

Dereham Green Infrastructure Study and Implementation Strategy



Dereham Green Infrastructure Study and Implementation Strategy

Dereham, Norfolk

Undertaken by ELP on behalf of:

Dereham Town Council,
Breckland District Council and
Norfolk County Council

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I. Introduction

Ecology, Land and People were commissioned in April 2008 by Dereham Town Council (working with Breckland District Council and Norfolk County Council) to undertake a Green Infrastructure Study of Dereham and its surrounding area and produce a Vision for the future and an Implementation Strategy for this Vision.

This Green Infrastructure Study will contribute towards the development of the town and will support development and implementation of the Local Development Framework.

While the study should inform the provision of appropriate green infrastructure within the parish of Dereham, it should also take into account the connectivity of green infrastructure between Dereham and neighbouring parishes and how the people of the town are able to access the countryside.

2. Objectives

The objectives for the Green Infrastructure Study and Strategy are as follows:

1. To review the current provision of greenspace within the study area, including their condition.
2. To review the opportunities for additional green space, including making connections with greenspace in neighbouring districts.
3. To provide a policy and strategy context, local and national, planning and non-planning. This should include a review of current green infrastructure projects to identify best practise.
4. To develop a green infrastructure network plan for the town which arises directly from (1)-(3).
5. To provide public access through sustainable transport to the network.
6. To provide an achievable and practical Implementation Strategy which maps out how the network plan will be actioned.

Overall, the Green Infrastructure Study will provide the analysis and evidence base to identify achievable opportunities to enhance existing and provide new green infrastructure; and secondly, the Strategy will detail how the opportunities for improvements can be implemented. The documents will also provide a set of standards outlining what is required for high quality environment associated with new development, how that development could/should help to enhance the environment in terms of green infrastructure and what would be required from developers in terms of mitigation.

3. Scope

3.1. Study Area and Outputs

The main study area is the boundary of the parish of Dereham plus the east side of Scarning parish; a total area of approximately 5km x 5km (as shown in Figure 1). The study has two main outputs:

1. **A Green Infrastructure Study.** This is essentially map based, with text relating to individual sites and broad principles. Mapping is a powerful tool for assessing and analysing spatial land use information and is the best way to make it accessible and understandable for most end-users and stakeholders.
2. **An Implementation Strategy.** This contains the strategic analysis and financial and planning information. Wherever possible data and actions are summarised on maps, in tables and in presentational methods that are easily assimilated by the reader.

3.2. Methodology

The approach has been to build a series of layers which represent constraints and opportunities. Constraints are those land uses or features which exclude green grid components or in some way constrain its development. Opportunities are land uses which are compatible with, or encourage, the green infrastructure network. There may also be additional layers which constitute basic information which is neither a constraint nor an opportunity. A compilation of these layers provides the foundation of the green infrastructure network. Maps of opportunities and constraints have then been worked upon to develop firm proposals for the network. The Study first identifies the main green/open spaces and the main corridors and links between them.

Areas outside the identified green/open spaces have been examined which are highly constrained either as current or planned developments. Proposals for integrating green infrastructure within the constrained zones have been developed as opportunity and practicality allows. This is strategic, for instance indicating blocks of streets where trees should be used to provide green infrastructure, rather than detailed, such as planting plans.

The final document is the completed Green Infrastructure Study which is then developed into the Implementation Strategy.

Consultation has been used as a kind of community “ground truthing”, testing overall proposals with the community groups, organisations and stakeholders. This took place towards the end of the process when a firm draft was available. Two workshops have been conducted, one for community stakeholders, the other for organisations and partners. Each workshop consisted of a presentation, discussion forums and feedback sessions. Appendix I outlines the workshop contents, attendees and discussion topics. Where feasible, the outputs from each workshop have been incorporated into the Implementation Strategy.

Green Infrastructure Study

The Green Infrastructure Study provides the analysis and evidence base to identify achievable opportunities to enhance existing and provide new Green Infrastructure.

4. Dereham Town: Background Information

4.1. A Sense of Place: Characterising Dereham

Dereham has a particular green space, biodiversity, cultural and historical landscape. The unique combination of these factors, superimposed over the physical and geological raw material of the district is what makes Dereham distinctive and special. Together, these factors determine the narrative of Dereham and its green spaces, a narrative which is more than just a history or landscape character assessment. It is the compilation of everything that makes the town what it is. It is what gives Dereham its *sense of place*.

Any new plans for Dereham's greenspace must be based on a thorough understanding of the town's narrative, and must reinforce and develop its sense of place. Developing that understanding of place will be an important part of the initial phase of the project and will be a strong component of the project Vision.

The nature of Dereham, on which the green infrastructure will be based, is composed of many strands which together characterise the sense of place which the local people of the town may know intuitively. In the following sections we describe the physical character of Dereham, its landscape, history, wildlife and social context. The combination of this text and the maps (which are a key accompaniment) aims to define this sense of place.

4.1.1. Geology and soils

The landscape around Dereham was largely created during the penultimate cold period of the Pleistocene Ice Age, known as the Anglian glaciation (Cox 1989). It is a broad plateau created by the deposition of glaciofluvial sands and glacial till¹ over the pre-existing landscapes derived from Cretaceous Upper Chalk. Subsequent drainage over this young landscape carved out the gentle headwater valleys of the Wensum, its tributaries and the Tud. These small rivers have, in places, cut through the till to the underlying sands and gravels above the Chalk, though their valleys are largely re-filled by outwash sands.

Since the Anglian glaciation, the surface of the plateau has been modified where thin post-glacial sand and gravels have been laid down on top of the till; plateau clays have also accumulated on the lower valley slopes to form head deposits mixed with sands. The remaining elevated parts of the plateau form the highest ground and long slopes descend over mixed deposits of till, head and sands and gravels down to the shallow valley floors.

There are two areas of elevated plateau in the vicinity of Dereham. To the northeast, the higher ground descends from Swanton Morley; the other area forms the southern margin of the Tud valley to its westernmost extent beyond Broadway Farm. The approximate extent of the elevated plateau is shown in Figure 2 using the soil association boundaries (Hodges et al 1984) defined by the Soil Survey of England and Wales (SSEW).

¹ Glacial till is also referred to as 'Chalky Boulder Clay' and 'Lowestoft till'

On this higher ground, the soils that have developed in the slowly permeable clay-rich chalky till are generally typical stagnogleys of the Beccles Series². On undrained land these soils can be waterlogged for long periods in winter.

With the exception of the more developed valley floors, the remaining areas of lower slope tills, head and exposed sands and gravels are occupied by more freely draining soils. These grade from the Burlingham series on the till slopes below the elevated plateau, through the Wick series (typical brown earths) on the better drained head deposits, to the Newport series (typical brown sands) characteristic of the glaciofluvial deposits and the post-glacial sands and gravels on the northern side of the town.

As shown in Figure 2, Dereham is situated largely on the lowest slopes of the plateau, in between the valleys of the Dereham Stream, the (un-named) tributary that descends from Broadway Farm, and the Wendling Beck, which join together at the head of the River Wensum to the northeast of the town. South of Toftwood and Dumpling Green, the headwaters of the River Tud also drain from the higher plateau.

Glacial till extends across the lower plateau slopes to the margins of the tributary valley floors; and some tributaries, such as the upper part of the Dereham Stream, appear to have remained as shallow, narrow features. To the south of the town, downstream of Yaxham Bridge, the Tud valley displays a section where the valley sides have been constricted by the disposition and character of the till, followed by a threefold widening of the level floodplain towards Badley Moor.

As well as Badley Moor and Lolly Moor on the Tud, there are a number of other sites on the Wensum tributaries, including Scarning Fen, where flat expanses of floodplain remain difficult to drain. Some have formed where shallow beds of peat have accumulated in areas of former river channels, others where calcareous groundwater rises to the ground surface within the valley floor. These peat deposits provide the parent material for the typical peat soil of the valley floors, the Adventurers' series.

Downstream of where the rivers join, the valley margins are formed by glaciofluvial deposits and the glacial till retreats onto the lower plateau slopes. Between Gressenhall and Gorgate, sand forms the dominant ground surface on the valley margins. Where the watertable is at depth, the soils are dominated by the free-draining brown sands of the Newport Series, which is also the main soil of the post-glacial sands and gravels on the northern fringes of the town. Dereham Golf Course is almost entirely located on this free-draining substrate.

Along some stretches of these watercourses, the floodplain margins are marked by a distinct bench in places where the rivers have recently cut into exposed sides formed in the glaciofluvial sands and gravels. A typical feature of Breckland river valley margins is also found in these headwater areas where a 'hummock-and-hollow' micro-topography was created in the sandy soils by repeated freezing and thawing during cold stages in the later Pleistocene.

² All soils are classified and mapped by the Soil Survey of England and Wales, as described for Eastern England by Hodges et al (1984).

While the valley floors may contain terraced remnants of former floodplains, they typically contain swathes of alluvium that have accumulated over the floodplain surface in the last few millennia, covered in places by thin remnants of peat. The wetter floodplain soils are typically occupied by sandy gleys of the Isleham 2 Association. The main area of these soils lies within the Wensum valley floor, where the floodplain widens to include areas of river terrace as well as alluvium, including one isolated terrace fragment occupied by Blueberry Farm. The soils are permeable and the soil water regimes depend on the extent to which the naturally high groundwater level has been artificially lowered.

4.1.2. History

Very little of ancient Dereham survives today. Founded by the Saxon princess Saint Withburga, who established a nunnery here in 654, the only remains which survive to mark the origins of the town is a well that has been attributed to the princess. The Danes destroyed the town in a raid in 870, and even the saint's bones were removed through trickery and under cover of night by the Abbot of Ely, who ruled the Mitford Hundred of which Dereham was part (Bird 2003). The remains were taken to the cathedral city. Other than political subservience, Dereham has had little attachment to Ely.

Biblical disasters seemed to characterise much of medieval times. In the fourteenth century, the Black Death halved the population. The timber and thatch medieval town was wholly destroyed by fire in 1581 which spread from Church Street. Only Bishop Banner's Cottage and the stone parish church survived, with the remaining 402 town dwellings destroyed. The rebuilt town was razed by fire again in 1679, and again the church and Bishop's Cottage survived. The superstitious population would not have failed to link the visitation by hell fire and the survival of God's buildings in what must have appeared a kind of infernal punishment.

Between the short periods of trauma, Dereham was an agrarian society that depended on the land for its survival. The Domesday Book records a reasonable area of arable farming, around 1200 acres, reflecting the moderate-to-good quality of the land that surrounds the town (Figure 3). At least as important would have been the woodland which was then extensive enough to support 600 pigs and would have supplied a whole range of needs from fuel to timber and other wood products. At the time, only 45 families were supported by the land, and there were three water mills.

By 1251, agricultural intensification had doubled the area under plough (Norton 1994). It was common practice for people to establish small farms within the virgin land and "wastes" around the developing town. The agricultural economy now supported 300 families, according to the Bishop of Ely's Survey of 1251. The disproportionate increase in population suggests the town was being supported now by farm products other than crops – cows, sheep and their derivatives such as wool.

Central to maintaining a healthy economy, especially for the lower orders of society, was the rich heritage of commons, greens and heaths. Dereham was ringed by extensive areas of land, in excess of a thousand acres, whose rights to cut turf for fuel, hay for fodder and for stock grazing provided both an economic resource and social structure. Faden's Map (Figure 4) shows the Commons at the end of the eighteenth century. From

huge areas such as Badley Moor through to smaller parcels such as Etling Green and Stanton Heath, the Commons surrounded a flourishing settlement which functioned as the agrarian centre and market town for the regional economy. The commons and the social and economic system they supported existed for a thousand years or more.

The Bishop of Ely's 1251 survey recorded the following commons, shown with their modern names (Norton 1994):

1251 Name	Faden or Modern Name
Estlingker Common	Badley Moor
Etlinge Green	Etling Green
Southwode Green	Dumpling Green
Brunesmoor Common	Toftwood Common
Moorgate Green	South Green
Buckmede	Rush meadow
Northale Green	Northall Green
Galewetremor	Neatherd

The present day Potter and Scarning Fen was part of the Toftwood Common complex. These lands and the rights attached to them were strongly defended by the Commoners. However, the Commoners could not stand against the force for change that followed the Napoleonic War at the start of the nineteenth century. The threat of naval blockade and food shortages caused grain prices to soar and the demand for arable land to outstrip supply. These conditions were used by the rich and powerful to undertake a substantial land grab under the auspices of the Enclosure Act of 1815. Around 840 acres of the best quality common land was taken forcibly by landowners and converted to arable. This undermined the rural, social and economic system pertaining since medieval times. The loss of wild habitat to more intensive agriculture foreshadowed the changes brought about by the industrialisation of agriculture in the twentieth century, which was also born of war and fear of starvation, and also resulted in large-scale loss of wild habitat.

Some commons survived, usually the poorest land or land that was too wet to drain with the prevailing technology. These unusable areas were made over to the poor of the parish (given as "allotments") who continued to cut turf and sedge and to graze them. There is striking coincidence of this land with land liable to flood (Figure 5). In fact, Rush Meadow was so wet in the nineteenth century that a proposal was made to convert the ground to watercress beds. This was opposed by the commoners – described as "roughs and hucksters" by Reverend Armstrong – who raised a small mob to prevent the public meeting approving the proposal. Most remaining commons are now protected by wildlife designations and are often managed as public open space or nature reserves (Figure 6). Although no longer economically significant and much reduced, they maintain the commons heritage for the people of Dereham, a link to their past and to the origins of the town.

Other markers of this time are the ancient trees (Figure 7) which stand alone in the countryside or are protected by Tree Preservation Orders. These features, a kind of living archaeology, sometimes medieval in origin, mark important historic boundaries or

changes of land ownership. They have great significance for the landscape and ecological history of the area. Survivors are scattered in the rural parts of the parish, never in the urban area, with particularly significant strings of trees at Neatherd Moor and at the head of the Tud stream.

If land and church define the origins of Dereham, commerce and industry define the more modern town. The transition from medieval times begins with the stone buildings of the town itself. After the second fire, wood and thatch were replaced with stone, brick and tile. The oldest parts of the town are Georgian in character, with the centrepiece being the Assembly Rooms built in 1756. A new commercial prosperity derived mostly from brewing and building industries created the wealth for these fine buildings, mostly concentrated around the current market square and the nearby streets.

The divorce of the town from its land-based origin was complete with the arrival of industry. A combination of the agricultural revolution and the construction in 1835 of the town's gasworks (which used coal as the raw material) meant that efficient bulk transport was needed. The railway arrived in 1847. The new line to Wymondham linked Dereham to the national rail network, allowing a surprising array of heavy industry to establish, such as the St. Nicholas ironworks. It was said to be the technological equal of those of Sheffield, forming an unlikely core of heavy industry in Dereham. A modern waterworks was built in 1881 on Cemetery Road, still one of Dereham's most distinctive buildings. The malting industry established a now-decaying complex near the railway station, and there were steam powered leather and shoe industries, a world class coach maker, and in the twentieth century the UK's largest maker of clocks, Metamec (Bird 2003). This employed 800 people at its peak, in a large factory complex near Moorgate House.

The transition to industrial and post-industrial economies was accompanied by a change in the nature of the urban space. Widely spaced Georgian architecture giving way to Victorian close-packed brick housing, and more recently, high density estate developments of the 1970/80s. This later style of estate housing has left little room in the town for greenspace within the urban matrix (see Figure 1).

4.1.3. Archaeology

All archaeological data has been obtained from Norfolk Landscape Archaeology (pers. comm. 2008). There are a large number of archaeological finds for Dereham and the surrounding area; a total of 177 for the 5km by 5km survey area.

The earliest evidence found was a number of flint flakes from the Palaeolithic. Evidence has also been found from the Mesolithic and Neolithic periods including flint tools and a flint working site.

From the Bronze Age common finds include sickles, swords and spearheads. Indeed, the finds of metal working debris suggest items were made locally. Signs of Bronze Age life have been found in the vicinity of Neatherd Moor and Vicarage Park.

Few archaeological finds have come from the Roman or Iron Age period, which is particularly unusual. However, in 2004 the largest hoard of Roman coins in Norfolk was found in Dereham.

There is little archaeological evidence to support the story of Saint Withburga (as discussed above) and excavations at the supposed site of Saint Withburga's Nunnery (near Guild House) have revealed no signs of the settlement.

Some later Saxon artefacts have been found (including pottery and a brooch) to the west of Dereham parish.

In 2003 excavations of the High Street found remains of thirteenth and fourteenth century houses, suggesting the town expanded before the medieval period; pottery finds from this time suggest that Dereham may have been a centre for pottery production. Medieval moats can be distinguished throughout the town supporting the theory that Dereham was an organised conurbation in medieval times.

4.1.4. Landscape, habitats and open space

The 2006 Landscape Character Assessment (LUC 2006) has identified three Landscape Character Areas that surround the town (Figure 8):

River Wensum and Blackwater: A small area of this landscape unit sweeps around the north-west of Dereham, forming a broad and shallow valley with a significant element of wetland, including the Rush Meadows SSSI. Hedges and trees provide an intimate and enclosed character in much of the valley. The valley floor is pastureland with crops on some higher margins. There is little development, although the unit is overlooked by houses and farmsteads of the following Character Area.

River Wensum and Tud Tributary Farmland: This unit forms a large swathe of land abutting the town to the east and south. The glacial Lowestoft Till deposits provide a gently undulating landscape cut by occasional shallow dry valleys and stream tributaries. Field sizes are variable, generally medium to large, and enclosed by hedges, with a smaller ditch-bounded field system in valley areas. Near to Dereham, woodland is almost absent. It is essentially a tranquil, arable landscape. Settlement is a mixture of dispersed farmsteads and small villages.

Dereham Plateau: The north and western margins of the town fall within this Character Area. It is an area of flat land, with the gentlest of undulations and an open landscape character. Close to Dereham itself there is again relatively little woodland, and the only significant public greenspace being Neatherd Moor, Etling Green and the Golf Course to the north of the town. Fields are large, often with post-Enclosure boundaries. Settlement density is low, with scattered farmsteads and no villages within reach of the Town.

More remotely, Shipdham Plateau and River Tud landscape Character Areas approach Dereham to the south and east. The latter contains the remnants of Badley Moor Common, now a strongly protected wetland wildlife site. In summary, outside of the Town, the landscape is a plateau and valley formation strongly dominated by agriculture whose main wildspace resides within the river valleys.

Dereham town itself was not analysed in detail. The southern edge was examined separately (LUC 2007) as a mini-Character Area, *the Scarning Fen Tributary Farmland*. This had broadly the same characteristics as the larger *River Wensum and Tud Settled Tributary*

Farmland described above, with noticeably more valley wetland, including Potter and Scarning Fens and Water Meadows.

There are relatively few trees in the urban areas of Dereham (Figure 7) and the resource of verge and green corridor is restricted to the main roads and former railway line.

Such space as exists is mostly heavily managed except for the nature reserves and remnants of the commons. Most of the latter is on the fringes of the town, not within the urban space itself. Playing fields and allotments provide open public land but minimal contact with wildspace and with nature. Some of what remains is under pressure for further development. Figure 9 shows development sites as of April 2008. Some areas now built on are recent losses of open space to housing; other areas are due to be built on in the future. In addition to areas shown on this map, space for an additional 1,000 houses must be found.

The region falls within the East Anglian Plain Natural Area (English Nature 1997), characterised by open farmland over boulder clay and sandy drift deposits, dissected by river valleys. The surrounding farmland is largely arable and a large proportion of it is managed under agri-environment schemes such as Environmental Stewardship Schemes (Figure 10), Countryside Stewardship Agreements (Figure 11) and Environmentally Sensitive Area Agreements (Figure 12).

Species-rich grasslands, woodland and heath should characterise the plateau while fens, marshes and wet woodland characterise the river valleys. The combination of several periods of agricultural intensification and industrial and residential development has left Dereham with a relatively small capital of wildlife and natural habitat (Figures 13 & 14). The particular paucity of woodland in the area is noted in the description of Landscape Character Areas, and what little there is has relatively low wildlife value, being small areas of secondary woodland or plantation. Neatherd Moor and Etling Green have a range of grassland types, including some species-rich meadows and some rough grassland. Most of the remaining areas within the town are intensively managed recreational grassland limited in value for wildlife (e.g. the golf course).

Consequently Norfolk Wildlife Trust (2006, 2007) has assigned Dereham and its surrounding area as a Zone of Grassland-Heathland-Woodland Enhancement. This zone calls for enrichment of these habitats within what will always be a largely farmed landscape.

By far the most important wildlife areas are the valley fens and wet meadows to the south and west of the town. Potter and Scarning Fens and Badley Moor are part of the Norfolk Valley Fens Special Areas of Conservation (SAC), supporting wildlife and habitat dependent on chalk groundwater and of international importance for the habitat type and the rare plants and animals they support. Dereham Rush Meadow, and to a lesser extent the Dereham Water Meadows, support a range of wetland and marsh communities including reedy areas and species-rich fen meadows, with some wet woodland. Many of the sites, having no economic value in a modern agricultural system, are poorly managed unless they have been adopted as nature reserves by the conservation organisations.

Nearly all of the remaining areas of wildspace and semi-natural habitats are the last remnants of the ancient commons. They provide the thread that links the social, economic, landscape and ecological themes which define Dereham's sense of place, and provide a historical continuity that reaches back at least a thousand years. They, more than any other area of land, provide the opportunity to re-connect local people with wildlife and with Dereham's ancient roots.

4.2. Review of Current Green / Open Spaces

For the purposes of this study Green Infrastructure is defined as “the sub-regional network of protected sites, nature reserves, green spaces and greenway linkages which should be multi-functional and operate at all spatial scales from urban centres through to open countryside” (Local Development Framework, 2007). These spaces may be public or private, with or without public access and include:

- Allotments
- Amenity space
- Green corridors (hedges, ditches, railway lines and verges)
- Brownfield and greenfield sites
- Urban parks and gardens
- Registered commons and greens
- Children's play areas
- Natural and semi-natural habitat for wildlife
- Playing fields
- Cemeteries
- Pocket parks
- Country parks
- Woodland
- Historic parks and gardens and historic landscapes
- Nature reserves
- Sites of Special Scientific Interest and Scheduled Monuments
- Locally designated heritage sites, including county wildlife sites
- Waterways and water bodies, including flooded quarries
- Development sites with potential for open space and green corridors and potential for sustainable water management (SUDS)
- Land in agri-environmental management
- Public rights of way, cycleways and other recreational routes

(Local Development Framework, 2007)

Green Infrastructure should:

- “Contribute to the management, conservation and improvement of the local landscape, strengthening important local character where necessary and creating appropriate new local character where existing character is weak or has been lost
- Contribute to the protection, conservation and management of historic landscape, archaeological and built heritage assets

- Maintain and enhance biodiversity to ensure that development and implementation of the strategy results in a net gain of Biodiversity Action Plan habitats
- Be delivered through the enhancement of existing woodlands and also by the creation of new woodlands and forest areas
- Create new recreational facilities, particularly those that present opportunities to link urban and countryside areas
- Take account of and integrate with natural processes and systems
- Be managed and funded in urban and rural areas to accommodate nature, wildlife and historic and cultural assets, and provide for sport and recreation
- Be designed to high standards of quality and sustainability to deliver social and economic, as well as environmental benefits
- Provide focus for social inclusion, community development and lifelong learning”

(Local Development Framework, 2007)

The main green/open spaces of Dereham and the surrounding area (as defined in the Breckland District Council’s Open Space Assessment, 2007) are shown in Figure 1. These spaces have a total area of 103 hectares.

As a result of rapid development between the 1960s and 1980s, Dereham has a lack of outdoor spaces for its population, which is below standard adopted targets for green space. Regarding the National Playing Fields Association (NPFA) standards (calculated from the Open Space Assessment, 2007 and 2001 census data), the town is currently:

- 36% below the standard of 1.6ha/1000 population for youth and adult outdoors sports areas (current space is 1.01ha/1000).
- 91% below standard of 0.6ha/1000 population for children’s play space (current space is 0.05ha/1000).
- 56% below the standard of 2.43/1000 population for total play space (current space is 1.06ha/1000)

Considering Natural England’s ANGST standards for urban areas (as described in Section 5.4), the town currently has inadequate access to open spaces. The areas of town which are not within 0.3km of an accessible open space (more than 2ha) is shown in Figure 15. However, on a positive note, there are two open space areas larger than 20ha (Neatherd Moor and Rush Meadows) which are within 2km of all areas of Dereham (with the exception of the Toftwood area) There are no areas of open space of 100ha within 5km of Dereham and no open spaces of 500ha within 10km of Dereham.

A description of the current open spaces of Dereham (as defined in the Breckland District Council’s Open Space Assessment, 2007) and their attributes is summarized in Table 1.

Table 1: Summary of Open/Green Spaces in Dereham and Surrounding Area (as defined in the Breckland District Council's Open Space Assessment, 2007)

Reference number	Open space name	Grid reference (at centre)	Nearest Road	Area (ha)	Current use/ habitat type	Ownership	Positive attributes	Negative attributes/ potential for improvement	Recommendations for improvement
D1	Quebec Hall	598620, 314430	Townshend Road	1.74	Amenity	Local Authority	Adjacent to golf course. Cycle path. Close to residential area	Isolated from countryside/ reserves	Mow the 2m margin along roadside annually to increase biodiversity structure
D2	North of Potters Fen	598400, 311980	Middlemarch Road	3.97	Amenity	Local Authority	Floodplain, adjacent to Potters Fen and Scarning Fen Nature Reserve		Incorporate into Nature Reserve whilst maintaining public access
D3	Raynham Ride	598750, 314410	Acorn Way	0.14	Amenity	Local Authority	Open space for residents. Connected to D1. Cycle path	Small area	Allow to become wild flower area/ nature garden by re-seeding with native wildflower mix and mowing annually
D4	Slough plantation	598950, 314250	Highfield Road	1.34	Woodland	Local Authority	Broadleaf woodland habitat with shrub under canopy		Plant a range of broadleaf trees and under-canopy shrubs
D5	Swimming Pool	598810, 314260	Quebec Road	1.02	Amenity	Local Authority	Connects golf course and Slough Plantation	Planning permission granted. Will be developed	Include sympathetic planting schemes in development

D7	Golf Course	598400, 314400	Golf Lane	25.86	Golf course	Private	Large area connected to countryside and protected woodland	Dominated by intensely mown grassland. Use of fertilizers and herbicides	Creation of wild/unmanaged areas. Reduced use of chemicals
D8		598520, 313740	Sandy Lane	0.11	Amenity/ play area	Local Authority	Next to woodland	Small play area.	Mow the 2m margin along roadside annually to increase biodiversity structure
D9		598230, 313760	Sandy Lane	0.09	Amenity	Local Authority	Next to D14	Very small	Allow to become wild flower area/ nature garden
D10	Etling Green	601490, 313800	Norwich Road	3.78	Amenity/ hay meadow	Local Authority	Large, connected to green lanes	Isolated from town residents	See management recommendations (ELP, 2007)
D14		598170, 313940	Girling Road	0.17	Amenity/ play area	Local Authority	Only space in residential area. Protected trees. Cycle path	Isolated from other habitats	Leave a small area unmanaged (mowing only annually) to create a range of habitat structures. Any small plots of land adjacent to this should not be developed due to the isolation of this area; or alternatively could become children's play area
D22	Southend Allotments	598870, 312330	Moorgate Road	1.63	Allotments	Town Council	Adjacent to road corridor. Allotments good for reptiles. Near D23. PROW. Cycle path	Intensely managed by a range of leaseholders	Create undisturbed areas (e.g. compost/rubble plots)

D23	Moorgate	598820, 312210	Moorgate Road		Amenity/ play area	Local Authority/ Club	Near D22. Play area. PROW. Cycle path	Maintenance of public access essential	Mow the 2m margin at the boundary with residential land annually to increase biodiversity structure
D25		598230, 312310	Waples Way	0.18	Amenity	Local Authority	Near road corridor and County Wildlife Site	Small	Incorporate into County Wildlife Site and create safe connection to D76 and D68/74
D27	South Green	599000, 312360	Russet Way	0.84	Amenity	Local Authority	Near D22. In residential area. PROW. Cycle path	Small	Allow to become wild flower area/ nature garden
D31	School Lane play area	599340, 311360	Westfield Road	0.101	Amenity/ play area	Local Authority	In residential area. Play area.	Maintenance of public access essential. Isolated from other habitats	
D33		599340, 311190	Chestnut Close	0.17	Amenity	Local Authority	In residential area	Small	Plant specimen trees and encourage public use with benches and picnic tables
D34	Boyd Avenue open spaces	599160, 311140	Boyd Avenue	0.07	Amenity	Local Authority	In residential area	Small	Create children's play area
D35	Boyd Avenue open spaces	598980, 311140	Elm Park	0.21	Amenity	Local Authority	In residential area	Small	Plant specimen trees and encourage public use with benches and picnic tables
D37	Toftwood recreation ground	598370, 311110	Hillcrest Avenue	1.68	Amenity/ play area	Local Authority	In residential area. Play area. Adjacent to countryside	Maintenance of public access essential	Manage for public access e.g. footpaths, benches and picnic tables. Allow areas to become wild flower area/ nature garden

D38	Toftwood Allotments	598080, 311210	Charles Close	1.38	Allotments	Town Council	Adjacent to countryside. Allotments good for reptiles	Intensely managed by a range of leaseholders	Create undisturbed areas (e.g. compost/ rubble plots)
D40	Hillcrest play area	598120, 311570	Hillcrest Avenue	1.58	Amenity/ play area	Local Authority	In residential area. Play area. Adjacent to countryside	Isolated from other open spaces	Manage for public access e.g. footpaths, benches and picnic tables. Allow areas to become wild flower area/ nature garden
D44	'Old Hall Road'	598980, 311740	Old Hall Road	0.39	Amenity	Local Authority	Near river. In residential area. PROW	Isolated from other open spaces	Manage for public access e.g. footpaths, benches and picnic tables
D46	'Farmway'	598960, 311890	Farmway	0.15	Amenity	Local Authority	Only space in residential area	Small. Isolated from other open spaces	Allow to become wild flower area/ nature garden
D48	Middlemarc h play area	598750, 312000	Brook Grove	0.023	Amenity/ play area	Local Authority	Only space in residential area. Play area	Small. Isolated from other open spaces. Maintenance of public access essential	
D50	Recreation Ground	599200, 312870	Station Road	2.14	Amenity/ play area	Town Council	Play area	Maintenance of public access essential	
D51	Dereham Cricket Club	600040, 312950	Holly Close	3.11	Amenity	Club	Sports ground. In residential area	Isolated from other habitats. Intensely used. Near other sports grounds	
D52	Football Ground	601000, 313570	Norwich Road	4.4	Amenity	Private club	Sports ground. Connected to countryside	Isolated from Town centre/ residential areas. Intensely used	

D53		600322, 313057	Cherry Lane	2.29	Allotments	Town Council	Adjacent to countryside. Allotments good for reptiles	Intensely managed by a range of leaseholders	Create undisturbed areas (e.g. compost/ rubble plots)
D54	Dereham Windmill	600346, 312947	Cherry Lane	0.96	Amenity	Town Council	Adjacent to countryside	Distant from residential areas	Manage for public access e.g. footpaths, benches and picnic tables. Allow areas to become wild flower area/ nature garden
D56	Cricket Ground	599760, 313320	Norwich Road	1.71	Amenity	Club	Cricket ground. Accessible to residents	Isolated from other habitats. Intensely used.	
D58	Neatherd Moor	599940, 313590	Neatherd Road	20.74	Amenity, play area, semi natural and woodland	Town Council	Large. Connected to country-side. Contains a range of habitat types. Supports protected species. PROW	Adjacent land not in agri-environment scheme	See management recommendations (ELP, 2007)
D61		599470, 313800	Swanton Drive	0.09	Amenity	Local Authority	Only open space in residential area	Very small	Create children's play area
D62	Dereham Cemetery	599010, 313920	Cemetery Road	3.53	Cemetery	Town Council	Large area. Historic. Stone suitable for lichens/ moss	Maintenance of public access essential. Public preference for a formal space	Seed selected areas with wildflower mix, mow annually and remove grass clippings
D64		59000, 314570	Highfield Road	1.36	Semi-natural	Private	Forms corridor to open countryside. Woodland. Protected trees		Connect to Quebec Wood. Manage trees and replant where necessary

D65	Dumpfield allotments	599220, 314150	Cemetery Road and	3.81	Allotments	Town Council	Adjacent to countryside. Allotments good for reptiles	Intensely managed by a range of leaseholders	Create undisturbed areas (e.g. compost/ rubble plots)
D66		598550, 313450	Old Becclesgate	0.17	Amenity	Local Authority	Only open space in residential area. PROW	Small. Isolated	Allow to become wild flower area/ nature garden
D68/74	St Nicholas Church	598620, 313310	Church Street	1.14	Church yard	Church. Maintained by Town Council	Historic. Stone suitable for lichens/ moss	Maintenance of public access essential. Near D76	Seed selected areas with wildflower mix, mow annually and remove grass clippings
D70	Dereham Bowls Club	598810, 313130	Wakes Lane	0.16	Amenity	Club	Near D76. Town centre location	Small. Intensely managed and used	If land became available, would be suitable location for formal gardens in this central location.
D71	Queens Mothers Garden	598790, 313120	St Withburga Lane	0.12	Garden	Town Council	Public access. Well maintained	Small. Isolated	Manage for public access e.g. footpaths, benches and picnic tables
D72	Bowling Green	598760, 313350	Church Street	0.12	Amenity	Club	Only space in residential/ business area	Small. Intensely managed and used	If land became available, would be suitable location for formal gardens in this central location
D75	Fleece Meadow	599250, 313310	Matsell Way	0.71	Amenity	Town Council	Only space in residential/ business area	Isolated from other habitats. Intensely used	
D76	Water Meadows	598440, 312880	Meadow Drive	13.68	Amenity	Local Authority	Large area. In flood zone. County Wildlife Site. PROW	In flood zone	Request management plan

SCA5		598070, 313190	Dereham Road	0.98	Allotments	Town Council	Adjacent to countryside. Allotments good for reptiles	Intensely managed by a range of leaseholders	Create undisturbed areas (e.g. compost/rubble plots)
Y1		601000, 310510	Norwich Road	0.16	Semi-natural	Parish Council	Near countryside and residential area	Clustered open spaces in village. Planning permission granted	Include sympathetic planting schemes in development
Y2	Jubilee Park	600850, 310640	Norwich Road	1.97	Amenity	Parish Council	Near Y3 and countryside. Children's play area and football pitch	Clustered open spaces in village. Intensely used	
Y3	St Peters Church	600700, 310720	Church Lane	0.74	Cemetery	Church. Maintained by Parish Council	Near Y2 and countryside. Historic. Stone suitable for lichens/ moss	Clustered open spaces in village. Maintenance of public access essential	Seed selected areas with wildflower mix, mow annually and remove grass clippings

In addition to the open spaces listed above, informal footpaths, cycle routes and green lanes provide significant corridors of open space for both people and wildlife. They are often bordered by trees or hedges; providing a connectivity between habitats as well as allowing access for the public into open spaces. These corridors are also shown in Figure 1 and their attributes described in Table 2. As Dereham develops and the town's population increases, these networks of footpaths/tracks will have a greater importance for both people and wildlife.

Table 2: Summary of Green Corridors in Dereham and Surrounding Area

Reference number	Open space name	Grid reference (at centre)	Nearest Road	Current use/habitat type	Positive attributes	Negative attributes/potential for improvement	Recommendations for improvement
GC1a	Cherry Lane	600620, 312930	Cherry Lane	Tree and hedge lined tracks	Good link between South and North Dereham and forms link between Toftwood and Neatherd Moor (D58). Adjacent to D53 & 54		Maintain as unmade green lane
GC1b	Cherry Lane	600730, 312640	Cherry Lane	Tree and hedge lined tracks	Good link between South and North Dereham (across A47)	Not adjacent to open space (other than agricultural)	Maintain as unmade green lane
GC1c	Dumpling Green	600370, 311940	Yaxham Road	Tree and hedge lined tracks	Quick access to countryside from residential area. Few cars, Well used by children, walkers and cyclists	Not adjacent to open space (other than agricultural)	Maintain as unmade green lane with agricultural surroundings on both sides to give feeling of visiting the countryside
GC2	Back Lane	600940, 313800	Back Lane	Tree and hedge lined tracks	Important link for wildlife and people between Neatherd Moor (D52) and Etling Green (D10). Adjacent to D52, 58 and 10.		Maintain as unmade green lane. Encourage hedge planting and maintain adjacent land as agricultural and undeveloped

GC3		599850, 314070	BI147	Tree and hedge lined tracks	Network of hedge-lined footpaths and tracks which forms both a network for countryside access and also a wildlife network linked to the railway line habitat corridor. Near Neatherd Moor (D58)		Protect by maintaining a farmed/amenity area on both sides of track
GC4		599170, 319940	BI146	Tree and hedge lined tracks	Network of hedge-lined footpaths and tracks which forms both a network for countryside access and also a wildlife network linked to the railway line habitat corridor. Adjacent to D7	Not adjacent to open space (other than agricultural)	Protect by maintaining a farmed/amenity area on both sides of track

5. Policy Framework

Policy determines the drivers for projects such as this. Policies determine what can and cannot be achieved, and frame how projects should be publicly presented and implemented. They are also linked to funding sources.

Policies that are most relevant to and underpin the development of a green infrastructure in and around Dereham are outlined below. They are grouped at National, Regional, County and District levels.

The following is a summary of the key policies and relevant publications:

International

Convention on Biological Diversity (1992)

Ecosystem Approach (principles adopted at convention on biological diversity in 2000)

World Summit on sustainable development 2002: Agreement to Halt the Loss of Biodiversity by 2010

National

Planning Policy Statement 7: *Sustainable development in rural areas*

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

Planning Policy Guidance 17: *Planning for Open Space, Sport and Recreation* (ODPM 2002)

Working with the Grain of Nature: A biodiversity strategy for England (DEFRA 2002)

UK Biodiversity Action Plan (1994)

Local Quality of Life indicators (Audit Commission 2005)

Regional

East of England Plan (also known as the Regional Spatial Strategy)

County

Biodiversity supplementary planning guidance

District

Local Development Framework (currently in draft form – due to be submitted in January 2009): Core Strategy and Development Control Policies, Preferred Options

5.1. International

Convention on Biological Diversity

The Convention on Biological Diversity was signed by 156 nations and the European community at the Earth summit in Rio de Janeiro, Brazil in 1992. This was a defining moment in the history of conservation, since this was the first internationally-based agreement to both conserve existing biodiversity and to increase the populations of threatened species and increase the range of declining habitats. It is this agreement that underpins all the policies and guidance concerning biodiversity from this point onwards at local, national and international levels.

Ecosystem Approach

The principles of the Ecosystem Approach were adopted at the convention on Biological Diversity at Nairobi in 2000. The definition of the Ecosystem Approach is: “A strategy for the integrated management of land, air, water and living resources that promotes conservation and sustainable use in an equitable way, and which recognises that people with their cultural and varied social needs, are an integral part of ecosystems”

World Summit on sustainable development 2002: Agreement to halt the loss of biodiversity by 2010

In 2002, at the World Summit on sustainable development held in Johannesburg, the UK committed itself to a target of halting the loss of biodiversity by 2010.

5.2. National

Planning Policy Statement 7: Sustainable Development in Rural Areas

The following government objectives are relevant to PPS7:

1. To raise the quality of life and the environment in rural areas through the promotion of:
 - Thriving, inclusive and sustainable rural communities, ensuring people have decent places to live by improving the quality and sustainability of local environments and neighbourhoods;
 - Sustainable economic growth and diversification;
 - Good quality, sustainable development that respects and, where possible, enhances local distinctiveness and the intrinsic qualities of the countryside; and
 - Continued protection for our most valued landscapes and environmental resources.
2. To promote more sustainable patterns of development by:
 - Focusing most development in, or next to, existing towns and villages;
 - Preventing urban sprawl;
 - Discouraging the development of ‘greenfield’ land, and, where such land must be used, ensuring it is not used wastefully;
 - Promoting a range of uses to maximise the potential benefits of the countryside fringing urban areas; and
 - Providing appropriate leisure opportunities to enable urban and rural dwellers to enjoy the wider countryside.
3. Promoting the development of the English regions by improving their economic performance so that all are able to reach their full potential – by developing competitive, diverse and thriving rural enterprise that provides a range of jobs and underpins strong economies.
4. To promote sustainable, diverse and adaptable agriculture sectors where farming achieves high environmental standards, minimising impact on natural resources, and manages valued landscapes and biodiversity; contributes both directly and indirectly to rural economic diversity; is itself competitive and profitable; and provides high quality products that the public wants.

Key principles:

1. “Decisions on development proposals should be based on sustainable development principles, ensuring an integrated approach to the consideration of:
 - a. Social inclusion, recognising the needs of everyone;
 - b. Efficient protection and enhancement of the environment;
 - c. Prudent use of natural resources; and
 - d. Maintaining high and stable levels of economic growth and employment.
2. Good quality, carefully-sited accessible development within existing towns and villages should be allowed where it benefits the local economy and/or community (e.g. affordable housing for identified local needs); maintains or enhances the local environment; and does not conflict with other planning policies.
3. Accessibility should be a key consideration in all development decisions. Most developments which are likely to generate large numbers of trips should be located in or next to towns or other service centres that are accessible by public transport, walking and cycling, in line with policies set out in PPG13, *Transport*. Decisions on the location of other developments in rural areas should, where possible, give people the greatest opportunity to access them through public transport, walking and cycling, consistent with achieving the primary purpose of the development.
4. New building development in the open countryside away from existing settlements, or outside areas allocated for development in development plans, should be strictly controlled; the government’s overall aim is to protect the countryside for the sake of its intrinsic character and beauty, the diversity of its landscapes, heritage and wildlife, the wealth of its natural resources and so it may be enjoyed by all.
5. Priority should be given to the re-use of previously-developed (‘brownfield’) sites in preference to the development of greenfield sites, except in cases where there are no brownfield sites available, or these brownfield sites perform so poorly in terms of suitability considerations (for example, in their remoteness from settlements and services) in comparison with greenfield sites.
6. All development in rural areas should be well designed and inclusive, in keeping and scale with its location, and sensitive to the character of the countryside and local distinctiveness.”

Planning Policy Statement 9: Biodiversity and Geological Conservation

PPS9 replaces PPG9 which was published in 1994. The following government objectives for planning are a means of working towards the vision set out in *Working with the Grain of Nature: a biodiversity strategy for England* and underpin the key policies of PPS9:

- “to promote sustainable development by ensuring that biological and geological diversity are conserved and enhanced as an integral part of social, environmental and economic development, so that policies and decisions about the development and use of land integrate biodiversity and geological diversity with other considerations.
- to conserve, enhance, and restore the diversity of England’s wildlife and geology by sustaining, and where possible improving, the quality

and extent of natural habitat and geological and geomorphological sites; the natural physical processes on which they depend; and the populations of naturally occurring species which they support.

- to contribute to rural renewal and urban renaissance by:
 - enhancing biodiversity in green spaces and among developments so that they are used by wildlife and valued by people, recognising that healthy functional ecosystems can contribute to a better quality of life and to people's sense of well-being; and
 - ensuring that developments take account of the role and value of biodiversity in supporting economic diversification and contributing to a high quality environment."

The policy statement sets out policies relating to the conservation and enhancement of biodiversity and geodiversity and how these should be implemented at regional level in Regional Spatial Strategies and at district level within Local Development Frameworks.

The following key principles are set out which regional planning bodies and local planning authorities should adhere to:

- "Development plan policies and planning decisions should be based upon up-to-date information about the environmental characteristics of their areas...In reviewing environmental characteristics local authorities should assess the potential to sustain and enhance those resources.
- Plan policies and planning decisions should aim to maintain, and enhance, restore or add to biodiversity and geological conservation interests. In taking decisions, local planning authorities should ensure that appropriate weight is attached to designated sites of international, national and local importance; protected species; and to biodiversity and geological interests within the wider environment.
- Plan policies on the form and location of development should take a strategic approach to the conservation, enhancement and restoration of biodiversity and geology, and recognise the contributions that sites, areas and features, both individually and in combination, make to conserving these resources.
- Plan policies should promote opportunities for the incorporation of beneficial biodiversity and geological features within the design of development.
- Development proposals where the principle objective is to conserve or enhance biodiversity and geological conservation interests should be permitted.
- The aim of planning decisions should be to prevent harm to biodiversity and geological conservation interests. Where granting planning permission would result in significant harm to those interests, local planning authorities will need to be satisfied that the development cannot reasonably be located on any alternative sites that would result in less or no harm. In the absence of any such alternatives, local planning authorities should ensure that, before planning permission is granted, adequate mitigation measures are put

in place. Where a planning decision would result in significant harm to biodiversity and geological interests which cannot be prevented or adequately mitigated against, appropriate compensation measures should be sought. If that significant harm cannot be prevented, adequately mitigated against, or compensated for, then planning permission should be refused.”

More specific guidance is given for Regional Spatial Strategies and Local Development Frameworks:

Regional spatial strategies should:

1. Incorporate biodiversity objectives;
2. Address regional, sub-regional and cross-boundary issues in relation to habitats, species and geomorphological processes through criteria-based policies;
3. Include policies to conserve and enhance biodiversity at the regional and sub-regional levels;
4. Include targets for the restoration and re-creation of priority habitats and the recovery of priority species of populations, linked to national goals; and
5. Identify suitable indicators for monitoring biodiversity.

Local development frameworks should:

1. Indicate the location of designated sites of importance for biodiversity and geodiversity, making clear distinctions between the hierarchy of international, national, regional and locally designated sites; and
2. Identify any areas or sites for the restoration or creation of new priority habitats which contribute to regional targets, and support this restoration or creation through appropriate policies.

PPG 17 Planning for Open Space, Sport and Recreation

This document sets out guidelines for planning for open space, sport and recreation. Within the document it is acknowledged that open space can have a variety of functions, including contributing to the aesthetic value of an area, provide opportunities to participate in sports and other recreational activities, and contribute to the protection and enhancement of biodiversity. The high value placed on open space is reflected in the guidance to local authorities which, generally, is that it should be retained, enhanced and its use encouraged.

There is also guidance on planning for new open space and sports and recreational facilities, the general principles of which are listed below:

Local authorities should:

1. Promote accessibility by walking, cycling and public transport, and ensure that facilities are accessible for people with disabilities;
2. Locate more intensive recreational uses in sites where they can contribute to town centre vitality and viability;
3. Avoid any significant loss of amenity to residents, neighbouring uses or biodiversity;

4. Improve the quality of the public realm through good design;
5. Look to provide areas of open space in commercial and industrial area;
6. Add to and enhance the range and quality of existing facilities;
7. Carefully consider security and personal safety, especially for children;
8. Meet the regeneration needs of areas, using brownfield in preference to Greenfield sites;
9. Consider the scope for using any surplus land for open space, sport or recreational use, weighing this against alternative uses;
10. Assess the impact of new facilities on social inclusion; and
11. Consider the recreational needs of visitors and tourists.

Relevant Publications:

UK Biodiversity Action Plan (HMSO 1994)

The Plan sets out the priorities for conservation – it lists the habitats and species that have suffered greatest losses or declines. 557 species and 49 habitats were listed as requiring Action Plans. The UK BAP sets out a series of activities for a 20 year period and recognises the need for targets and recovery plans.

Targets are either aimed at:

- **Maintaining** a population or range of species, or a habitat or
- **Increasing** the population or range of species or **improving the condition** or **increasing the range** of a habitat.

The process has facilitated the conservation of many species and habitats.

Local partnerships and businesses develop their own plans which set out the national priorities within a local context and add locally important habitats and species.

Working with the Grain of Nature: A biodiversity strategy for England (DEFRA 2002)

This document sets out the Government's vision for conserving and enhancing biodiversity in England. The aim of the strategy is to ensure:

“A halting, and if possible a reversal, of declines in priority habitats and species, with wild species and habitats as part of healthy, functioning ecosystems,...The general acceptance of biodiversity's general role in enhancing the quality of life, with its conservation becoming a natural consideration in all relevant public, private and non-governmental decisions and policies.”

Local Quality of Life Indicators – supporting local communities to become sustainable. (Audit Commission 2005)

A series of indicators have been developed in order to measure the quality of life in a local area. The indicators include economic, social and environmental issues and are complementary to the Governments Sustainable Development Strategy.

The indicators that are most pertinent to the Dereham green infrastructure project are in the environmental category and are:

- “The percentage of river length that is assessed as (a) good biological quality; and (b) good chemical quality.
- The percentage area of land designated as Sites of Special Scientific Interest (SSSI) within the local authority area in favourable condition;

and the area of land designated as a local nature reserve per 1,000 population.”

5.3. Regional

East of England Plan

The East of England Plan (also known as the Regional Spatial Strategy) sets out a number of principles that underpin the policies outlined in the plan, (which reflect national guidance):

“Planning authorities and other agencies in their plans, policies and programmes should seek to:

- conserve and enhance the natural, historic and build environment by positive management and protect it from development likely to cause harm;
- adopt an approach that integrates protection and enhancement of nationally and internationally designated sites and areas while meeting the social and economic needs of local communities;
- protect, for their own sake, all important aspects of the countryside, including individual features, special sites and the wider landscape;
- through the development plan system, conserve and enhance whenever possible regional and local distinctiveness and variety, based on a thorough assessment of local character and scrutiny of development impacts;
- promote a sustainable approach to the use of the region’s natural resources;
- secure effective protection of the environment by considering the nature and location of proposed development as part of a broadly based concern for, and awareness of, biodiversity and other environmental assets, and of issues such as light and noise pollution;
- restore damaged and lost environmental features whenever possible; and
- adopt a common approach to environmental issues which cross local planning authority boundaries.”

The following policies are of particular relevance to the green infrastructure plan:

- ENV1: Green Infrastructure,
 - ENV2: Landscape Conservation;
 - ENV3: Biodiversity and Earth Heritage;
 - ENV4: Agriculture. Land and Soils;
 - ENV5: Woodlands; and
 - ENV6: The Historic Environment.
- Policy ENV1: Green Infrastructure

“Areas and networks of green infrastructure should be identified, created, protected, enhanced and managed to ensure an improved and healthy environment is available for present and future communities. Green infrastructure should be developed so as to maximise its biodiversity value and, as part of a package of measures, contribute to

achieving carbon neutral development and flood attenuation. In developing green infrastructure opportunities should be taken to develop and enhance networks for walking, cycling and other non-motorised transport.

Local Development Documents should:

- define a multiple hierarchy of green infrastructure, in terms of location, function, size and levels of use, based on analysis of natural, historic, cultural and landscape assets, and the identification of areas where additional green infrastructure is required;
- require the retention of substantial connected networks of greenspace in urban, urban fringe and adjacent countryside areas to serve the growing communities in key centres for development and change; and ensure that policies have regard to the economic and social as well as environmental benefits of green infrastructure assets and protect sites of European or international importance for wildlife.

Assets of 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;
- 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 and associated corridors.

Policy ENV2: Landscape Conservation;

“In their plans, policies, programmes and proposals planning authorities and other agencies should, in accordance with statutory requirements, afford the highest level of protection to the East of England’s nationally designated landscapes – the Norfolk and Suffolk Broads, the Chilterns, Norfolk Coast, Dedham Vale, and Suffolk Coast and Heaths Areas of Outstanding Natural Beauty (AONBs), and the North Norfolk and Suffolk Heritage Coasts. Within the Broads priority should be given to conserving and enhancing the natural beauty, wildlife and cultural heritage of the area, promoting public enjoyment and the interests of navigation. Within the AONBs priority over other considerations should be given to conserving the natural beauty, wildlife and cultural heritage of each area.

Planning authorities and other agencies should recognise and aim to protect and enhance the diversity and local distinctiveness of the countryside character areas by:

- developing area-wide strategies, based on landscape character assessments, setting long-term goals for landscape change, targeting planning and land management tools and resources to influence that

change, and giving priority to those areas subject to most growth and change;

- developing criteria-based policies, informed by the area-wide strategies and landscape character assessments, to ensure all development respects and enhances local landscape character; and
- securing mitigation measures where, in exceptional circumstances, damage to local landscape character is unavoidable.”

Policy ENV3: Biodiversity and Earth Heritage;

“In their plans, policies, programmes and proposals planning authorities and other agencies should ensure that internationally and nationally designated sites are given the strongest level of protection and that development does not have adverse effects on the integrity of sites of European or international importance for nature conservation.

Proper consideration should be given to the potential effects of development on the conservation of habitats and species outside designated sites, and on species protected by law.

Planning authorities and other agencies should ensure that the region’s wider biodiversity, earth heritage and natural resources are protected and enriched through the conservation, restoration and re-establishment of key resources by:

- Ensuring new development minimises damage to biodiversity and earth heritage resources by avoiding harm to local wildlife sites and, wherever possible, achieving net environmental gains in development sites through the retention of existing assets, enhancement measures, and new habitat creation;
- Promoting the conservation, enhancement, restoration, re-establishment and good management of habitats and species populations in accordance with East of England regional biodiversity targets and the priorities in the East of England Regional Biodiversity Map;
- Identifying and safeguarding areas for habitat restoration and re-establishment, in particular large-scale (greater than 200 ha) habitat restoration areas which will deliver human and wildlife benefit;
- Identifying, safeguarding, conserving, and restoring regionally important geological and/or geomorphological sites and promoting their good management;
- Ensuring the appropriate management and further expansion of wildlife corridors important for the migration and dispersal of wildlife;
- Having regard to the need for habitats and species to adapt to climate change; and
- Establishing networks of green infrastructure, maximising their biodiversity value, as provided for under Policy ENVI.

The East of England Regional Assembly and its partners should work with authorities in neighbouring regions on strategic natural resource and biodiversity issues in areas such as the Chilterns, the Wash and Thames Estuary.”

Policy ENV4: Agriculture, Land and Soils;

“In their plans, policies, programmes and proposals planning authorities and other agencies should:

- Promote and encourage the expansion of agri-environment schemes to:
 - increase the landscape, historic and wildlife value of farmland in accordance with regional priorities set out in other policies of this RSS;
 - maintain and enhance the resilience and quality of soils;
 - increase public access;
- Reduce diffuse pollution;
- Include policies that respond to the changes taking place in agriculture to address issues such as climate change and consumer demands for higher standards of animal welfare and food safety and the implications of resultant development in the countryside;
- Encourage the sustainable use of soil resources and, where soil and land have been degraded, maximize opportunities for restoration to beneficial after-uses including agriculture, woodland, amenity and habitat creation schemes in accordance with regional priorities set out in other policies of this RSS;
- Encourage more sustainable use of water resources through winter storage schemes and new wetland”

Policy ENV5: Woodlands

“In their plans, policies, programmes and proposals planning authorities and other agencies should seek to achieve an increase in woodland cover by protecting and achieving better management of existing woodland and promoting new planting where consistent with landscape character.

Ancient semi-natural woodland and other woodlands of acknowledged national or regional importance should be identified in Local Development Documents with a strong presumption against development that would result in their loss or deterioration. Aged or veteran trees should be conserved. The nature conservation and recreation value of woodland is recognised, and conversion to other land uses should be resisted unless there are overriding public and ecological benefits. Woodland unavoidably lost to development should be replaced with new woodland of at least equivalent area and composition, preferably in the same landscape unit.

New woodland creation should be targeted at:

- Schemes for the restoration of derelict or contaminated land and sites formerly used for mineral-extraction or industry;
- Green infrastructure projects associated with areas planned for significant growth;
- The Thames Chase, Watling Chase and Forest of Marston Vale Community Forests, with the aim of increasing their woodland cover to 30% by 2030;
- Planting schemes along transport corridors; and

- Schemes to expand and link areas of native woodland and create new wet woodland (which is a priority in this region) to meet regional and local BAP targets.“

Policy ENV6: The Historic Environment.

“In their plans, policies, programmes and proposals local planning authorities and other agencies should identify, protect, conserve and, where appropriate, enhance the historic environment of the region, its archaeology, historic buildings, places and landscapes, including historic parks and gardens and those features and sites (and their settings) especially significant in the East of England:

- The historic cities of Cambridge and Norwich;
- An exceptional network of historic market towns;
- A cohesive hierarchy of smaller settlements ranging from nucleated villages, often marked by architecturally significant medieval parish churches, through to a pattern of dispersed hamlets and isolated farms;
- The highly distinctive historic environment of the coastal zone including extensive submerged prehistoric landscapes, ancient salt manufacturing and fishing facilities, relict sea walls, grazing marshes, coastal fortifications, ancient ports and traditional seaside resorts;
- Formal planned settlements of the early twentieth century, including the early garden cities, and factory villages;
- Conservation areas and listed buildings, including domestic, industrial and religious buildings, and their settings, and significant designed landscapes;
- The rural landscapes of the region, which are highly distinctive and of ancient origin; and
- The wide variety of archaeological monuments, sites and buried deposits which include many scheduled ancient monuments and other nationally important archaeological assets.”

5.4. County

Biodiversity Supplementary Planning Guidance for Norfolk

The guidance was produced by a working group under the auspices of the Norfolk Biodiversity Partnership. It sets out key considerations that should be taken into account in all development proposals. It should be used by development control and planning officers and also by developers in order to raise the standards of planning applications and developments with respect to biodiversity protection and enhancement.

It includes guidance on gathering information prior to submitting an application, how to protect key habitats and species during development, how to enhance a site, mitigating harm and compensating for loss. It also includes case studies to illustrate how the guidance can be implemented.

Breckland District Council

Core Strategy and Development Control Policies (Draft – revised December 2007) (A key component of the Local Development Framework which will replace the current Local Plan – due to be adopted following consultation in January 2009)

The following are the key policies that are most relevant to the development of a green infrastructure. (CP = Core Strategy Policy, DC = Development Control Policy). At the time of finalising this Study, we are aware that Breckland District Council as the Local Planning Authority is in the process of preparing its final version of the Core Strategy and Development Control Policies document. This will result in some policies referred to in the section below being renumbered, amalgamated or clarified. The District Council has confirmed however, that the intent and function of the following policies will remain in the submission document.

Preferred Option CP 1

Housing Provision

Provision is made for the development of at least 19,000 homes and associated infrastructure in the District within the period 2001-2026, including 200 homes on greenfield sites in Dereham.

Preferred Option CP 8

Sites of Special Scientific Interest

For Sites of Special Scientific Interest, where development may have adverse direct or indirect impacts, an environmental assessment will be required which identifies the impact and possible mitigation measures. In cases where there would be an adverse impact, development would only be allowed if there would be national or regionally important benefits.

Regional and Local Sites

For sites of regional or local biodiversity, or geological interest (identified on the proposals map, including County Wildlife Sites, Semi-natural Ancient Woodland Habitats identified in the Norfolk Biodiversity Action Plan), where development may have adverse direct or indirect impacts, a full environmental appraisal will be required. Where an adverse impact had been identified, development would only be permitted in exceptional circumstances.

Ecological Network

“Open spaces and areas of biodiversity interest will be protected from harm and the restoration, enhancement and linking of these areas to create ecological networks will be encouraged by:

- minimising the fragmentation of habitats, creation of new habitats and connection of existing areas to create an ecological network as identified in the Breckland District Ecological Network Mapping Report;
- appropriate management of valuable areas, such as County Wildlife Sites (CWSs);
- the designation of Local Nature Reserves and CWSs;

- creating green networks to link urban areas to the countryside; and
- maximising opportunities for creation of new green infrastructure and networks in sites allocated for development.

Conditions and/or planning obligations will be used to ensure that appropriate mitigation measures are utilised, where appropriate.”

Enhancement of Biodiversity and Geodiversity

The enhancement of biodiversity and geodiversity will be sought through the promotion of positive action and via the development control process. Development will be expected to incorporate biodiversity or geological features wherever possible.

Protection of Species

Development affecting legally protected species will be subject to the relevant legislation. Where development will affect species identified in the Norfolk Biodiversity Action Plan that are not legally protected, an impact study will be required.

Preferred Option CP 9

Protection and Enhancement of the Landscape of the District

The existing landscape of the District will be protected for the sake of its own intrinsic beauty, its benefit to the rural character of the District and for its biodiversity and geodiversity interest. Management of the landscape will be achieved where appropriate through development or other mechanisms.

Preferred Option DC 11

Green Infrastructure

“Existing green infrastructure of local and strategic importance will be protected from development.

All new development should retain existing on-site green infrastructure. Layouts and designs should be responsive to the location of existing on-site green infrastructure and ensure that the development supports the appropriate use of and the function of the green infrastructure.

For all new development, where it is considered that the development will have a detrimental effect on the quantum or function of existing green infrastructure then the development will not be permitted unless replacement provision is made that is considered to be of equal or greater value than that which will be lost through development.

All new development will be expected to contribute towards the provision of additional green infrastructure or the enhancement of the district’s existing green infrastructure in accordance with adopted standards. Development should seek to enhance existing green infrastructure through the provision of physical/functional linkages between green infrastructure, through the introduction of appropriate multi-functional use of spaces and linkages and/or through the improvement of the function of existing green infrastructure.

On-site provision and/or off-site contributions will be sought. Both on-site and off-site provision/enhancement will be made with regard to adopted strategies relating to green infrastructure and biodiversity network provision.

Where compensatory provision is to be made for the loss of existing green infrastructure the provision of new and/or enhancement of green infrastructure will be required in accordance with this policy in addition to the compensatory provision.

Where appropriate the Council will seek a planning obligation to provide for the future management and maintenance of green infrastructure.”

Preferred Option DC 12

Existing Open Space, Sport and Recreational Facilities

“Development that would result in the loss of existing sport, recreational or amenity open space will only be permitted if:

- It can be demonstrated (through a local assessment) that there is an excess of recreational or amenity open space in the settlement and the proposed loss will not result in a current or likely shortfall during the plan period; and
- Recreational facilities within the open space will be enhanced by the proposed development on an appropriate portion of the open space; or
- The community would gain greater benefit from the developer providing a suitable alternative recreational or amenity open space in an equally accessible and convenient location.
- The development of existing open space with an ecological value (a known biodiversity or nature conservation interest) will not be permitted.”

Open Space Contributions

“All new residential development is expected to provide a contribution towards outdoor playing space equivalent to 3 hectares per 1000 population. For developments of 30 dwellings or more, or on sites of 1ha or more, open space should be provided on site, with priority given to children’s play space; for developments of fewer than 30 dwellings off-site contributions will be required.”

In 1993 (and updated in 2008) English Nature (now part of Natural England) suggested the following minimum targets for providing adequate accessible natural greenspace in urban areas (known as Accessible Natural Greenspace Standards, ANGST):

- “An urban resident should be able to enter a natural greenspace of at least 2 hectares within 0.3 kilometres of their home.
- Provision should be made for Local Nature Reserves in every urban area at the minimum level of 1 hectare per thousand population.”

And in addition to the above, there should be the following available to all residents:

- one 20 hectare site within 2 kilometres;
- one 100 hectare site within 5 kilometres; and

- one 500 hectare site within 10 kilometres.

Preferred Option DC 13

Trees and Landscape

“The landscape of the district will be protected for the sake of its intrinsic character and beauty, the diversity of its landscape, heritage and wildlife. For all development proposals regard will need to be had to the impact of the development upon the district’s landscape with particular reference made to the Landscape Character Assessment and the Landscape Character Assessment Fringe Study. Development which fails to protect or enhance the character of the landscape of the district will not be permitted.

Trees, hedgerows and other natural features across the district will be protected from development. Where the loss of a tree(s), hedgerow(s) or other natural feature(s) is unavoidable and would be detrimental to the character and appearance of the area the council will expect a replacement to be provided. Conditions and/or planning obligations will be used to secure the replacement of trees hedgerows and other natural features or their protection during the course of development.”

5.5. Overview of Relevant Policies

Table 3 shows an overview of the policies relevant to open spaces and green infrastructure, as discussed above.

Table 3. Open/Greenspace Policies Applicable to Dereham

Policy / Guidance	Geographical level	Focus of Policy / Guidance	Key bodies for implementation
Rio convention	International	Biodiversity conservation	Local and national government
Planning Policy Statement 9	National	Biodiversity and geological conservation	Local and regional government
Planning Policy Guidance 17	National	Planning for open space, sport and recreation	Local and regional government
Working with the Grain of Nature	National	Objectives for incorporating biodiversity conservation and enhancement into planning policies	Local and regional government
East of England Plan	Regional	Principles that local authorities should adopt with respect to planning – includes policies to protect the natural environment	Local government
County Plan	County	Two “saved” policies concerning landscape	Local government
Biodiversity supplementary planning guidance	County	Guidance on best practice for protecting and enhancing biodiversity for planners and developers	Planners, developers
Local Development	Breckland	Housing provision	Local planners

Framework – preferred option CPI	District		
Local Development Framework – preferred option CP8	Breckland District	Protection of sites of high conservation value (e.g. SSSI's), the creation of ecological networks and the enhancement of biodiversity and geodiversity, protection of species	Local planners
Local Development Framework – preferred option CP9	Breckland District	Protection and enhancement of the landscape	Local planners
Local Development Framework – preferred option DC11	Breckland District	Green infrastructure	Local planners
Local Development Framework – preferred option DC12	Breckland District	Provision of open space	Local planners
Local Development Framework – preferred option CPI3	Breckland District	Trees and landscape	Local planners

6. Review of Green Infrastructure Best Practice

6.1. Planning

Strategic planning for the maintenance, restoration and re-creation of key habitats for the benefit of wildlife and people is an essential first step towards meeting the aims of the UK Biodiversity Action Plan, and is the cornerstone of urban green infrastructure plans, which incorporate the needs of wildlife with the provision of housing, roads, sustainable transport networks and other infrastructure.

Numerous map-based strategies and plans have been produced to date at different strategic levels, with most now basing the methodology on a simple tiered approach, with core areas of greatest biodiversity interest being highlighted for maintenance and enhancement and areas surrounding them being highlighted as being suitable for habitat creation/restoration to provide protection of the core areas or as links to nearby biodiversity core areas. Level 1 Landscape Description Units are frequently used as the basic unit for studies. The level of detail required at different geographical levels obviously varies, and in practice, regional plans are used to guide the content of county, district or city/town level plans, but cannot determine the detail, which needs to be developed at a local level and is usually steered by the input from stakeholder groups such as wildlife charities or local community groups.

There are many examples of projects whose aim is to create or improve ecological networks, Table 4 summarises a few of such projects and their key features.

Case Study: Ecological Network Mapping Project for Norfolk

The Norfolk Biodiversity Partnership has a core aim of establishing an ecological network in Norfolk.

In order to plan effectively for the establishment of the ecological network, a series of maps have been produced, which include the following elements:

- Clusters of high value wildlife sites (core areas) – Sites of Special Scientific Interest, County Wildlife Sites and priority Biodiversity Action Plan habitats related to Level 2 Landscape Description Units.
- Enhancement or habitat creation areas
- Corridors and stepping stones (to promote connectivity between core areas)
- Buffer areas (to protect core areas)
- Urban and urban fringe areas
- River valleys

Two sets of maps have been produced, one was based on the general principles set out in the Pan-European Ecological Network and used the general approach that was adopted for the East of England Biodiversity Mapping Project and further refined to meet county circumstances, the other set draws upon the experience of on the ground practitioners and are based on a number of Biodiversity Action Plan priority habitats,

with one map produced for each habitat. A single map has also been produced that unifies the two approaches.

Table 4: Examples of Ecological Network Projects

Project name	Lead and other partners	Geographic coverage	Aims of project	Means of project development
East of England Biodiversity Mapping Project	East of England Biodiversity Forum	East of England	Response to the environmental chapter of the Regional Planning Guidance (RPG 14). Production of a regional map to show core biodiversity areas, biodiversity enhancement areas, strategic river corridors and urban deprivation areas.	Identifies core biodiversity areas, biodiversity enhancement areas, Strategic river corridors and urban deprivation areas and relates these to level 1 Landscape Description Units, which are used as the basic unit for the study.
Ecological Network mapping project for Norfolk	Norfolk Biodiversity Partnership	County of Norfolk	Produce maps that identify core biodiversity areas, areas for restoration/creation, buffer areas and connectivity at county level which can then be integrated into Local Development Frameworks.	1. Expert opinion sought to identify core areas for BAP habitats and where habitat creation opportunities and corridors could be located. 2. Applied methodology of Regional Biodiversity Mapping project – this relates the most important sites to Landscape Description Units.
Suffolk Ecological Networks	Suffolk Biodiversity Partnership, Suffolk Wildlife Trust, Suffolk Biological Records Centre	County of Suffolk	To deliver the aims of the Suffolk Biodiversity Action Plan	Production of map using the same methodology as the East of England Biodiversity Mapping Project, but further refining it to reflect local priorities. Use advisors to provide targeted advice to facilitate changes on the ground that are consistent with the map.
Cambridgeshire Green Vision	Cambridgeshire County Council, plus numerous partners	Cambridge sub-region	To ensure enough green infrastructure is provided to support the growth in housing that is planned for the next 20 years.	Production of a series of maps at different scales (e.g. sub-region, city and district)

Green Infrastructure Project	Norwich City Council Broadland District Council South Norfolk District Council Norfolk County Council	In and around Norwich	“Create a multi-functional network of green spaces and green links, providing an environmental life support system for communities and wildlife in the Greater Norwich Area.”	Identification of existing green infrastructure provision. Identification of opportunities for enhancing quality, quantity and accessibility of green infrastructure via existing assessments and plans and also by consultation with stakeholder organisations and community groups.
Breckland District Ecological Network Mapping	Breckland District Council	Breckland District	To apply the findings of the county-level ecological network at the district level.	Production of an ecological network map (based on county map but further refined and expanded)
Harlow Green Infrastructure Plan	Harlow Council	In and around Harlow	“to develop a strategic framework for the implementation of a connected and multi-functional network of green spaces and links in and around Harlow”	Existing assets and opportunities were digitally mapped and were made available via the Harlow Area Geographical Information Library. The green Infrastructure plan for Harlow was designed to complement and support the Green Arc initiative (see implementation section).

The three main purposes of producing the maps were to:

1. Provide local authorities with sufficient information to enable them to integrate the ecological network approach into their Local Development Frameworks.
2. Protect, enhance and expand core habitats.
3. Provide maps at a level of detail that would guide priorities for conservation without being too prescriptive, which could stifle local participation in their further development and refinement.

Advantages:

- The maps provide a good overview that can then be further refined to suit local circumstances.

Disadvantages:

- There is generally insufficient knowledge about individual species requirements and their distribution, so the assumption is made that protecting, enhancing, expanding and linking an existing network of high value wildlife sites will be beneficial to a wide variety of species.
- There is variation in the quality of the distribution of habitats and of suitable locations for their re-creation.
- Some habitats are excluded from the map (cereal field margins, ancient and/or species-rich hedgerows, marine habitats, eutrophic waters, saltmarsh and saline lagoons)
- The production of a single map was not possible because there were too many overlapping components.

Sources of further information:

East of England Biodiversity Strategy:

www.eastspace.net/biodiversity/documents/East_of_England_Biodiversity_Network_Final.pdf

Ecological Network mapping project for Norfolk:

<http://www.norfolkbiodiversity.org/pdf/Ecological%20network%20mapping%20project%202006.pdf>

Norfolk Biodiversity website: www.norfolkbiodiversity.org

Reg Land (Norfolk Wildlife Trust): 01603 625540

Scott Perkin (Norfolk Biodiversity Co-ordinator) scott.perkin@norfolk.gov.uk

Suffolk Ecological Networks

<http://www.users.globalnet.co.uk/~sbrc/Ecological%20Networks%20Methodology.PDF>

Green Infrastructure Project (Greater Norwich):

<http://209.85.215.104/search?q=cache:qrhE5aelyl8J:www.broads-authority.gov.uk/broads/live/authority/meetings/broads-local-access-forum/2007/06-19/%255Bbackground%2520paper%255D%2520Green%2520Infrastructure%2520Strategy%2520-%2520Project%2520Summary.doc+green+infrastructure+project+norwich&hl=en&ct=clnk&cd=4&gl=uk>

Breckland District Ecological Network Mapping

<http://www.norfolkbiodiversity.org/pdf/Breckland%20ecological%20network%20report%202007.pdf>

Cambridgeshire Green Vision:

www.cambridgeshire.gov.uk/NR/rdonlyres/DFC9B030-E462-47B4-8365-12454D0B01AC/0/GreenInfrastructureStrategy.pdf

6.2. Implementation

The establishment of a green infrastructure may be achieved via a wide variety of means, for instance by:

- Accessing funding streams such as Environmental Stewardship, Lottery funding (including Awards for All, Changing Spaces or Your Heritage);
- Encouraging community groups to become involved in managing their local area;
- Working with other organisations that are already working in the area that have or could possibly be encouraged to adopt a wider remit;
- Using section 106 agreements;
- Business sponsorship of sites;
- The establishment of an implementation project

Table 5 provides examples of projects that have been involved in the enhancement of urban areas for the benefit of wildlife and people.

Case Study: Green Arc

In 2004 Land Use Consultants reviewed the policies, issues and opportunities relating to the green belt around Greater London and assessed the feasibility of pursuing the Green Arc initiative. The work was commissioned by several key environmental organisations and authorities.

The Green Arc initiative aims to:

- Conserve the Green Belt
- Enhance its landscape and wildlife
- Increase its use for the public
- Increase the area of greenspace and create green corridors
- Protect and increase biodiversity.

It is a strategic approach which operates across administrative boundaries. This is important when considering the needs of wildlife and people in a large area. It also aims to consolidate and integrate existing initiatives into a more cohesive framework. The initiative focuses on an area around the north and east of London and the southern parts of Hertfordshire and Essex, as recommended by Land Use Consultants in consultation with steering group members. It covers seven outer London Boroughs and 12 districts (four in Essex and eight in Hertfordshire).

Table 5: Examples of Urban Enhancement Projects

Project name	Lead and other partners	Geographical coverage	Aims of project	Means of project implementation
Wildspace!	English Nature, Big Lottery Fund	England	“Help local communities improve, care for and enjoy their local environment.”	£7 million distributed to groups throughout England to support the enhancement and involvement in Local Nature Reserves by the local community. Community Liaison Officers were employed to facilitate action and involvement.
Greenways Project	Ipswich Borough Council, Suffolk County Council, Babergh District Council, Suffolk Coastal District Council	100 square kilometres in and around Ipswich	Protect and enhance the countryside, landscape and open space for the benefit of people and wildlife.	Enhancement of sites for access and wildlife mainly by community groups supported by project officer.
Growth Area Greenspaces	Cambridgeshire County Council, Cambridgeshire Horizons. Funding from Communities and Local Government	Cambridgeshire	Create new areas of greenspace in Cambridgeshire	Provision of “greenspaces grant” to groups to enable them to create new areas of greenspace. In 2004-2006, Coton Countryside Reserve (on western fringes of Cambridge) and Wicken Fen received grants.

Community Forests	Countryside Agency / Forestry Commission	England	“To transform the landscapes closest to where most people live and work, assisting urban and rural regeneration and enhancing the health, well-being and quality of life of local communities”	Launched in 1989. Established 12 community forests around major towns and cities. Primarily funded from government, but also utilised funding from other sources, e.g. lottery. (total for 1994-2003 was £128.4 million). 10,041ha of woodland created up to 2003.
REACT programme	Countryside Agency	7 pilot projects in deprived parts of England	Test application of community forestry principles in most deprived parts of England. Forge links between Area Based Initiatives and community forestry approach to environmental enhancement.	Environmental enhancement – mainly tree planting. Community engagement. Securing funding and building links with local labour market. Worked with partners (e.g. establishment of steering groups, contributed to local strategies and plans).
Green Arc	Partnership of government and non-governmental organisations. Funding from Natural England and GAF 2 (local Government’s Growth Area Fund)	An area of Green belt land in North East London, part of Essex and part of Hertfordshire	Enhance, protect and conserve the green belt for public use. Increase and expand open space and green corridors to growth area populations. Protect and conserve biodiversity.	Funded by NE and GAF 2 from 2004 to March 2008. Employed 2.2 fte’s, had office base at Stansted. Worked with partners to achieve aims of project. Secured £1,250,000 external funding by partner organisations. Prioritises linking projects associated with waterways.

The GreenArc Vision:

“Bringing the GREAT OUTDOORS closer to everyone – by creating, linking and managing extensive and valued landscapes for people and wildlife around London”

Examples of action by Green Arc:

Theydon Bois

GreenArc worked with the Woodland Trust and the Land Restoration Trust to secure a 25-year lease on 11.7ha of woodland adjacent to the site. 1.2km of surfaced track was also provided, a 5ha wildflower meadow was established and the site entrance was improved. GreenArc also helped with arrangements for a programme of community involvement and engaged an artist to provide an attractive landmark on the site.

Enhancing access to linear projects linked to watercourses

Projects under this initiative include:

Sewardstone Marshes – circular access route was added together with signage and furniture. Various land management measures were also carried out to improve the site’s value for wildlife.

Rye Meads and Stansted Innings – worked alongside Natural England to provide a boardwalk, enlarge an existing bird hide and install gates to prevent fly tipping.

Amwell – worked with Hertfordshire and Middlesex Wildlife trust to secure additional external funding to support infrastructure improvements.

Lee Navigation Towpath - worked with British Waterways to fund the restoration of 4km of towpath in order to improve access links between London, Hertfordshire and Essex.

Protecting and conserving biodiversity

GreenArc has helped the following organisations with projects that contribute to BAP targets:

Epping Forest District Council – recording ancient trees, survey of rural areas, workshops with schools

Harlow District Council – grey squirrel control, sustainable timber project, mapping veteran trees

Essex Wildlife Trust – Roding and Essex grasslands study

Providing advice

GreenArc has access to a range of green infrastructure skills and provides advice on creating or improving greenspace, adding to biodiversity, increasing public access and linking sites.

The project generally prioritises its focus on river valleys, especially those adjacent to areas of greenspace “deprivation”, but will consider supporting any greenspace project regardless of its location providing that it matches the GreenArc vision

Sources of further information:

Wildspace! <http://www.english-nature.org.uk/about/grant5.htm>

Greenways Project

<http://www.ipswich.gov.uk/Services/Greenways+Countryside+Project/>

Growth Area Greenspaces

<http://www.cambridgeshire.gov.uk/environment/countryside/natureconservation/delivering/GrowthAreaGreenspaces.htm>

REACT programme

http://www.countryside.gov.uk/Images/REACT%203rd%20Year%20Monitoring%20Report_tcm2-29227.doc

Green Arc: www.greenarc.org/404.html

Implementation Strategy

The Strategy details how the opportunities for improvements can be implemented.

7. A Vision for Green Infrastructure

7.1. Overall Vision

The vision for Dereham is for a network of wild places and green spaces which reconnects local people with their cultural and wildlife heritage and provides an abundance of space for play and recreation. The Vision is summarised on Figure 16.

The network will be built around the core remaining wild habitats, reconnecting them where possible and enhancing the farmed landscape through the development of woodlands, grasslands and river valley wetlands. The urban infrastructure will be enhanced through improved management of the current greenspace and by provision of new open space. The smallest of areas – roadside verges, railway lines and individual trees – will be used to increase penetration of the urban complex by the green infrastructure, and the design of all new developments will be informed by the Implementation Strategy. Access to the network of green spaces on foot, by bike and by public transport will be developed to allow local people to visit and engage with their green heritage. The network will be managed by a partnership which will include local authorities, landowners, conservation organisations and the townspeople of Dereham.

Green infrastructure will be a pillar of any sustainable growth strategy for the town, accommodating the social and economic needs of the community while retaining the greenspace upon which a healthy lifestyle depends.

Additional provision for formal open space, in particular sports pitches, is required and this could be a central role of the Town Council. Delivery of recreational and wild open space would be delivered through partnerships of local authorities, landowners and conservation agencies. The boundary between formal and informal open space will be blurred through amended management regimes such as wild grass areas and additional tree planting.

The south-west of the town, especially Toftwood, is particularly short of greenspace and access to green spaces. The density of development does not allow for much provision within the urban area, hence this Vision will aim to provide sustainable access to existing areas and develop new areas on the periphery of development. All existing greenspace within this sector of the town should be protected from development.

Overall, the vision brings Dereham closer to meeting the NPFA standards for open space, although they are still below the target levels. It is unlikely that these targets can be met within the highly developed urban centre of Dereham. The areas of open space relative to NPFA standards after implementation of the vision would be:

- 21% below the target for youth and adult outdoor sports areas (an increase of 15% compared to the current situation)
- 88% below the target for children's play areas (an increase of 3% compared to the current situation). This could be improved by the

provision of additional ‘green playgrounds’ in some of the proposed new green areas (i.e. using mounds and willow structures instead of conventional play equipment).

- 45% below the target for total outdoor sports areas (an increase of 11% compared to the current situation).

7.2 Priorities within the Vision

The Green Infrastructure Study and review of Dereham’s characteristics identifies several priorities within the Vision:

- Placing the remnant ancient commons at the core of a chain of sites whose principal objectives are the conservation of habitats and biodiversity, and reconnecting local people with their commons heritage;
- Building on this core to create a series of habitat corridors around Dereham through the establishment of additional wildspaces;
- Reconstructing lost habitats within the farmed landscape, emphasising woodland, wood pasture and grassland on the plateau land and wetland in the valleys;
- Conserving veteran trees in the landscape and managing additional mature trees to produce the next generation of veterans;
- Bringing these habitats and features into the urban area wherever possible, either through the creation of new areas or by changing the management of existing ones;
- Providing access for local people to their greenspace and a diminution of the barriers between the urban and rural.

7.3 Achieving the Vision through Corridors

A key driver for achieving the vision will be the linking of existing green infrastructure between the north and the south of the town, and from east to west. Six corridors will form the main axes of the Strategy (see Figure 17).

The primary axes, mostly already present, are:

- The Western Corridor: The river valley from Dillington Carr to Potter and Scarning Fen.
- The Central North-South Corridor: The old railway line from Northolt Green to Yaxham.
- The Central East-West Corridor: of the A47 and its margins.

Secondary axes, which require further development work, are:

- The Northern Corridor: connecting the north of the town from Rush Meadow, through the golf course to Neatherd Moor.
- The Eastern Corridor: connecting Neatherd Moor to Badley Moor.
- The Southern Corridor: through the upper reaches of the River Tud.

7.4 Achieving Dereham's Immediate Growth Needs

Three projects are in process and need to be specifically addressed in this Strategy. The following provides recommendations as to how they should be progressed. Note that all developments should take account of Section 9 of this document, *Design Guidelines for New Developments*.

7.4.1 New cemetery

Locations for new cemeteries are constrained by availability of land, access and environmental regulations. Specialists have determined that there are several favoured sites for the new cemetery. A preferred location would be determined through further detailed investigation. From a green infrastructure perspective, the preferred site would be on the north side of Norwich Road, adjacent to the Sports Ground (see Figure 16).

This fits in very well with the Green Infrastructure Plan, as it is within the Eastern Corridor and assists connecting the Neatherd Moor-Etling Green site with land to the south of the A47.

It is recommended that the cemetery be designed to include wild areas and areas managed as hay meadows, along with standard trees of native species, especially oaks. This will echo the proposed design for wood-pasture and meadow habitats already suggested for land between Neatherd Moor and Etling Green (ELP 2007).

7.4.2 Maltings development

The large brownfield site of the Maltings, adjacent to the old railway line, is slated for development although detailed plans were not available for this report. The site is of great importance to the Strategy because of its location in the heart of Dereham, and also because it abuts the railway line (Central North-South Corridor). The Maltings provides additional connection between the two Central corridors.

It is recommended that as much as possible of the existing greenspace in this land parcel is retained. The retained land should be in locations which (a) add to existing green space such as the railway line, (b) provide links to other greenspace such as the A47 corridor or greenspace in the Mill site, if this is selected for development and (c) do not result in a net loss of biodiversity which would be informed by an ecological survey of the site and potential redevelopment.

7.4.3 New housing

Dereham is required to find significant new housing provision and a range of sites have been proposed.

(a) The parcel between the A47 and the old Mill

This site appears to have considerable momentum among stakeholders. If this site is selected, it is recommended that development does not cross the green lane (GCIa). Instead, it should extend west. The land north of the green lane should become part of the Green Infrastructure, and should either be new allotments (meeting increasing

demand) or a community orchard. Both uses would complement the current allotments to the west.

It is also recommended that the design includes greenspace which links the development to the green land and new allotments/orchard to the north, and to the greenspace within the Maltings development to the west (although much of the intervening land already has housing).

The access route GC1a, which passes along the southern boundary of the parcel and then crosses the A47, should be preserved as an important link to the southern green infrastructure areas.

However, in terms of this Strategy, this site is *not* favoured as it lies in the path of the Eastern Corridor, strategically linking Neatherd Moor with the areas to the south.

(b) Favoured Parcels

It is difficult to find land suitable for building that meets planning conditions and does not disrupt the Green Infrastructure Plan. A number of parcels that are collectively of equivalent size to the above are shown on Figure 17. They have minimal impact on Green Infrastructure and although may not be ideal development sites in some cases, represent a good compromise.

8. Implementing the Vision

8.1. Short Term Implementation of the Vision

The Vision is aspirational and ambitious. All of the green infrastructure shown on Figure 16 cannot be achieved instantly, and there is a significant funding requirement. The Vision has therefore been split into those aspects which can be achieved relatively quickly and at lower cost (the Short Term projects) and those which require significant planning, stakeholder engagement and funding (the Long Term projects).

The time frame for short term projects is five years. This group includes projects of greater urgency and those which relate to schemes already planned or about to commence. The projects and their main actions are:

8.1.1 Adoption of the proposals within this document for planning and development control purposes

This document should be used as part of the evidence base to underpin the Local Development Framework by the County, District and Town Councils.

This process would involve the following steps

- Breckland District Council taking the findings of this Strategy through their Policy Development and Review Panel for comments. This panel is a sub-committee of the Council's Overview and Scrutiny Commission and the panel's comments would be fed into the main Scrutiny Commission as part of the recommendation. *September 2008*
- Breckland District Council would present the recommendations of Overview and Scrutiny Commission to the Council's Cabinet in order that the Council can consider, and ultimately agree the Strategy as part of the evidence base supporting the Local Development Framework. *September/October 2008*
- Cabinet approval. *October 2008*

A number of other studies are currently being undertaken on behalf of the Council so this Strategy is likely to be taken forward through the committee cycle alongside other work (Phil Mileham, July 2008, pers. comm.).

8.1.2 The protection from development of the upper Tud Valley around Toftwood

Land to the south of Toftwood at the head of the River Tud is an important part of the Implementation Strategy, being part of the Southern Corridor and linking with the Western Corridor. The resources to develop this as restoration land are unlikely to be found in the immediate future as the current Strategy is already ambitious. It is therefore proposed to retain this area as agricultural land, free from development, whose environmental values could be enhanced through the Stewardship scheme. A new footpath could be considered if landowners would agree, giving access for people from Toftwood.

In the longer term, the Upper Tud should be incorporated into the Dereham Country Park, as Phase 2, linking the Phase 1 area around Badley Moor through to the Potter and Scarning Fen-Dillington Carr river valley habitats.

8.1.3 Establishment of the Central East-West corridor through enhancement of the A47

The Highways Agency is thought to be open to the suggestion of improving this corridor for wildlife and people and may be able to fund the works, both conditions for rapid implementation. In addition, no land purchase is needed. The steps to achieving this project are:

- Ecological survey and review of the current corridor.
- Production of a management plan which (a) improves the condition of the corridor and (b) improves ecological and access connections with the rest of the Green Infrastructure (see 8.1.7).
- Implementation.

Key areas that require consideration are:

- Safer crossings
- Better links to Yaxham Road/A1075
- A link near Cattlearch Farm, Draytonhall Lane
- Formalising the bridge over the A47 near the windmill

8.1.4 Establishment of the Central North-South Corridor through enhancement of the railway line

The landowners (Mid-Norfolk Railway) are thought to be sympathetic to improving management and usage of the railway line, although resources will be an issue. No land purchase is needed for this action. A constraint will be the continued but infrequent operation of the line for trains. However, considerable opportunities for enhancement exist, with the proposal following a similar pattern to the A47:

- Measures to use the railway to access the wider countryside (e.g. possibility of enhancing links between Yaxham and Dereham)
- Ecological survey and review of the current corridor.
- Production of a management plan which (a) improves the condition of the corridor and (b) improves ecological and access connections with the rest of the Green Infrastructure (see 8.1.7).
- Implementation.

8.1.5 Establishment of the Western Corridor through the linking and enhancement of the river valley from Dillington to Potter and Scarning Fen

Much of this broad corridor consists of wetland habitats or agricultural land, some already statutorily protected and managed by wildlife conservation organisations or quasi-public organisations such as the church. Land included in this project is shown on Figure 16 either as core land or restoration land. The aim is to create a sweep of wildspace which re-constructs the old commons. The primary objective of management would be for nature conservation and for access by local people to wild habitat. It is assumed that this can be achieved by tweaking established management plans, building partnerships and effecting change on private land through mechanisms such as

Stewardship. No land purchase is therefore envisaged. Actions required to implement this are:

- Review the condition of land not already covered by a management plan, undertaking where needed an ecological survey and site condition assessment.
- Produce a Master Plan for the Corridor which draws together all of the sites into an integrated whole, indicates management on the established sites and outlines management requirements for the remaining areas.
- For sites with no management plans, draw up proposals which seek to restore biodiversity as the primary objective of the sites.
- Build a partnership for implementation, considering the Heritage Lottery Fund for supplementary resources.

8.1.6 Implementation of the Neatherd Moor and Etling Green Management Plan

A new Management Plan has been written for these two sites (ELP 2007), setting out the work required to improve and sustain the biodiversity and amenity interest of the site. Note that the plan to restore habitats between the two sites is dealt with in the section on Long Term projects.

- Implement the Neatherd-Etling Management Plan, establishing management responsibilities and five year budgets.

8.1.7 Provide sustainable access to the three corridors that run north to south through Dereham, including across/under the A47 and significant open spaces

A map of the current public rights of way (PROW) routes in Dereham is shown in Figure 18. At present, these routes are few and they are poorly connected to each other and open spaces.

Each of the three corridors should have a single thread of PROW (preferably bridleways and cycle paths accessible to pedestrians) running throughout and these should link to the east-west corridors and also the wider network of town paths and access routes. Each corridor has challenges in establishing a PROW. The Western Corridor may have conflicts with nature conservation interests through disturbance, and includes a significant area of private land. The Central Corridor is narrow and is a working railway line although trains are infrequent. The Eastern Corridor is private land south of the A47, which is unlikely to change within 5 years. Broad proposals for such routes are given in Figure 17.

In addition, Badley Moor comes under the CROW act as public access land, but there is currently no public access directly into the site (a footpath runs along the track to the north of the site, but not to it). It would therefore be beneficial to create a new PROW linking Badley Moor to Dumpling Green. A new PROW would also be beneficial for the people of Toftwood that linked the Toftwood area to the River Tud Valley at its headwaters (as discussed in section 8.1.2)

The steps for establishment of PROW within each Corridor would be:

- Draw up a formal footpath proposal for each Corridor;
- Consult with land owners and managers involved;
- Finalise and cost the plans;
- Establish funding and formal landowner agreements;
- Undertake implementation.

The implementation phase of this project may spill into the first few years of Long Term projects.

Local bus routes should also aim to connect current and future areas of significant open space with residential areas; such as Toftwood to the Community Woodland and northwest Dereham (where there is a lack of bus routes, see Figure 19) to the current bus stops in northeast Dereham.

The steps for establishment of bus routes connecting people with open spaces would be:

- Draw up formal bus route proposals for each urban area connecting it to at least one significant open space and other bus routes;
- Consult with companies and managers involved;
- Finalise and cost the plans;
- Establish funding and formal agreements;
- Consult with Passenger Transport Unit in the Department of Planning and Transportation at Norfolk County Council (funding is available to subsidise rural bus routes);
- Undertake implementation.

The implementation phase of this project may spill into the first few years of the long term projects.

8.1.8 Establishment of the Green Gardens scheme

This project seeks to soften the boundary between wildspace and the urban area by introducing wildlife-friendly methods to gardens which border on wildspace. As a start, Figure 16 shows green garden zones around all of the core sites (approximately 1600 gardens). If the programme works, this could be rolled out firstly to all greenspace, and then to all of Dereham, as a way of bringing green infrastructure into the Town. This would obviously be a voluntary scheme and would need to be supported by a local authority or conservation organisation with a budget which would be used to subsidise the householder's changes in garden management. A model for the scheme could be the Cumbria Wildlife Trust's *Welcome Home Wildlife* project (<http://www.wildlifeincumbria.org.uk/wow/gardens.asp>), part of a wider biodiversity project funded by HLF. An allowance of £500 per garden (up to 30 gardens per year) in materials plus set up costs and officer time should be allowed for. Actions for this project would be:

- Contact all householders in the Green Garden Zone to indicate likely levels of interest and take up;
- Research projects similar to WHW to identify best practice and pitfalls. Produce rules of participation, guidelines for householders and undertake launch publicity;

- Work with home owners over a three-year period to improve their gardens;
- Maintain a high level of publicity throughout the scheme, including annual Gardens Open Days;
- Depending on success, consider rolling out to other homeowners bordering green infrastructure sites and then the whole town.

8.1.9 Design and development of the new town cemetery

Once the new cemetery site has been decided, it needs to be designed with the following principles in mind: a wildlife-friendly location; a site that welcomes informal access; (*repeated below*) areas for woodland burials designed as part of the habitat mosaic; an inspiring and modern design including key cemetery infrastructure. The key actions in this project are:

- Finalise the site location and provide a description of site characteristics.
- Gather a design team which should include a cemetery specialist, a landscape architect, an ecologist, and if there are buildings, an architect.
- Develop a design which meets the above requirements and also has broad public support.
- Implement.

8.1.10 Design and re-development of the old Mill Site and the new housing development north of the A47

The Implementation Strategy has relatively little control over this project as it will be led by a commercial development. However, it is recommended that the design follows the principles described in 7.4.2 and the development guidelines in Section 9, and that planners ensure the development enhances rather than compromises the Green Infrastructure of the town.

This site provides a possible opportunity for recreational and formal “play” greenspace in the heart of the town. Such provision would assist in meeting the targets described in Section 7.1.

8.1.11 Incorporation of ‘Design Guidance For New Developments’ to all developments and townscape enhancements

The *Design Guidance for New Developments* provided in Section 9 provides recommendations about how new developments can accommodate wildlife and green infrastructure without unduly compromising build costs or liveability. Planners should ensure these guidelines are adhered to for all new developments, alterations and extensions, and all townscape remodelling projects - insofar as the planning system allows.

8.1.12 Development of mini-management plans for all minor or formal open spaces within the town which enhance their greenspace and biodiversity value

Table I above has provided an overview of all of the PPG17 open spaces, reviewing ownership, condition and opportunities for improvement. This requires formalisation

with mini-management plans which aim to maximise their value as part of the Green Infrastructure network, without compromising their primary use. These plans in most cases will not exceed 1-2 sides of A4 plus a map (e.g. *Management Plan for Humbletoft Open Space, Breckland District Council 2007*). They may identify areas of less intensive management, tree and shrub planting and similar soft management options. Although there are a large number of these spaces, with a rolling 5-year programme, only 20% need to be undertaken each year. The Actions under the project are:

- Revisit Table 1, add in all green spaces which are outside of PPG17 Typology and prioritise them.
- In conjunction with the body responsible for their management, produce 5-year management plans. Complete 20% of sites per year.

8.1.13 Development of a new football pitch in the Toftwood quadrant of the town

Toftwood is known to be under-represented in terms of formal recreation open space, and in particular requires an additional football pitch. The search area for a new site for grass field sports is shown on Figure 16. This requires conformation and full design. There are two activities under this project:

- Adopt the suggested site as the new sports pitch provision.
- Design the site with green infrastructure in mind. Ensure the pitch(es) have broad margins which can accommodate rough grass and marginal habitat and include native shrub and tree planting.
- Construct the pitch and peripheral areas.

8.1.14 Planning and development of Long Term projects

The long term needs a lot of planning and development. It would be helpful to start this process as soon as possible; hence the Time Plan and Implementation Table include an action which relates to starting at least some of the preparation of these projects within the first five years.

8.1.15 Establishment of a Green Infrastructure Steering Group to implement the action plan

The Action Plan is too much for an individual organisation to implement and requires a partnership approach. Such an approach needs co-ordination to drive the plan forward. A steering group, comprised of implementing partners and local stakeholders should be established who will be the main drivers responsible for implementing the long term Vision for Green Infrastructure in and around Dereham; they would be advisory to other delivery partners. The group should be co-ordinated by Dereham Town Council and would need to be dynamic and evolving, taking in new partners as need determines. The group could be used to publicise the benefits of the Strategy and encourage similar projects in other towns/ areas.

As this is fundamental to delivery of the whole programme the group should be established early in the short term programme.

8.2 Long Term Implementation of the Vision

Although the projects for long term implementation are fewer, they are larger, more challenging, require a longer timeframe for implementation and are more broadly specified at this stage. Note that any of the long term projects could be brought forward to the short term if opportunity or funding allows. They are:

8.2.1 Establishment of the Northern Corridor from Rush Meadow to Etling Green

This corridor links a number of existing sites – Rush Meadow, the golf course, the cemetery, Neatherd Moor and Etling Green – by the restoration of wildspace or sympathetic management of other greenspace. Requirements are relatively modest in principle but require planning and significant resources. Land purchase may only be required for the block between Neatherd and Etling, the remainder can be achieved by changes to the management of established public open space and through partnership working. Actions required are:

- Link the Rush Meadow to the golf course through a series of fields whose management could include parkland, woodland, meadow or a mixture of all three;
- In conjunction with the Golf Club, improve the habitats of the Golf Course through a new management plan which takes account of the habitats and connectedness of the rest of the Northern Corridor. This may only require small changes to current management;
- Link the Golf Course to Neatherd Moor by integrated management of the old cemetery, Northgate High School playing fields and the allotments. The fields between the railway line and Neatherd Moor also need to be brought into the green infrastructure network, although its final use could be greenspace such as recreation or allotment, or wildspace that complements the Neatherd;
- Link Neatherd Moor to Etling Green through adopting the proposals in the Management Plan (ELP 2007). This requires the purchase and restoration of 70 ha of arable land;
- Ensure the Corridor is accessible by providing a footpath that:
 - links the green spaces;
 - connects this Corridor with the footpaths of the three it intersects with;
 - connects the Corridor with routes to the town.

8.2.2 Establishment of the Eastern Corridor from Neatherd Moor to Badley Moor, and the Southern Corridor from Upper Tud to Badley Moor

Much of this is already achieved through the southern limb of the Neatherd and by the playing fields, sports pitch and proposed site for the new cemetery. The great challenge is the land between the A47 and the River Tud, where sits Badley Moor. The upper Tud should be protected from development by Project 8.1.2. The current project deals with how this land can be integrated more formally into the Green Infrastructure network.

These two corridors offer considerable opportunities for recreational space. The Southern Corridor could be zoned for recreation with the strip which abuts Toftwood

providing a prime recreational area, being the most accessible to the town. This could be a combination of formal and informal recreational and play space. The Eastern Corridor has a number of possible recreational spaces from Neatherd southwards, all of which could fit within less formal wildspace. The new area of woodland could meet dual objectives of informal recreation and wildspace. It is suggested that development of plans for both of these corridors be subject to wide consultation among land owners and the townspeople of Dereham.

Actions required include:

- Resolve the land use of the parcels on the north side of the Norwich Road, ensuring as little as possible is developed and most is retained for the Green Infrastructure (this will need to be done within the first 5 years).
- Resolve the status of the land between the Mill and the A47. Retain as much Green Infrastructure as possible. This will need to be done within the first five years.
- Establish a Community Woodland between the A47 and the margins of the River Tud floodplain. This should be a mixture of open woodland, meadows and ride grassland, denser woodland and coppice, and orchards. This will require the purchase and management of 64 ha.
- Restore the floodplain of the River Tud (restoration land around Badley Moor) with habitats which complement the mires and fens of Badley Moor (and also the new woodland to the north). This will require the purchase and management of 162 ha.
- As a delivery mechanism, consider the establishment of a Dereham Country Park. Phase 1 would include the Tud Valley restoration and the Community Woodland. This would require a minimum of three new staff plus capital equipment and a base, although we do not recommend a visitor centre in the first instance.
- The Upper Tud could become Phase 2 of the development of the Country Park. The land parcels through which the narrow floodplain passes (restoration land) could be restored to wildspace, developing habitats sympathetic to those of the lower Tud. The preserved land in the northern margin of the corridor, which butts up to Toftwood, could be developed as amenity greenspace and would include provision for sports pitches, formal recreation and play areas. This will require the purchase and management of 140 ha. This would also require an additional staff member plus £30K of equipment.
- Phase 3 of the Country Park could link-in Neatherd and Etling Green, tying together the management of all of these areas. This could provide significant synergies and efficiencies in terms of resources. It would also require an additional staff member plus £30K of equipment. It is not proposed to include the Western Corridor as this is likely to be substantially managed by established mechanisms.
- All of the above proposals should be developed in conjunction with local people through a consultation and community engagement process.

8.2.3 Incorporation of ‘Design Guidance For New Developments’ to all developments and townscape enhancements

This is retained in the Long Term projects as it is an ongoing requirement to maintain and improve the Green Infrastructure of the Town. It is essentially the same as 8.1.11, although the guidance may need periodic revision as information and experience improves.

8.2.4 Develop a plan for extending green infrastructure into the urban space, and subsequently implement this

Greenspace should not only be a place you travel to. Everyone should have access to at least aspects of the green infrastructure on their doorstep. Hard boundaries between the town and the country, the urban and the wild, should not exist. The purpose of this project is to blur the boundaries and ensure that everyone has access to green infrastructure wherever they live. The Green Gardens scheme is one aspect of this and could be rolled out beyond the gardens abutting core wild habitats. Additional activities under this budget include:

- Work with the Town Council, District and County Highways to amend the management of undeveloped small open spaces, verges, informal grass and other informal street corners to introduce more habitat such as long grass, native shrubs and trees.
- Review the urban streets of Dereham to identify where new native trees can be planted. Small spaces may be appropriate for hawthorn, birch and similar small trees, larger spaces for standard oak, ash and wild cherry, for example.
- Offer advisory visits and subsidised materials for householders to improve their properties for bats or amphibians

8.2.5 Implement a comprehensive sustainable access plan which links all of the significant green spaces and allows access to all unconnected spaces

With the main access routes in place as described above, the long term aim would be to ensure connectedness for all residential areas to their nearest green space, and thence to the wider Green Infrastructure network. It should be the aim of the Plan to ensure this access can be had without the use of a car. The access routes should take in the full range of biodiversity, landscape and cultural heritage of the greenspaces.

8.3 Costs and Timetable

The following sets out broad costs and a timetable for implementation. Where a cost has been entered it is assumed this is let as a contract, although many of the tasks could be undertaken by current or new staff at a significant saving. Where “officer time” is indicated it is assumed this would be undertaken by staff currently in post as part of their broader duties at no additional cost. If this is not feasible with current workloads new staff may be required which would need to be costed according to grade and their required support. Costs are at 2008 rates. The costs are sensitive to precise details of the brief and scope, to the timing and to the method of delivery. Note that the costs of implementation of some projects are dependent on initial planning work and cannot therefore be determined at this stage. Land costs are approximate agricultural value at the time of writing.

Project	Timetable									Cost
	Short Term (year)					Long Term (year)				
	1	2	3	4	5	6-10	11-15	16-20	20-25	
SHORT TERM PROJECTS										
8.1.1 Adoption of this strategy										Officer time
8.1.2 Protection of Upper Tud valley										Officer time
8.1.3 Establish Central East-West Corridor										
Survey and review										£15K
Develop management plan										£15K
Implement works						?				Dependent on above
8.1.3 Establish Central North-South Corridor										
Survey and review										£15K
Develop management plan										£15K
Implement works						?				Dependent on above
8.1.5 Establish Western Corridor										
Review land not under management plan										£10K

Produce master plan										£25K
Draw up proposals to deliver Plan										£5K
Build partnership for delivery										Officer time
8.1.6 Implement Neatherd/Etling Management Plan										£10K/yr plus £15K capital
8.1.7 Sustainable access to the three N-S Corridors and open spaces										
Devise formal proposals (bus and PROW)										3 x £10K = £30K
Consultation and amendment										Officer time + £5K
Finalise and cost										£5K
Establish funding and agreements										Officer time
Implementation										Dependent upon the above
8.1.8 Green gardens scheme										
Identify level of demand										Officer time
Develop scheme										Officer time
Implement with homeowners										Officer time + £15K/yr.
Maintain publicity and profile										Officer time
Consider rolling out to town.										Officer time
8.1.9 Design and development of new town cemetery										
Finalise location										Officer time
Gather design team										Officer time
Develop design										£90K
Implement										Dependent upon the above
8.1.10 Develop Old Mill site										As above + Developer
8.1.11 Incorporate 'Design Guidance for New Developments'										Officer time

8.1.12 Mini-management Plans for open spaces										
Review/prioritise all green spaces										Officer time or £3K
Produce Management Plans	20%	20%	20%	20%	20%					£20K
8.1.13 Toftwood football pitch										
Adopt site										Officer time
Design site										£10K
Construct site and peripheral area										Dependent upon the above
8.1.14 Planning long term projects										Officer time
8.1.15 Establish Steering Group										Officer time
LONG TERM PROJECTS										
8.2.1 Establish Northern Corridor										
Link Rush Meadow to Golf Course										Officer + partner time.
Improve habitats of the Golf Course										£10K survey and man plan, plus Officer + partner time.
Link Golf Course to Neatherd										Officer + partner time.
Link the Neatherd through to Etling Green										Land purchase, 70ha (@£11K/ha) = £770K Restoration costs, 70ha (@£500/ha) = £35K
Provide access through the corridor										Access Plan £10K Implementation c. £30K
8.2.2 Establish Eastern and Southern Corridors										
Resolve land on Norwich Road										Officer time
Resolve land between Mill and A47										Officer time

Establish Community Woodland, including community consultation.										Land purchase, 64ha @£11K/ha = £704K Restoration costs, 64ha @£500/ha = £32K
Restore Tud floodplain, including community consultation.										Land purchase, 162ha @£11K/ha = £1.78M Restoration costs, 162ha @£500/ha = £81K
Develop Country Park, Phase , including community consultation.										£110K/yr staff costs, £25K/yr base, £80K machinery and equipment, £80K establishment costs.
Develop Country Park, Phase 2, including community consultation.										£33K/yr additional staff costs, £30K machinery and equipment, £30K establishment costs. Land purchase, 140ha (@£11K/ha) = £1.54M
Develop Country Park, Phase 3, including community consultation.										£33K/yr additional staff costs, £30K machinery and equipment, £30K establishment costs.
8.2.3 Incorporate 'Design Guidance for New Developments'										Officer time
8.2.4 Extend Green Infrastructure to urban area										
Amend management of small parcels.										Officer time
Develop tree planting plan										Officer time or £10K

Improve properties for species										Officer time plus £500/property = £10K/year
8.2.5 Comprehensive sustainable access plan.										£30K

8.4. Income

Clearly this programme would require significant capital and revenue funding. There is a wide variety of small-medium sized grants available for nature conservation, access and community-based work, all of which might be investigated for various parts of the project. Some major funding sources which could be approached would include:

- Major local authority capital funds. The process of local authority re-organisation, including possible unitary authority status, may provide opportunities for major capital funding during the exit phase. Some of the projects, including development of community woodlands and country parks, are projects of significant size and legacy status.
- Lottery Funding. Many of the projects described above would be suitable for Big Lottery or Heritage Lottery Funds. They combine community, access and heritage, addressing many of the core objectives of these funders. Note that the Heritage Lottery Fund will accept projects that *restore* heritage, but not projects that *create* heritage, unless this is part of a wider community engagement programme or a small component within a wider heritage scheme. Small and very large capital and revenue projects may be eligible for both Funds.
- Council Tax. It may be possible to consider a small additional charge on the Council Tax specifically for green infrastructure improvements. For instance, Councillor Tony Needham calculated that if the Town Council borrowed £0.5 million over 10 years it would add £7/year to the bill of a Band D house. For an improved living environment, this represents very good value for money indeed.

An additional supplement to the Council Tax would of course fund the revenue elements of the project although this would require significant political and public support.

9. Design Guidance For New Developments

The purpose of this section is to provide general guidance on planning for and using greenspace in order to maximise its ecological interest while providing recreational opportunities and linking sustainable transport routes.

9.1. At the Pre-Development Stage

Ecological surveys should be carried out well in advance of a development so that:

- surveys can be conducted at the most appropriate time of year;
- protection measures can be put into place at an early stage;
- plans can be modified in order to accommodate the needs of rare or threatened species and habitats; and
- the most appropriate habitats are re-created in the most appropriate locations. This can be linking or buffering nearby areas of high nature conservation value, re-creating habitats that were formerly present in an area or areas that are designed to benefit particular species. As well as using information collected as part of a survey, this process should also be informed by recent biological records, drift geology and the historical distribution of habitats (Figures 13, 14, 2 and 4). Links created between open spaces with wildlife conservation interest will generally be of greatest benefit if they are of the same habitat types as the ones they are linking.

The circumstances in which an Environmental Impact Assessment is required are set out in the Town and Country Planning (Environmental Impact Assessment, EIA) regulations (1999), and clarified in recent case law in respect of the requirement to undertake EIA for detailed applications (Reserved Matters).

Guidance on where supporting information is required, such as Protected Species Surveys, Ecological Assessments or plans/drawings showing wildlife features, is given in the guidance notes that accompany the application form required for planning permission (IAPP). Additional guidance is also given in *Biodiversity: Supplementary Planning Guidance for Norfolk*.

The pre-development stage is an opportune time for ensuring that all footpaths and cycle paths link to existing or planned paths nearby. The design of all footpaths and cycle paths should incorporate wildlife-friendly features that are managed appropriately so that they facilitate the movement of wildlife as well as people. See Figure 17 for the recommended locations of habitat corridors / access routes.

9.2. During and Post Development:

Biodiversity: Supplementary Planning Guidance for Norfolk provides general guidance on the protection and enhancement of species or habitats of high conservation value during

development, enhancing sites with limited biodiversity interest and mitigating harm. It also stresses the importance of monitoring wildlife during and post development, making provision for the appropriate management of retained features and new or enhanced habitats. It also gives examples of what can be created on a development site and has several case studies of different types of development with features that can be incorporated in order to encourage wildlife.

The funding of the long-term management of open areas should be determined at an early stage. The details of management required should be tailored to the individual characteristics and potential of each individual site.

Residents of new developments should be encouraged to manage their gardens in an environmentally-friendly manner. See section 8.1.8 for recommendations of how to develop a green gardening scheme.

9.3. Summary “Green” Guidelines for Developers in Dereham

In addition to the requirements set out in the guidance notes that accompany IAPP, it is recommended that the following guidance is adopted for developers in and around Dereham:

For developments next to core sites, restoration land or greenspace shown in Figure 16 or habitat corridors shown in Figure 17:

- Open spaces should be incorporated into the development that link or abut existing open spaces and are subsequently managed to optimise their wildlife value.
- A tailor-made management plan should be adopted for every development.
- Areas that link existing open spaces should ideally be multi-functional, providing access for pedestrians and/or cyclists as well as being managed for the benefit of wildlife.
- Residents should be encouraged to manage their gardens in an environmentally-friendly manner.

10. Acknowledgements

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II. References

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Maps:

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Appendix I

Dereham Green Infrastructure Workshops 19th August 2008, Dereham Assembly Rooms

Workshop for Partner Organisations:

Attendees: (by invitation of Dereham Town Council)

Name	Company	Job Title
Ann Bowyer	Dereham Town Council	Councillor
Chris Strachan	Environment Agency	Conservation Officer
David Spencer	Breckland District Council	Planning Policy Officer
Fiona Sarson	Norwich Dioceses	Glebe Surveyor
Jason Glasspoole	Norfolk County Council	Highways Engineer
John Hiskett	Norfolk Wildlife Trust	Senior Conservation Officer
Kay Hinchliffe	Ecology, Land and People	Ecologist
Kirsty Webber-Walton	Norfolk County Council	Heath Walks Project Officer
Lynda Turner	Dereham Town Council	Chairman
Mike Harding	Ecology, Land and People	Company Manager
Pat Balaam	Toftwood Town Council	Councillor
Phil Mileham	Breckland District Council	Senior Planning Policy Officer
Philip Duigan	Breckland District Council	Heritage and Open Spaces
Richard Fisher	Breckland District Council	Assistant Tree and Countryside Officer
Scott Perkin	Norfolk Biodiversity Partnership	Co-ordinator
Shirley Matthews	Swaffham Town Council	Councillor
Simon Dade	Breckland District Council	Environmental Services Officer
Sue Bloomfield	Breckland District Council	Planning Obligations Officer
Timothy Bird	Dereham Town Council	Councillor
Tony Needham	Dereham Town Council	Town Clerk

Agenda:

- Welcome and Introduction, Lynda Turner
- Growth Plans for Dereham, a presentation by David Spencer

- A Green Vision for Dereham, a presentation by Mike Harding
- Open Questions and discussion (see table below)

Question / Comment	From	Response
Can funding come from Breckland's infrastructure budget for Dereham?	John Hiskett, Norfolk Wildlife Trust	David Spencer: yes it can, although there are no precise figures regarding the available funds as yet. The LDF will have an option for 'tariff' type approaches to be explored; this could be at District or Town level. The strategy has given a guide to the costings for the Vision.
Will you therefore have to prioritise the aims of the Strategy?	John Hiskett, Norfolk Wildlife Trust	David Spencer: yes, we will assess what is realistic and deliverable in the long and short term.
Are these 'tariffs' in addition to Section 106 agreements?	Ann Bowyer, Dereham Town Council	David Spencer: the legislation around the Section 106 agreements has yet to be finalised and will be likely to include these 'tariffs'
Will there be any BAP habitats that are currently undesignated and could be protected?	Scott Perkin, Norfolk Biodiversity Partnership	Mike Harding: yes, possibly several brownfield sites, however these are key development sites. It is possible that County Wildlife Sites can link BAP habitats together, but this will depend on their criteria. Neatherd Moor and Etling Green have some good areas for consideration. Further surveys and details of the BAP habitat criteria would be required, perhaps in partnership with Norfolk Wildlife Trust.

Workshop for General Public:

Attendees: an open workshop advertised in the local press and by posters. Approximately 30 attendees.

Agenda:

- Welcome and Introduction, Lynda Turner
- Growth Plans for Dereham, a presentation by David Spencer
- A Green Vision for Dereham, a presentation by Mike Harding
- Open Questions and discussion (see table below)

Question / Comment	From	Response
I have concerns regarding flooding in the Scarning Estate as a result of the increased likelihood of heavy rain incidents. Therefore are there any plans to plant trees in the fen to 'hold water'?	Scarning Estate Resident	Mike Harding: Planting trees in a fen is not advisable as the fen has biodiversity value in its own right. It is likely that the real problem is the drainage system being unable to cope with flash flood events. Unfortunately this, and global warming, is outside the remit of this project.
In view of the Vision's proposals, will Breckland Council review its decisions to sell off small parcels of open space?		Tony Needham: Any land sale is currently on hold. David Spencer: Dereham doesn't have sufficient open space currently, therefore there is a need to remedy this, which may result in land sale to fund the purchase of larger areas.
Will the Strategy go as far as compulsory purchase?	Local Farmer whose land is in the Vision as 'Country Park'	Mike Harding: No, there would be no significant legislation to support compulsory purchase. Land could simply be improved, or leased and access given to the public, but a discussion forum would be required for this.
Will there be public access to the Golf Course?		Mike Harding: Yes, it is possible to achieve this in designated areas of the golf course in agreement with the landowners.
I am concerned that Green Infrastructure may be a justification for more housing		David Spencer: The rate of development until 2026 will actually be decreasing compared to the current rate, and some of this development will be on brownfield sites. The net change in housing will only be 200.
Will all areas on the development map be used?		David Spencer: The 'Breckland Document' regarding possible development sites is now publicly available. Not all areas will be selected. There will be a public consultation on this in September.
Will there be progress updates?		Lynda Turner: Consultation will continue until the end of September.
Are there any plans for the Queen Mother's Garden? It is currently poorly managed		Tony Needham: The Town Council will be putting a management plan in place for the site.

<p>Is there a list of Green Infrastructure priorities for built up areas?</p>		<p>Mike Harding: The Strategy is 'broad brush' at this stage. A detailed street by street study would be required for this level of information (e.g. trees, protected species).</p>
<p>At what point will the detailed study happen?</p>		<p>Mike Harding: This is one of the actions in the Strategy, which an officer would be assigned to plan for each area.</p>
<p>Will you be improving rights of way access to current open spaces?</p>		<p>Mike Harding: Yes, this is in the action plan and includes footpaths, cycle ways and bus routes.</p>
<p>Was the tree planting scheme in Abott's Field a 'one off'? Could a similar community project be implemented in other areas?</p>		<p>Mike Harding: Other projects can certainly be implemented. For example, the proposed community woodland should have consultation with, and be designed in conjunction with, local people to give a sense of empowerment and ownership.</p> <p>Philip Duigan: Abott's Field is an example of how this worked, ownership and communication is vital.</p>
<p>Will there be any additional play areas?</p>		<p>Mike Harding: Yes we have identified several green spaces which could support new play areas as well as locating possible sites for sports pitches.</p>
<p>It would be good to have an input from local schools and colleges.</p>		<p>Lynda Turner: A survey has just been completed with all schools and colleges in Dereham to look at spaces for all age groups. We will involve them as much as they want to be involved</p>
<p>It is essential to consider costs of maintenance as well as creation. Open spaces should not be created if their management is not sustainable.</p>		<p>Mike Harding: The current plans are ambitious and it is unlikely that they will all be implemented. If only some are achieved there will be a benefit. Circumstance will dictate which plans are implemented in the future</p>
<p>Could Higher Level Schemes fund some of the Strategy?</p>		<p>Mike Harding: Yes, for those farmers who do not currently belong to an alternative scheme</p>

<p>I own a wildlife site on Quebec Road adjoining the cemetery. Therefore, I am interested in any future wildlife plans for the cemetery. I am also concerned about potential boundary disputes as this has been an issue for me in the past.</p>	<p>Mr Lambert</p>	<p>Mike Harding: Land grab is certainly a problem to be aware of.</p> <p>Lynda Turner: We will be sure to keep you involved and updated on the work. It would be interesting for councillors to visit your site. Perhaps you would be interested in being involved in judging the 'Green Gardens'?</p>
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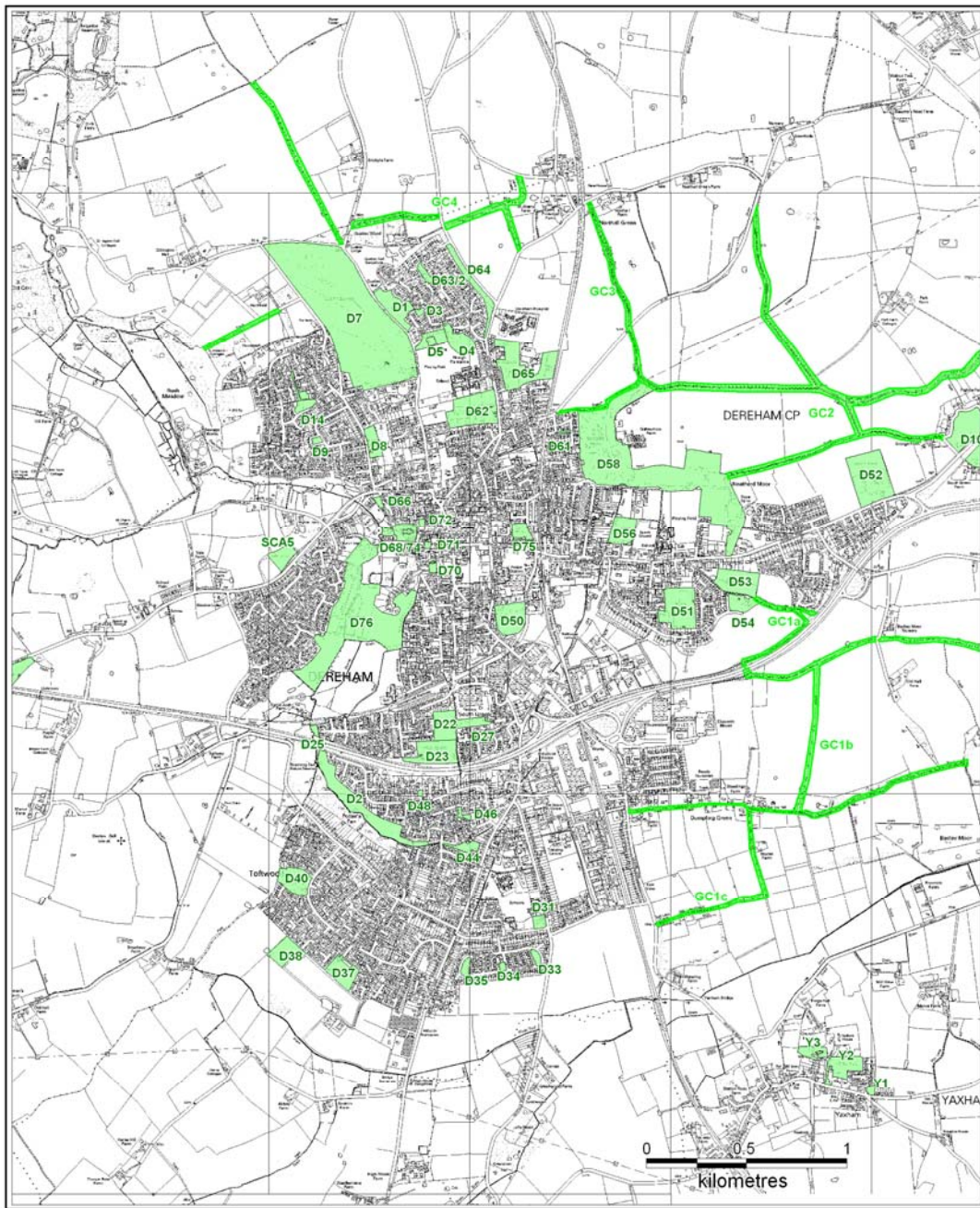
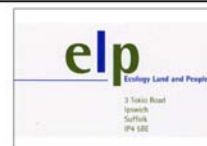


Figure 1: Open Spaces 2006, Dereham and Surrounding Area

Key:

D1 Open space (using PPG17 typologies)

GC1 Green corridor



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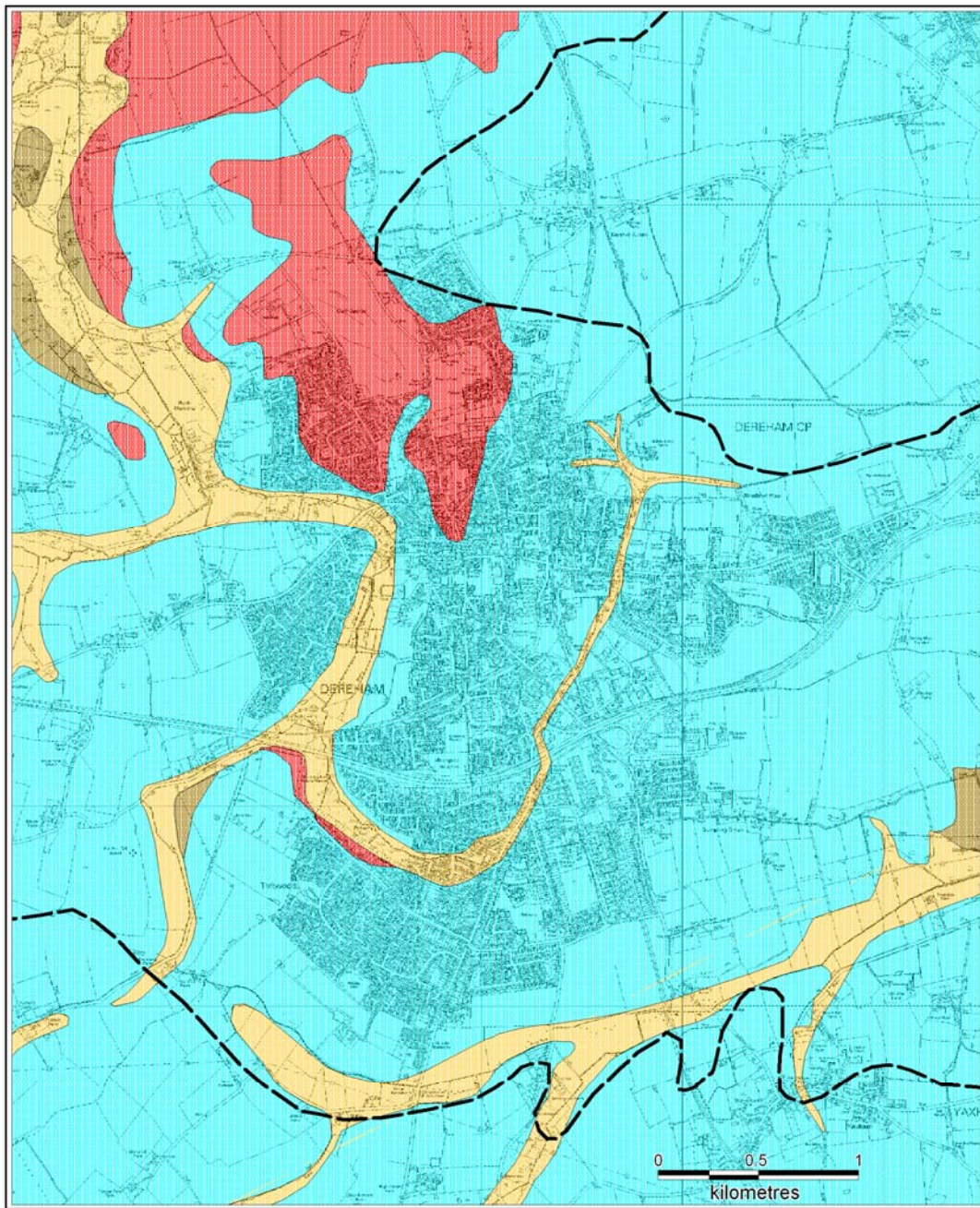





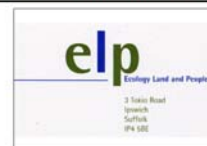


Figure 2: Drift Geology, Dereham and Surrounding Area

Key:

- | | | | |
|---|---|---|--|
|  | Alluvium: silt and clay with subordinate peat |  | Sand and gravel: may include post-glacial deposits |
|  | River terrace deposits: post-glacial fluvial sands and gravels; may include some glacial sand and gravel and also solifluction deposits |  | Till: chalky, pebble clay |
| | |  | Approximate boundary of elevated plateau areas |

Source: British Geological Survey 1:50 000 Sheet Series



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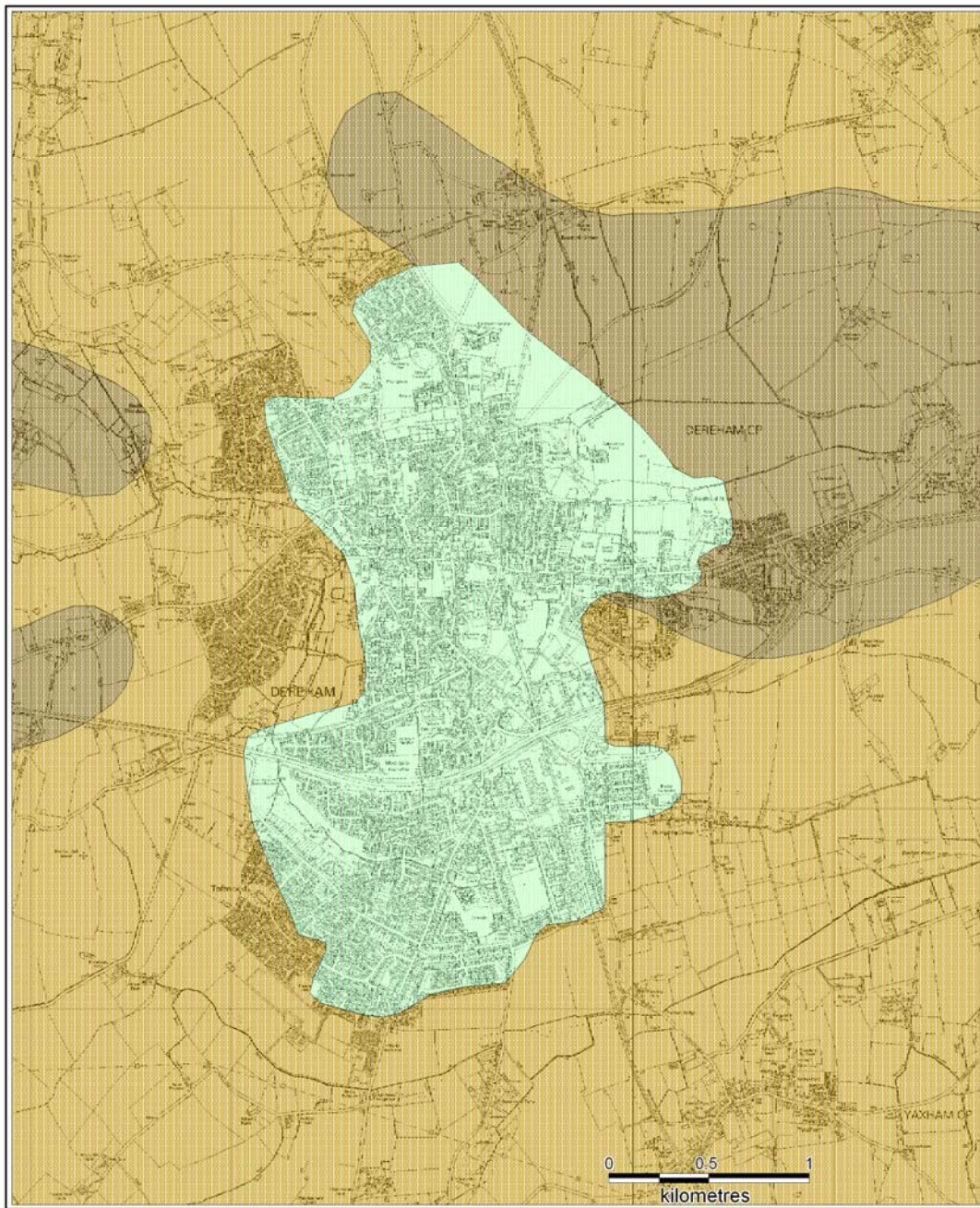


Figure 3: Agricultural Land Quality Grades (April 2008), Dereham and Surrounding Area

Key:

- Land grade 7 (urban)
- Agricultural land grade 3 (good/moderate)
- Agricultural land grade 2 (very good)



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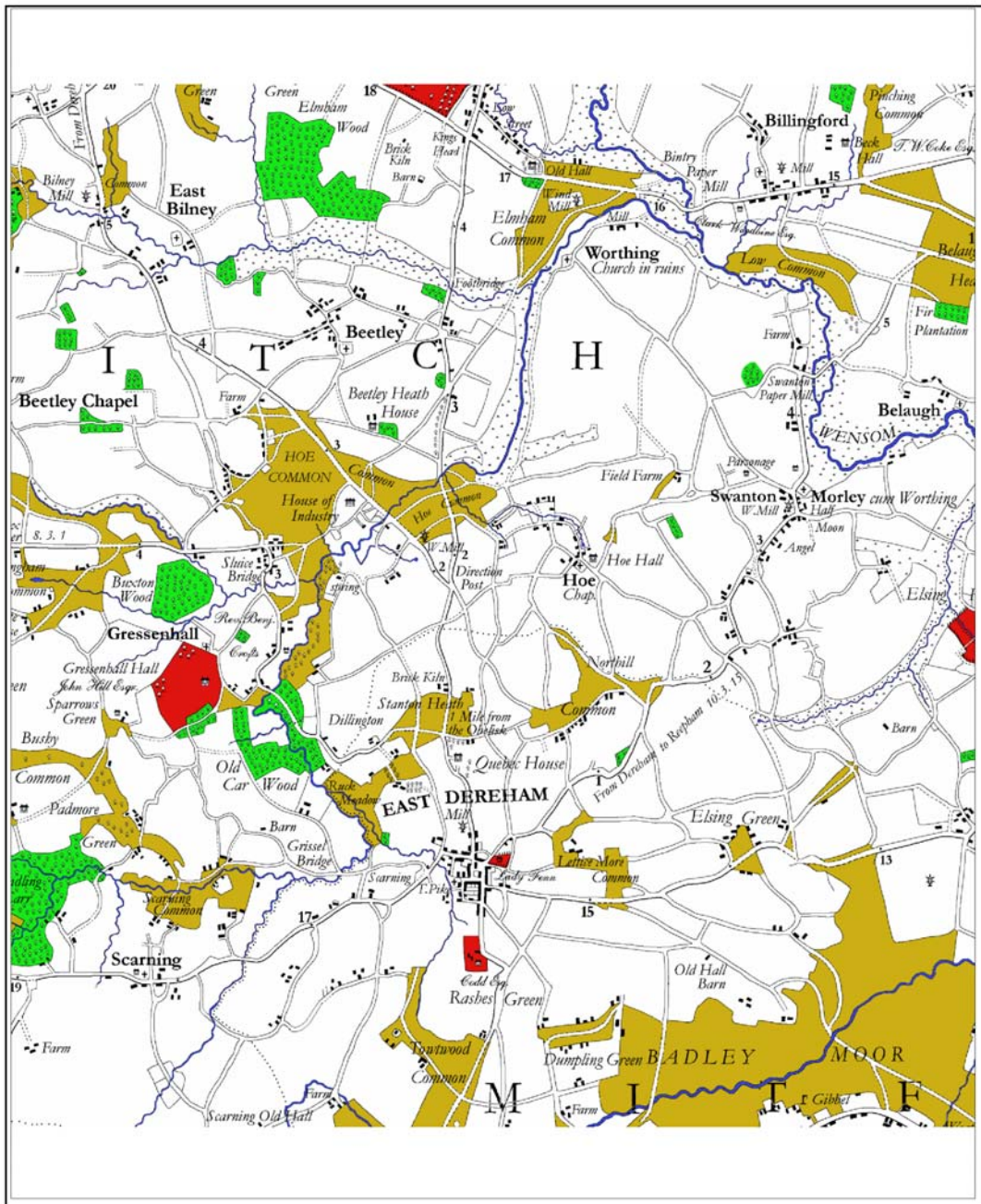




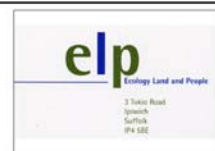


Figure 4: Faden's Map 1797, Dereham and Surrounding Area

Key:

	Commons and Heaths		Woods
	Parks (of the nobility and gentry)		Rivers

From: Breckland District Council, 2008



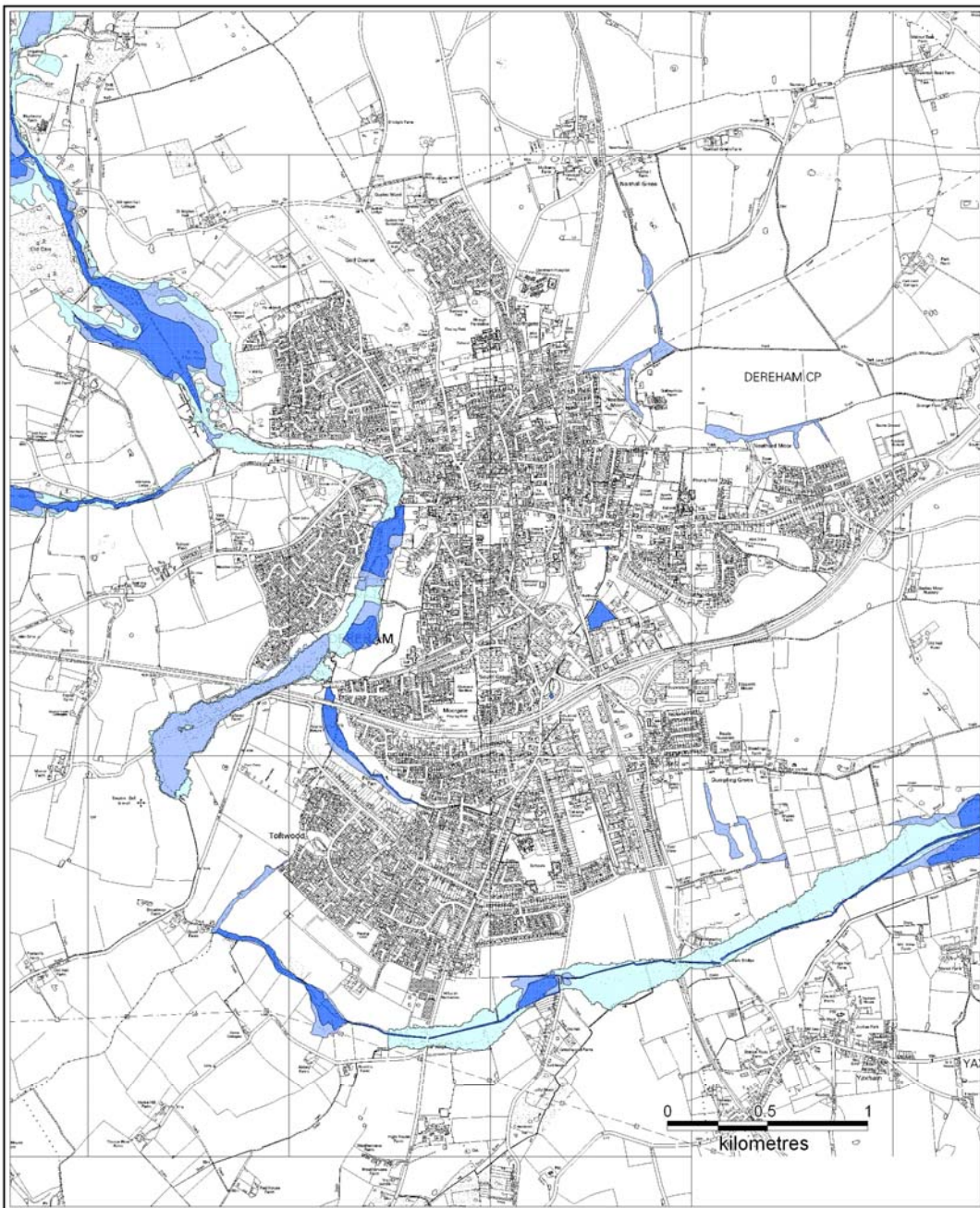
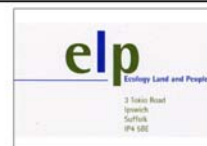


Figure 5: Flood Zones (2007), Dereham and Surrounding Area

Key:

- I in 20 year flood zone (Environment Agency Zone 3)
- I in 100 year flood zone (Environment Agency Zone 2)
- I in 1000 year flood zone (Environment Agency Zone 1)



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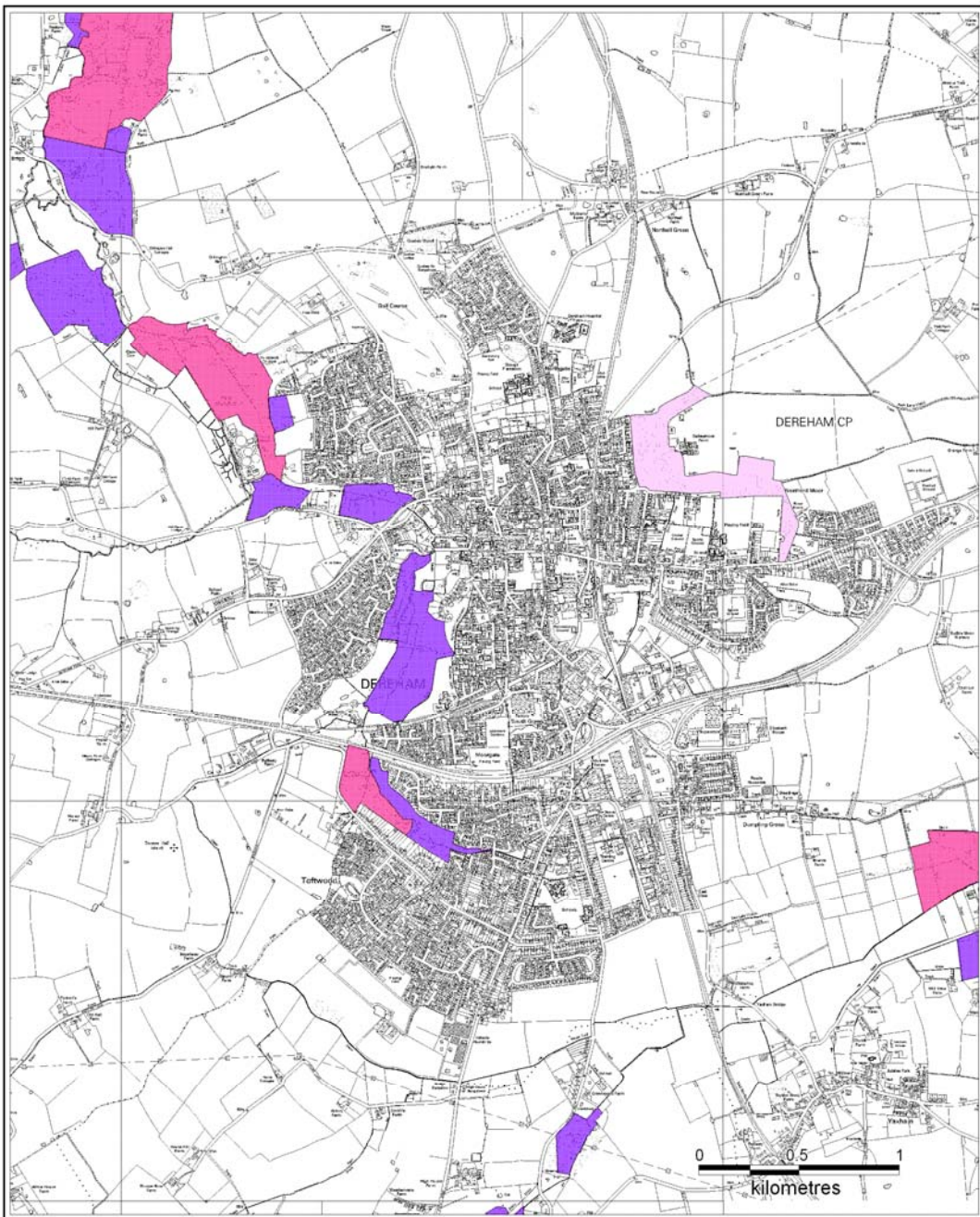


Figure 6: Designated Wildlife Areas (April 2008), Dereham and Surrounding Area

Key:







- Special Area of Conservation (SAC)
- Other (Neatherd Moor)
- County Wildlife Site



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Figure 7: Significant Trees (April 2008), Dereham and Surrounding Area

Key:				
	Unconfirmed individuals A legal Tree Preservation Order for an individual tree which is being consulted on and awaiting confirmation (this period lasts 6 months)		Confirmed individuals A Tree Preservation Order for an outstanding individual tree with high amenity value	 Veteran trees
	Unconfirmed groups A legal Tree Preservation Order for a group of trees which is being consulted on and awaiting confirmation (this period lasts 6 months)		Confirmed groups A Tree Preservation Order for a distinct group of trees with important amenity value	
	Unconfirmed areas A legal Tree Preservation Order for an area which is being consulted on and awaiting confirmation (this period lasts 6 months)		Confirmed areas A Tree Preservation Order for an area where there are trees under immediate threat, usually used as an emergency measure and subject to review to determine individual or groups of trees	



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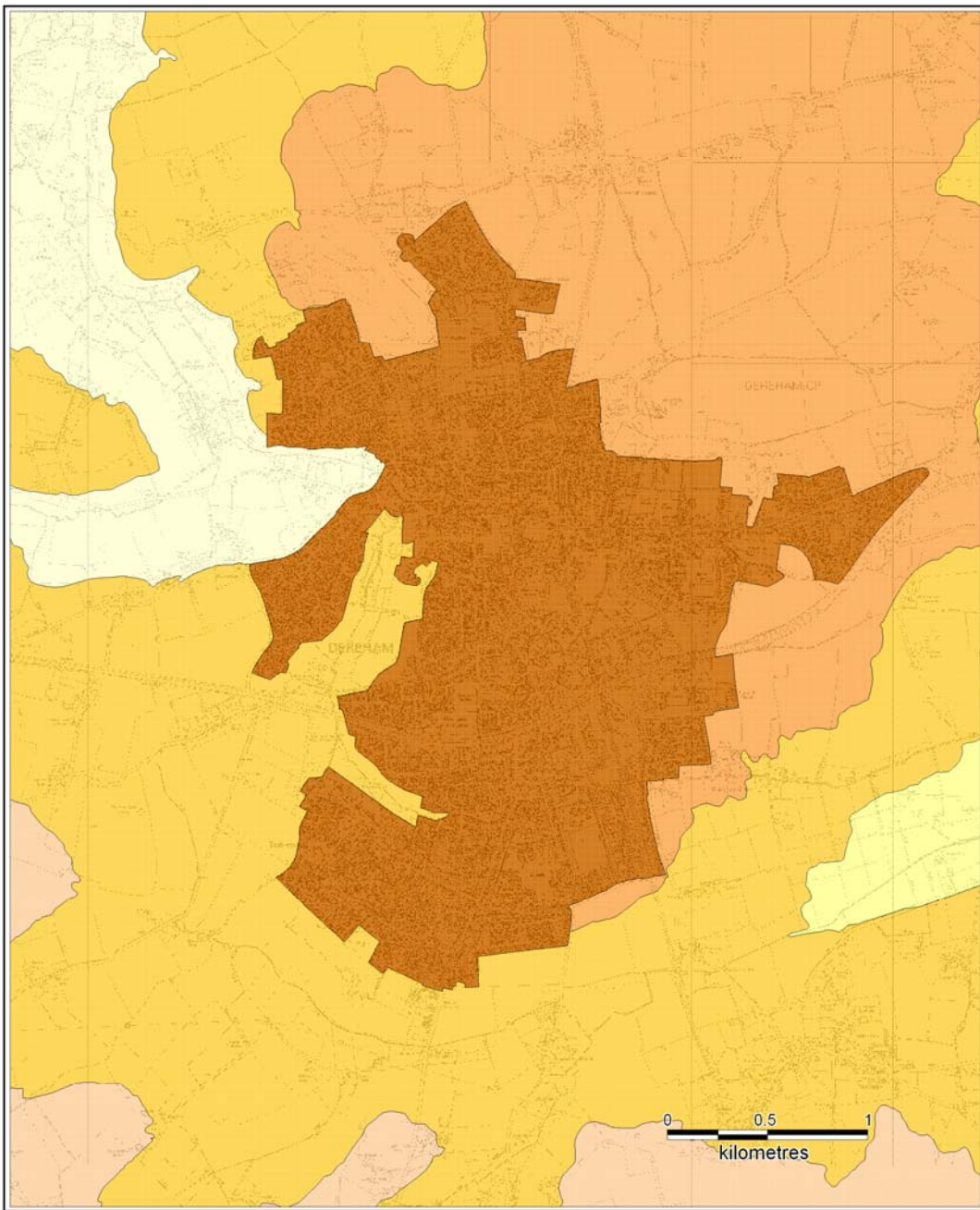








Figure 8: Landscape Character Areas (2006) Dereham and Surrounding Area

Key:

	River Wensum		Shipdham plateau
	River Tud		Dereham plateau
	River Wensum and Tud tributary farmland		Dereham

Source: Breckland Landscape Character Assessment by Land Use Consultants, 2006



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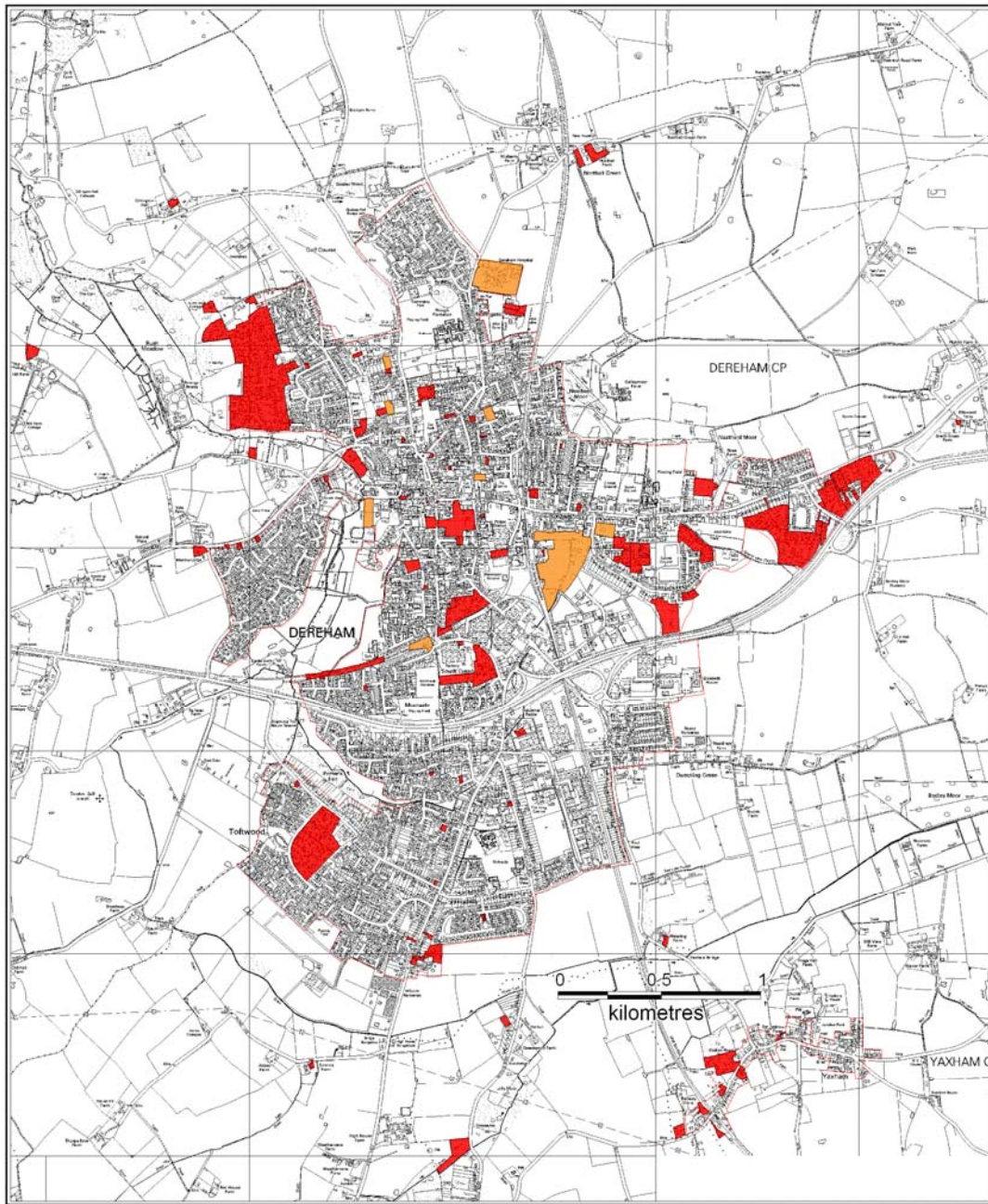


Figure 9: Development Sites (April 2008), Dereham and Surrounding Area

Key:

- Settlement boundary (defined in adopted Breckland local plan 1999)
- Sites with planning permission for housing
- Sites with capacity for >5 dwellings that would be considered for planning permission



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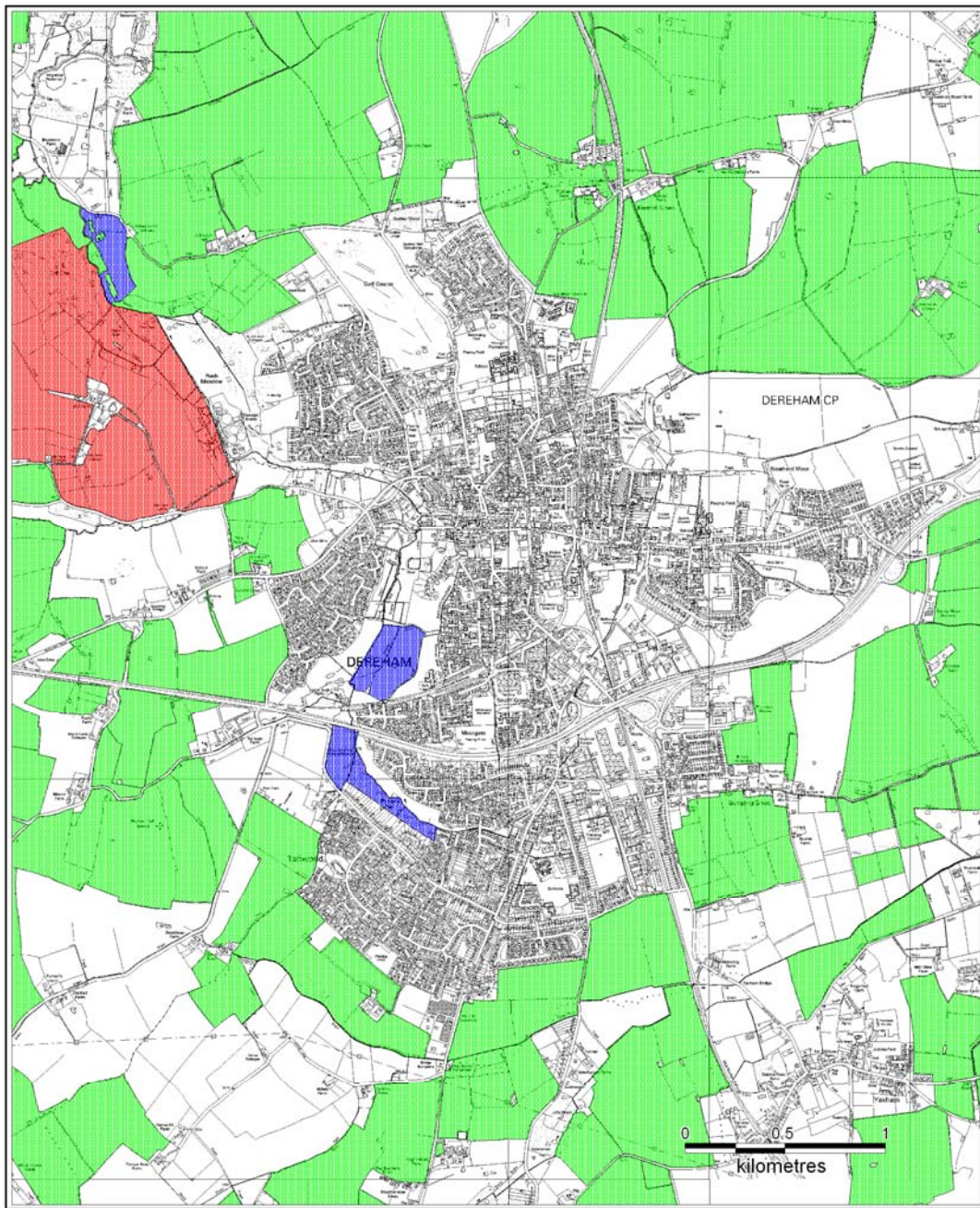


Figure 10: Environmental Stewardship Schemes, Dereham and Surrounding Area

Key:

- Entry level plus higher level stewardship

Entry level stewardship
- Higher level stewardship

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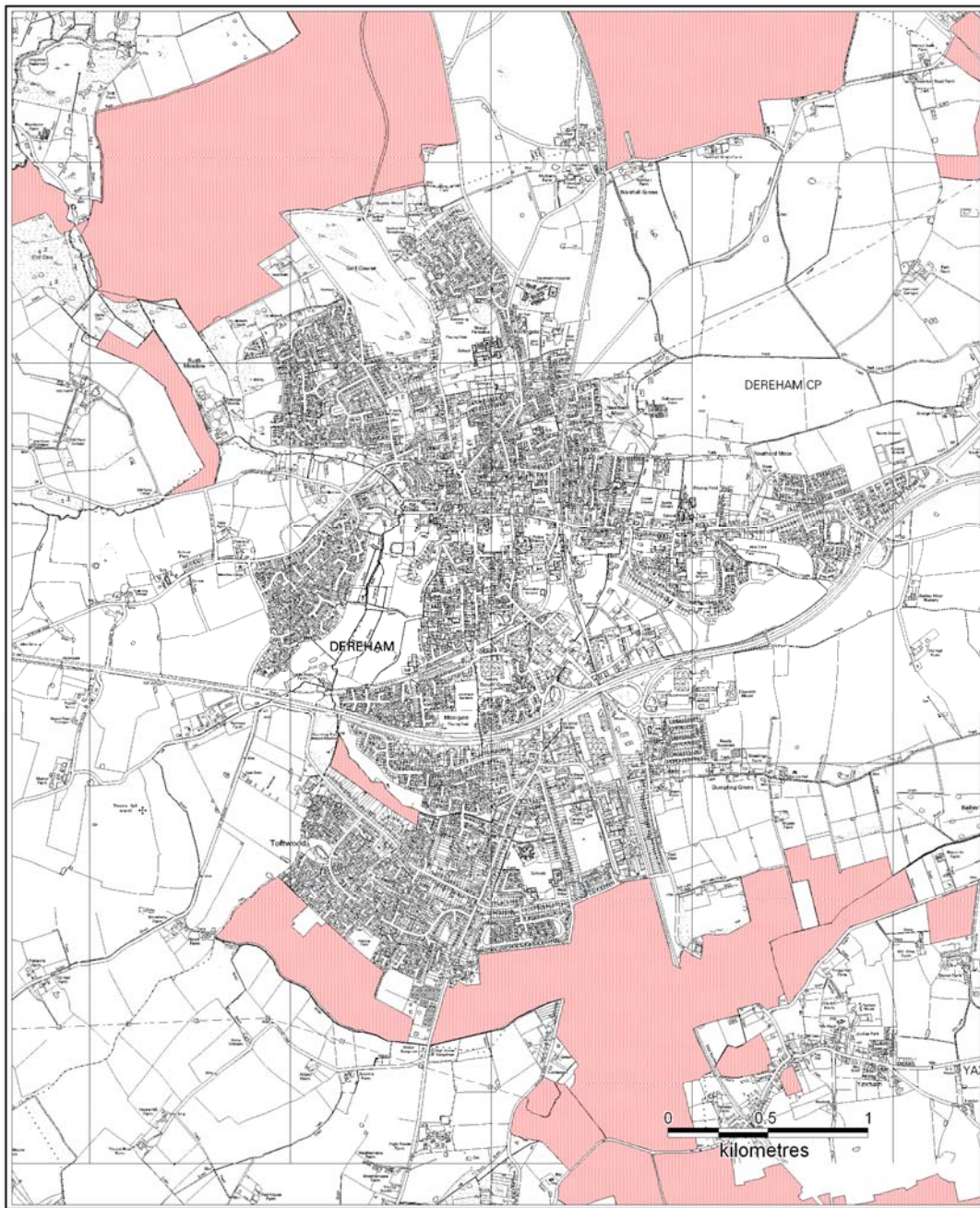



Figure 11: Countryside Stewardship Agreements, Dereham and Surrounding Area

Key:

 Countryside stewardship agreement

Source: Data from MAGIC, May 2008. copyright resides with the data suppliers and the map must not be reproduced without their permission. Some information in MAGIC is a snapshot of information being maintained or continually updated by the originating organisation. Please refer to the documentation for details, as information may be illustrative or representative rather than definitive at this stage.



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Figure 12: Environmentally Sensitive Area Agreements, Dereham and Surrounding Area

Key:

 The Broads

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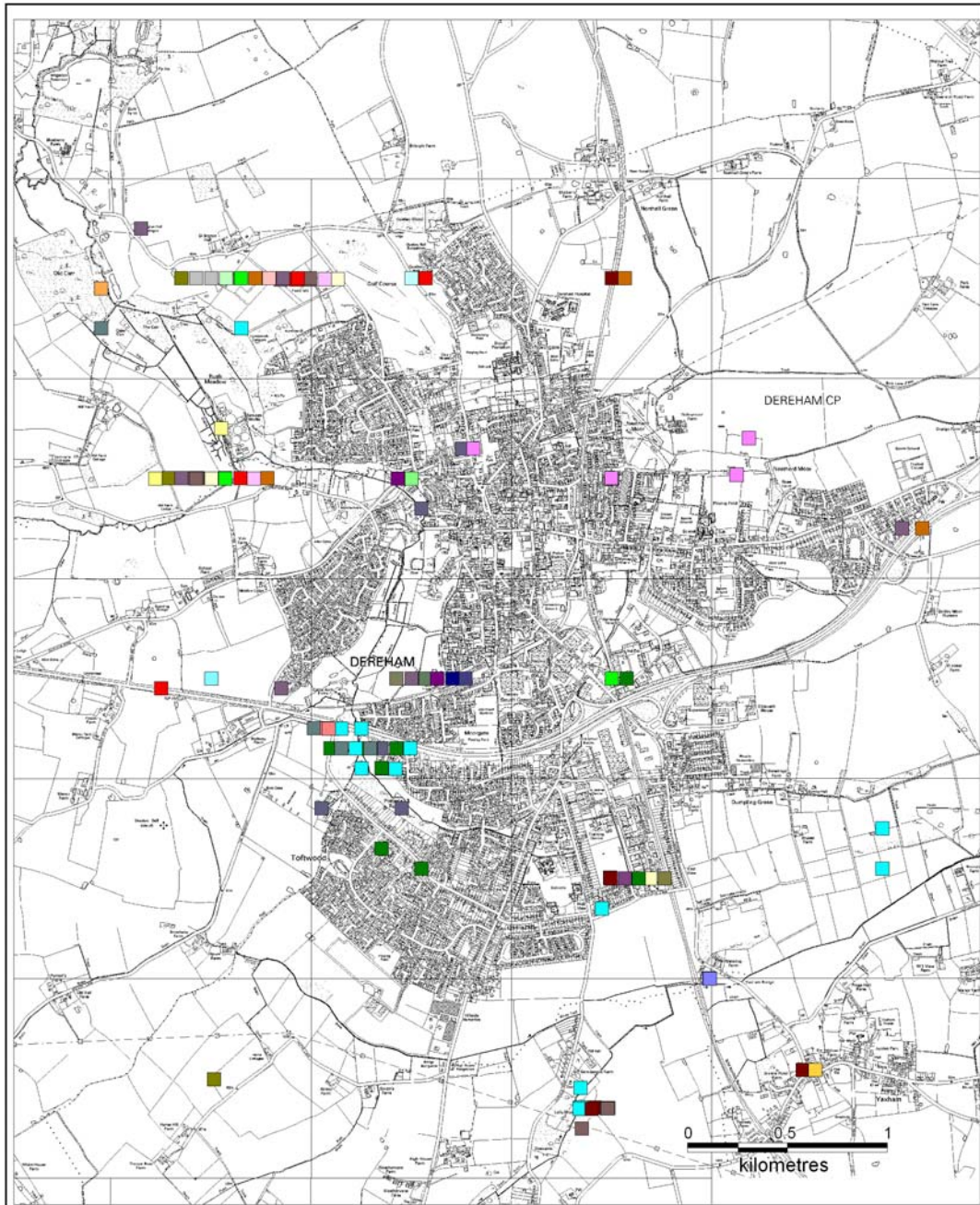


Figure 13: Biological Records: Mammals, Reptiles and Amphibians (1960- Jan 2008), Dereham and Surrounding Area
Key:

Badger	Common toad	Harvest mouse	Red deer	Smooth newt
Brown hare	Fallow deer	Hedgehog	Red squirrel	Stoat
Common frog	Freshwater crayfish	Otter	Roe deer	Viviparous lizard
Common shrew	Great crested newt	Pipistrelle	Slow worm	Water vole
			Weasel	

Where there is more than one species the point to the left is the location. Point represents presence and not count.
 Source: Norfolk Biological Records Centre, April 2008. Data is the intellectual copyright of NBRC and Norfolk County Council.



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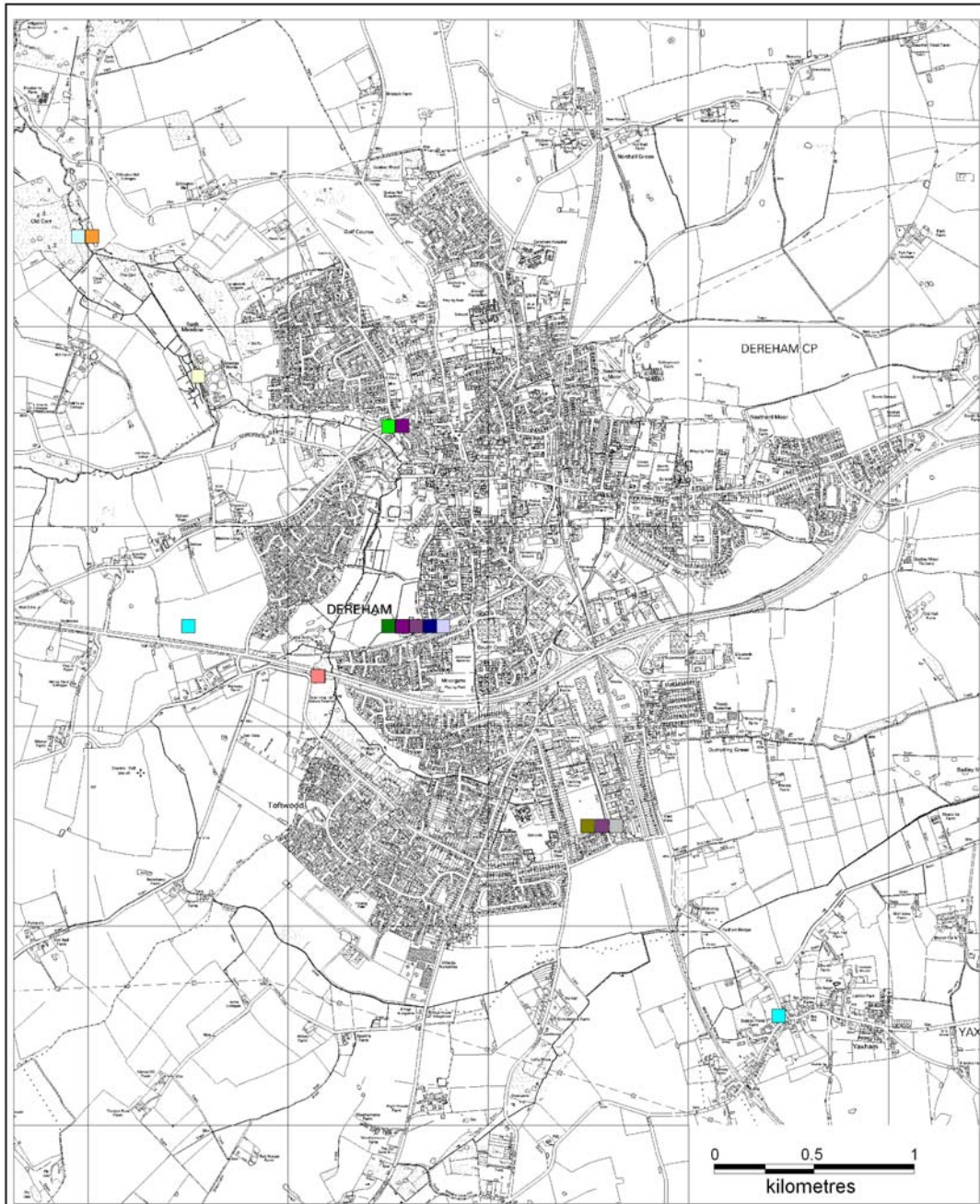



Figure 14: Biological Records: Birds, Invertebrates, Plants and Fungi (1960- Jan 2008), Dereham and Surrounding Area

Key:		Birds:	Invertebrates:	Plants:	Fungi:
 Bullfinch	 Little owl	 Flame wainscot (moth)	 Hydrochus brevis (beetle)	 Bluebell	 Fly agaric
 Corn bunting	 Red kite	 Large tortoiseshell (butterfly)	 Heath dog-violet	 Moschatel	
 Corn buttercup	 Tree sparrow	 Primrose			
 Lesser spotted woodpecker					

Where there is more than one species the point to the left is the location. Point represents presence and not count.
 Source: Norfolk Biological Records Centre, April 2008. Data is the intellectual copyright of NBRC and Norfolk County Council.



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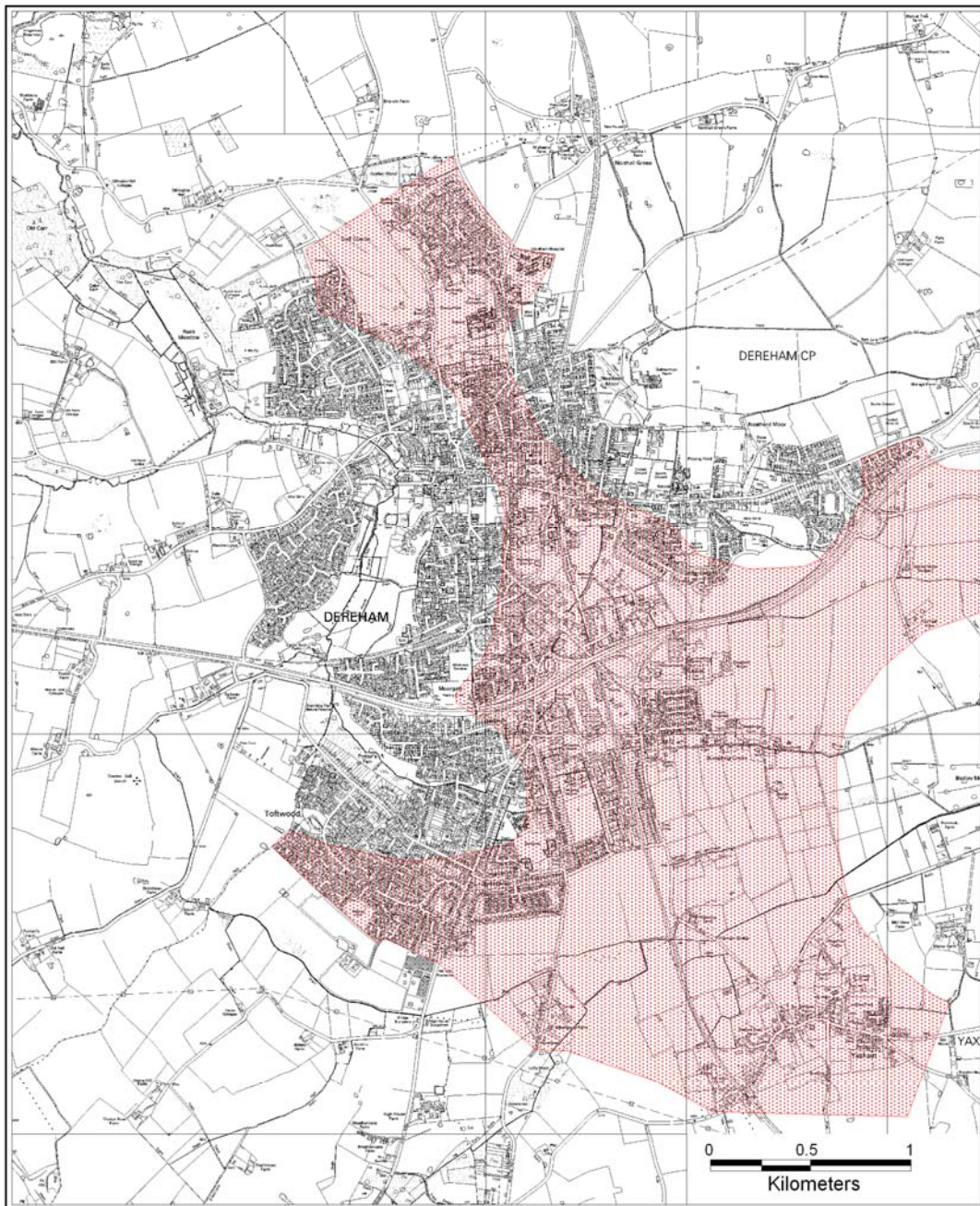



Figure 15: Areas Outside Natural England's ANGST Standards, Dereham and Surrounding Area

Key:

 No access to open space:
Areas of Dereham more than 0.3km from
accessible natural green space with an
area more than 2ha



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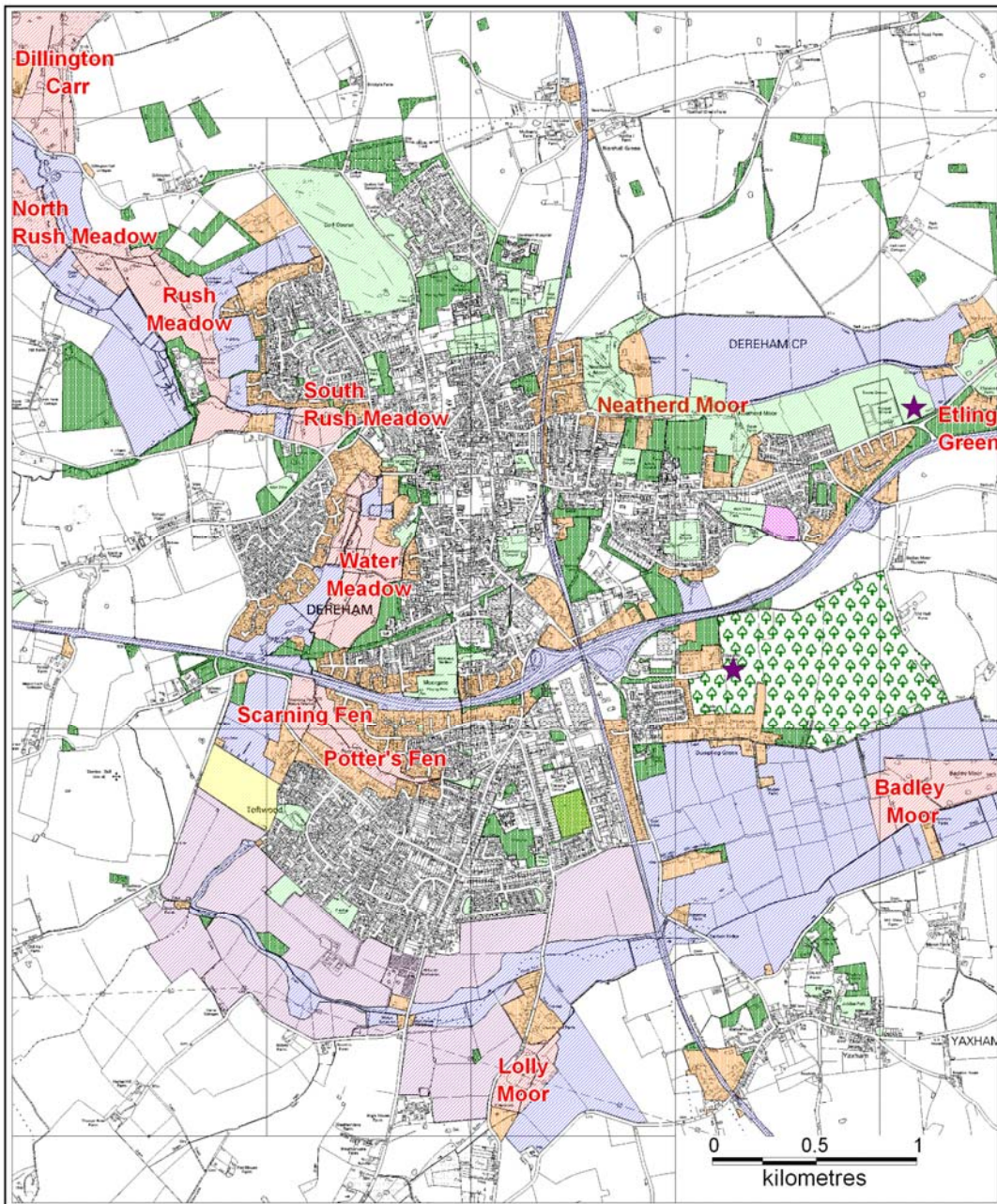



Figure 16: Green Infrastructure Vision, Dereham and Surrounding Area

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<p>Core sites: Managed principally as wildspace to benefit habitats and wildlife</p>	<p>Greenspace: Recreation or amenity land whose primary objective is not wildlife conservation</p>	<p>Community woodland: Suggested area for woodland planting</p>	
<p>Restoration land: To link core sites to each other or to other elements of green infrastructure. To reconstruct the ancient commons and re-establish wildspace</p>	<p>Other greenspace: Green space identified from aerial photographs (excluding gardens and arable land)</p>	<p>Proposed sports pitch</p>	
<p>Protected Land: Land protected from development</p>	<p>Green garden zone: Homeowners encouraged to participate in green gardening practices</p>	<p>Proposed allotments or community orchard</p> <p>Proposed cemetery</p>	

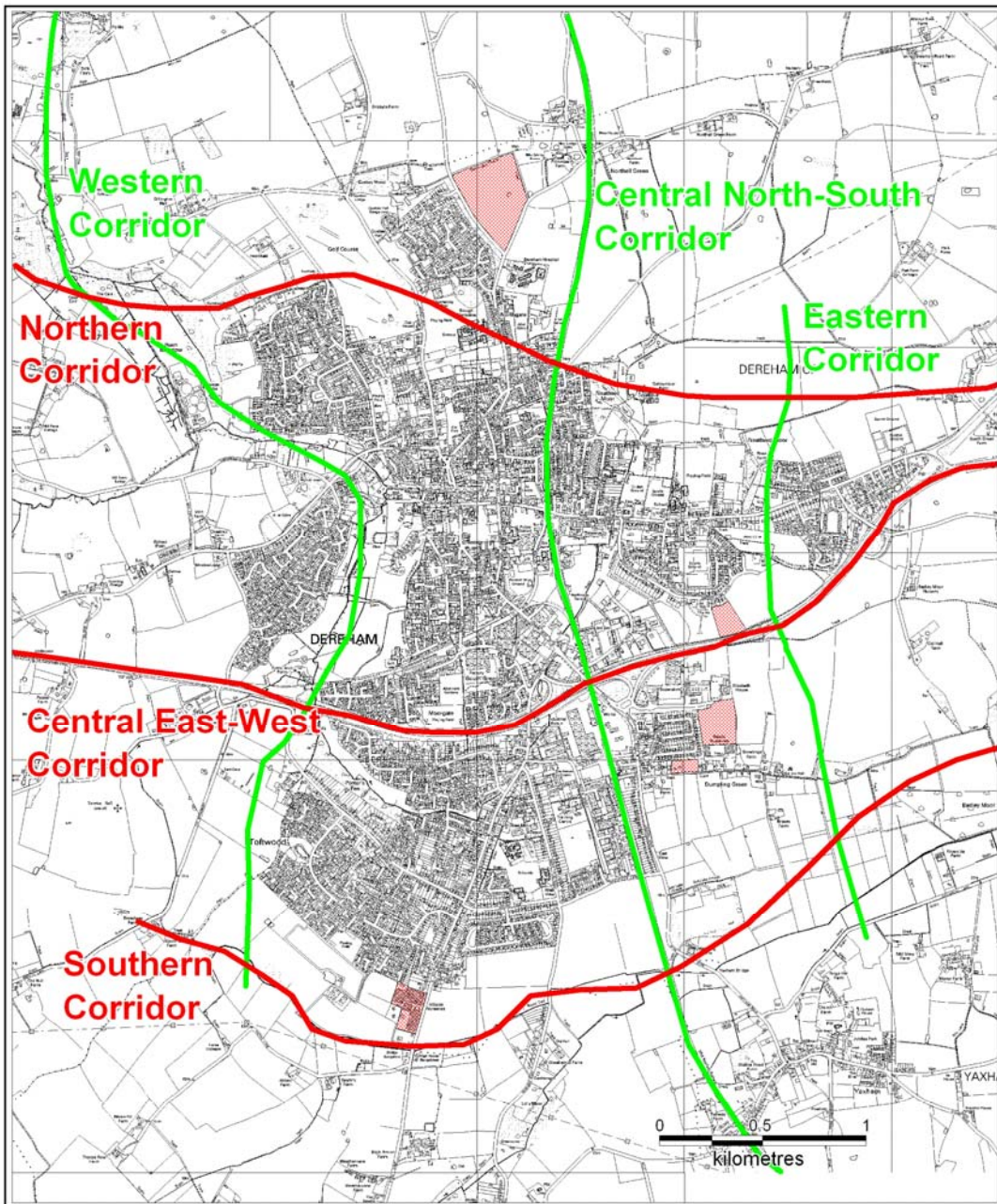


Figure 17: Vision of Habitat Corridors and Development Parcels, Dereham and Surrounding Area

Key:

- Proposed development parcels:
Proposed development land recommended by ELP for consideration
- Habitat corridors (North-South):
To contain new rights of way linkage routes to other corridors and open spaces
- Habitat corridors (East-West):
To contain new rights of way linkage routes to other corridors and open spaces



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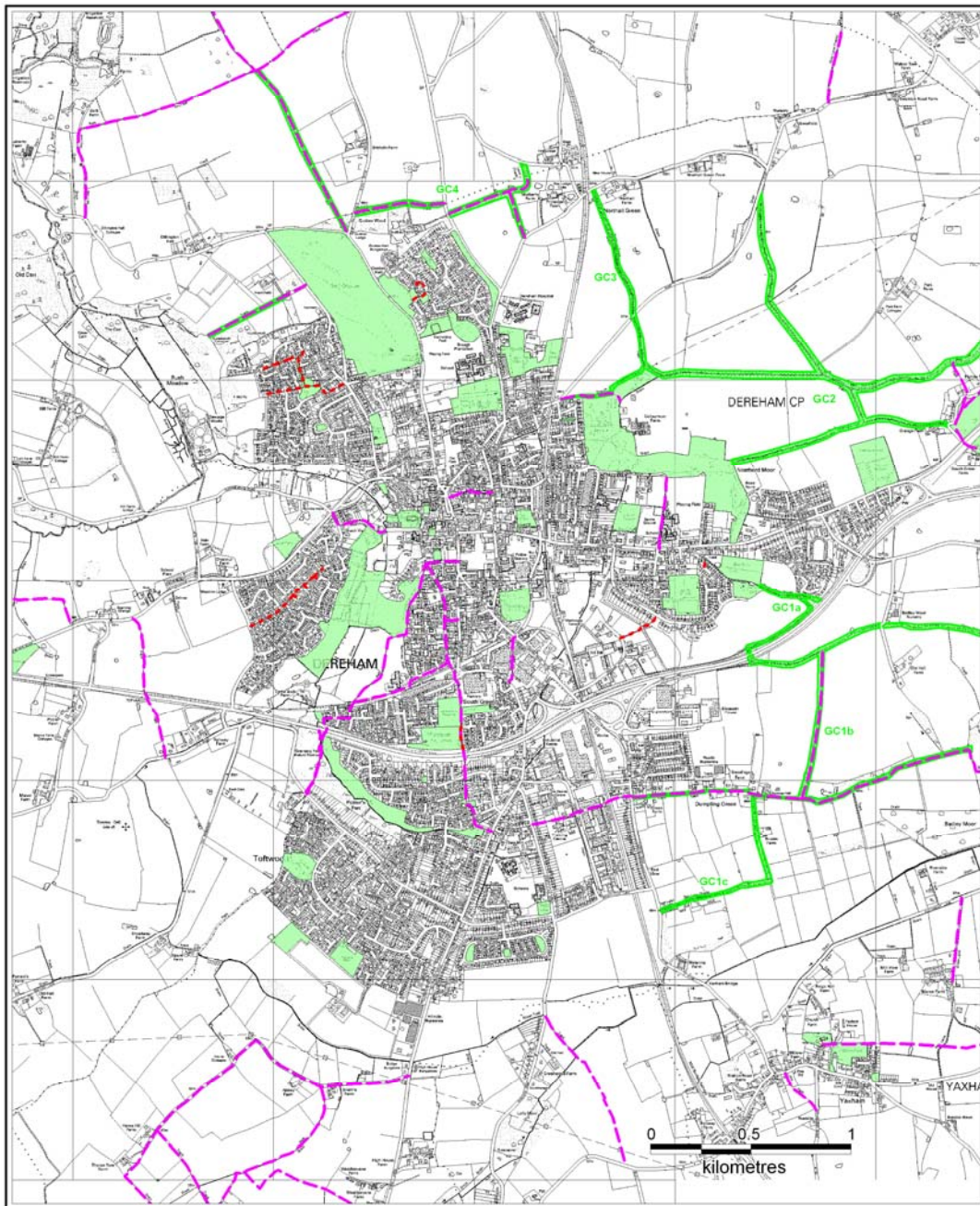


Figure 18: Cycle Paths and Public Rights of Way (April 2008), Dereham and Surrounding Area

- Key:
- Open space (using PPG17 typologies)
 - Green corridor
 - Public right of way footpaths
 - Cycle paths

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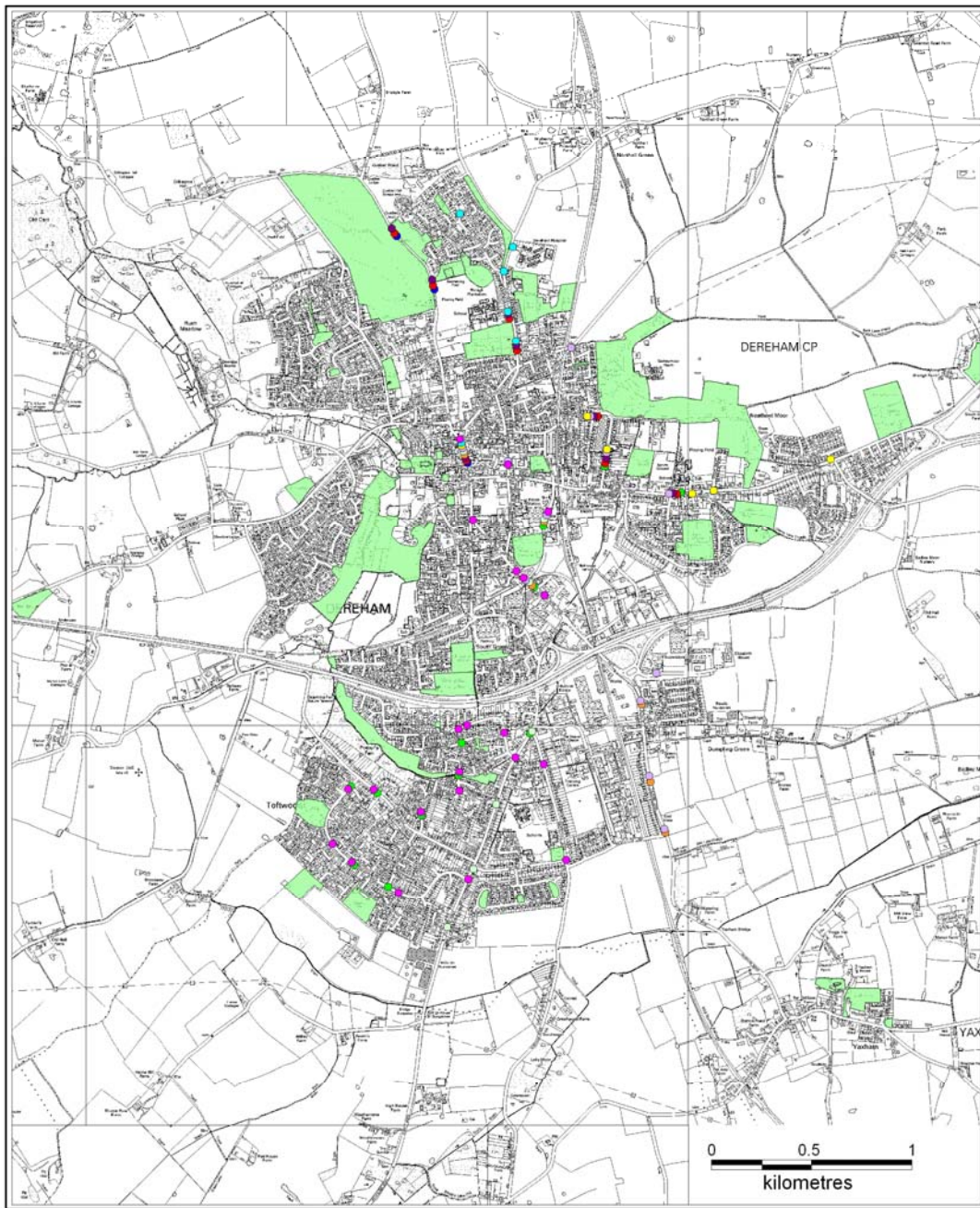
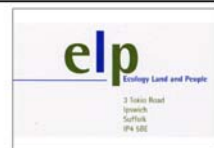


Figure 19: Bus Routes For Dereham and Surrounding Area

Key:

- 1 Dereham - Toftwood Circular
- 2A Dereham Market Place - Northgate
- 2C Dereham - Mileham
- 4 Swanton Morley - Dereham - Mattishall - Norwich
- 11 Dereham - Shipdham - Watton/Swaffham
- 30B Dercham - Bawdeswell - Foulsham - Guist
- 31 Dereham - Litcham - Sporle
- 17 Dereham - Bradenham
- 30 Dereham - Beetley - North Elmham - Fakenham
- 30A Dereham Schools - Elmham - Broom Green
- Open space (using PPG17 typologies)

Source: Connectbus Ltd, May 2008



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