Cringleford in the southwest, where woodlands, especially on valley sides of the Rivers Yare and Wensum, soften the urban edge.

- The A47 Southern Bypass is an important feature of the landscape setting to Norwich. Several large-scale developments are progressing on urban fringe sites with good access to Norwich via major movement corridors. In many cases, these new developments create strong urban rural interface, however newly planted woodlands and other associated landscape enhancements may soften this edge once established (e.g. Broadland Business Park).

- At various locations, land located at the urban / rural interface to Norwich has been fragmented by development or subject to urban vandalism. In some cases, the land is no longer viable for agricultural and often used for pony grazing or abandoned. This is evident in some locations adjacent the A47 Southern Bypass.

- The highly visible wooded valley slopes on the south and south west of the City are important assets.

*Movement, Nodes and Gateways*

- Norwich's road network is characterised by a pattern of radial routes, converging at the city centre. Two ring roads (A147 and A140 / A1042) are located well within the built up area and have numerous access points. They both cater for orbital movements and north-south traffic.

- Major trunk roads connecting Norwich to the wider area include the A11, A140, A47 and A146. The A11 A140 and A146 provide the main southern vehicular approaches to the city. They pass under/ over the A47 Southern Bypass through an area of predominantly low-lying rural countryside before entering the Norwich urban area. The Yare River Valley provides a barrier to development and a distinct and memorable transition into Norwich.

- The inner ring road (A147) bounds the city central business and retail district. The outer ring road (A140/A1042) is nearer to the city perimeter. The A47 Norwich Southern Bypass carries east-west traffic, acting as an orbital distributor road to the south of Norwich. At present, there is no equivalent in the north of Norwich beyond the outer ring road, although a Northern Distributor Road (NDR) is currently proposed.

- The A47 Southern Bypass is in part elevated from adjacent low-lying rural countryside where panoramic views to Norwich are obtained. A series of interchange points are located

along the A47, allowing access to Norwich or areas south of Norwich along radial routes. These major transport nodes are significant features in the rural landscape setting to Norwich, including their associated development at junctions – such as park and ride facilities and business parks.

- Originally, gates through the City walls physically defined gateways to Norwich. Although remnants of the walls remain important features of the city's historic setting, growth has expanded the urban mass of Norwich and adjusted its gateways accordingly. Development of new transport corridors (including road and rail) has played a major role in defining approaches and gateways to Norwich.

- Ridges created by the cutting of valleys (particularly the Rivers Yare and Wensum) are generally well wooded and provide memorable gateways to the Norwich urban area. This is particularly evident in approaches to the City from the west/northwest along the wooded valley of the River Wensum; in south and southwestern approaches along the relatively steep wooded valley of the River Tud; and along the Yare valley in approaches to Norwich from the east.

***Analysis – Needs, Opportunities and Constraints***

- The rural and low-lying nature of the landscape setting to Norwich makes it particularly vulnerable and sensitive to change. It is therefore critical that new development is accompanied by high quality landscaping proposals designed to achieve full integration into the surroundings, and reflecting the character and distinctiveness of the area.

- There are opportunities to use Landscape Character Assessments to guide the process of planning, designing, implementing and managing open space provision in urban areas, the urban fringe and within the wider countryside.

- Provide for the restoration and management of historic parks and gardens that contribute to the character of the Norwich urban area.

- Protect and enhance the woodland setting of Norwich, particularly the wooded valley sides and ridgelines that define a striking and attractive backdrop to the built form of Norwich.

- The scattered network of settlements surrounding Norwich is a key asset, and any new development and greenspace networks should seek to protect and enhance their character and unique qualities.

- Safeguard the historic character and individual identity of villages around the main urban area of Norwich from urban sprawl.

- Enhance the environmental quality of primary access route corridors into the City, taking into account the Norfolk Highway Corridor Environmental Best Practice Guide in relation to scheme planning, design and implementation and management.

- Identify, protect and enhance important gateways to the City.

- Identify, protect and enhance views to local landmarks within and around the City - e.g. the Castle, the Cathedral and the wooded ridges. Care should be taken to ensure that any new developments within and around Norwich do not detract or obscure views of citywide landmarks.

- Improve the local environment and contribute to sustainable development through increasing trees in and around urban areas to link existing woodland habitats, improve air quality, reduce noise pollution, improve visual amenity and to act as long-term carbon sinks to offset carbon emissions.

- Opportunities should be taken to ensure new developments are sympathetic to their urban setting. For example:

  * the positioning of new buildings is appropriate and important views/vistas to local and district scale landmarks and important natural features are maintained;
  * the scale of development proposals respect the local topography and context;
  * use of locally distinctive building materials and techniques, paving materials and street furniture;
  * historic street patterns are retained;
  * important visual and historical links are enhanced where appropriate;
  * promotion of the sustainable nature of new developments through design and accessibility.

- Opportunities for urban regeneration within Norwich i.e. new mixed-use developments within an accessible urban core, and provision of new public open space and associated cycle/pedestrian links to recreational resources such as Whitlingham Country Park.

- New developments in the Norwich area provide opportunities for riverside walks and green links to achieve a co-ordinated network that maximises access, for people and wildlife:

  * to and along the valleys of the Rivers Yare and Wensum;
  * between the river valleys and the City's other areas of green open space;
  * to the City's areas of green open space from the developed parts of the City; in particular, residential areas and schools;
  * from the City, out to the urban fringe and surrounding countryside.

- New developments (residential, commercial, industrial and mixed-use) provide opportunities to integrate Sustainable Drainage Systems (SuDS) techniques into the provision of green and grey infrastructure to improve the management of surface water and create environmentally sensitive developments. (e.g. filter strips and swales, retention basins/ponds, porous surfaces and reduced use of hardstandings).

## 3.4 Cultural Heritage

***Principal Sources***

- Figure 4.14 – Cultural Heritage (see Annex A);
- Our Environment, Our Future The Regional Environment Strategy for the East of England (East of England Regional Assembly, 2003);
- http://www.museums.norfolk.gov.uk
- www.norfolk.gov.uk/buildingsatrisk
- Green Infrastructure Strategy Stakeholder Workshop Comments (see Appendix 2).

***The Existing Resource***

- Norwich is one of the most important historic cities in England. There are more medieval churches within the city than in any other comparable town in Europe and the high number of conservation areas (17) indicates how important the historic settlement pattern of Norwich is, in addition to the high the number of individually "listed" buildings (1042).

- In addition to those conservation areas within the city boundary, there are a further 72 individual conservation areas designated in the wider rural parts of the Greater Norwich Area (52 in South Norfolk and 20 in Broadland).

- The Greater Norwich Area contains nearly 5000 historic buildings listed by Government because of their "special" architectural and historic interest. Of these over 200 are listed Grade I and nearly 350 are Grade II*. This grading reflects the fact that these historic buildings are of great importance, not only to the region, but also nationally. Of this number between 150 and 200 listed buildings are included on the annual "Buildings at Risk" register. There are different categories of risk and not all of those included on the register are in danger of collapse.

- These historic buildings and townscapes greatly contribute to the sense of place that makes the Greater Norwich Area special.

- The Greater Norwich Area has a rich legacy of historical and archaeological features and artefacts. Whilst many of these are buried or lost, some features such as ancient earthworks and churches are visible within the contemporary landscape. This encompasses ancient history associated with key events and features such as the Roman settlement at Caistor St Edmund.

- The site of the Roman Town of Caistor St Edmund covers 48 hectares 5 km (3 miles) to the south of Norwich. It was the capital of the Iceni tribe led by Queen Boudica. Following her rebellion, the Romans laid out the foundations of their new regional capital in a bend of the River Tas and called it *Venta Icenorum* (the market place of the Iceni). It did not go on to become a modern-day town or city, as most Roman towns did in Britain. Today, there is little visible evidence of the Roman settlement - apart from the defensive walls. The site has not been fully excavated, but a 10 year programme of archaeological excavation started in 2006.

- The parish churches are a major architectural feature. The greatest concentration of round towered churches built during the 11$^{th}$ and 12$^{th}$ centuries is contained within the Greater Norwich Area, particularly along the Yare and Waveney valleys. Similar concentrations of this type of church are only found in the Schleswig-Holstein region of Germany. The adoption of the round tower is considered to indicate imitation within the small Norfolk community and reflect cultural links with mainland Europe. Fine examples of round towered churches can be found at St Marys, Haddiscoe and St Margaret, Hales.

- Vernacular wall materials include flint, timber frame and clay lump. Thatched roofing is also a distinctive feature. The Greater Norwich Area retained woodland for longer than other parts of the county, and therefore has a higher proportion of timber-framed buildings, with timber remaining a major building form until well into the 18$^{th}$ century.

- Historically, the region was dominated by an agricultural economy centred on market towns, the visual legacy being the wealth of timber-framed houses, shire halls and corn exchanges. Many settlements of the region were unplanned, originating as market places during the medieval period, such as Wymondham.

- Norwich originated as a cluster of small settlements along the River Wensum, in particular the south bank. It was an internationally significant Anglo-Scandinavian and medieval port and town of the eastern seaboard, and has the largest surviving medieval core of any contemporary city in Britain. Much of the street pattern has its origins in the Anglo-Scandinavian period (AD 869-917). The Norman's redefined the centre of the city in the late 11$^{th}$ and early 12$^{th}$ centuries through four building projects; the castle (1075), cathedral

(1096), market place and the laying out of the French Borough (the western part of the city between St Stephen's and St Giles' Streets).

- In the 15th century immigrants arrived from the Spanish Netherlands and stimulated the cloth trade and further growth. Until the end of the 19th century growth was constrained within the city walls. After this point growth spread into the wider landscape. Between the 16th and 19th centuries wealthy landowners developed a number of estate parklands and gardens. Many of these have now disappeared from the landscape, however, some have survived and contribute to landscape character e.g. Blickling Hall, Kimberley Hall and Crown Point.

- There are many industrial buildings that are characteristic of the region. Historic industries are represented by windmills and watermills, maltings and breweries, weaving lofts and textile mills.

- There are numerous nationally important Registered Historic Parks and Gardens in the Greater Norwich Area, plus a number of other historic parks and gardens of local importance.

- Historic designed landscapes currently included in the English Heritage Register of Parks and Gardens of Special Historic Interest (i.e. of national importance) include:

  * Catton Park
  * Eaton Park, Norwich
  * Heighham Park, Norwich
  * Intwood Hall
  * Mile Cross Gardens, Norwich
  * The Plantation Garden, Norwich
  * Waterloo Park, Norwich
  * Wensum Park, Norwich

- Historic designed landscapes identified by the Norfolk Historic Parks and Gardens Survey, the Norwich Town Gardens Survey and by the Norfolk Gardens Trust as of local importance include:

  * Carrow House and Abbey
  * Chapelfield Gardens
  * Colney Hall
  * Crown Point (Whitlingham Hospital)
  * Earlham Park
  * James Stuart Gardens
  * Keswick Hall
  * Lakenham Reservoir & Recreation Ground
  * Mousehold Heath
  * Newmarket Terrace
  * Norwich Cemetery
  * The Rosary Cemetery
  * Sewell Park
  * Thickthom Hall, Hethersett

- Historic designed landscapes identified by the Norfolk Historic Parks and Gardens Survey, the Norwich Town Gardens Survey and by the Norfolk Gardens Trust as of potential historic local importance include:

  * Caistor Hall, Caistor St Edmund

* Costessey Park
* Cringleford Hall
* Dunston Hall
* Kett's Heights
* Norwich Cathedral Close
* Norwich Castle
* The Wilderness, Norwich
* Woodrow Pilling Park, Norwich
* The Crescent
* Notre Dame Convent
* The Waterworks

- In Tudor times, Mousehold Heath stretched as far north as South Walsham. The surviving remnant of the heath was given to Norwich City Council in 1880. By the early 1900s, Mousehold Heath was open countryside with virtually no trees - a classic heathland landscape. The area was kept open by grazing animals and by local people collecting bedding and feed for livestock and fuel for the winter. As the way people lived changed, these traditions disappeared. This resulted in a gradual loss of open heath to scrub and woodland. The site is now mostly covered by broad-leaved semi-natural woodland, although some areas of heath remain and are actively managed.

***Analysis – Needs, Opportunities and Constraints***

- Historic buildings, townscapes and designed landscapes, together with their settings, need to be protected from damage by development arising form the growth point designation through sensitive planning and design.

- Road schemes, town centre redevelopment, out-of-town stores and warehousing, and peripheral housing expansions are affecting the historic character of towns and villages.

- Scheduled monuments in the region have been degraded by a combination of modern farming practices, mineral extraction, and development.

- Changes in technology have made a range of buildings redundant, particularly farm buildings and mills, pumping stations, maltings and other industrial buildings. Rapid transport developments have also led to redundant structures including railway stations and bridges.

- Traditional buildings skills have largely been lost with the advent of mass produced buildings materials and the loss of the craft skills base. This has resulted in contemporary construction bearing little or no relationship to the environment, in which it is located, and an overall watering down and potentially complete loss of regional distinctiveness.

- The educational benefits and use of the heritage assets and cultural identity as a resource for learning and improving skills should be recognised and exploited.

- The contribution heritage and cultural assets make to the local economy should be recognised and exploited either directly through tourism or indirectly through creating a vibrant environment with a distinctive and interesting history.

- The heritage resource, has, over recent years, suffered fragmentation through the loss or degradation of landscape features and buildings. Opportunities to halt this fragmentation include the restoration and/or re-creation of contemporary landscapes surrounding particular monuments or features, and restoring historic field patterns surrounding historic villages.

- Heritage sites provide significant opportunities to link in with green infrastructure by contributing to the proposed ecological network.

- There is an opportunity to provide access to and interpretation of key heritage sites that help tell the 'story' of the Greater Norwich landscape, including its settlements and communities. Heritage resources offer destinations and incidental points of interest along the way. Beyond this, an opportunity exists to develop and promote a co-ordinated network of strategic destinations that characterise the distinctiveness of the Greater Norwich Area, supplemented by cultural and arts events based on the Area's industrial heritage related to the rivers to provide a focus for community groups and tourists.

- The management of heritage sites, monuments and indeed landscapes offers opportunities to deliver biodiversity targets, as there is often a correlation between increased biodiversity interest in areas that are 'mature', or that have already received management that is specially designed to protect the monument.

- The villages of Blickling, Heydon and Salle (with their respective historic parks and gardens, and conservation areas) to the north west of Norwich are all well preserved historic landscapes that would benefit from green linkages being made between them.

- Physical and intellectual access to the historic parks and gardens in and around the City of Norwich should be improved for the benefit of residents and visitors.

- The Roman settlement at Brampton, of at least 30 hectares, with its associated Roman Roads could be intellectually and physically linked to other large Roman sites such as the ancient capital of the Iceni tribe *Venta Icenorum* at the Caistor St Edmund Roman Town.

- A heritage hub could be established around Wymondham, with its Abbey (founded 1107), historic market cross and its railway station linked to television productions such as 'Dad's Army'.

- Tasburgh, has a rich history with a large hill fort which abuts the village at the northwest, a traditional Norfolk Saxon church of flint with a round tower built around 1050, and the watermill which was probably once a paper mill in 1896. The Roman Road (A140) and Boudica's Way (National Trail) link Tasburgh with a number of different heritage sites, including among others Rainthorpe Hall and *Venta Icenorum* Roman Town, and could therefore serve as heritage hub.

- The archaeological remains and ancient woodland around Caistor St Edmund not only reflect the Roman heritage of the Greater Norwich Area, but also provide a link to the medieval and Post-medieval periods. Interpretation and further investigation (some sites are only scheduled by virtue of air photographic interpretation) would give an added dimension to this area.

- There are opportunities to enhance the interpretation of the prehistoric woodhenge at Arminghall.

### 3.5 Summary of Key Issues and Opportunities

3.5.1 The key issues and opportunities arising from the analysis of the Greater Norwich Area's environmental character and local distinctiveness for the Green Infrastructure Strategy are summarised as:

- The importance of riverscapes to the overall character of the Greater Norwich Area generally, and their particular importance to the character, identity and setting of Norwich City

- The need for landscape and urban character and heritage to be retained, reflected and enhanced through the designs of new developments

- A lack of brownfield development sites within the Norwich Urban Area will place pressure on greenfield land around the fringes of the City to accommodate the predicted levels of growth.

- The changing nature of the landscape setting of Norwich, and the importance to maintain and enhance the quality of views, gateways and approaches to and from the Urban Area

- The need to protect and improve the presentation, accessibility, interpretation and management of buildings, sites and landscape features of historic value – such as those connected to the City's maritime history, historic parks and gardens and Roman archaeology

- New developments will need to be integrated into the existing form and character of settlements in order to minimise negative impacts on the heritage of the area

- The role of trees and woodlands as features of particular importance to the character, identity and setting of Norwich City

- The importance of recognising that farmers and other land managers play a key role in the protection and enhancement of countryside character through participation in environmental land management schemes

- Where agricultural viability declines, diversification and indigenous investment needs support in rural economies.

- Changing patterns of urban and rural 'tranquility' and effects on the amenity/scientific value of night skies due to an increasing urban glow associated with Norwich's '24 hour economy'

## 4.0 BIODIVERSITY AND THE NATURAL ENVIRONMENT

### 4.1 General

4.1.1 This section provides a strategic level analysis of the biodiversity and natural environment resources of the Greater Norwich Area. It also presents an analysis and interpretation of the key issues and opportunities for green infrastructure provision related to these resources.

### 4.2 Physical Resources and Natural Systems

***Principal Sources***

- Figure 4.7 – Landform (see Annex A);
- Figure 4.8 - Hydrology and Flood Risk (see Annex A);
- British Regional Geology of East Anglia;
- Broadlands Rivers Catchment Flood Management Plan (Environment Agency, Draft).
- Green Infrastructure Strategy Stakeholder Workshop Comments (see Appendix 2).

***The Existing Resource***

- The solid geology of Greater Norwich Area comprises chalk from the Cretaceous period in the west and younger Lower Pleistocene Crags in the central and eastern parts of the Area. These Crags are a complex mix of shelly, muddy, sandy and gravely rocks that were deposited under marine and, occasionally, estuarine conditions, and are largely un-cemented.

- These chalk and Crag deposits dip gently from west to east. They are rarely exposed at the surface, as they are overlain by the glacial drifts of the Middle and Upper Pleistocene age. These include boulder clay to the south of Norwich, with a mix of silty clay tills, sands and gravels elsewhere.

- More recent alluvium and peat occur in the river valleys, and in the marshes and Broads to the east of Norwich.

- The soils of the Greater Norwich Area closely relate to the nature of the underlying drift and alluvium. In the south of the Area the soils are heavier, with impeded natural drainage, where they are developed from chalky boulder clay. Elsewhere the soils are lighter and better drained brown earths with loamy and sandy textures. These are easier to cultivate and are suitable for a larger range of crops than the heavier soils. Peaty soils occur along the valleys, and clayey and silty soils are developed in the marsh areas.

- Both the solid and drift geology are relatively soft and easily eroded, so have provided little in the way of good building stone, although flint occurring in the underlying chalk and in the glacial drift has been extensively used, particularly in churches.

- Within the Greater Norwich Area the drift and alluvium deposits have provided a useful resource of gravel and sand, and former mineral extraction sites have created new boards - such as Whitlingham Broads. There are also active mineral workings for these materials, for example in the Wensum valley. In addition, at Caistor St Edmunds chalk is extracted. In medieval times peat was cut for fuel, creating the lakes of the broads.

- Landform and hydrology are inextricably linked within the Greater Norwich Area, closely reflecting the underlying geology and physical structure of the landscape. They are dominated by the valleys of the Bure, Wensum, Yare and Waveney and their tributaries. Landform is generally subdued and gently undulating in nature, with higher ground to the west, dropping eastwards to below sea level in the Broads marshland.

- The Greater Norwich Area has a gentle topography, reflecting the relatively soft solid geology that is susceptible to erosion by water and ice. The various ice sheets, together with the drift materials that they deposited, have resulted in extensive low plateaux dissected by rivers with gentle gradients.

- The highest ground lies to the west, with a height of some 70 metres achieved in the south west of the Greater Norwich Area although elsewhere the highest ground is in the range 50 to 60 metres. The land falls gradually eastwards, with the Broads marshes east of Norwich being below sea level.

- The Greater Norwich Area is dissected by a number of river valleys running broadly from west to east. These include the River Bure, which lies alongside the northern boundary of the Greater Norwich Area. The River Wensum is joined by the River Tud upstream of Norwich, and flows into the River Yare on the southeastern side of Norwich. The Tiffey,

Tas and Chet join the Yare from the south, and the River Waveney forms the southern boundary of the Area.

- The main river valleys, together with their tributaries, provide a contrast to the open undulating landscape that they dissect. The valley profiles have a degree of variability, ranging from a large scale open valley with broad flat floodplains, such as the River Waveney, to more confined valley form such as the River Tud. Although the valley sides appear gentle, they can be steep in places. To the east of Norwich the rivers meander through marshy meadowland before joining the sea. The Rivers Waveney and Yare are mostly embanked, as is the River Bure downstream of Wroxham.

- The lower reaches of the rivers are navigable and, in conjunction with the open water of the Broads, are much used for recreational boating and yachting, and form a valuable leisure and tourism resource. Boat yards and marinas are located at various sites, including Brundall, Wroxham, Reedham, Chedgrave and Burgh St Peter.

- Navigation extends to Coltishall on the Bure; Norwich on the Yare/Wensum; Loddon on the Chet and Geldeston on the Waveney.

- Former sand and gravel workings in the river valleys, for example along the Wensum, have produced further bodies of water, which are valued for their amenity and conservation interests. Other lakes include the public water supply reservoir at Costessey.

- The Greater Norwich Area lies within the Environment Agency's Broadland Rivers catchment. Rivers are the main source of flooding, usually associated with heavy rainfall over a short period, particularly when the ground is already saturated. Tidal surges are significant in the Broads.

- The draft Environment Agency Broadland's Rivers Catchment Flood Management Plan identifies the following characteristics:

    * Upper Wensum – main risk is fluvial flooding from rainfall and melting snow. Medium risk to property but may be significant to environmental assets;

    * Norwich – large number of properties at high risk from fluvial, combined fluvial/tidal, surface water and sewer flooding;

    * Upper Yare and Waveney - main risk is fluvial flooding from rainfall and melting snow; medium risk to properties in Upper Yare catchment; main risk on River Tas and other main rivers, with medium risk to properties. New development in the flood plain of the River Yare upstream of Norwich could increase risk;

    * Upper Bure and Ant - main risk is fluvial flooding from rainfall and melting snow. Medium risk to property;

    * Tidal Broads – wide and navigable river reaches with connected and on-line Broads. Generally low-lying area with some pumped drainage. Most risk from tidal surges and high river flows. Medium risk to properties, but may be higher for environmental assets. Riverside properties in undefended areas and boatyards are at greatest risk. The Rivers Waveney, Yare and the Bure downstream of Wroxham are mostly embanked.

***Analysis – Needs, Opportunities and Constraints***

- The geological structure of the Greater Norwich Area is fundamental to the form and structure of the landscape, influencing both physical and human processes, such as the distribution of habitats, land uses, settlement and movement;

- The pattern of the underlying geology underpins local distinctiveness, through the influence on topography, soils, land use, biodiversity and the overall landscape character;

- The use of flint as a building material, especially in churches, produces a locally distinctive architecture which provides focus points for local and tourist networks;

- Educational, cultural and recreational benefits arise from the potential for the interpretation of geological features and links to the historic and cultural legacy;

- The minerals extraction industry provides continuing economic and social benefits, and post-extraction restoration offers opportunities for environmental enhancement – such as along the Wensum valley and at Whitlingham Country Park for example;

- The extensive network of rivers and their tributaries make a significant contribution to the landscape character of the Greater Norwich Area. They have influenced the physical and cultural character of the landscape as reflected in landform features and the pattern of land use and settlement in the Area;

- Access to rivers for recreation and movement, and to broads, lakes and reservoirs provide existing and potential opportunities for close association with 'natural systems', building on their educational potential and engendering a greater sense of well-being;

- The draft Environment Agency Broadlands Rivers Catchment Flood Management Plan encourages householders to use flood protection measures where necessary, and in rural areas promotes sympathetic land management and encourages Environmental Stewardship Schemes that would benefit flood risk management. The plan identifies the following catchment specific policies:

    * Upper Wensum – increase the frequency of managed flooding below Lenwade to achieve ecological benefits locally or elsewhere e.g. working with the restoration project for the SSSI to increase flooding where it will benefit the environment;

    * Norwich – create wetlands if feasible; consider replacing structures that restrict river flow;

    * Upper Yare and Waveney – manage flood risk at existing scale; investigate river and floodplain restoration;

    * Upper Bure and Ant – maintain flood risk at current scale; target maintenance; consider EA management of private mill structures; investigate river and floodplain restoration;

    * Tidal Broads – maintain flood risk at current scale in currently defended settlements; increase the frequency of flooding elsewhere to create a more naturally functioning flood plain and enable wetland creation where beneficial.

## 4.3 Biodiversity and Geodiversity Resources

***Principal Sources***

- Figure 4.9 - Designated Nature Conservation Sites (see Annex A);
- Figure 4.10 - Biodiversity Assessment: Woodland Habitats (see Annex A);
- Figure 4.11 - Biodiversity Assessment: Wetland/Open Water Habitats (see Annex A);
- Figure 4.12 - Biodiversity Assessment: Grassland Habitats (see Annex A);
- Figure 4.13 - Biodiversity Assessment: Heathland Habitats (see Annex A);
- Development of an Ecological Network and Green Infrastructure in the Greater Norwich Growth Point Area (R. Land, Norfolk Wildlife Trust for the Norfolk Biodiversity Partnership, 2007);
- Report of Ecological Network Mapping Project for Norfolk (R. Land, Norfolk Wildlife Trust for the Norfolk Biodiversity Partnership, 2006);
- Norwich River Valleys Strategy (Norwich City Council, 2000);
- Norwich's Environment Strategy 2003 – 2008;
- Biodiversity Supplementary Planning Guidance for Norfolk;
- Norfolk Biodiversity Action Plan;
- Biodiversity Action Plan for the City of Norwich (Norwich City Council, 2002);
- Our Environment, Our Future: The Regional Environment Strategy for the East of England (East of England Regional Assembly and East of England Environment Forum, 2003);
- Biodiversity by Design: A Guide for Sustainable Communities (TCPA. 2004).
- Green Infrastructure Strategy Stakeholder Workshop Comments (see Appendix 2).

***The Existing Resource***

*Key Ecological Features and BAP Habitats in South Norfolk District*

- South Norfolk is dominated by arable agriculture with widely spaced and highly fragmented semi-natural woodland and grassland habitats.

- River valleys, particularly the Wensum, Yare and Waveney and their tributaries, which contain a mosaic of wetland habitats. Especially important are the European protected sites comprising the Wensum chalk river and valley fens at Coston and Claxton;

- Ancient and secondary woodland and shelterbelts; a number of these are SSSIs;

- Small and scattered grassland sites formed by commons, airfields, verges and village greens;

- Arable landscape features, including hedgerows, ponds, green lanes, roadside verges and ditches, secondary woodland and veteran trees - collectively; these amount to a significant biodiversity resource locally.

- The suburban area of Norwich and other market towns are often associated with important areas of semi-natural habitat such as woodland and grassland.

*Key Ecological Features and BAP Habitats in Broadland District*

- Broadland District is dominated by farmland with semi-natural habitat widely spaced and highly fragmented, especially outside river valleys and the Horsford area.

- Two major river valleys, comprising the chalk rivers of the Bure, Yare and Wensum, and their tributaries. These have a range of wetland habitats in their floodplains – wet grassland, lowland meadows, wet woodland, reedbed and fen. Eutrophic waters (e.g. gravel pits) may also be a significant habitat. Especially important is the European protected site comprising the River Wensum and a number of fens, including those in the Broads;

- Areas of heathland and fen centred on Horsford-Felthorpe, associated with coniferous and deciduous woodland, including European protected sites comprising heathland and fen;

- Relatively extensive areas of woodland and shelterbelts often associated with large estates and a number of ancient woodlands scattered through the District;

- Arable landscape features - comprising hedgerows, mature trees, copses and ponds – that collectively provide a significant biodiversity resource locally.

- The suburban areas of Norwich and other market towns are often associated with significant areas of public and private greenspace and areas of semi-natural habitat.

*Key Ecological Features and BAP Habitats in the Norwich Urban Area and Fringes*

- The Norwich Urban Area is dominated by the built environment, with the city centre and surrounding high density housing having relatively little open space. Suburban areas tend to have housing at lower density with relatively large gardens and these can be important for wildlife and also for connectivity.

- The surrounding fringe which is dominated by farmland with the wildlife-rich habitats of the Yare, Wensum Tud and Tas valleys as notable biodiversity resources.

- The Broads, which extend up to the eastern fringes of the Norwich Urban Area;

- Semi-natural habitat is widely spaced and highly fragmented, especially outside the river valleys.

- Two major river valleys comprising the Yare and Wensum. The latter is truncated by urban development in the city centre. These two valleys contain a range of valuable wetland habitats throughout their length. These include wet grassland, lowland meadows, wet woodland, reedbed and fen besides the rivers themselves. Especially important is the European protected site comprising the River Wensum. The valleys also contain an SSSI as well as a large number of County Wildlife Sites. In addition, there are a number of other BAP habitats including grazing marsh, meadows, wet woodland and gravel pits (with eutrophic waters).

- Remnant areas of heathland and woodland (largely on former heathland) at Mousehold Heath.

- Ancient woodland at Lion Wood and areas of secondary wood associated with parkland. These are scattered through the urban area but with concentrations along the Thorpe ridge, Bowthorpe, Earlham and Catton Park.

- A range of other land uses comprising grassland, scrub, large trees including cemeteries (Earlham and Rosary), railway lines (M&GN and Hall Road radial), parks (Earlham and Catton Parks), and golf courses (Eaton, Hellesdon). A number of other land uses, although

having a relatively poor biodiversity, play an important role in facilitating connectivity and buffering of sites. Such areas include school grounds, formal parks and playing fields.

- Brownfield sites and wasteland associated with industrial estates and other land uses. These may be transitory but often contain a high level of biodiversity.

- Within the urban area and adjacent river valleys, there are four SSSIs (including geological sites), eight County Wildlife Sites and six Local Nature Reserves.

- The former and existing heath/ancient woodland and fen at Horsford/Felmingham within the fringes of Norwich

- Woodland centred on Wymondham and Easton

- Wood pasture/parkland-heathland, grassland creation zone covering much of the south and western fringes of Norwich

- Ancient woodland and two woodland areas at Kirby Bedon and East Carleton within the fringes of Norwich

- Historic parks, County Wildlife Sites, Local Nature Reserves and other sites of biodiversity value (e.g. disused railway lines, other BAP habitats, other greenspace) with the fringes of Norwich

*Geodiversity Resources*

- The key geodiversity resources in the Greater Norwich Area include small geological exposures such as chalk exposures at Trowse, Norwich Brickearth above Marston Marshes (the remains of the last great ice sheet, so relevant to climate change today), river gravels extracted at Trowse etc.

***Analysis – Needs, Opportunities and Constraints***

- Land uses within the Greater Norwich Area can potentially have a major impact on the internationally important wetland habitats of the Broads. It is important that actions undertaken in the Area as a whole also secure the ecological integrity of the Broads

- The significant potential for developing an ecologically functional network of existing biodiversity sites, landscape-scale habitat creation and enhancements, and wildlife corridors connecting urban areas with the surrounding open countryside

- Enhancing the management, presentation, accessibility and interpretation of geodiversity assets as an integral part of green infrastructure provision in accordance with the requirements of PPS9.

- Creating, retaining and making accessible small geological exposures that add to public appreciation of the Greater Norwich Area's distinctive local geology - e.g. chalk exposures at Trowse, Norwich Brickearth above Marston Marshes, river gravels extracted at Trowse etc.

## 4.4 Towards an Ecological Network for the Greater Norwich Area

***The Need for an Ecological Network Approach***

4.1.1 Similar to much of Norfolk, the Greater Norwich Area has seen a dramatic reduction in biodiversity. A significant cause of this decline has been the rise of intensive agriculture over the past 60 years alongside the development of housing and infrastructure. The result is that much of the Greater Norwich Area now comprises a landscape dominated by intensive agriculture. Once extensive areas of habitat such as heathland now comprise small remnants isolated from each other and surrounded by relatively inhospitable land-use.

4.1.2 The process of habitat fragmentation has a number of consequences that affect the ability of wildlife to survive into the longer term. These include:

- small and isolated sites may become too small to support viable populations of a particular species, or may be adversely impacted by surrounding land-uses;
- many ecological processes are now largely human controlled with the result that small, fragmented habitats are often unable to function naturally;
- a particular concern that has emerged in recent years is how wildlife and habitats can respond to climate change;

4.1.3 In order to safeguard wildlife in the long-term there are a number of measures that need to be taken:

- valued wildlife sites must be protected from damage and destruction;
- wildlife sites should be properly managed;
- there is the need to expand and re-connect the existing areas and restore habitats where they have been lost.

4.1.4 The large-scale restoration and linking up of habitats – a 'landscape scale' approach – is increasingly seen as necessary to safeguard wildlife and to ensure sustainable development. One approach that provides the conceptual basis for achieving this outcome is that of the 'Ecological Network'.

4.1.5 In 'Making Space for Wildlife and People'[16], the Norfolk Biodiversity Partnership makes the case for creating an Ecological Network for Norfolk. An Ecological Network comprises the following components:

- Clusters of high value wildlife sites forming ***Core Areas***;
- ***Buffer Areas*** surrounding these sites to reduce the adverse impacts from adjacent land-uses;
- ***Enhancement Areas*** where there would be a focus on habitat creation;
- ***Corridors and Stepping-Stones*** designed to promote connectivity between the sites and through the wider landscape.

[16] Making Space for Wildlife and People : Creating an Ecological Network for Norfolk (The Norfolk Biodiversity Partnership, 2005)

4.1.6 PPS9 supports the principles that underpin the Ecological Network approach. Regional policy also supports the Ecological Network approach by seeking to conserve, restore and re-establish habitats and create corridors. The preparation of Local Development Frameworks offers the opportunity to integrate the concept of an Ecological Network into local planning.

4.1.7 An Ecological Network can provide multiple benefits by:

- Contributing significantly to sustainable development and spatial planning;
- Improving the targeting of Biodiversity Action Plans;
- Providing enhanced and more accessible socio-economical benefits.

4.1.8 Opportunities now exist to plan for a radically different countryside. Changes in agricultural policy and greater recognition of the need for sustainable development mean that new approaches are required. The Ecological Network (or 'Econet') approach can help to pass on to future generations a landscape richer in wildlife and valued by people. This new landscape would reverse the losses of recent decades and create a new relationship between people and wildlife based on the principles of sustainable development and harmony with nature.

4.1.9 The Norfolk Biodiversity Partnership's Ecological Networks Topic Group has developed proposals for an Ecological Network at to scales within the Greater Norwich Area – for the Greater Norwich Area as a whole and for the Norwich Urban Area and Fringes. The proposed strategies for delivering the various components of the Ecological Network are described below.

***Towards an Ecological Network for the Greater Norwich Area***

4.1.10 A county report[17] has been produced that expanded the principles of the regional report[18] and refined the ecological network map. Following on from the County report, ecological networks have been produced for South Norfolk District, Broadland District and for the Norwich fringe area[19].

4.1.11 The proposed overall Ecological Network for the Greater Norwich Area is shown on Figure 5.1 (see Annex A).

*The Components of the Proposed Ecological Network for the Greater Norwich Area*

4.1.12 The proposed Ecological Network for the Greater Norwich Area comprises the following components (see Figure 5.1 in Annex A):

- ***Existing Core Areas*** comprising individual or clusters of high value wildlife sites requiring protection and enhancement. These are the key biodiversity features within the Greater Norwich Area that will require protection, enhancement and connectivity. The Area contains a number of exceptional areas of biodiversity importance. The enhancement and management of existing sites would help increase the capacity of areas of biodiversity importance within the Greater Norwich Area to absorb recreational use.

[17] Report of ecological network mapping project for Norfolk. Ecological Networks Topic Group, Sept 2006.
[18] East of England Biodiversity Mapping Project, 2005. Prepared for the East of England Biodiversity Forum.
[19] Development of an Ecological Network and Green Infrastructure in the Greater Norwich Growth Point Area (Norfolk Biodiversity Partnership's Ecological Networks Topic Group, April 2007)

- ***Habitat Enhancement and Creation Areas*** that are priorities for linking existing habitats and reinstating former habitats. The creation of new habitats would allow the wildlife sites to be linked and expanded to address deficiencies in wildlife habitat over large parts of the Greater Norwich Area, and would also provide new greenspace for public enjoyment.

- ***Priority Links*** to provide increased connectivity and buffering to link sites and reduce the adverse impacts from adjacent land-uses. There is a need to enhance the management of intensively farmed agricultural land within the Greater Norwich Area so that it can act as a 'corridor' for wildlife and buffer existing wildlife habitats. This would also help enhance the landscape setting of settlements within the Area.

***Ecological Network Priorities for South Norfolk District***

4.1.13 The following are considered to be priorities for contributing towards the establishment of an ecological network within South Norfolk District:

- Enhance the wetland habitats associated with the Rivers Wensum, Tud, Yare, Tiffey, Tas, Chet and Waveney and the Broads including buffering of these areas;

- Enhance and create a mosaic of heathland, grassland and woodland habitats at appropriate sites within a broad zone covering the majority of the remainder of the district;

- Seek to address urban greenspace deprivation in Norwich, Wymondham and Diss.

4.1.14 The table below expands on the above priorities to identify specific objectives and actions required for habitat creation and/or buffering within South Norfolk District:

| Objective | Action |
|---|---|
| ***Significantly increase the connectivity of woodland in core areas*** | 1. Assess functional connectivity within woodland core areas.<br>2. Expand existing woods, so that some are >25ha and all are over 3ha.<br>3. Buffer woodland to 30m minimum through restoration or creation of habitats adjacent to sites or encouragement of more sympathetic land uses.<br>4. Enhance connectivity through creation of new woodland linkages and enhancing the matrix (land uses surrounding a woodland). |
| ***Significant increase in area of grassland*** | 1. Identify areas of grassland that can form the nucleus for enhancement and expansion<br>2. Expand existing grasslands where possible, e.g., commons, verges, churchyards, pasture.<br>3. Create new grasslands and associated habitats such as scrub close to rural communities.<br>4. Buffer grassland through restoration or creation of habitats or encouragement of low input agricultural systems.<br>5. Enhance connectivity through creating new grassland linkages and enhancing the matrix (land uses surrounding a grassland). |
| ***Increase the area of heathland in suitable areas.*** | 1. Identify potential heath creation areas.<br>2. Create new heathland adjacent other habitats or on former heathland sites and in association with mineral extraction restoration.<br>3. Buffer heathland through restoration or creation of habitats adjacent to sites or encouragement of low input agricultural systems. |
| ***Restore natural functioning and wetland habitats to major rivers and tributaries*** | 1. Produce river restoration plans.<br>2. Create new wetland BAP habitats in floodplain to expand sites.<br>3. Create habitat ecotones from wet to dry habitat. |

| | |
|---|---|
| | 4. Buffer floodplains by encouraging low input agricultural systems or semi-natural habitats.<br>5. Enhance connectivity by creating new wetland linkages and enhancing the matrix (land uses surrounding a wetland). |
| ***Enhance Broads margins to buffer from adjacent land uses and create ecotones*** | 1. Develop greater connectivity between the Broads' wetlands and valley side habitats.<br>2. Buffer Broads from adverse impacts of hinterland.<br>3. Create habitat ecotones from wet to dry habitat.<br>4. Expand and link existing wetland habitats.<br>5. Create new habitats on the Broads margins. |
| ***Create greenspace in urban areas and urban fringe.*** | 1. Produce biodiversity plan for green infrastructure plan.<br>2. Provide more accessible greenspace.<br>3. Ensure core areas of BAP habitats remain connected with wider countryside. |

***Ecological Network Priorities for Broadland District***

4.1.15 The following are considered to be priorities for contributing towards the establishment of an ecological network within Broadland District:

- Enhance the wetland habitats associated with the Rivers Wensum, Bure, Yare and associated tributaries as well as the Broads including buffering of these areas;
- Enhance and create a mosaic of heathland, wood pasture and woodland habitats within the Horsford/Felmingham area;
- Create woodland, particularly in the woodland core areas north of Foxley and at Weston Longville, and grassland particularly in the west of the District;
- Protect existing greenspace and create new greenspace in the Norwich fringe.

4.1.16 The table below, expands on the above priorities to identify specific objectives and actions required for habitat creation and/or buffering within Broadland District:

| **Objectives** | **Action** |
|---|---|
| ***Restore natural functioning and wetland habitats to major rivers and tributaries*** | 1. Produce river restoration plans.<br>2. Create new wetland BAP habitats in floodplain to expand sites.<br>3. Create habitat ecotones from wet to dry habitat.<br>4. Buffer floodplains by encouragement of low input agricultural systems or semi natural habitats.<br>5. Enhance connectivity by creating new wetland linkages and enhancing the matrix (land uses surrounding a wetland). |
| ***Significantly increase the connectivity of woodland in core areas*** | 1. Assess functional connectivity within woodland core areas.<br>2. Expand existing woods, so that some are >25ha and all are over 3ha.<br>3. Buffer woodland to 30m minimum through restoration or creation of habitats adjacent to sites or encouragement of more sympathetic land uses.<br>4. Enhance connectivity through creating new woodland linkages and enhancing the matrix (land uses surrounding a woodland). |
| ***Significant increase in area of grassland*** | 1. Identify areas of grassland that can form the nucleus for enhancement and expansion.<br>2. Expand existing grasslands where possible, e.g., commons, verges, churchyards, pasture. |

| Objectives | Action |
|---|---|
| | 3. Create new grasslands and associated habitats such as scrub close to rural communities.<br>4. Buffer grassland through restoration/creation of habitats/encouragement of low input agri systems.<br>5. Enhance connectivity through creating new grassland linkages and enhancing the matrix (land uses surrounding a grassland). |
| ***Increase the area of heathland-wood pasture in suitable areas.*** | 5. Produce heath-wood pasture creation plan<br>6. Expand existing heathland where possible to minimum 50ha.<br>7. Create new heathland adjacent other habitats or on former heathland sites and in association with mineral extraction restoration.<br>8. Buffer heathland through restoration or creation of habitats adjacent to sites or encouragement of low input agricultural systems.<br>9. Enhance connectivity through creating new heath/wood pasture linkages and enhancing the matrix (land uses surrounding a heath/wood pasture). |
| ***Enhance Broads margins to buffer from adjacent land uses and create ecotones*** | 1. Develop greater connectivity between Broads wetlands and valley side habitats.<br>2. Buffer Broads from adverse impacts of hinterland<br>3. Create habitat ecotones from wet to dry habitat<br>4. Expand and link existing wetland habitats<br>5. Create new habitats on the Broads margins |
| ***Create greenspace in urban areas and urban fringe.*** | 1. Produce biodiversity plan for green infrastructure plan.<br>2. Provide more accessible greenspace.<br>3. Ensure core areas of BAP habitats remain connected with wider countryside. |

***Towards an Ecological Network for the Norwich Urban Area and Fringes***

4.1.17 A regional report[20] looking at ecological networks highlighted the deprivation in natural/semi-natural greenspace in the Norwich Urban Area. It recognised the importance of the urban fringe environment as a zone where the ecological network should be developed because of the interface of development, the demand for greenspace by an urban population and the often close proximity of these to areas of high biodiversity.

4.1.18 A report for the Norwich Urban Area[21] and for the Fringes defined a proposed Ecological Network for the Norwich Urban Area and Fringes. The proposed Network is shown on Figure 5.2 (see Annex A), and comprises the following components:

- ***Existing Core Areas*** comprising individual or clusters of high value wildlife sites requiring protection and enhancement. These are the key biodiversity features in the Norwich Urban Area and Fringes that require protection, enhancement and increased connectivity. The enhancement and management of existing sites would help increase the capacity of areas of biodiversity importance within the Urban Area and Fringes to absorb recreational use.

- ***Habitat Enhancement and Creation Areas*** that are priorities for linking existing habitats and reinstating former habitats. The creation of new habitats would allow the wildlife sites to be linked and expanded to address deficiencies in wildlife habitat over large parts

[20] East of England Biodiversity Mapping Project, 2005. Prepared for the East of England Biodiversity Forum.
[21] Norwich Ecological Network Mapping Report (Norfolk Biodiversity Partnership's Ecological Networks Topic Group, July 2007)

of the Norwich Urban Area and Fringes, and would also provide new greenspace for public enjoyment.

- ***Priority Links*** to provide increased connectivity and buffering to link sites and reduce the adverse impacts from adjacent land-uses. There is a need to enhance the management of intensively farmed agricultural land within the Greater Norwich Area so that it can act as a 'corridor' for wildlife and buffer existing wildlife habitats. This would also help enhance the landscape setting of settlements within the Area.

*Ecological Network Priorities for the Norwich Urban Area*

4.1.19 The key goals of the proposed ecological network for the Norwich Urban Area are:

- Protection and enhancement of the Core Areas for biodiversity;
- Maintenance or creation of connectivity between habitats;
- Buffering of habitats from potentially damaging land uses;
- Enhancement of the permeability of the urban areas to wildlife movement by, for example, the creation of new habitats, enhanced management of existing sites with low biodiversity or retention of large gardens.

4.1.20 It should be recognised that the capacity to create new habitats is limited within the existing urban area. There are also significant constraints on the capacity to increase connectivity between habitats. All available opportunities should be taken to contribute toward the ecological network and this may include enhanced management of non BAP habitat, such as playing fields and parks.

4.1.21 In order to contribute toward the establishment of an ecological network within the Norwich Urban Area, the following objectives are proposed:

- Enhance connectivity between habitats within the urban area and the fringes. The links to the Yare and Wensum valleys, Catton-Sprowston and Rackheath-Plumstead areas of open countryside are particularly important.
- Reduce fragmentation of habitats caused by existing and future development and enhance connectivity. In particular, seek to link areas such as Earlham Cemetery and Mousehold Heath to areas of open countryside
- Enhance buffering of key BAP habitats from damaging land uses. In particular the river valleys are critical and the need to maintain undeveloped land on valley sides is crucial.
- Enhance the wetland habitats associated with the Wensum and Yare valleys.
- Enhance and create other BAP habitats such as heathland, wood-pasture, grassland and woodland.
- Enhance management of 'urban habitats' such as parks and playing fields for biodiversity.

4.1.22 In identifying an ecological network, the priority is to link key habitats within the city to open countryside beyond the urban area, and provide an opportunity to link other habitats into the basic framework. The network is based on a series of corridors radiating from the centre of the urban area to the urban fringe and open countryside.

4.1.23 Critical areas of open countryside comprises:

- Wensum valley;
- Yare valley;
- Catton-Sprowston;
- Rackheath-Plumstead.

4.1.24 Core biodiversity features within the Norwich Urban Area that need be safeguarded and have their connectivity enhanced comprise:

- Wensum valley;
- Yare valley;
- Mousehold Heath;
- Earlham Cemetery;
- Rosary Cemetery-Lion Wood-Weston Wood pit;
- Earlham Woods;
- Newmarket Road Conservation Area;
- Catton Park.

4.1.25 Priority links providing key wildlife corridors between the above core biodiversity features and the wider countryside that require protection and enhancement include:

- Thorpe Ridge (Kett's Hill-Lion Wood-Weston Wood);
- Hall Road railway line;
- Newmarket Road Conservation Area;
- Lakenham Ridge-Ber Street-Bracondale Conservation Area-County Hall.

4.1.26 Other priority links that need to be considerably improved to make them more robust include:

- Mousehold Heath to Rackheath-Plumstead;
- Earlham Cemetery to Wensum valley and Yare valley;
- West Earlham-Bowthorpe;
- River Wensum city centre;
- Catton Park to Catton-Sprowston;
- A corridor through Hellesdon-Mile Cross-New Catton.

4.1.27 The following table sets out specific actions for the different components of the proposed Ecological Network for the Norwich Urban Area:

| No | Component Name | Description | Issues | Actions |
|---|---|---|---|---|
| **Core Biodiversity Features to be Safeguarded** | | | | |
| **1.** | **Wensum valley** | River and valley extend into city as a green wedge. Wildlife rich river and associated floodplain habitats as well as woodland, grassland, scrub. | Development on valley sides that compromise its function as a corridor for wildlife and its role in buffering the valuable wildlife habitats from adjacent land uses. | Retain maximum extent of valley as undeveloped land. Enhance management of floodplain habitats and river. Create BAP habitats on valley sides such as woodland, scrub and grassland. |
| **2.** | **Yare valley** | ditto | ditto | ditto |

| No | Component Name | Description | Issues | Actions |
|---|---|---|---|---|
| **3.** | **Mousehold Heath** | Large area of woodland with remnant heathland, isolated from open countryside by development. | Lack of heathland management. | Enhance management of the site, especially the heathland component. |
| **4.** | **Earlham Cemetery** | Extensive area of grassland with many mature trees. | Intensification of use as a cemetery. Loss of large trees, especially natives. | Enhance management of grassland and tree cover. |
| **5.** | **Lion Wood/Rosary Cemetery** | Ancient woodland and large cemetery with grassland and mature trees. | Intensification of vegetation management in cemetery. Loss of large trees, especially natives. | Enhance management of grassland and tree cover on both sites. |
| **6.** | **Earlham Woods** | Relatively narrow tree belts, mainly surrounded by urban development. | Intensity of use by people. | Enhance woodland management. |
| **7.** | **Newmarket Road Conservation Area** | Extensive area of well-wooded gardens. | | Retain present character. |
| **8.** | **Catton Park** | Large area of parkland and woodland used as public open space. | | Introduce appropriate woodland and grassland management to encourage wildlife. |
| **Priority Links Requiring Protection and Enhancement** | | | | |
| **9.** | **Thorpe Ridge (Kett's Hill-Lion Wood-Weston Wood** | A series of woodlands, large well-wooded gardens and other open space such as playing fields, stretching from the urban fringe to city centre. | In-fill development resulting in the loss of undeveloped ground and especially large gardens and tree cover. The corridor is very narrow at the city end. | Enhance management of greenspace within and adjacent this area such as playing fields and grounds of institutions. Seek to increase size of corridor at city end through woodland planting. Identify or retain links to Yare valley. |
| **10.** | **Hall Road railway line** | Linear cycleway with woodland stretching from fringe to city centre. | Narrow line of habitat susceptible to high levels of disturbance. | Enhance management of greenspace adjacent railway line to improve robustness of this feature. |
| **11.** | **Newmarket Road Conservation Area** | Extensive area of housing set in large, well-wooded grounds forming an extensive corridor from the fringe to city centre. | In-fill development resulting in the loss of undeveloped ground and especially large gardens and tree cover. | Enhance management of greenspace within and adjacent this area such as playing fields and grounds of institutions. Identify links to Eaton Golf Course and Eaton Park. |
| **12.** | **Lakenham ridge Ber Street-Bracondale Conservation Area-County hall)** | Very narrow corridor at city centre end comprising wooded ridge widening into large wooded gardens and parkland. | Poor management of existing open space, loss of large gardens and re-development of Carrow Abbey site. | Enhance management of existing greenspace to create grassland, scrub and wood habitats to make this corridor more robust. |

| No | Component Name | Description | Issues | Actions |
|---|---|---|---|---|
| | | | | |
| **Priority Links Requiring Substantial Improvement** | | | | |
| **13.** | **Mousehold Heath to Rackheath-Plumstead** | The heath is effectively isolated from the open countryside by a large industrial estate. | Development of land adjacent the heath, reducing buffering. | Seek opportunities to create a heathland-woodland link to open countryside through adjacent school playing field or industrial estate. |
| **14.** | **Earlham Cemetery to Wensum valley and Yare valley** | There is some connectivity through Woodland Park to the Wensum valley and some may have been retained through greenspace provision on old Bowthorpe school site. There is limited connectivity towards the Yare valley. | | Ensure development of hospital site enhances connectivity between the cemetery and Woodlands Park and Sycamore Crescent Wood. Retain open space on allotments on Dereham Road. Seek opportunity to reinforce connectivity through to Earlham Park, especially via allotments off Bluebell Road. |
| **15.** | **West Earlham-Bowthorpe** | Wooded belts largely linked to each other and through Bowthorpe but with poor connectivity to river valley. | Intensive use by people. | Seek to enhance the links between Earlham and Yare valley and Earlham Cemetery. Enhance management of greenspace adjacent these wooded belts to extend habitat. |
| **16.** | **River Wensum city centre** | Highly urbanised river frontage with very restricted areas of greenspace and little of biodiversity value. This probably acts as a barrier to movement of wildlife from the broads to the upper Wensum. | | Seek opportunities to create a green corridor in this stretch, in particular through the planting of marginal wetland vegetation. Explore the potential for using floating wooden rafts, “eco-islands” and floating gabions to enhance biodiversity along the river corridor in this area. |
| **17.** | **Catton Park to Catton-Sprowston** | A large area of greenspace isolated from open countryside. There may be significant connectivity with open countryside through the area of suburban housing to the north. | In-fill development, thus reducing extent of gardens. | .Identify component of corridor to the north to link to open countryside and enhance management of greenspace. Identify potential for developing a corridor towards the city centre and Mousehold Heath. |
| **18.** | **A corridor through Hellesdon-Mile Cross-New Catton** | This corridor does not exist but there are a number of isolated greenspaces that could form the basis of one. It is desirable to create a corridor in order to complete the radial network and provide additional greenspace in this area. | Piecemeal development of undeveloped land that could form part of the corridor. | Identify components of a corridor and enhance management. Where possible, safeguard from development or incorporate greenspace into plans. |

*Ecological Network Priorities for the Norwich Fringes*

4.1.28 The proposed Ecological Network for the Norwich Fringe includes extensive areas of 'open countryside' that would act as corridors and buffers protecting key biodiversity features from direct damage, fragmentation and isolation caused by development. In addition, a number of indicative corridors that link to the urban area are proposed.

4.1.29 The open countryside surrounding Norwich comprises low intensity development, intensive agriculture as well as BAP habitats (designated and undesignated sites). Linear landscape features and arable field margins within the open countryside would benefit from protection, creation and enhancement to provide corridors linking key wildlife sites, and also linking isolated sites to the countryside beyond the urban area. It is proposed that open space within planned developments would link to these more strategic areas of open countryside.

4.1.30 The boundaries of this open countryside have not been determined exactly. The precise location of defined areas can, to some extent, be flexible so long as their function of maintaining or enhancing connectivity is achieved. Some types of development may be possible so long as their function as a corridor or buffer is not compromised.

4.1.31 If the land identified as a corridor is managed sympathetically and comprises a high proportion of BAP habitats, it can potentially be narrower/smaller than if it comprises open intensive arable with relatively less biodiversity value. These areas would be targeted for habitat creation. In principle, however, corridors should be as large as possible.

4.1.32 The following objectives guided the selection of areas and corridors within the open countryside in the Norwich Fringe shown on Figure 5.2 (see Annex A):

- To ensure existing core wildlife areas are not isolated or fragmented by future built development;
- To identify corridors to retain and enhance connectivity between river valleys and open countryside;
- To identify corridors to retain and enhance connectivity between significant areas of BAP habitat and other wildlife rich greenspace and open countryside;
- To identify critical areas important in retaining or improving connectivity between existing key areas;
- To identify potential areas for the creation of new BAP habitat.

4.1.33 Figure 5.2 (see Annex A) shows the components of the proposed ecological network for the Norwich Fringe area. The arrows highlight indicative corridors where it is considered most important to retain and enhance habitat connectivity within the Norwich Fringe. Core areas comprising land of high ecological value are also identified.

4.1.34 The following table sets out specific actions for the different components of the proposed Ecological Network for the Norwich Fringe. The reference numbers relate to the numbers shown on Figure 5.2 (see Annex A):

| No | Component Name | Description | Actions |
|---|---|---|---|
| **1** | **Wensum Valley** | River Wensum and floodplain. Special Area of Conservation chalk river, SSSIs and CWS | • Maintain maximal width of this valley.<br>• Create BAP habitats on floodplain (wetland habitats) and valley sides (woodland, |

- The proposed Ecological Networks can also help secure a wide range of other environmental, social and economic benefits. For example, the Networks can provide opportunities for greater public access to biodiversity sites for local people and visitors to enjoy, help achieve sustainable water and flood risk management objectives and contribute to the local economy by supporting tourism.

## 5.0 GREENSPACES AND ACCESS NETWORKS

### 5.1 General

5.1.1 This section provides a strategic level analysis of greenspaces and access networks in the Greater Norwich Area. It also presents an analysis and interpretation of the key issues and opportunities for green infrastructure provision related to these resources.

### 5.2 Open Space Provision, Quality and Accessibility

***Principal Sources***

- Figure 4.15 - Strategic Open Space (see Annex A)
- Planning Policy Guidance 17 Planning for Open Space, Sports and Recreation : Companion Guide - Assessing Needs and Opportunities (ODPM, 2004)
- South Norfolk District PPG17 Open Spaces, Indoor Sports and Community Recreation Assessment (Strategic Leisure Ltd, Final Report, July 2007)
- Broadland District PPG17 Open Spaces, Indoor Sports and Community Recreation Assessment (Strategic Leisure Ltd, Draft Report, July 2007)
- Green Infrastructure Strategy Stakeholder Workshop Comments (see Appendix 2).

***The Existing Resource***

- Strategic open space over 2ha in size within the Greater Norwich Area (including Broadland District and South Norfolk District, but excluding Norwich City[22]) is shown on Figure 4.15 (see Annex A). This provision includes the following open space typologies[23]:

  * Formal Open Space – parks, gardens and recreation grounds
  * Natural and Semi-Natural Greenspace – woodland, commons and natural greenspace
  * Amenity Open Space – passive and active space in housing areas
  * Allotments

- Whitlingham Country Park is the only country park in the Greater Norwich Area. The 35ha Park is located on the southern edge of Norwich next to the village of Trowse, and provides a significant area of accessible greenspace for the City and surrounding areas. The Park, which is managed in a partnership between Whitlingham Charitable Trust, the Broads Authority and South Norfolk District Council, encompasses a water sports centre and the wider country park with woodland walks.

- There are a number of Local Nature Reserves that provide access in the Greater Norwich Area – such as Mousehold Heath, Lion Wood and Whitlingham Marsh within Norwich City, and at Lower Wood, near Ashwellthorpe for example.

[22] No open space typology currently available for Norwich City.
[23] Outdoor sport pitches, provision for children and young people (play areas) and indoor sports facilities needs are not considered in detail by this Green Infrastructure Strategy.

| No | Component Name | Description | Actions |
|---|---|---|---|
| | | wetlands. Valley increasingly enclosed as it enters Norwich | parkland and grassland).<br>• Carry out river restoration as a priority.<br>• Maintain and enhance connectivity through adjacent urban development at Drayton Wood, low density development at Drayton, Marriott's Way and Hellesdon.<br>• Taverham Hall Historic park and Taverham Golf Course form a significant block of land where the valley joins open countryside. |
| **2** | **Marriott's Way** | Long distance cycle and footpath. Scrub, woodland and grassland habitats. | • Maintain maximal buffer to the route.<br>• Create woodland and grassland along margins to enhance this feature.<br>• Ensure no further restriction as it passes through Drayton. |
| **3** | **Tud Valley** | River Tud valley is relatively narrow. Increasing development on north side. Woodland CWSs on valley sides. The Easton area is a core area for woodland. | • Maintain maximal width of this valley.<br>• Creation of BAP habitats on floodplain (wetland habitats) and valley sides (woodland, parkland, grassland and heathland).<br>• Maintain and enhance connectivity through adjacent urban development at Costessey.<br>• Maintain and enhance connectivity between woodland on valley sides and floodplain at New Costessey and Easton and between Tud and Wensum.<br>• Explore the potential to create woodland and heathland in the Easton area. |
| **4** | **Drayton to Horsford** | Horsford area is core area for heathland, wood pasture with SAC, SSSI and CWS heathland and wetland. Significant areas of ancient woodland (PAWS). | • Maintain connectivity between Horsford core area and Wensum valley.<br>• Create woodland and grassland habitat to link Horsford area to Wensum.<br>• Create greenspace in this area in order to provide increased opportunities for access and to help reduce adverse impacts of public recreation on key wildlife areas such as Horsford. |
| **5** | **Norwich Airport** | A significant area of grassland with some scrub. The value of this habitat is currently unknown but the size of the area is important. | • Retain habitats and manage sympathetically.<br>• Develop other BAP habitats on margins to increase value of the area. |
| **6** | **Catton-Sprowston** | Isolated Historic Park within Norwich and greenspace at Sprowston. | • Retain connectivity through low density housing development in Old Catton.<br>• Enhance urban fringe greenspace comprising public open space, cemetery and allotments and create a zone of open space focussed on Church Lane (closed to traffic).<br>• Create grassland and woodland BAP habitat to link this area to Beeston Park.<br>• Use Sprowston Golf Course as an area of greenspace that can buffer ancient woodland and create a corridor. |
| **7** | **Rackheath-Plumstead** | Several large areas of woodland (part CWS and ancient woodlands). | • Avoid isolation of Cottage and Racecourse Plantations (and further isolation of Mousehold Heath).<br>• Link these areas to the Historic Parks of Rackheath/Beeston through creation of |

| No | Component Name | Description | Actions |
|---|---|---|---|
| | | | woodland and grassland, thus creating a robust corridor incorporating a number of BAP habitats and Historic Parks.<br>• Restore Historic Parks to grassland.<br>• This area covers part of the former Mousehold Heath – re-creation of a part of Mousehold Heath could be a symbolic action.<br>• Create greenspace in this area to provide increased opportunities for access and help reduce the adverse impacts of public recreation on key wildlife areas such as Horsford. |
| **8** | **Mousehold Heath** | Mousehold Heath is an isolated remnant of a formerly much larger heath. | • Carry out long-term restructuring of the land between the heath and open countryside to re-connect the heath.<br>• Pursue opportunities to create heathland greenspace in the industrial estate as it is redeveloped. This could be a highly symbolic action. |
| **9** | **Thorpe Ridge** | Ancient woodland, low density housing, public open space | • Maintain chain of greenspace linking Racecourse Plantation to Thorpe Hamlet. |
| **10** | **Yare Valley** | River Yare and valley comprising wetland habitats, greenspace with numerous CWSs especially in SW of Norwich | • Maintain maximal width of this valley. This is critical in the SW of the city, where there is a network of high quality wetlands set in a wide, open valley landscape.<br>• Ensure no further restriction as the valley passes through Trowse and Lakenham.<br>• Create BAP habitats on floodplain (wetland habitats) and valley sides (woodland, parkland and grassland).<br>• Maintain as much lateral connectivity with open countryside as possible, including at Whitlingham, Tas valley, Intwood valley/Keswick and Cringleford-Colney.<br>• Explore the possibility of increased connectivity between the Yare and the Tud. |
| **11** | **Whitlingham-Poringland** | Extensive country park and extensive areas of (private) woodland. This woodland area is identified as a core area for woodland within South Norfolk. | • Increase woodland cover in this core area, in order to improve connectivity.<br>• Consider potential of creating heathland based on the former Poringland heath. |
| **12** | **Tas Valley** | River Tas and valley comprising wetland habitats | • Maintain maximal width of this valley.<br>• Create BAP habitats on floodplain (wetland habitats) and valley sides (woodland, parkland and grassland).<br>• Develop BAP habitats in association with Caistor Roman Town archaeological site. |
| **13** | **Intwood-Keswick** | River valley associated with extensive areas of (private) woodland between Keswick and Mulbarton. This links to the woodland core area at East Carleton. | • Maintain maximal width of this valley.<br>• Create BAP habitats on floodplain (wetland habitats) and valley sides (woodland, parkland and grassland).<br>• Maintain low density development in Keswick associated with Keswick Park<br>• Increase woodland cover in this core area to improve connectivity. |
| **14** | **Colney-** | River valley and open countryside | • Maintain separation between Hethersett and |

| No | Component Name | Description | Actions |
|---|---|---|---|
| | **Cringleford-Hethersett** | contributing toward separation of Norwich and Hethersett. | Cringleford and develop this area for grassland and woodland habitats<br>• Ensure lateral connectivity from Yare valley to this area through e.g. enhancing connectivity from UEA through Colney Business park through more sympathetic land management. |
| **15** | **Wymondham** | Several small river valleys with CWSs as well as an extensive woodland core area. | • Maintain maximal width of the Tiffey valley and tributaries through Wymondham.<br>• Create and enhance wetland habitats along the Tiffey.<br>• Maintain separation between Wymondham and Hethersett and develop this area for grassland and woodland habitats. |

## 4.5 Summary of Key Issues and Opportunities

4.5.1 The key issues and opportunities arising from the analysis of the Greater Norwich Area's biodiversity and natural environment resources for the Green Infrastructure Strategy are summarised as:

- There will be continued pressure on the physical resources and natural systems needed to facilitate new development, which will impact on water supply, air quality, energy and minerals use.

- The future growth of Greater Norwich Area will need to consider the impact on catchment reserves of water supplies in servicing new developments, and new designs of development will need to conserve and reduce water use

- Minerals efficiency will need to be improved to minimise the environmental impact of extraction and processing, including increasing the use of aggregate captured from recycled construction material.

- Significant areas in Greater Norwich are at risk of flooding, including previously developed areas in the City. The area is likely to increase with climate change.

- There is a need to reduce greenhouse gas emissions and ensure that contributions to climate change are reduced throughout, particularly as the rural areas of Broadland and South Norfolk are so much more reliant on using the private car.

- All new, and some existing, developments will need to adapt to the likely consequences of climate change through their design and locations.

- Adapting to the effects of climate change will need to include the ability to design developments that are water efficient and recycle water resources, as Norfolk is one of the drier parts of the country.

- The need to consider retrofitting existing development, such as improving energy efficiency in private sector housing, tackling traffic congestion and promoting reduction, reuse and recycling of waste.

- Renewable energy solutions for the area will be essential and should be sought in order to minimise the use of carbon-burning technology for energy generation. This would also have

the benefit of opening a number of new opportunities for economic development, such as a hydrogen energy sector.

- Norwich and Norfolk's carbon footprints are currently unsustainable, and promoting adaptive lifestyles will be necessary to reduce them.

- New developments in all sectors, land uses and activities will need to minimise their carbon emissions. The growth in popularity of Norwich Airport use will also need to be redressed though carbon-saving elsewhere.

- Domestic and business waste management, including waste minimisation, increased recycling and resource efficiency improvements, such as energy generation and recovery.

- There is a wealth of high quality agricultural land, which makes Greater Norwich an important supplier to the food industry. This needs protecting, as the irrevocable loss of high quality soil resources would be irreversible.

- Agriculture provides a significant resource for the Greater Norwich economy and its ability to compete in the national and regional sector needs to be supported.

- An environmentally sustainable economy can be developed through a general reduction in food and business mile generation, improved energy savings, development of the renewable energy sector, and through enterprises such as eco-tourism.

- Climate change threatens the long-term future of some habitats and species, and their capacity to withstand these changes needs to be improved; some aspects of climate change could bring benefits e.g. more wetlands.

- The importance of the river valleys and the Broads for nature conservation

- The opportunities for targeted biodiversity enhancements on agricultural land in conjunction with meeting local food production requirements

- The need to provide and enhance biodiversity within the urban areas of Norwich and the surrounding market towns and villages.

- There is a generally poor status of SSSI designated sites, particularly in Norwich. Overall, the quality of habitats needs to be improved and some areas need extending.

- Enhancing the management, presentation, accessibility and interpretation of geodiversity assets, and creating, retaining and making accessible small geological exposures that add to public appreciation of geodiversity resources

- The potential for the proposed Ecological Networks for the Greater Norwich Area and for the Norwich Urban Area and Fringes to provide a framework for enhancement of biodiversity resources as an integral part of an overall Green Infrastructure Network across the Greater Norwich Area and beyond

- The proposed Ecological Networks provide an important framework for protecting existing designated sites, as well as enhancing the biodiversity value of sites outside these areas, through creation or enhancement of wildlife corridors that offer opportunities to improve connectivity and decrease fragmentation of wildlife habitats.

- There are a number of commons and heathlands scattered across the Greater Norwich Area, which provide open access under the provisions of the Countryside and Rights of Way Act 2000.

- Permissive access exists in some areas – such as Cottage Plantation, Sprowston and St Faiths Common at Horsford for example

- Visitor surveys at Thetford Forest have established that the Forest is well used by people within the Greater Norwich Area, although it is more than 10km distant. Similarly it is considered that the coastal areas also attract people within the Greater Norwich Area from in excess of 10km

***Analysis – Needs, Opportunities and Constraints***

*Broadland District*

- The Broadland District PPG17 Open Spaces Assessment recommended the following minimum quantity standards of provision:

  * Formal Open Space – 1.13ha per 1,000 population
  * Natural and Semi-Natural Greenspace – 3.74ha per 1,000 population
  * Amenity Open Space – 0.22ha per 1,000 population
  * Allotments – 0.16ha per 1,000 population

- Within Broadland District, the following areas of deficiencies in provision of open spaces were identified against the above minimum standards:

  * Extensive under provision of Formal Open Space in the Aylsham area
  * Extensive under provision of Natural and Semi-Natural Greenspace in the Acle and Norwich Fringe areas
  * Under provision of Natural and Semi-Natural Greenspace in the Aylsham area
  * Under provision of Amenity Open Space in the Acle and Norwich Fringe areas
  * Under provision of Allotments in the Acle and Norwich Fringe areas

- The Broadland District PPG17 Open Spaces Assessment compared the Natural and Semi-Natural Greenspace provision against the English Nature Accessible Natural Greenspace Standard (ANGSt) model. This showed that:

  * There are deficiencies of accessible Natural and Semi-Natural Greenspace across Broadland District. However, the ANGSt standards do not consider the role the wider countryside plays in compensating for this deficiency, and other sites such as recreation grounds or amenity open space may provide elements of Natural and Semi-Natural Greenspace within them.

  * Broadland District has a shortfall of 113.72ha of Local Nature Reserve provision. However, this shortfall is partially off-set by Local Nature Reserves bordering Broadland District - namely Mousehold Heath (74.66ha) and Lion Wood (12ha) in Norwich City, and Whitlingham Marsh (15ha) in South Norfolk

- The Broadland District PPG17 Open Spaces Assessment also provided a quality assessment of open spaces in the District. This found that the quality of the open spaces within Broadland District shown on Figure 4.15 (see Annex A) were rated as poor or average

*South Norfolk District*

- The South Norfolk District PPG17 Open Spaces Assessment recommended the following minimum quantity standards of provision:

  * Formal Open Space – 0.98ha per 1,000 population
  * Natural and Semi-Natural Greenspace – 5.08ha per 1,000 population
  * Amenity Open Space – 0.71ha per 1,000 population
  * Allotments – 0.11ha per 1,000 population

- Within South Norfolk District, the following areas of deficiencies in provision of open spaces were identified against the above minimum standards:

  * Extensive under provision of Formal Open Space in the East of the District
  * Extensive under provision of Natural and Semi-Natural Greenspace in the North West and South West areas of the District
  * Extensive under provision of Amenity Open Space in the North West of the District
  * Under provision of Amenity Open Space in the South West of the District
  * Under provision of Allotments in the South West of the District

- The South Norfolk District PPG17 Open Spaces Assessment compared the Natural and Semi-Natural Greenspace provision (encompassing woodland, commons and natural greenspace sites) against the English Nature Accessible Natural Greenspace Standard (ANGSt) model. This showed that:

  * There are deficiencies of accessible Natural and Semi-Natural Greenspace across South Norfolk District. However, the ANGSt does not consider the role the wider countryside plays in compensating for this deficiency, and other sites such as recreation grounds or amenity open space may provide elements of Natural and Semi-Natural Greenspace within them.

  * South Norfolk District has a shortfall of 72ha of Local Nature Reserve provision. However, this shortfall is partially off-set by four large Local Nature Reserves bordering South Norfolk District - namely Mousehold Heath (74.66ha) and Lion Wood (12ha) in Norwich City

- The South Norfolk District PPG17 Open Spaces Assessment also provided a quality assessment of open spaces in the District. This found that the quality of the open spaces within South Norfolk District shown on Figure 4.15 (see Annex A) were rated as poor or average

*Norwich City*

- The Norwich City PPG17 Open Spaces Assessment is currently in preparation, and initial results are anticipated in September 2007. This work will provide an audit of open spaces in the City, define standards of provision and identify local needs and deficiencies

*Generic Management Needs*

- Redress the deficiencies in provision of open space across the Greater Norwich Area in terms of quantity and quality as a key priority.

- Continue to develop the marketing information produced about the parks and open space facilities available, key activities accommodated and access arrangements. The Council should seek to work with key partners in future marketing, such as the local Primary Care

Trust (PCT), the wider voluntary sector, education, the Youth Service etc to ensure that open space fulfils a valuable role in meeting wider social objectives (e.g. health improvement, increased active participation)

- Develop an access standard regarding physical access to open spaces for those users and potential users with a disability

- Develop a consistent approach to the provision of signage at all sites, through a rolling programme of installation and improvement

- Continue to work towards the reduction of the effects of crime and anti-social behaviour in parks and open spaces by establishing and implementing a programme of action to address the actual, and perceived, issues of safety – such as installing CCTV at identified sites, resourcing Park Warden posts, or investing in park/open space infrastructure to encourage increased use

- Take a strategic approach to the development of off-road greenways linking open spaces and settlements for the purpose of travel away from roads for cyclists, horse riders and pedestrians

*Formal Open Space*

- Provide Management Plans for some of the major formal open spaces

- Recognise the growing importance of the Green Flag Award and aspire to secure the award for major formal (and natural and semi-natural) sites

- Develop an Open Space Strategy for the Districts utilising the results, issues and recommendations from the PPG17 Sport, Recreation and Open Space studies

- Address identified provision deficiencies as a priority in the production of Local Development Frameworks

- Develop and support Friends Groups for key parks and open spaces to increase local involvement and ownership

- Develop and improve site Management Plans and extend the practice of management planning to a greater range of parks and open spaces

- Continue to test the quality and 'performance' of formal spaces through entering externally judged competitions and quality recognition schemes (e.g. Green Flag/ Britain in Bloom)

*Natural and Semi-Natural Greenspace*

- Address identified provision deficiencies as a priority in the production of Local Development Frameworks

- Work with Parish Councils to develop a rolling programme of renewal and improvements, e.g. bins, signage and seating

- Deliver the species specific action plans that have been developed as part of the wider Biodiversity Action Plan for Norfolk

- Adopt appropriate management and maintenance programmes for the Nature Conservation sites to reflect their natural characteristics, and thereby preserving their special characteristics by working in partnership with the appropriate land mangers, site owners and conservation bodies

- Develop an education/resource centre to develop better local awareness and understanding of open space, and in particular nature conservation sites

*Allotments*

- Establish a prioritised programme of facility development at Allotments, with a focus on toilet provision

- Further develop facilities for users/potential users with disabilities

- Review the mechanism for the allocation of vacant plots to reduce the number of empty plots, and address the local demand for allotments

- Work with Allotment Societies to develop, improve and enhance the existing allotment provision

- Develop partnerships to increase the value and accessibility of allotments, including with schools close to sites, and the further development of health-related projects

## 5.3 Access and Movement

***Principal Sources***

- Figure 4.17 - Access and Movement : Greater Norwich Area (see Annex A)
- Figure 4.18 - Access and Movement : Norwich Urban Area (see Annex A)
- Figure 4.19 - Transportation/Service Infrastructure and Connections (see Annex A)
- Norfolk Draft Rights of Way Improvement Plan (Norfolk County Council, 2007)
- http://www.countrysideaccess.norfolk.gov.uk/index.html
- Norfolk County Council Local Transport Plan 2006-2011
- Norwich Area Transportation Strategy (2006)
- http://www.norwich.gov.uk/webapps/atoz/service_page.asp?id=1315&pid=1014 (Norwich cycle routes)
- http://www.south-norfolk.gov.uk/leisure/637.asp (walking and cycling routes)
- http://www.thefringe.fsnet.co.uk/
- http://www.wensumvalleyproject.org.uk/
- http://www.sustrans.org.uk
- Norwich River Valleys Strategy (Norwich City Council, 2000)
- Green Infrastructure Strategy Stakeholder Workshop Comments (see Appendix 2).

***The Existing Resource***

- The access and movement network incorporates major roads, railways, bridleways, footpaths, cycleways and green ways within the Greater Norwich Area.

*The Footpath Network*

- Principal recreational routes include Marriott's Way, Weavers' Way, Angles Way, Kett's Country Walk, Wherryman's Way, Bure Valley Way, Boudica's Way and Tas Valley Way. The Peddars Way and Norfolk Coast Path National Trail falls outside the Greater

Norwich Area but is connected by the Angles Way and the Weavers' Way, together forming a 'Round Norfolk Walk'.

- The Angles Way runs from Great Yarmouth on the coast, along the Waveney and Little Ouse valleys to near Thetford. Weavers' Way runs from Great Yarmouth to Cromer via North Walsham and Aylsham, with only small sections falling within the Greater Norwich Area. The Bure Valley Way links Wroxham and Aylsham.

- Wherryman's Way follows the River Yare between Norwich and Great Yarmouth, whilst the Marriott's Way goes north from Norwich to Aylsham via Attlebridge and Reepham, largely following a disused railway line. Kett's Country walk links Norwich with Wymondham, and has a connection to the Tas Valley Way which loops further south from Norwich to Attleborough. South from Norwich, Boudica's Way links the city with the Diss on the Suffolk borders.

- Within Norwich the riverside walks along the Yare (Yare Valley Walk) and the Wensum (the Riverside Walk) provide links between the recreational routes that lead from the city.

- Within Norwich green links have been identified, and the creation of further green links encouraged in the Local Plan. A green link is defined as a linear feature, enhanced by landscaping, tree planting or other green elements, which connects (or it is proposed to connect) key areas of open space and maximise access to these areas from other parts of the City. The green link network is intended to provide safe people friendly access for pedestrians and cyclists throughout the City, and assist the movement of wildlife around the urban area.

- There are a substantial number of circular walks that have been developed by the local authorities, and initiatives such as the Norwich Fringe and Wensum Valley projects. Leaflets are published for these, and many are promoted on the web sites of the respective organisations and the Norfolk Countryside Access web site.

- Permissive walker and horse-rider access agreements exist in some parts of the Greater Norwich Area, for example as part of agri-environmental scheme agreements.

- The draft Norfolk Rights of Way Improvement Plan for 2007-2017 provides an assessment of Norfolk's existing local rights of way network, and identifies the needs of the county's residents and visitors. From these assessments a number of shortfalls were identified, and objectives developed to address these.

*The Cycle Network*

- There is one National Cycle (Sustrans) route in the Greater Norwich Area. It is part of National Route 1, and connects Norwich north westwards to Fakenham and King's Lynn, and southwards to Beccles, Ipswich and Harwich. The Route follows part of the Marriott's Way, which provides a traffic-free section. To the west of the Greater Norwich Area, National Route 13 links Thetford to National Route 1 north of Dereham.

- Regional Route 30, the Norfolk Coast Cycleway, runs from King's Lynn through Cromer to Great Yarmouth, but is outside the Greater Norwich Area. However the southern section of Route 30 does partly fall within the Area, and runs along the Norfolk/Suffolk border from Lowestoft to Thetford via Diss.

- A substantial number of circular cycle rides have been established by the local authorities in the Greater Norwich Area, and by project teams such as the Norwich Fringe and

Wensum Valley projects. Most have published route leaflets for these, and many are available on their respective web sites.

- Norwich City Council, with support from Norfolk County Council, also publishes maps of cycle routes within and around the City, and these are available on the City Council web site. Some routes follow green links, but the majority are on-road and unprotected.

- In the Greater Norwich Area around 10% of residents cycle to work, compared to a national average of 3%.

*The Road Network*

- Norwich provides the focus of the major roads in the Greater Norwich Area. The two main strategic road links are the A11 south east of Norwich and A47 east and west of the city.

- The A11 is the major trunk road south, connecting Norwich with Cambridge and London, and following the dualling of the Attleborough bypass only one section remains single carriageway, between Thetford and Mildenhall.

- The A47 provides an important east-west link from Great Yarmouth to Norwich, and onwards to Dereham, Kings Lynn, Peterborough and beyond. This road is mainly single carriageway through Norfolk, with dual carriageway on the Norwich southern bypass, and where some market towns have been bypassed.

- South of Norwich the A140 is a former trunk road and provides a strategic link between Norwich and Ipswich. This is largely single-carriageway. There are plans to improve this road with a bypass for Long Stratton.

- In Norwich a new road – the Northern Distributor Road - is planned around the north of the city, connecting the A47 southern bypass in the east to the A1087 in the north west. This will be an important in realising the aims of removing through traffic from the city centre and implementing widespread pedestrianisation and bus priority measures.

- Park and ride sites have been established at six locations around Norwich.

*The Public Transport Network*

- The draft East of England Plan identifies Norwich as a Regional Interchange Centre, where a significantly enhanced level of public transport services to, from and within will be provided. The market towns also provide an interchange role, acting as a place where people can access the strategic public transport network.

- As with the road network, Norwich forms a hub for rail services with mainline links south to London via Ipswich, and west through Ely to the Midlands and the main east coast line at Peterborough. There are local lines to the north Norfolk coast at Cromer and Sheringham (the Bittern Line) and to the east coast at Great Yarmouth and Lowestoft (the Wherry Lines). In addition there are two local recreational rail lines, the Bure Valley Railway between Wroxham and Aylsham, and the Mid-Norfolk Railway linking Wymondham and Dereham.

- Norwich is also a hub for bus services. There are a number of express bus services which link Norwich to:

    * Peterborough via Dereham, Swaffham and Kings Lynn
    * Lowestoft via Loddon and Beccles
    * Watton via Wymondham and Attleborough
    * Thetford via Wymondham and Attleborough
    * Sheringham via Aylsham and Cromer

- The local bus network linking smaller settlements to Norwich and each other is more variable in regularity, and in the time taken to complete journeys.

- Norwich Airport is to be promoted as a regional airport and international gateway with better surface transport links to the rest of the region.

***Analysis – Needs, Opportunities and Constraints***

- There is a well-developed footpath network in the south of the Greater Norwich Area, but provision is very poor in the Wymondham area and north and north east of Norwich.

- Good use has been made of old railway tracks and the main river corridors to create recreational walking routes

- Most of the Sustrans and local authority cycle routes are on-road, and there are few bridleways and restricted byways available for cycle and horse use.

- There are no direct footpath and cycle links between Norwich and the Wroxham area of the Bure Valley and the northern Broads area.

- There are some links between trains/buses and cycling e.g. cycle hire at railway stations, but not sufficient. There is good cycle hire provision at key water focused destinations on the River Bure.

- There are opportunities for the delivery of environmentally sustainable transport solutions, providing easy access for people to and within the city, meeting individual needs and maintaining the economic health of the Greater Norwich Area, and minimising any adverse impact on people's health and enjoyment of the city or upon the historic or natural environment

- There is scope for improving, enhancing and plugging gaps within the network, to fulfil sustainable movement and access objectives, through new projects and initiatives, and building on the success of existing projects.

- Opportunities for improvements to the rights of way network, and its level of use, including meeting the following objectives identified in the draft Norfolk Rights of Way Improvement Plan (ROWIP) for 2007-2017:

    * Develop a well signed, maintained and easily accessible network.
    * Develop and maintain an integrated network that provides for the requirements of all users.
    * Improve promotion, understanding and use of the network.
    * Encourage community involvement in improving and maintaining PROW.
    * Develop a safe network of PROW.
    * Prepare and publish an up to date and publicly available digitised Definitive Map.

- The Local Access Fora have a duty not only to advise on rights of way and wider public access to the countryside through the ROWIP, but also to connect with other agendas,

notably health, tourism and sustainable transport. They therefore have a vital role to play in integrating with emerging aspirations for multifunctional green infrastructure links, and guide the prioritisation of the future enhancement and strengthening of linkages within the network.

- There are opportunities for enhanced connectivity for isolated rural areas, including development of off-road cycle and horse riding routes.

- Where there is inadequate cycle provision, there may be scope for negotiating cycle access on footpaths.

- New areas of development provide opportunities for the provision of new footpaths and cycle ways, within and on the edge of the City.

- Major road, rail and river corridors can be barriers to access. Wherever possible, the connectivity of the rights of way network should be maintained thought the provision of suitable crossing measures for footpaths, cycleways and bridleways. New road proposals such as the Northern Distributor Road should include adequate provision for foot and cycle crossings, wherever possible integrated with 'green bridges' providing wildlife corridors between key habitats.

- A continuation of the National Cycle Network from Norwich to Great Yarmouth and Lowestoft via Acle and Ormesby St Margaret is being considered by Sustrans. This would provide a further link with Regional Route 30.

- Continue the Yare Valley Walk to Bawburgh and beyond – if this walk could be extended to the River Tiffey at Wramplingham then the existing footpaths would form a good basis for a link to Hethersett and on to Kett's Country Walk at East Carleton/Swardeston.

- Develop a walk along the Wensum upstream of Hellesdon and include additional links to Marriott's Way.

- Improve foot and cycle links from Norwich to Wroxham – this would provide a circular route using Marriott's Way from Norwich to Aylsham, and the Bure Valley Walk from Aylsham to Wroxham. It would also provide the first stage of better links into the northern Broads and rivers beyond the Greater Norwich Area.

- Whilst the proportion of rights of way measured as being easy to use by members of the public has increased substantially since 2001, there is still scope for further improvement. For example, Marriott's Way would benefit from upgrading of its the surface in some locations to facilitate its use as a cycleway.

- Most of the existing recreational routes link villages and towns with cultural or historic interest, but there is scope to develop further heritage/cultural trails, for example linking villages with historic churches or windmills.

- It is possible to hire bikes at some railway stations, for example at Hoveton and Wroxham, but greater provision for this would enhance the opportunities for access to the rural areas.

- Greater linkage of buses and cycle use would be beneficial, with provision for transporting cycles on buses developed.

- The rail lines north and east of Norwich are well served with stations and halts, but there is no stop to the south between Norwich and Diss. The possibility of a halt in the Long Stratton area should be investigated.

- Further develop the footpath network and link into wider footpath networks outside of the Greater Norwich Area by working in partnership with neighbouring authorities and the County Rights of Way team

- Increase awareness of the opportunities for walking throughout the Greater Norwich Area

- Link the use of both open space and sport and recreation facilities with travel awareness initiatives

- Take a strategic approach to the development and provision of cycling routes across the Greater Norwich Area given the importance and health benefits of this mode of transport

*Norwich Urban Area and Fringes*

- Cycle routes need better connections within the Norwich Urban Area

- New areas of development provide opportunities for the provision of new footpaths and cycle ways, within and on the edge of the City.

- Completion of the National Cycle Route through Norwich and improving links to it, including:

    * better quality linkages from the end of Marriott's Way towards the City Centre, including possibly re-routing the National Cycle Route along the riverfront instead of Oak Street and possibly a new bridge over the River Wensum which would also provide a better crossing of the ring road

    * provision of planned new bridge over the River Wensum to link King Street with Riverside

    * a new route from Riverside to Whitlingham Country Park (part of a current Sustrans connect2 project lottery bid with Norwich City Council) to include a non-car linkage from Thorpe St Andrew to Whitlingham Country Park, requiring a new cycle/foot bridge

- Create a link between the Yare Valley Walk at Bowthorpe and the River Wensum in the Costessey area.

- Enhance off-road links between Norwich and the surrounding villages. For example, there are local aspirations to link Mulbarton and Swardeston with Norwich, possibly involving the acquisition of land along the road corridor. There would be opportunities to link this into the Yare Valley Walk and to Lakenham Way.

- The Riverside Walk in Norwich is virtually complete but will be enhanced by the implementation of a number of planned extensions within the City and to Whitlingham Country Park beyond the City boundary.

- There are opportunities to overcome some of the barriers to the north of Norwich by running cycle/foot routes on the edge of the airport land.

- There is a need for more access points for launching boats and canoes within the City, and this should be considered where riverside development provides opportunities. At the City margins, the junction of the Wensum and Yare should be investigated as a suitable launch area.

- Providing a water link along the River Tas from Norwich to the Caistor St Edmund Roman Town would reinforce the site's history as a port.

- Create new access link to Norfolk Show Ground from the City

- Create new cycle/pedestrian bridge over River Yare to link residential area of Bowthorpe with Norwich Research Park

- Upgrade sections of existing footpaths to cycleway standard to facilitate a 'South Norwich Cycle Loop' connecting neighbourhoods in south of the City with the River Yare corridor

- Route improvements in vicinity of Harford Bridge/River Yare to create safe pedestrian and cycle routes to the Tesco superstore

- Undertake feasibility study to identify route for foot/cycleways along south bank of River Yare between Trowse Bridge and Cringleford

- Undertake study to identify existing foot/cycleways within the City where improvements to create safe routes for wheelchairs/mobility scooters would be beneficial

- Incorporate new off-road cycle/footway links within future re-development schemes (such as for the Deal Ground and Utilities sites) to promote safe routes for young people, families and wheelchairs/mobility scooters etc.

## 5.4 Leisure, Recreation and Tourism Destinations

***Principal Sources***

- Figure 4.16 - Leisure, Recreation and Tourism Destinations (see Annex A)
- Norfolk Tourism Strategy (2006)
- www.visitnorfolk.co.uk
- www.norfolk-norwich.com/tourist-attractions
- www.norfolktouristattractions.co.uk
- www.countrysideaccess.norfolk.gov.uk/index.html
- http://www.south-norfolk.gov.uk/leisure/637.asp
- http://www.thefringe.fsnet.co.uk
- http://www.wensumvalleyproject.org.uk/
- http://www.sustrans.org.uk
- Green Infrastructure Strategy Stakeholder Workshop Comments (see Appendix 2).

***The Existing Resource***

- A large part of Norfolk's tourist attraction arises from the high quality and character of its countryside and historic towns and villages like Diss, Harleston, Aylsham and Wymondham, and of Norwich itself.

- Norwich City offers a vibrant mix of theatres, eateries, art galleries, and is rated as one of the top ten shopping destinations in the UK.

- Part of the Broads is within the Greater Norwich Area, which in itself is an important tourist destination for visitors to the area. Many of the Broads' sites have visitor facilities e.g. Ranworth Broad, Strumpshaw Fen, whilst others have parking and board walk access, and some are only accessible by boat.

- Moorings sites are well distributed in the east of the Greater Norwich Area (east of Norwich) along the navigable stretches of the Rivers Yare, Waveney and Bure. Villages and small towns along navigable stretches of the river act as focal points for visitors and are usually accompanied by cafes, public houses, shops and other rural visitor attractions. Several such focal points also offer cycle hire.

- Water sports such as water skiing are provided for at one of the lakes at Costessey Pits, whilst the remaining two lakes provide for the quieter activity of fishing, as do other mineral extraction sites along the Wensum, and lakes scattered throughout the Greater Norwich Area.

- Cultural hotspots are centred on major/historic towns within the Greater Norwich Area such as Norwich, Diss and Wymondham. These towns not only have a tourist appeal in themselves but also hold the majority of museums and art galleries within the Area.

- Strategic destinations within the Greater Norwich Area are Blickling Hall (NT), Norwich Cathedral, Bressingham Steam Museum and gardens, and Norwich Castle museum.

- Other historic and cultural destinations include *Venta Icenorum* Roman town site at Caistor St Edmund and the Sainsbury Centre for the Visual Arts.

- Many villages have historic churches and other historic features such as windmills.

- In addition to Bressingham, there are other gardens of renown, including Fairhaven Woodland and Water Garden, Raveningham Gardens and, just outside the Greater Norwich Area, Hoveton Hall Gardens.

- There are a range of aviation and military history attractions, including the City of Norwich Aviation Museum, the Norfolk and Suffolk Aviation Museum at Flixton (just outside the Greater Norwich Area in Suffolk) and the 100$^{th}$ Bomb Group Memorial Museum at Thorpe Abbotts.

- Other attractions include the Dinosaur Adventure Park, Lenwade; Pettitts Animal Adventure Park, Reedham; Norfolk Wildlife Park, Sparham and Inspire Discovery Centre, Norwich.

- The Bure Valley and Mid-Norfolk Railways are tourist attractions, as well as providing transport links to towns, villages and other locations of interest.

- There are a number of recreational walking routes Marriott's Way, Wherryman's Way, Weavers' Way, Yare Valley Walk, Riverside Walk, Boudica's Way, Tas Valley Way, Kett's Country Walk, Angles Way and Bure Valley Walk. Some of these are also suitable for cycling e.g. Marriott's Way is part of a Sustrans National Route, and there is also a Sustrans regional route along the Waveney valley, in addition there are various local waymarked and promoted circular cycling and walking routes.

- There are a small number of horse riding establishments within the Greater Norwich Area.

***Analysis – Needs, Opportunities and Constraints***

- Tourism makes a vital contribution to Norfolk's economy, generating income and employment within the Greater Norwich Area, as well as increasing awareness of other facilities Norfolk has to offer. Some tourist attractions, such as recreation facilities, can also provide much needed facilities for local people.

- There are many leisure and recreation opportunities within the Greater Norwich Area, including sites of cultural and historic importance, formal and informal recreational sites that are either country-based or water-based, as well as locally important sites.

- Norfolk is recognised as a significant brand and a sub-regional destination in its own right. There is no single large attraction in Norfolk that acts as a visitor destination in its own right (like Alton Towers), instead tourism in Norfolk is made up of a number of competing visitor destinations – including major attractions such as the Broads and the North Norfolk Coast.

- The lower reaches of the rivers are well provided with boating and mooring facilities. However within Norwich the scope for launching canoes and dinghies is very limited. Access and parking for vehicles transporting such craft to launching spots is also a constraint.

- Country based activities such as woods with open access or leisure facilities such as fishing lakes are evenly distributed throughout the Greater Norwich Area.

- Recreational walking and cycling routes provide both recreational opportunities in themselves and a means of access to tourist attractions and destinations.

- There are opportunities for improving participation in the recreational physical activity, and both informal and formal sports.

- Future development area in the Greater Norwich Area should incorporate sufficient recreational facilities for both quiet enjoyment and active sports.

- Within the rural landscape there is the potential for farm diversification to contribute more widely to leisure and tourism opportunities, particularly in the rural areas south and west of Norwich.

- Use of worked out gravel pits for quiet recreation and, in appropriate cases, water sports, should be pursued.

- The good provision of cycle hire centres along the Bure Valley could be extended elsewhere.

- The scope for creation of more access points for launching canoes and dinghies within Norwich should be further investigated.

- Subject to nature conservation considerations, the opportunity to allow quiet boating traffic to access the *Venta Icenorum* Roman Town at Caistor St Edmund via the River Tas could be explored.

- The recreational walking and cycling routes are published and promoted on a range of local authority and project websites. However there is scope for more co-ordinated

promotion and information provision, making greater use of the tourism web sites and the Norfolk Countryside Access web site.

- The Greater Norwich Area has a great number of historic features such as churches and windmills. There is opportunity to develop trails to link these features.

- Further development of recreational walks on the Yare and Wensum upstream of Norwich would provide increased opportunity for quiet countryside enjoyment.

- The creation of recreational walking and cycling routes to link Norwich to the Bure Valley and the northern Broads should be explored.

- Establishment of further horse riding routes would provide opportunities for the development of more horse riding enterprises.

## 5.5 Towards a Sustainable Movement Network for the Greater Norwich Area

5.5.1 The proposed Green Infrastructure Strategy seeks to improve the quality of life within the Greater Norwich Area whilst complementing and supporting growth. An important element of the Strategy is the establishment of a Sustainable Movement Network. The main objective is to provide a wide range of sustainable opportunities for communities and visitors within and beyond the Growth Point Area to gain access to natural greenspace for healthy recreational activities and enjoyment.

5.5.2 The Sustainable Movement Network proposed below has been designed to integrate settlements with accessible greenspace and the surrounding countryside, and to create a network of strategic access routes between Norwich and its surrounding settlements and with the wider area. The proposed Network is intended to provide a high level, indicative and conceptual spatial framework for ensuring that investment in an improved access route network is directed to areas considered to be of greatest strategic priority and public benefit. Alignment of access route corridors on the ground and more detailed work on feasibility will be required to implement the strategic proposals identified by this study.

### *An Interconnected Network for Sustainable Movement*

5.5.3 The proposed Network is fundamentally based on connections, whereby movement from centres of population to key environmental resources and destinations is in a sustainable manner. Access and movement of people along these connectors needs to be facilitated through the provision of sustainable types of transport, improved infrastructure and services. Types of destination and environmental resource include areas of accessible greenspace, leisure, recreation and tourism destinations, heritage and cultural assets and areas rich in biodiversity such as nature reserves and accessible woodlands. Clusters of assets create hubs of activity and so smaller environmental resources can be grouped as more attractive destinations.

### *A Hierarchy of Routes*

5.5.4 The Sustainable Movement Network comprises a hierarchy of routes based on use (type/location/numbers), and takes into account factors such as the dominance of Norwich as a major city, the confluence of two significant rivers (the Yare & Wensum) and the proximity of the Broads. The network has a number of distinct characteristics and provides for a number of principal functions. It aims to provide an interlinked, continuous and seamless network of public rights of way, cycle routes and other promoted recreational routes/trails. Routes need to be clearly defined and well sign posted on the ground, and the creation of an identity and careful coding of routes to give users confidence will be important. Attractive,

inspiring and safe routes need to be guaranteed in order for the network to be viable and well used.

***A Focus on Sustainable Transport***

5.5.5 Links to the wider sustainable transport network (e.g. by bus, rail or cycle) is essential to the success of a functioning network. Opportunities to reduce car use and increase pedestrian and cycle journeys will contribute to sustainable solutions and encourage healthier and more environmentally friendly journeys. The Local Transport Plan, the Norwich Area Transport Strategy and the Rights of Way Improvement Plan are key mechanisms for achieving more sustainable modes and patterns of movement in the Greater Norwich Area.

***The Need for Investment***

5.5.6 There are significant opportunities within the Greater Norwich Area for the delivery of environmentally sustainable transport solutions. Investment in the network will facilitate access for people to and from and within Norwich City. By minimising adverse impact upon the historic and natural environment and on people's health, the goal of maintaining the economic health of Norwich and the wider Greater Norwich Area will be greatly supported.

5.5.7 There is scope for improving and enhancing the network to fulfil sustainable movement and access objectives. These will need to be pursued through new initiatives that build on the success of existing projects, and this will require increased investment. Stakeholder input (see Appendix B) has been used to gain valuable information on local access initiatives, and to help build consensus on the overall priorities for investment in a sustainable movement network as part of a wider strategy for green infrastructure provision.

***The Sustainable Movement Network Hierarchy***

5.5.8 The proposed Sustainable Movement Network for the Greater Norwich Area comprises the following hierarchy of components:

- the Primary Network
- the Secondary Network
- the Local Urban Network

*The Primary Network : Green Ways and Blue Ways*

5.5.9 At a strategic level, the Primary Network provides important links between major areas of population and key assets within the county and beyond. It is the backbone of sustainable movement and covers access over land (Green Ways) and on or beside water (Blue Ways).

5.5.10 The proposed Green Ways provide a continuous network of safe, attractive, and well sign-posted footpaths, cycleways and bridleways through open countryside. The proposed Blue Ways are focussed on riparian corridors and include river courses, canals and formal navigations; towpaths and riverside footpaths provide similar opportunities for pedestrian and cycle traffic as Green Ways. Blue Ways benefit from close proximity to water and important wetland habitats, but also provide for active sports such as canoeing, passive recreation such as fishing or boating or commuter transport such as ‘water taxis’.

*The Secondary Network : Countryside and Urban Connectors*

5.5.11 At the intermediate scale (between Primary and Local Networks), the Secondary Network provides for movement between neighbourhoods and notable destinations such as: a market place or shopping centre; a rural or large-scale recreational facility; and/or places of employment or education. As the Secondary Network is functional in both urban and countryside areas, key connectors are defined as Pink Ways (urban) and Red Ways (countryside). Both these connectors build on the local movement networks linking communities to significant green infrastructure in and around settlements.

5.5.12 In urban areas, Pink Ways are routed to take advantage of major parks and urban greenspaces, and may include notable sites of civic or historic character to encourage wider use and enjoyment. Red Ways provide direct connections between neighbouring villages through the open countryside; they are routed wherever possible via areas of open space, historic parks, country parks or woodlands and are designed to take advantage of the existing public rights of way network.

*The Local Urban Network*

5.5.13 The Local Urban Network is an intricate network of routes in the Norwich Urban Area providing access to the wider network from people's doorsteps, representing a link between public and private space. The majority of journeys at this level will be made between home and the neighbourhood park, shop or school for example via suburban roads, 'homezones', private drives and gardens, high streets and market squares.

***The Primary Network: Green Ways and Blue Ways***

5.5.14 The proposed Primary Network of sustainable movement corridors within the Greater Norwich Area is shown on Figure 6.1 (see Annex A). The routes shown on this map are only indicative. The purpose of the map is to provide an overview of the existing movement route network and to highlight opportunities for new links to address gaps in the primary network across the Greater Norwich Area as a whole. The Network is multi-functional, in that it is envisaged to incorporate the needs of all users wherever possible - including pedestrians, cyclists and horse-riders.

5.5.15 Examples of ***Existing Green Ways*** are:

- Marriott's Way (outside Norwich)
- Kett's Country Walk
- Boudica's Way
- National Cycle Route 1

5.5.16 Examples of ***Existing Blue Ways*** within the Greater Norwich Area are:

- Upper Tas Valley Walk
- Angles Way
- Wherryman's Way
- Bure Valley Way

- Marriott's Way (within the Norwich Urban Area)

- Weaver's Way (majority of route is a Green Way, however the part within the Greater Norwich Area is mainly a Blue Way)

- Regional cycle route 30 along the Waveney river corridor.

5.5.17 Within the Greater Norwich Area, there are clear opportunities to link up routes and provide a more functional network of primary routes. Informed by the analysis of open spaces and movement patterns in the Greater Norwich Area, the following priorities have been identified for ***New Green Ways****:*

- In general, strategic routes are lacking in the Wymondham area and to the north and north east of Norwich. Although good use has been made of old railway tracks and the main river corridors, rivers and railways/major roads provide obstacles in some instances.

- A key priority is the completion of the National Cycle Route through Norwich and improving links to it, including:

  * better quality linkages from the end of Marriott's Way towards the City Centre, including possibly re-routing the NCN along the riverfront instead of Oak Street and possibly a new bridge over the River Wensum which would also provide a better crossing of the ring road;

  * provision of planned new bridge over the River Wensum to link King Street with Riverside;

  * a new route from Riverside to Whitlingham Country Park (part of the current Sustrans 'Connect2' project lottery bid with Norwich City Council) to include a non-car linkage from Thorpe St Andrew to Whitlingham Country Park, requiring a new cycle/foot bridge;

  * a continuation of the National Cycle Network from Norwich to Great Yarmouth via Acle would provide a further link to Sustrans Regional Route 30.

- There are currently no direct footpath and cycle links between Norwich and the Wroxham area of the Bure Valley and the northern Broads area. The creation of new Green Ways in this area will facilitate better movement of people between key destinations.

- Sustrans cycle routes are mostly on-road. Few bridleways and restricted byways are available for cycle use and further development of these opportunities will increase usage. Scope for negotiating cycle access on footpaths where inadequate cycle provision, including in rural areas.

- A need to improve foot and cycle links from Norwich to Wroxham – this will provide a circular route using Marriott's Way from Norwich to Aylsham, and the Bure Valley Walk from Aylsham to Wroxham. It will also provide the first stage of better links into the northern Broads and rivers beyond the Greater Norwich Area.

- Within Norwich cycling routes need to be better connected and although there are some links between trains/ buses and cycling (e.g. cycle hire at railway stations) there is insufficient provision across the area.

- Investigate improvement for cycle carrying on buses (e.g. on Broadshopper – used to have cycle trailer attached, but needs improvement/refinement).

- Investigate potential for rail halt between Norwich and Diss at Long Stratton area

5.5.18 Informed by the analysis of open spaces and movement patterns in the Greater Norwich Area, the following priorities have been identified for ***New Blue Ways****:*

- Continuation of the Yare Valley Walk to Bawburgh and beyond – if this walk could be extended to the River Tiffey at Wramplingham then the existing footpaths would form a good basis for a link to Hethersett and on to Kett's Country Walk at East Carleton/ Swardeston.

- Develop a walk along the Wensum upstream of Hellesdon and include additional links to Marriott's Way.

- The Riverside Walk in Norwich is virtually complete but will be enhanced by the implementation of a number of planned extensions within the City and to Whitlingham Country Park beyond the City boundary.

- Providing a water link along the River Tas from Norwich to Caistor St Edmund Roman town would reinforce the site's history as a port.

- Provision/ identification of more access points for launching boats/ canoes in the Wensum and Yare would open water based access network.

***The Secondary Network: Countryside & Urban Connectors***

5.5.19 The proposed Secondary Network of sustainable movement corridors across the Greater Norwich Area is shown on Figure 6.1 (see Annex A), and for the Norwich Urban Area and Fringes in Figure 6.2 (see Annex A). The routes shown on these maps are only indicative. The purpose of the maps is to provide an overview of the existing movement route network and to highlight opportunities for new links to address gaps in the network connecting countryside and urban areas within the Greater Norwich Area. The Network is multi-functional, in that it is envisaged to incorporate the needs of all users wherever possible – including pedestrians, cyclists and horse-riders, and also wheelchair/mobility scooters in Urban Areas. The Secondary Network is important in terms of sustainable movement as it provides connections between the Primary Network of Green Ways and Blue Ways and the Local Urban Networks, thus encouraging access to greenspace at a range of scales and locations.

5.5.20 The Secondary Network is intended to carry significant numbers of people between neighbourhoods and their destination. They need to be well lit with clearly demarcated pedestrian and cycle routes. Designed elements should respect local distinctiveness through choice of materials and furniture. In the open countryside, they need to avoid visual clutter, be constructed in durable materials and be designed appropriately to reflect the anticipated level and type of usage and local character context. In urban areas, there may be opportunities to significantly 'green' the routes to extend the network of green corridors.

5.5.21 The analysis of open spaces and movement patterns in the Greater Norwich identified a number of key gaps in the provision of countryside and urban connectors. These include:

- The rural area running southwest – northeast across South Norfolk where the population has little access to greenspace of any significant size. Similarly, in the north (excluding the area around Aylsham) and east around the Broads. However, all these areas coincide with open countryside and a significant network of Public Rights of Way;

- There is a distinct gap in the Rights of Way network around Wymondham and Woodton in South Norfolk;

- There needs to be more large areas of greenspace over 100ha within the Greater Norwich Area to meet existing and future needs of local communities. Any new opportunities to develop large country parks need to be directly connected to the proposed Sustainable Movement Network in order to limit the potential for car based access;

- Within the 20-100ha category there is good provision south west of Aylsham; in an arc from Wymondham to Poringland; around Long Stratton and along the Waveney. However, outside of this area new greenspace over 20ha is required;

- Greenspace below 20ha is spread throughout the Greater Norwich Area with significant clusters around the south west and north west of Norwich and within the city.

5.5.22 Informed by the analysis of open spaces and movement patterns in the Greater Norwich Area, the following priorities have been identified for ***Countryside Connectors (Red Ways)*** – see Figures 6.1 and 6.2 in Annex A:

- New areas of large greenspace over 100ha need to be fully integrated with the sustainable movement network, both primary and secondary;

- Enhanced connectivity for more isolated rural areas in South Norfolk, north of Norwich (excluding the area around Aylsham) and east around the Broads linking existing and new areas of greenspace. Prioritise key routes within the Public Rights of Way and identify as Countryside Connectors;

- Provide countryside connectors to key areas of greenspace within 20-100ha category (south west of Aylsham; between Wymondham and Poringland; around Long Stratton and along the Waveney);

- Develop cultural trails e.g. linking historic churches or windmills to enhance access to the historic environment;

- The proposed Northern Distributor Road should include adequate provision for foot and cycle crossings and links to countryside and greenspace on either side;

- Secure opportunities to overcome some of the barriers to the north of Norwich by running cycle/foot routes on the edge of the airport land;

- Create radial links on north and north eastern Norwich for walking & cycling;

- Create a link between the Yare Valley Walk at Bowthorpe and the River Wensum in the Costessey area;

- Enhance off-road links between Norwich and the surrounding villages. For example it is understood that there are local aspirations to link Mulbarton and Swardeston with Norwich, possibly involving the acquisition of land along the road corridor. There would be opportunities to link this into the Yare Valley Walk and to Lakenham Way.

5.5.23 Informed by the analysis of open spaces and movement patterns, the following priorities have been identified for ***Urban Connectors (Pink Ways)*** linking the Norwich Urban Area and Fringes to the wider Greater Norwich Area (see Figure 6.2 in Annex A):

- Areas of the City to the north and north east are less well connected to greenspace. There are opportunities in these areas to provide links into the network of city parks and gardens and to the large area of city open space on Mousehold Heath;

- A few new well-placed strategic corridors will need more local inter-urban connectors in order to enable people to gain access from their neighbourhoods. New links should be developed in Sprowston, Old Catton, Hellesdon, Thorpe St Andrew;

- A significant amount of Greenspace below 20ha exists in and around Norwich and the inter-urban connectors should link these areas together to make a better formulated network;

- Within the centre of the city and south west of the urban area there is a good network of urban connectors. The opportunity in these areas therefore lies in connecting to schools, playing fields, open spaces and key routes to shops and local facilities. Detailed connections fall under the Local Urban Network, however priorities for new routes that link into the wider network include;

  * At a strategic level, provide inter-urban connectors to link the river valleys (Yare & Wensum), enabling neighbourhoods to access riverside environments further a field

  * Provide new cycle/walking links as part of new development and creation of new local areas of greenspace e.g. increased greenspace provision on north side of Norwich and community woodland areas;

- Maximise opportunities linking greenspace with major development areas – such as the Norwich Research Park, the Broadland Industrial Area and Norwich Airport, and the Norwich Business Park, the Hospital and UEA for example.

***The Local Urban Network: Doorstep and Neighbourhood Connectors***

5.5.24 The journey from the doorstep of communities within the Norwich Urban Area to the wider countryside can be identified and presented at a range of spatial scales. At the Local Urban Network scale, the definition of Doorstep and Neighbourhood Connectors is complex and needs to be identified at a more detailed level. As the study has been carried out at a strategic level to cover the whole of the Greater Norwich Area, this level in the movement hierarchy has not been defined in detail. It is recommended that consideration is given to the definition of a detailed 'Local Urban Sustainable Movement Network for Norwich' once the overall Green Infrastructure Strategy is in place, informed by the forthcoming PPG17 Open Space Assessment for Norwich City. This might take the form of a detailed Green Grid for Norwich that encompasses connections to future growth areas around the fringes of the City.

**5.6 Summary of Key Issues and Opportunities**

5.6.1 The key issues and opportunities arising from the analysis of the Greater Norwich Area's greenspace and access networks for the Green Infrastructure Strategy are summarised as:

- The imperative to redress identified deficiencies in provision of open space across the Greater Norwich Area in terms of quantity and quality as a key priority – to meet needs of existing and future communities

- The need to improving access to the countryside in the widest sense

- The opportunities to make Norwich City and surrounding settlements 'greener' with increased sustainable movement links to the fringe areas

- Integration of green spaces and green corridors into development, linked to walking and cycling networks

- The need to reduce the use of transport, in urban areas in particular, and its growth in volume to minimise adverse impacts on human health through contributing to poorer air quality in urban areas.

- The ongoing and urgent need to encourage a modal shift in transport use away from private cars and into public transport, and to replace CO2 emitting modes with less polluting forms of transport.

- Need to provide access to a good range of cultural and leisure facilities, including improved access to the countryside and local green spaces.

- The need for facilities for local play and interaction to help build strong communities

- An emphasis on good design of open space facilities that enable communities to benefit from improved quality standards

- Provide alternatives to address the high motor vehicle use, particularly in rural areas, stemming from a general dependency on the private car

- Improve access to jobs, services and facilities by public transport and reduce the need to travel by private car

- Improve the accessibility to services and facilities for those who wish to walk and cycle.

- The need to improve opportunities to walk and cycle and use open space provisions as a means of recreation and for leading a more sustainable lifestyle

- The potential for the proposed Sustainable Movement Network to provide a framework for improved connectivity, integration and use of sustainable access links and modes as an integral part of an overall Green Infrastructure Network across the Greater Norwich Area and beyond