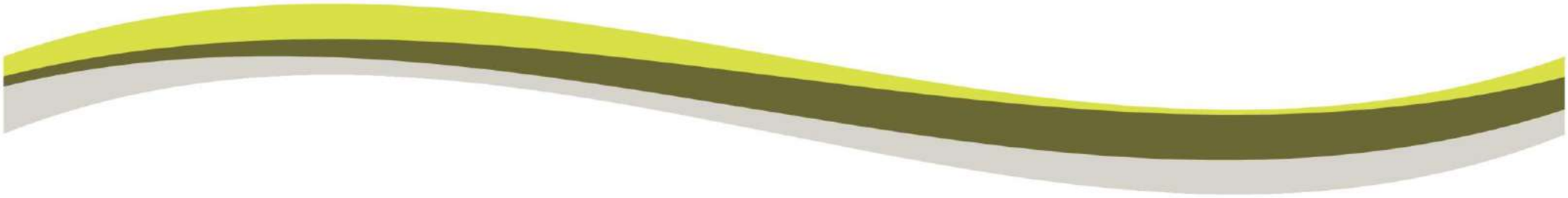
South Downs National Park Authority

Access Network and Accessible Natural Greenspace Study

Part 1: Main Report



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www.environmentxchange.co.uk

Main Authors

Sharon Bayne BSc MSc MCIEEM
Blackwood Bayne Ltd, 8 Herts Crescent,
Loose, Maidstone, Kent ME15 0AX
sharon@environmentxchange.co.uk
sharon.bayne@blackwoodbayne.co.uk
01622 746316

Val Hyland BA Dip LA (Hons) PGCert. UD
Val Hyland Consulting
Silverthorn, Scotton Street, Wye, Kent
val@environmentxchange.co.uk
val@vhylandconsulting.co.uk
01233 812195

GIS Analyst

Megan Davies BSc MSc
Megan-Davies@outlook.com
07745 130062

Contributing Authors

Andrea Byerley BA(Hons) MSc
Byerley Ltd, 8 The Mount, High Street, Bidborough,
Tunbridge Wells, Kent
andrea@environmentxchange.co.uk
andreabyerley@gmail.com
01892 529541

Lynnette Leeson BSc (Hons), Dip TP. M.R.T.P.I.
Hares Landscape and Planning, Dale Cottage,
West Burton, West Sussex RH20 1HD
lynnette@hareslandscape.co.uk
lynnette@environmentxchange.co.uk

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Executive Summary

Introduction

This study provides evidence in support of both the South Downs National Park Management Plan and Local Plan, by analysing the access network and elements of the green infrastructure (GI) network. This study focusses primarily on one of elements of the total green infrastructure resource; the access components and, in particular, accessible natural greenspace (ANG).

Analyses were carried out across several areas:

- ANG provision and how well Natural England's ANG standards are met;
- Health and other socio-economic factors in relation to ANG provision;
- Public rights of way density and connectivity;
- Public transport links with destinations and promoted routes;
- Main development areas; their location, the cross boundary effects and links with ANG provision;
- Recreation and biodiversity – beginning the process of identifying biodiversity sites which are potentially sensitive to recreational pressure;
- Assessment of how approaches taken by the Partnership for Urban South Hampshire (PUSH) could inform decisions on strategic GI provision for the National Park.

The study area comprises the South Downs National Park, plus the local authority areas of Adur and Worthing, Arun, Brighton and Hove, Chichester, Eastbourne, East Hampshire, Horsham, Lewes, Mid Sussex and Winchester.

Accessible Natural Greenspace

Defined by English Nature[1] in the early 1990's, accessible natural greenspace is a category of greenspace in which a "*feeling of naturalness predominates*".[2]

English Nature also developed a set of ANG Standards (ANGSt), based on the minimum distances people would travel to visit the natural environment. ANGSt recommends that everyone should have an accessible greenspace:

- of at least 2 hectares in size, no more than 300 metres (5 minutes' walk) from home;
- at least one accessible 20 hectare site within two kilometres of home;
- one accessible 100 hectare site within five kilometres of home; and
- one accessible 500 hectare site within ten kilometres of home.

In addition the standard also recommends:

- a minimum of one hectare of statutory Local Nature Reserves per thousand population.

[1] The predecessor organisation of Natural England.
[2] Natural England (2010), Nature Nearby, Accessible Natural Greenspace Guidance

Analyses were carried out to determine ANG provision against each of the standards, with the following key findings:

- Chichester District has the best overall provision of ANG;
- Horsham as a district has the largest area without ANG provision;
- Of the non-coastal urban districts, Winchester is least well-served by ANG, lacking ANG on most scales, coupled with areas of low provision of rights of way;[3]
- Larger urban areas where ANG choice is limited to two or less sites are, outside of the coastal towns, Winchester, Haywards Heath, Burgess Hill and Alton;
- The urban areas of the coastal towns all have low provision of ANG. Brighton and Eastbourne have better provision in comparison to other coastal towns; Bognor Regis, Littlehampton, Worthing, east Brighton and Peacehaven are the most poorly served;
- The National Park is an important area for provision of ANG for the whole urban coastal belt;
- Several smaller rural towns and larger villages also lack ANG. Those on the boundary or within SDNPA lacking ANG include New Alresford, Twyford, Bishop's Waltham, Swanmore, Four Marks, Pulborough, Chiltington, Storrington and Steyning.

The 300m and 2km ANG standards are particularly important to strive towards as they provide natural areas within easily accessible distances. This is particularly important when considering links with physical activity and health, as proximity and ease of access are key to increasing levels of physical activity. It is clear from the analyses, however, that meeting the 300m ANG standard is particularly challenging, especially in urban areas and rural settlements where the opportunity for new greenspace is limited.

The difficultly of 'retro-fitting' ANG into existing urban areas means that it is particularly important for ANG to be incorporated into new housing developments and growth areas. It may also be difficult to provide new ANG in rural areas, which is pertinent to several smaller towns and larger villages in the study area. The urban fringe therefore becomes a particularly important area for ANG provision and can be the target for innovative approaches to increase access, such as is being developed in Petersfield.[4]

ANG can also be expanded through increasing the natural component of existing greenspaces, which could be particularly important for urban areas where the opportunities for provision of new greenspace are limited.

Health and Other Socio-Economic Factors

The links between physical and mental health and access to the countryside and green spaces are well-documented. The natural environment can help to reduce stress, anxiety and depression, can enhance social interaction and promote independent living and it can help promote and sustain increased physical activity.

[3] This deficit is recognised in the Winchester City Council Green Infrastructure Strategy.

[4] See the East Hampshire Green Infrastructure Strategy (2013).

A range of health issues and socio-economic factors were analysed and the results compared with ANG provision:

- Composite Health Score;
- General Health, Census 2011;
- Long-term Health Problem or Disability, Census 2011;
- Data Sources – Socio-Economic Factors;
- Indices of Multiple Deprivation;
- Car and Van Ownership, Census 2011.

Households with the poorest levels of health are mostly in the coastal towns, with more limited areas in parts of Winchester, Alton, Whitehill & Bordon, Haslemere, Hailsham and Eastbourne. There is a strong coincidence between areas with the poorest levels of health, low levels of car ownership and lack of ANG.

In areas where there is poorer health and lack of ANG, interventions could include improving the provision of ANG and access to greenspace. There may be particular opportunity to do this in new developments.

However, in areas where poor health coincides with adequate levels of ANG it may also be appropriate to intervene to improve the use of this ANG through targeting groups in the population, to support access and better use of existing areas of natural greenspace (see Table 1).

Table 1: Interventions to Improve Health through Greenspace Provision

Health and ANG Issues	Potential Interventions
Scenario 1: Where there are areas of poor health and natural greenspace is easily accessible and has capacity for more use.	• Promote commissioning of green exercise, its use and benefits; • Remove barriers; • Improve quality and management; • Establish outreach programmes that link health services with greenspace use. <u>Connect People To Greenspace</u> • Ensure GI is designed and managed to appeal to communities suffering health inequalities; • Promote measures to encourage use of GI by target communities (e.g. health walk provision, links to Health facilities, reducing social and cultural barriers).
Scenario 2: Where there are areas of poor health and a lack of nearby natural greenspace.	• Influence planning and green infrastructure development. <u>Infrastructure Provision</u> • Provide accessible natural greenspace close to people's homes; • Ensure GI is identified as an integral part of 'health service' provision, along-side surgeries, hospitals etc.

Development

Analysis of the larger housing allocations and the impact that this is likely to have upon ANG was carried out. For the purposes of this study, the scale of development which has been considered was sites comprising over 100 houses, i.e. major site allocations that are under consideration or approved by Districts for which there is a potential impact on ANG.[5]

These analyses begin to reveal concentrations of housing development and the potential areas for larger increases in population. Three areas stand out:

- Horsham and Crawley;
- Coastal belt between Worthing and Brighton and Hove;
- Fareham, Havant and Portsmouth.

Other significant areas include:

- North East of East Hampshire District (generated primarily by Whitehill & Bordon);
- Aldershot and Basingstoke;
- Winchester;
- Eastbourne;
- Haywards Heath.

Some key areas of ANG fall within the 5km buffers of major development:

- Coastal belt: sites in the National Park between Worthing and Brighton are of great significance due to the lack of ANG in the coastal towns and fall within the catchments of several proposed development sites;
- Burgess Hill: this larger development of up to 3980 houses[6] is in close proximity to the National Park;
- Eastbourne: although residents of Eastbourne town would appear to be well-served by ANG, closer inspection reveals that this ANG is mostly located on the downs and new development is therefore likely to increase visitors to these already heavily used sites. Several sites are proposed on the outskirts of Eastbourne in Wealden district;
- Horsham and Crawley: together these areas form a significant development area, with limited existing ANG;
- Southwater, Billingshurst and Pulborough: these possible minor development sites are currently being consulted on and could change; however, this area is lacking in ANG with the National Park providing most of the ANG for these settlements;
- Havant: a concentration of sites just outside the National Park boundary, in close proximity to Queen Elizabeth Country Park;
- Winchester: ANG is limited both in Winchester district and Winchester city. There are larger development sites proposed around Winchester city and additional, albeit smaller, developments proposed for New Alresford, Bishop's Waltham, Denmead and Swanmore, all of which are lacking in ANG;
- Fareham: a new strategic development area is planned on the border with Winchester District in an area with limited ANG, although provision of new ANG is included in the approved masterplan;
- East Hampshire: a concentration of development in north east East Hampshire due to the large size of Bordon & Whitehill eco-town, although this site should provide its own greenspace.

[5] At this early stage in the drafting of the SDNP Local Plan, there is no clear picture of the scale or distribution of housing development in the National Park. While major development can be viewed as sites of >10 houses, the SDNPA was not in a position to collate data at this level of resolution.

[6] Burgess Hill 1 Strategic Development Site, approx. 3500; Burgess Hill 2 Strategic Development Site, approx. 480 (pers. comm. Andrew Marsh).

Given existing shortfalls in ANG provision, new, larger scale developments need to incorporate greenspace provision.

An additional significant effect on ANG could potentially arise where there is a cluster of smaller developments in close proximity, especially where these cross local planning authority boundaries, for example in Adur-Worthing, south of Chichester and Eastbourne. Smaller sites lacking in ANG include:

- Southwater, Billingshurst and Pulborough (Horsham);
- New Alresford, Bishop's Waltham, Denmead and Swanmore;
- Outskirts of Eastbourne within Wealden.

It is unclear whether ANG will be provided within these developments, but given the current low level of resource, opportunities for increasing provision should be sought.

Recreation and Biodiversity

Recreation can have an impact on biodiversity in many ways. Most habitats can be affected by trampling and erosion, including chalk grassland, heathland, wetlands, woodlands and dunes.

Recreational activity can also disturb wildlife, with bird disturbance of particular relevance in coastal, estuarine and wetland habitats where over-wintering birds feed or birds breed or for ground nesting birds, particularly those of heathland habitats.

Urban edge impacts can also be detrimental and include (amongst others) fly-tipping, arson, damage to site infrastructure and littering.

Another key impact is through the effect of limiting conservation management, particularly grazing. Recreation with dogs can be particularly problematic in this respect.

The purpose of reporting in this study is to highlight at a strategic level those sites which may be sensitive to impacts from recreation.

Sites have been considered in two groupings; sites designated under European law (Natura 2000 sites) for which a Habitat Regulations assessment has indicated that recreation could have an effect on species or habitats and other sites which have been highlighted through consultation.

The Natura 2000 sites assessed as being sensitive to recreation impact are shown in Table 2.

To collate the second group, site managers and others with local knowledge of sites were consulted:

- Area Managers for the SDNPA;
- National Trust;
- Hampshire and Isle of Wight Wildlife Trust;
- Sussex Wildlife Trust;
- Natural England.

57 additional sites were identified through this consultation. Many were designated under a nature conservation designation and several were SACs, SPAs or Ramsars.[7] The largest grouping was SSSIs, with 27 sites.[8]

[7] Arun Valley SAC, SPA, Ramsar, Butser Hill SAC, East Hampshire Hangers SAC (some sites), Ebernoe Common SAC, Kingley Vale SAC, Lewes Downs SAC, River Itchen SAC, The Mens SAC

[8] Excluding sites which are also SACs or SPAs.

Also included were Local Nature Reserves (12) and Sites of Nature Conservation Importance (3).

The main habitat types were heathland and chalk downland, although other habitats such as rivers and woodlands were also included.

Several of these sites provide a significant contribution to regional scale ANG, i.e. are sites greater than 500 hectares.

The most common impacts were:[9]

- Disturbance to breeding birds (primarily heathland but some chalk downland sites highlighted);
- Impeding implementation of conservation grazing, especially worrying of livestock (both chalk downland and heathland sites);
- Dog arisings (nutrient enrichment and anti-social element);
- Erosion;
- Various anti-social behaviours e.g. fires, vandalism, damage, unauthorised camping.

Many of the issues raised need a co-ordinated multi-disciplinary approach. Some areas may benefit from combined visitor management; some from greater green infrastructure provision. Some sites may require improved management and potentially the funding to achieve this.

Table 2: SAC, SPA and Ramsar Sites of Study Area

	Sites highlighted in an assessment under the Habitats Regulations as being sensitive to recreation.

Special Area of Conservation	Special Protection Area	Ramsar
Arun Valley	Arun Valley	Arun Valley
Ashdown Forest	Ashdown Forest	Chichester and Langstone Harbours
Butser Hill	Chichester and Langstone Harbours	Pagham Harbour
Castle Hill	Pagham Harbour	Portsmouth Harbour
Duncton to Bignor Escarpment	Portsmouth Harbour	Thursley and Ockley Bogs
East Hampshire Hangers	Solent and Southampton Water	
Ebernoe Common	Thames Basin Heaths	
Emer Bog	Thursley, Hankley and Frensham Commons	
Kingley Vale	Wealden Heaths Phase II	
Lewes Downs		
River Itchen		
Rook Clift		
Shortheath Common		
Singleton and Cocking Tunnels		
Solent Maritime		
The Mens		
Thursley, Ash, Pirbright and Chobham		
Woolmer Forest		

[9] See further commentary for sites in the Appendix.

There are several key areas in which the SDNPA could take a role:

Evidence Base: The co-ordination of evidence gathering to further the understanding of recreation and impacts to help to understand visitor movements and areas of demand and pressure across the area. This evidence will help to inform any strategic approaches.

Strategic Approaches to Increased Provision: There may be a need to provide alternative sites in some areas. Several site managers highlighted the role of woodlands for example, as more robust habitats and as alternatives to sensitive sites at certain times of the year. The SDNPA is in the position to further this approach. There are also links with green infrastructure provision at a strategic scale.

Co-ordination of Promotion: The SDNPA is in a unique position to bring together and work with partners to co-ordinate the promotion of sites. This could be used to promote different sites at different seasons or different sites for different recreational uses.

Dog Management: The impact of dogs is a recurring issue, both for the direct impact through disturbance to, for example, breeding birds and due to the difficulties in grazing on sites heavily used by dog walkers. The South Downs could develop a strategic approach to dog management, involving other partners in a co-ordinated approach to providing information and signing, for example on areas for off-lead or on-lead walking, seasonal restrictions, responsible dog ownership etc.[10]

Funding: A strategic viewpoint can offer advantages to gaining funding, as can a robust evidence base. Landscape Partnership Schemes, for example, not only provide funding for site management, they fund community engagement and education, which can support a decrease in some of the anti-social behaviours reported by site managers.

Links with Tourism: There may be a need to raise awareness with the tourism industry and there may not be good understanding of these issues.

The Access and Public Transport Network

Data on ANG, public rights of way, countryside destinations[11] and levels of private vehicle ownership were analysed to assess the effectiveness of the current network in connecting local communities and visitors to various destinations and to help identify gaps and opportunities for future development.

The PROW density within the SDNP area is mainly greater than 0.5km per km^2 and across large areas is more than 2.5km per km^2. The National Park within the districts of Chichester, Horsham, Arun, Mid Sussex, Wealden and Eastbourne has particularly good PROW density. Outside the National Park rights of way provision is poorer along the coastal belt and in near the National Park boundary in Winchester and East Hampshire.

In the National Park there are very few areas that lack both local ANG and PROW; around Chichester, a small area around Petworth, parts of Lewes district and the Whitehill & Bordon area of East Hampshire.[12]

Outside the National Park the situation is different. The coastal towns lack access to local ANG and PROW along with the City of Winchester,

[10] For example Dorset Dogs http://www.dorsetwildlifetrust.org.uk/dorset-dogs.html; Paws on the Moors http://www.pawsonthemoors.org/

[11] As note 70.

[12] It should be noted that a new eco town is planned for Whitehill & Bordon, and it is anticipated that ANG and linear access will be addressed as part of this development

and parts of Horsham town and Haywards Heath. These are also the locations for a number of planned larger housing allocation sites.

Although there are many areas of woodland in the National Park and across the study area, a relatively small proportion is open for public access. There are significant woodland areas where access could be improved and where local ANG could be developed, in particular in parts of Winchester district, the mid-western part of East Hampshire and southern parts of Chichester and Horsham. Woodland in other parts of the study area could provide local and regional-scale ANG to help to relieve recreation pressure on more sensitive sites.

The cycling network is generally better developed in the National Park than the wider study area. The Sustrans and other long-distance cycle routes make a very positive contribution to cycling opportunities to link the National Park to the coast and to the main towns. However, there are gaps particularly in local networks, links between settlements and links to railway stations. There is also inconsistent connectivity between the neighbouring districts and with the National Park.

The eastern coastal towns are relatively well-served by buses, both locally and linking beyond the coast into the National Park and to towns in the north of the study area. However on Sundays the longer distance routes do not operate. Bus services in the west of the study area are better in the northern rural areas, and poor in the coastal towns. Services in the western part of the study area are poor on Sundays.

The bus service will, to some extent, limit the mobility of visitors; in particular in those areas where the ownership of cars and vans is low, for example in the coastal towns which have lower levels of car and van ownership.

The Coast

The coastline of the study area extends from the Test Estuary and the Solent in the west, through to Hastings in the east. Along this coast are many significant settlements, including the Solent towns, Bognor Regis and Littlehampton, Worthing, Brighton and Hove and Eastbourne, alongside many smaller towns. Some of this coastline is developed; some can be considered more natural. There is access along much of the coastline of the study area, through rights of way, accessible greenspace and beaches. There are 50 beaches with access listed in the 'Good Beach Guide'.[13]

Part of this coastline, the Sussex Heritage Coast, encompasses 23.7km of undeveloped coastline from east of Seaford through to Eastbourne; all within the SDNP. Part of the Heritage Coast is a SSSI,[14] part is a Local Nature Reserve[15] and part is a voluntary marine nature reserve.[16]

Beaches and the coastline undoubtedly provide a valuable contribution to the access resource, providing a unique experience and supplementing other accessible greenspaces.

The coast is an important provider of areas for access and recreation, especially for those living in coastal settlements where other greenspace is limited, of which there are several within the study area.[17]

[13] Marine Conservation Society www.goodbeachguide.co.uk, see Appendix for full table.
[14] Seaford to Beachy Head SSSI.
[15] Seaford Head Local Nature Reserve.
[16] The Beachy Head West recommended Marine Conservation Zone is also under consideration by Defra for inclusion in the first tranche of marine protected areas under the Marine and Coastal Access Act.
[17] See Supporting Information document for further analysis of ANG provision in coastal towns.

Natural England does not include the coast as ANG. Despite beaches and coastline also not being a recognised category for PPG17[18] assessments, many of the local authorities in the study area include them as an access category. Most do not, however, include the beach as contributing to quantity standards, but rather concentrate on quality standards and recognition that for coastal towns the beach and coastline is an important contributor to open space. It is clear from residents' surveys which support several of the PPG17 strategies that access to beaches and the coastline are important to the residents of the coastal towns.

Coast and beach does not only provide access for local residents, they are an important component of the tourism infrastructure of these towns. There are opportunities for collaborative tourism marketing between the National Park and the coastal towns and resorts to help to draw different groups of visitors into the Park and broaden the target audience, as well as relieving pressure on the coast.

The stretches of undeveloped coast along the whole length of the study area are well protected by local authorities who regard them as strategic gaps between settlements and important areas for conservation and recreation.

Review of Sub-Regional Green Infrastructure Policy and Delivery - 'PUSH' Area

The PUSH Green Infrastructure Strategy and Implementation Framework were reviewed to assess the strategic approach taken to green infrastructure planning and partnership working, especially in relation to the South Downs National Park Authority.

The PUSH Green Infrastructure Strategy and Implementation Framework are well prepared comprehensive documents which are ambitious and have the political support of most of the partnership authorities.

The following can be considered to have worked well in respect of the PUSH approach to green infrastructure:

- Model green infrastructure policy approach;
- Sub-regional strategic framework approach with a shared vision;
- Governance structure;
- Collaborative / partnership working across political boundaries;
- Lead Officers in each partner authority who are realistic about what can be achieved;
- Project delivery in a number of key green infrastructure sites;
- Sharing of funding opportunities;
- Contribution has been made to the overall Green Grid vision.

What has been less successful:

- A strategy that was too ambitious and did not prioritise project delivery and encourage and support project champions / owners;
- Identification of clear funding opportunities for projects;
- Data management, archiving and accessibility;
- Loss of a dedicated PUSH officer / team to drive progress;
- Developing a model Supplementary Planning Document;
- Failure to include a robust monitoring process in the Implementation Framework to gauge sub-regional delivery of the Green Grid.

[18] Planning Policy Guidance 17 (PPG17): Sport and Recreation is no longer planning policy, but often the PPG17 typologies are used for Open Space Assessments, which form an important evidence base for local authorities.

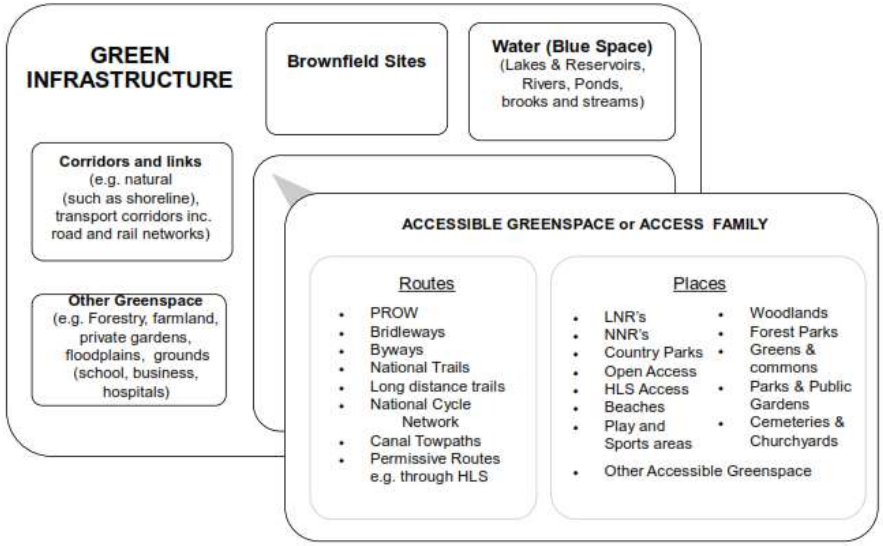
Part 1 – Introduction and Background

Scope and Purpose of the Study

The South Downs National Park Authority is currently preparing both a National Park Management Plan and Local Plan for the National Park. Evidence on green infrastructure (GI) and biodiversity networks and interpretation of how this relates to the exercise of the statutory purposes and duty of the SDNPA is required to inform their policies for the period through to 2035.

This study aims to provide evidence in support of these plans by analysing the access network and elements of the green infrastructure network. It identifies areas of deficiency in provision for the populations served by the National Park, i.e. including those both within and outside the Park. This study contributes to a wider aim by the South Downs National Park Authority to take forward green infrastructure planning. It is one stage in the development of a GI (green infrastructure) approach for the National Park.

This study focusses primarily on one of elements of the total GI resource; the access components, see opposite. Since 2007 a series of studies has researched and developed information on levels of Accessible Natural Greenspace (ANG) relating to the National Park[19]. Building on this earlier work, this study has data-proofed much of the previously sourced information, as well as sourcing additional data to ensure an accurate baseline access dataset.



Green Infrastructure Components

[19] McKernan, P., Grose, M., (2007), An Analysis of Accessible Natural Greenspace Provision in the South East, produced for the South East AONBs Woodland Programme, Forestry Commission, Natural England.
Access Network Mapping Natural England, South Downs National Park Authority and Sheils Flynn, 2011.

The data has been analysed in relation to several key areas:

- ANG standards – how well Natural England's ANG standards are met in all of the districts of the study area and within the SDNPA;
- Health and other socio-economic factors – linking these with levels of ANG provision;
- Public rights of way – density of provision across the study area and including linkages of promoted cycling and walking routes;
- Public transport – how well public transport links with destinations and promoted routes;
- Main development areas – the location of possible larger development sites across the study area, the cross boundary effects of these and links with ANG provision;
- Recreation and biodiversity – beginning the process of identifying biodiversity sites which are potentially sensitive to recreational pressure;
- Links with the Partnership for Urban South Hampshire (PUSH) area - assessment of the extent to which this could inform decisions on strategic GI provision for the National Park.

Study Area

The study area comprises the South Downs National Park, plus the following 'core area' local authority areas (see Plan 1) and a buffer area in order to identify cross-boundary issues and effects:

- Adur and Worthing
- Arun
- Brighton and Hove
- Chichester
- Eastbourne
- East Hampshire
- Horsham
- Lewes
- Mid Sussex
- Winchester

Around this core area, a buffer of 10km was also incorporated in order to identify cross-boundary issues and effects.

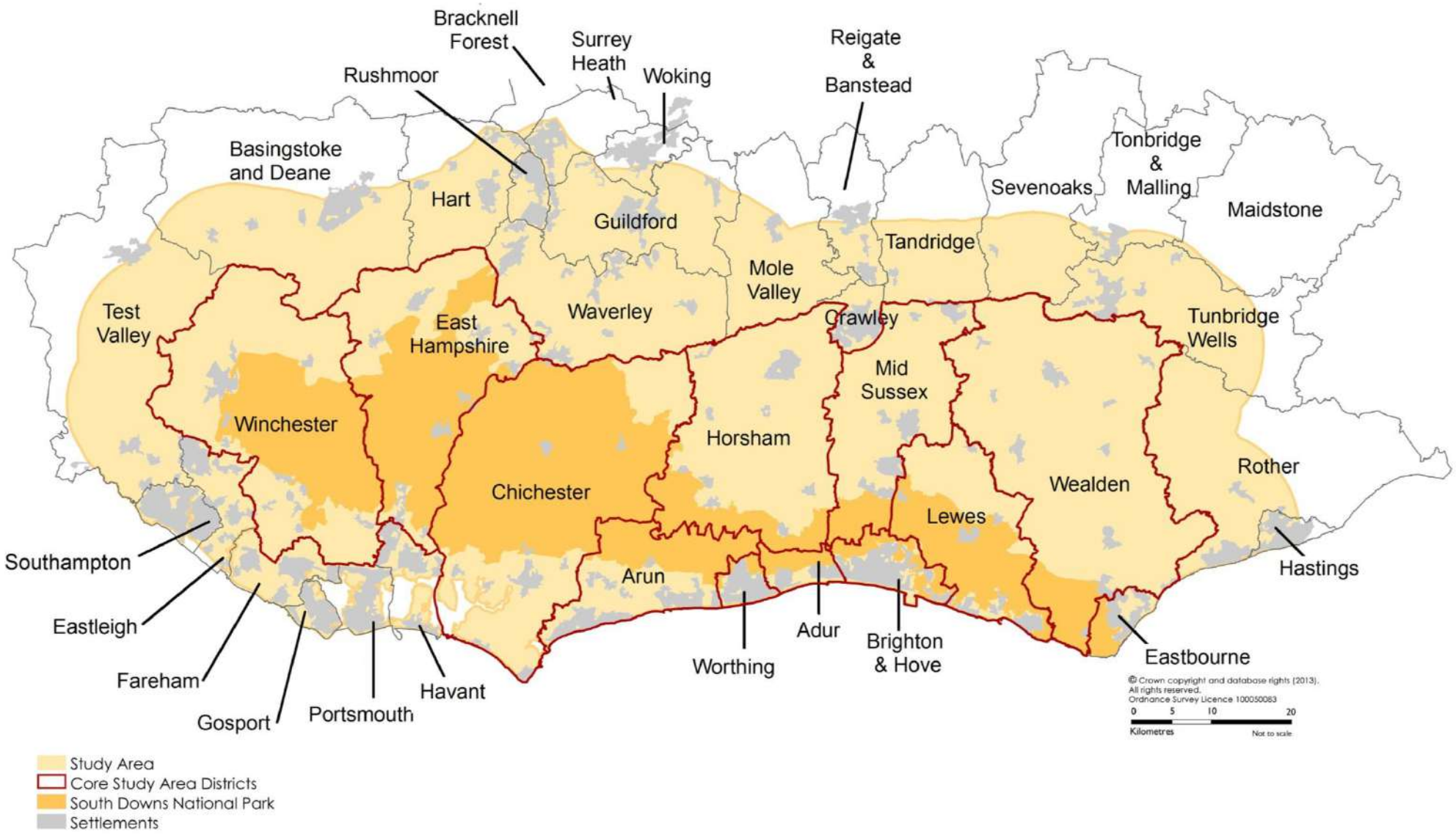
Structure of this Report

This Main Report provides a strategic overview of the study area. It includes analyses of:

- ANG provision;
- Health and other socio-economic factors;
- Development;
- Recreation and biodiversity;
- The access and public transport network;
- The coast;
- Review of PUSH GI strategy;
- Recommendations for taking forward GI in the SDNP.

Document 2, Supporting Information, contains mapping and analyses for each of the district authorities in the core area. The Appendix document provides methodology and other supporting data.

Plan 1: Study Area



Part 2 – Analyses

Accessible Natural Greenspace

Introduction

Defined by English Nature[20] in the early 1990's, accessible natural greenspace (ANG) is a category of greenspace at which a "*feeling of naturalness predominates*".[21]

Naturalness

Difficulties in categorising any particular piece of land can arise when trying to determine the extent of 'naturalness' and whether this 'predominates'. Not all sites will fall neatly into this category and there is room for interpretation in decisions on a site's naturalness.

In order to support categorising greenspaces in practice, Natural England has developed a proxy measure based on four categories.[22] Level 1 and Level 2 sites are considered as proxy indicators of natural greenspace and include, amongst others, nature conservation designated sites, woodland, open access land, country parks and unimproved grassland. 'Natural' does not necessarily mean that the site has to contain rare or notable nature or to be designated.

Accessibility

The term 'accessible' has a specific meaning in the context of Accessible Natural Greenspace. At a basic level the site must be available for the public to use at all times and without charge.[23] Awareness of an accessible place should also be promoted to potential users within the catchment area and efforts made to make the site as accessible as possible.

Accessible Natural Greenspace Standards

In 1996 English Nature also developed a range of ANG Standards (ANGSt), based on the minimum distances people would travel to visit the natural environment. These standards were reviewed in 2008 and further guidance on their application published.[24]

The standards are based on proximity to ANG sites. ANGSt recommends that everyone should have an accessible greenspace:

- of at least 2 hectares in size, no more than 300 metres (5 minutes' walk) from home;
- at least one accessible 20 hectare site within two kilometres of home;
- one accessible 100 hectare site within five kilometres of home; and
- one accessible 500 hectare site within ten kilometres of home.

These standards are based on research into the minimum distances people would travel to visit the natural environment and seek to ensure that people have the opportunity to have a connection with nature close to where they live.

[20] The predecessor organisation of Natural England.
[21] Natural England (2010), Nature Nearby, Accessible Natural Greenspace Guidance
[22] Note 21
[23] Apart from being closed overnight, or a parking charge applying.
[24] Note 21

In addition the standard also recommends:

- a minimum of one hectare of statutory Local Nature Reserves per thousand population.

While local authorities are encouraged to work towards these standards, they have the freedom to adjust the ANGSt to meet the local conditions.

Use of ANGSt is one element of an integrated approach to green infrastructure planning.

Strengths and Limitations of using ANG

ANGSt sets high standards of access, particularly in the ambition for ANG sites within 300m of home. This demanding standard leads to high levels of failure and contributes in turn to individual authorities adopting local standards.

Although encouraged to do so by Natural England, not all local authorities use ANG standards within their Open Space and PPG17[25] Strategies. Some use the term 'semi-natural greenspace', some of which may not fit the accessibility criteria of the ANG standard. Some local authorities include sites smaller than 2 hectares. Some local authorities do not consider the standard at all.

This also highlights potential difficulties with categorising sites as ANG. Despite the application of the proxy developed by Natural England there remains a degree of subjectivity in the assessment of naturalness. In reality, many greenspace sites contain a mix of land uses. Formal parks and sports areas, for example, may still have natural habitats forming part of the site, but do not qualify as ANG, perhaps due to the size of the habitat present. This was evident in updating the ANG data for this study, during which several decisions on individual sites were required. The suite of ANG sites, therefore, should be regarded as one component of both the wider greenspace and access networks.

One component data set of ANG is land designated as accessible under the CRoW Act (2000)[26]. This includes a range of sites primarily designated by virtue of their habitat or status as common land.[27] Not all of these sites, despite there being a right of access, can be accessed, being 'stranded' with no right of way or other access route to reach them. It has not been possible for the purposes of this study to determine on a site by site basis which sites are actually accessible and therefore ANG provision in some areas may include inaccessible sites and therefore be overstated.

The ANG standard is limited in that it deals with proximity of sites to populations but does not consider quantities of provision for any given population size. This can mean that, for example, one small site in an urban area can serve a very large population, without a standard applied to increase total area of ANG to serve the population. The standard is, therefore, more revealing when applied at a strategic scale where the spatial distribution of sites is revealed.

[25] Planning Policy Guidance note 17, no longer national planning policy.

[26] Countryside and Rights of Way Act (2000).

[27] Areas of accessible land mapped by Natural England to fulfil obligations under the Countryside and Rights of Way Act 2000 includes: 'Open Country' – designated due to being heathland or downland, Registered Common, S.15 land (land which has existing access which takes precedence over CRoW Act designation), S.16 land (land voluntarily dedicated by landowners).

ANG is also useful in the context of the twin duties of the National Park, both to conserve and enhance their natural beauty, wildlife and cultural heritage and to promote opportunities for the public understanding and enjoyment of these special qualities. Of all greenspace types, ANG arguably best fulfils these roles.

Analyses

ANG Data and Methodology

In 2007 several South East organisations together produced an analysis of accessible natural greenspace provision.[28] The dataset of ANG from this study was used in a pilot study for the South Downs National Park and Natural England in 2011.[29]

During the 2011 study local authorities assisted in updating the dataset through adding and removing some sites. However, this data proofing did not extend to the full range of datasets from which the original ANG dataset was compiled. This study has, as far as possible, updated the full range of datasets. Further details of data proofing methodology, limitations and results are included in the Supporting Document.

Analyses were carried out to determine the provision of ANG for each of the four standards. Analysis of provision of Local Nature Reserves was also carried out.

[28] McKernan, P., Grose, M., (2007), An Analysis of Accessible Natural Greenspace Provision in the South East, produced for the South East AONBs Woodland Programme, Forestry Commission, Natural England.
[29] Sheils Flynn (2011), Access Network Mapping.

The minimum size for an ANG site under Natural England's definition is 2 hectares, which is considered to be the minimum size to provide a meaningful experience of a natural greenspace. This minimum size class has also been used in this study, although some local authorities may include smaller sites in local assessments.

In order to demonstrate the amount of provision available to the populus, the following maps show ANG provision building up from the local to the regional level. The maps build on each level sequentially; for example Plan 6 shows access to all sites within a distance of 5km. i.e. this includes sites in the 300m and 2km standards in addition to the 5km standard.

Provision of ANG within 300m

The first ANG Standard of access to greenspace of at least 2 hectares in size, no more than 300 metres (a 5 minute walk) from home reflects the need to have accessible greenspace within an easy walking distance. This standard is particularly important to link with health.

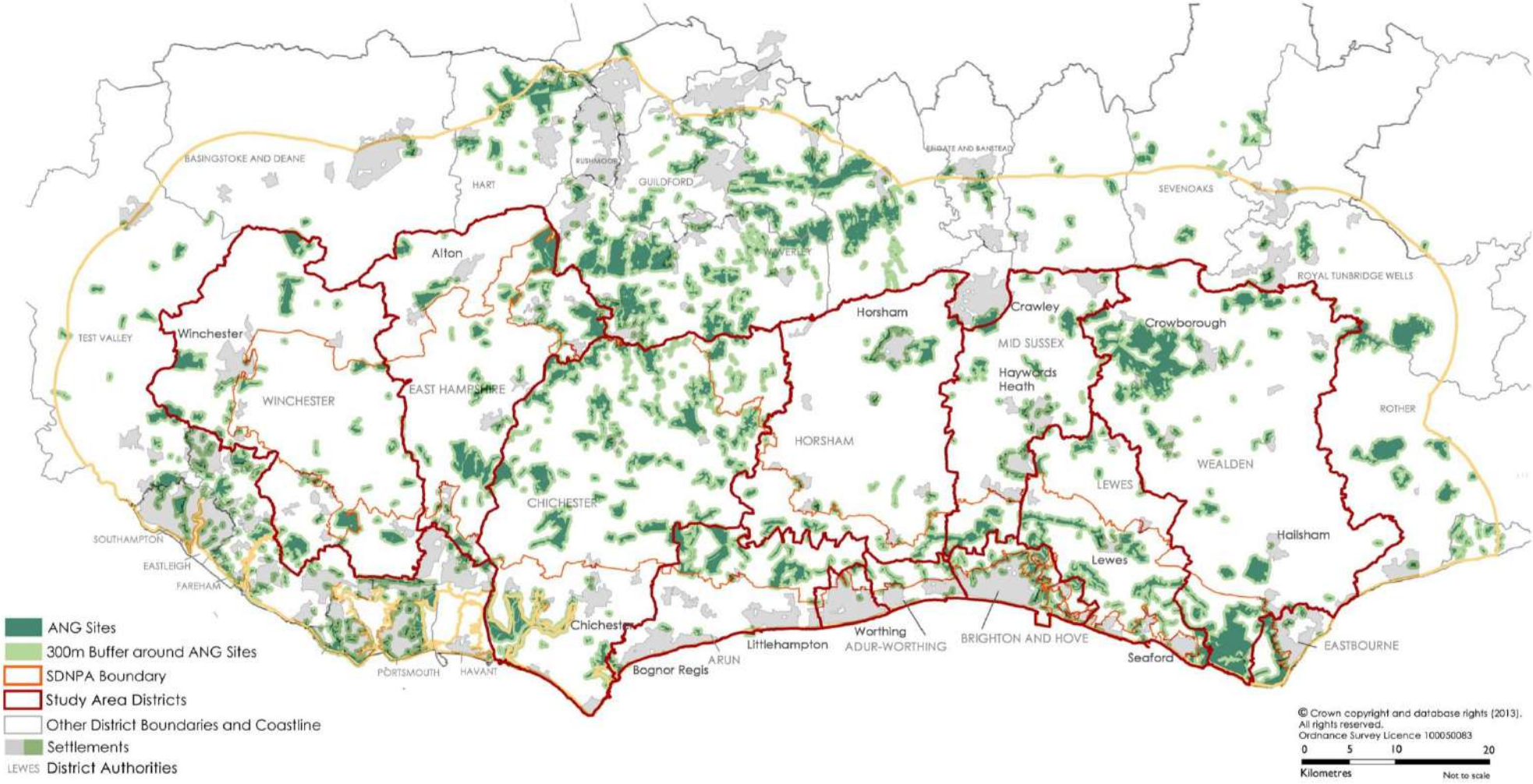
Plan 2 shows the provision of all ANG sites, each surrounded by a 300m buffer. Table 1 shows the levels of provision of ANG within 300m for each district and for the proportion of the district within the South Downs National Park.

This analysis shows clearly that meeting the 300m standard is difficult to achieve. Even in the highest scoring district, Brighton and Hove, only 27.6% of the population has access to ANG within 300m. Residents within the National Park have greater levels of provision than the study area as a whole. This lack of ANG within 300m for most residents is also demonstrated clearly in Plan 3, which shows households which do and do not have access to ANG within 300m.

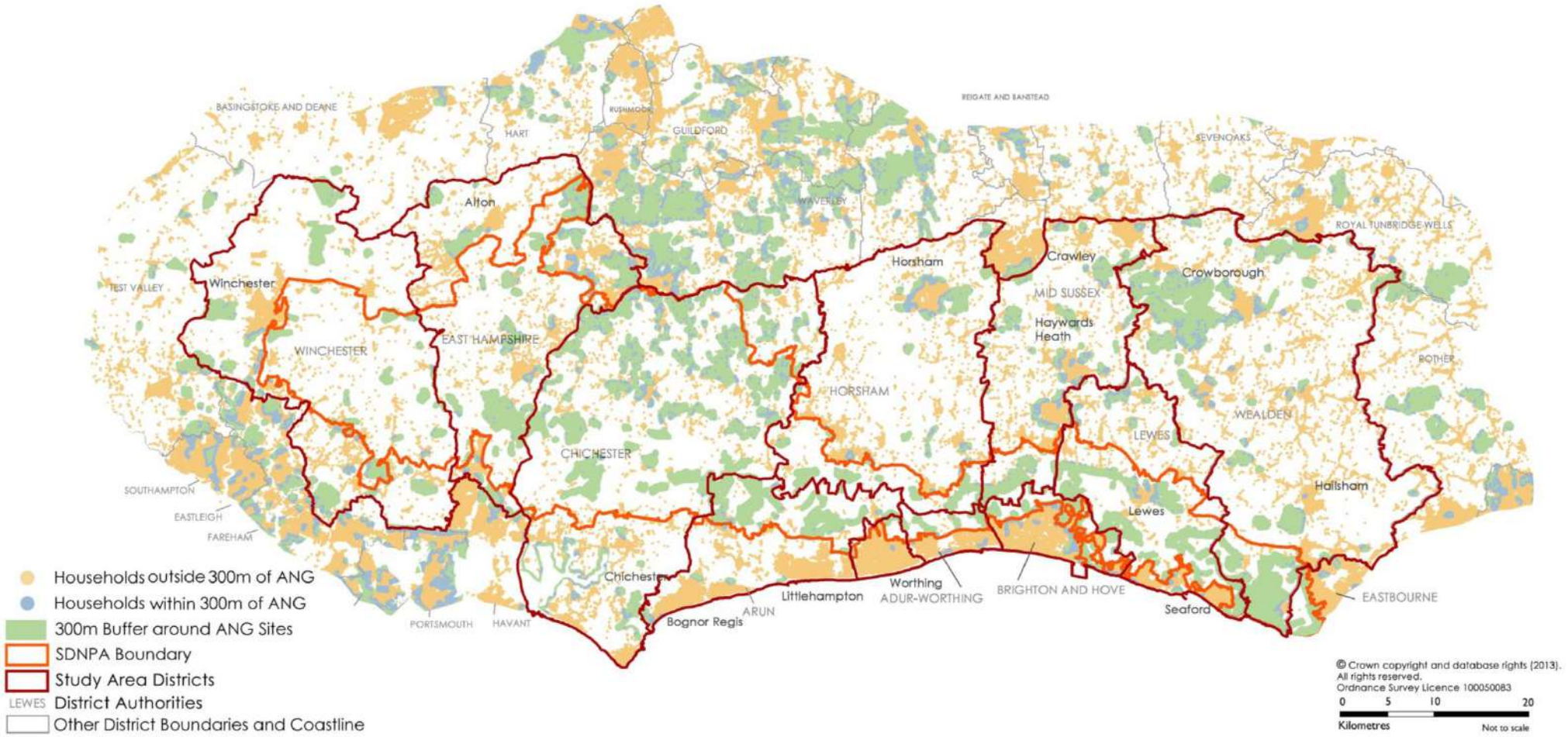
Table 3: Access to ANG within 300m

	Households - no 300m ANG	Households - have 300m ANG	% Population - no 300m ANG	% Population - has 300m ANG	Population - no 300m ANG	Population - has 300m ANG	Rank 1=best
Whole District							
Brighton and Hove	53347	20385	72.4	27.6	197790	75579	1
East Hampshire	23509	8121	74.3	25.7	85926	29682	2
Horsham	24286	8097	75.0	25.0	98471	32830	3
Mid Sussex	31514	9248	77.3	22.7	108129	31731	4
Lewes	25557	7351	77.7	22.3	75722	21780	5
Chichester	22220	5612	79.8	20.2	90849	22945	6
Winchester	24220	5877	80.5	19.5	93828	22767	7
Wealden	35273	7782	81.9	18.1	121999	26916	8
Eastbourne	27919	6018	82.3	17.7	81783	17629	9
Adur-Worthing	55851	4954	91.9	8.1	152312	13510	10
Arun	52717	2272	95.9	4.1	143340	6178	11
Total/Average	376413	85192	81.5	18.5	1251376	300320	
Within South Downs National Park Area							
Mid Sussex	101	92	52.3	47.7	347	316	1
Lewes	3966	3497	53.1	46.9	11941	10529	2
Chichester	5754	3170	64.5	35.5	23526	12961	3
Brighton and Hove	66	36	64.7	35.3	245	133	4
Adur-Worthing	68	24	73.9	26.1	185	65	5
Arun	803	280	74.1	25.9	2183	761	6
Wealden	812	271	75.0	25.0	2808	937	7
East Hampshire	6844	1877	78.5	21.5	25015	6860	8
Eastbourne	4	1	80.0	20.0	12	3	9
Horsham	409	78	84.0	16.0	1658	316	10
Winchester	2249	263	89.5	10.5	8713	1019	11
Total/Average	21076	9589	68.7	31.3	76633	33902	

Plan 2: ANG Sites with 300m Buffer



Plan 3: Households with and without Access to ANG within 300m



Access to ANG within 2km

The second ANG standard requires at least one accessible 20 hectare site within two kilometres of home, which is within cycling distance and within walking distance for some.

In Plans 4 and 5 any sites of 20 hectares or above are shown with a 2km buffer. Sites less than 20 hectares are shown with a 300m buffer. Table 2 summarises analyses for each district and for the portion of the district within the South Downs National Park.

In all districts the 2km ANG standard has a higher level of attainment than the 300m standard with, apart from two districts, over half the population within each district having access to ANG within 2km. Overall, nearly two thirds of residents in the study area districts have access to ANG within 2km, with Mid Sussex scoring highest with 89% of residents with ANG within 2km and Arun worst with 37%.

In the National Park area the overall percentage of residents with access to ANG within 2km rises to 90%, with several districts in which all residents have access to ANG within 2km. However, these are the districts with a low population living in the National Park.

Access to ANG within 5km

Plan 6 shows access to sites of a sufficient size within 5km, or a short cycle ride, of home. In this plan any sites over 100 hectares, i.e. those in the largest two categories, are shown with a 5km buffer. Natural England recommends that a site of at least 100 hectares is accessible within 5km. The smaller sites are considered to be more local and sites of 20 hectares or above are therefore shown with a 2km buffer and sites less than 20 hectares are shown with a 300m buffer. Table 3 summarises analyses for each district and for portions of the district within the South Downs National Park.

Widening the proximity of ANG sites to 5km has the result that, for most districts, over 80% of the population has access to ANG, with Chichester the highest at 99.9%. Adur-Worthing is the exception to this, however, with only 62% of the population having access to ANG within 5km.

Regional Scale ANG

Plan 7 shows the largest size category, those sites over 500 hectares, with a 10km buffer. Table 4 summarises analyses for each district and for portions of the district within the South Downs National Park.

There are 11 sites within the study area which fall into this largest size category. Two of these are within the South Downs National Park; the area around the Seven Sisters Country Park and the Forestry Commission estate around Stoughton, west of Chichester. Some of these sites may be classed as being sensitive to recreation, see further discussion in the Recreation and Biodiversity section.

It should be noted that there may be other groupings of sites which together provide a significant accessible natural greenspace resource but which do not fall within the category of greater than 500 hectare sites. This is due to the methodology of the original ANG dataset construction. Sites severed by physical barriers, primarily motorways, primary and A-class roads and railways, were recorded as separate sites.[30]

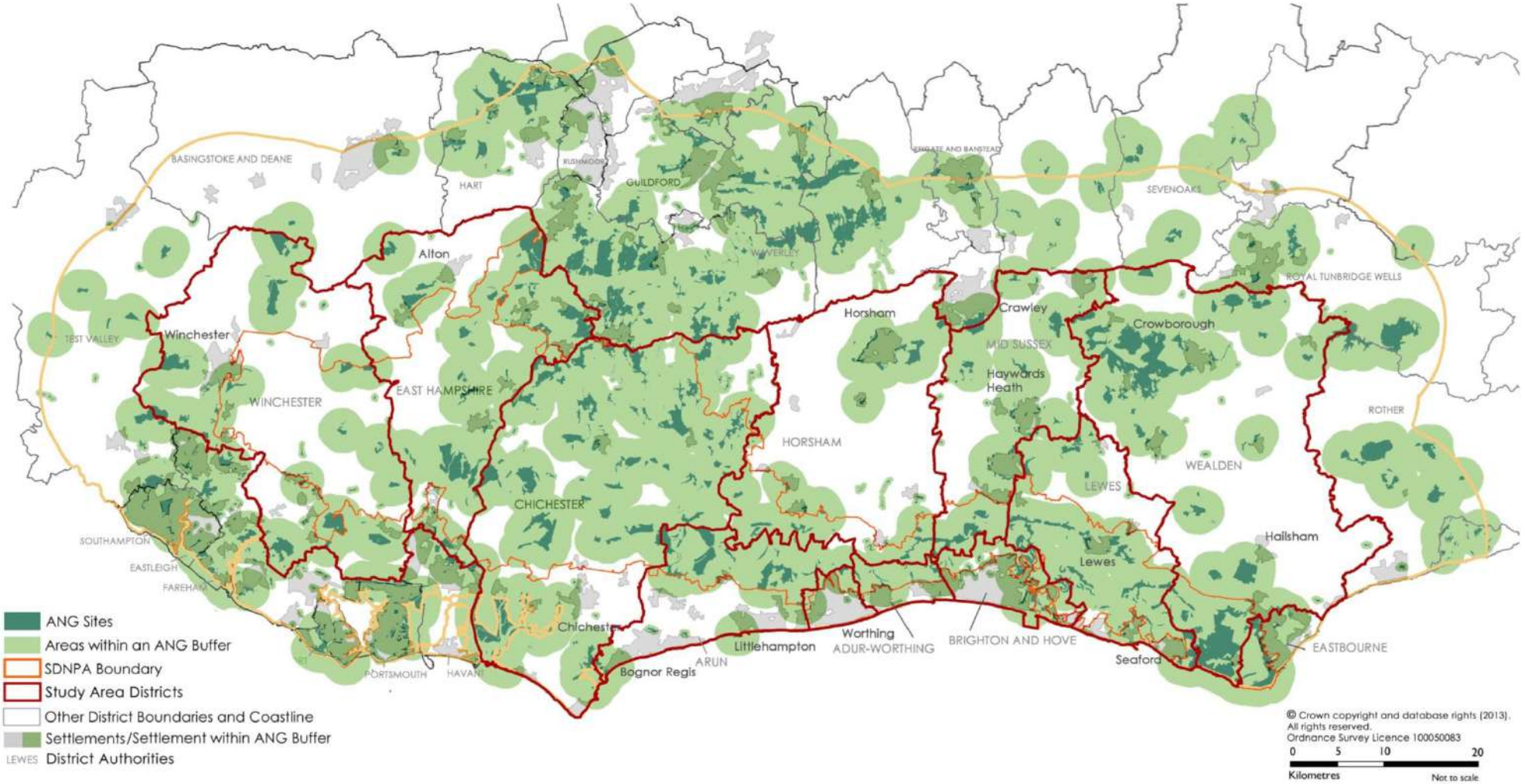
Due to the low number of sites many residents do not have any access to regional scale ANG. No residents in Adur-Worthing or Brighton have 500 hectares sites within 10km and very few residents in Winchester and Horsham districts.

[30] McKernan, P., Grose, M., (2007), An Analysis of Accessible Natural Greenspace Provision in the South East, produced for the South East AONBs Woodland Programme, Forestry Commission, Natural England, p15.

Table 4: Access to ANG within 2km

	Households - no 300m/2km ANG	Households - have 300m/2km ANG	% Population - no 300m/2km ANG	% Population - has 300m/2km ANG	Population - no 300m/2km ANG	Population - has 300m/2km ANG	Rank 1=best
Whole District							
Mid Sussex	4677	36085	11.5	88.5	12755	98408	1
East Hampshire	3703	27927	11.7	88.3	10069	75935	2
Eastbourne	6850	27087	20.2	79.8	25397	100428	3
Wealden	10919	32136	25.4	74.6	44643	131391	4
Horsham	8378	24005	25.9	74.1	30622	87739	5
Chichester	7625	20207	27.4	72.6	22336	59193	6
Lewes	9557	23351	29.0	71.0	28316	69186	7
Brighton and Hove	26359	47373	35.7	64.3	79364	142635	8
Winchester	13297	16800	44.2	55.8	45624	57643	9
Adur-Worthing	31616	29189	52.0	48.0	109351	100956	10
Arun	34861	20128	63.4	36.6	135051	77975	11
Total/Average	157842	303763	34.2	65.8	543207	999168	
Within South Downs National Park Area							
Eastbourne	0	5	0	100	0	17	1 =
Adur-Worthing	0	92	0	100	0	277	1 =
Arun	0	1083	0	100	0	4428	1 =
Wealden	0	1083	0	100	0	4015	1 =
Lewes	38	7425	0.5	99.5	104	20249	5
Mid Sussex	9	184	4.7	95.3	24	500	6
East Hampshire	460	8261	5.3	94.7	1591	28572	7
Horsham	28	459	5.7	94.3	102	1678	8
Brighton and Hove	6	96	5.9	94.1	18	281	9
Chichester	1026	7898	11.5	88.5	4160	32023	10
Winchester	1260	1252	50.2	49.8	4881	4850	11
Total/Average	2827	27838	9.2	90.8	10880	96892	

Plan 4: Access to ANG within 2km



Plan 5: Households with and without Access to ANG within 2km

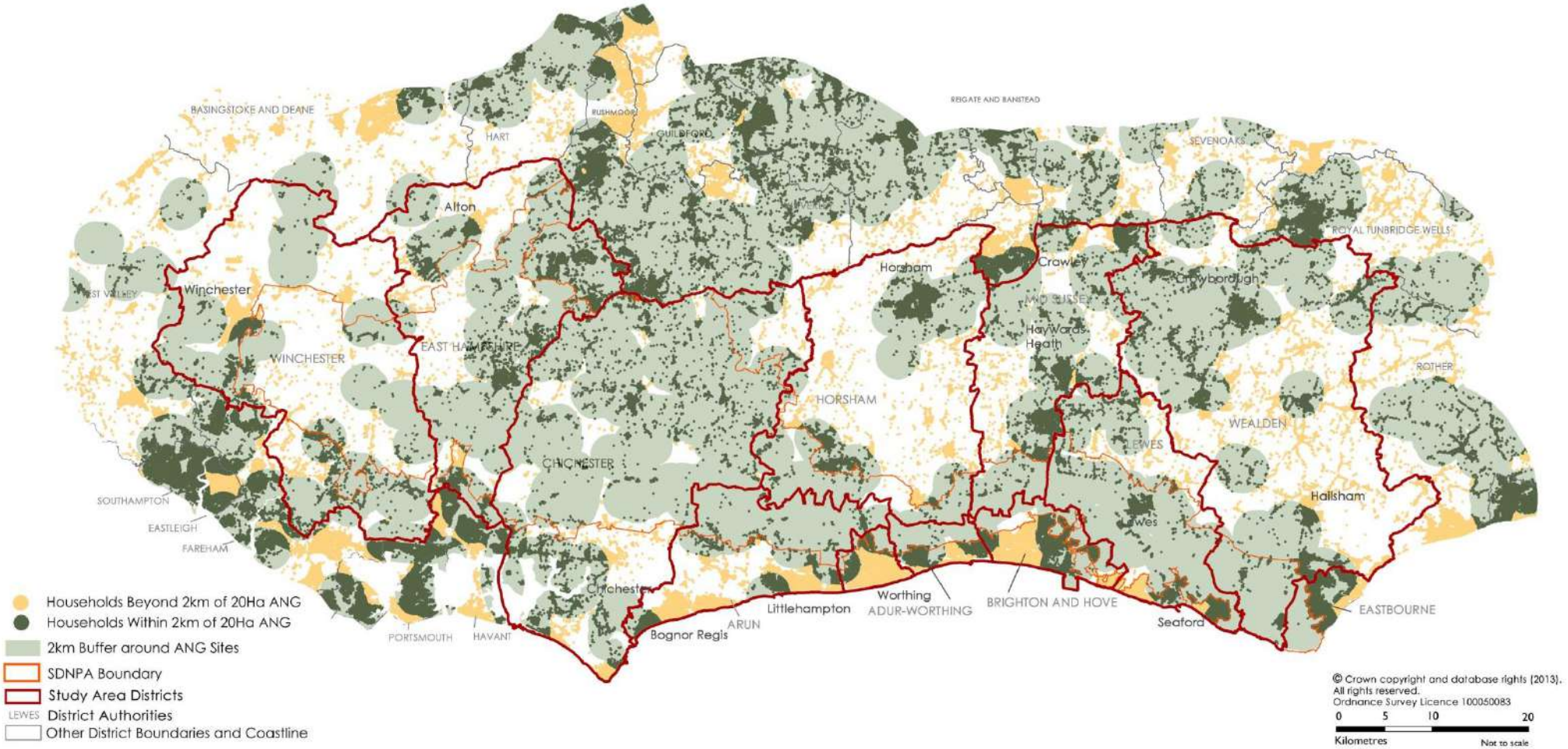


Table 5: Access to ANG within 5km

	Households - no 300m/2km /5km ANG	Households - have 300m/2km /5km ANG	% Population - no 300m/2km /5km ANG	% Population - has 300m/2km /5km ANG	Population - no 300m/2km /5km ANG	Population - has 300m/2km /5km ANG	Rank 1=best
Whole District							
Chichester	36	27796	0.1	99.9	98	75803	1
East Hampshire	403	31227	1.3	98.7	1096	84908	2
Mid Sussex	584	40178	1.4	98.6	2165	148964	3
Lewes	844	32064	2.6	97.4	2501	95001	4
Eastbourne	1030	32907	3.0	97.0	3765	120275	5
Horsham	3986	28397	12.3	87.7	11676	83184	6
Winchester	3816	26281	12.7	87.3	15472	106560	7
Arun	7634	47355	13.9	86.1	22985	142581	8
Wealden	6677	36378	15.5	84.5	22910	124818	9
Brighton and Hove	13986	59746	19.0	81.0	48374	206644	10
Adur-Worthing	23113	37692	38.0	62.0	89539	146018	11
Total/Average	62109	399496	13.5	86.5	221209	1356689	
Within South Downs National Park Area							
Eastbourne	0	5	0	100	0	17	1 =
Adur-Worthing	0	92	0	100	0	277	1 =
Arun	0	1083	0	100	0	4428	1 =
Wealden	0	1083	0	100	0	4015	1 =
Lewes	0	7463	0	100	0	20352	1 =
Mid Sussex	0	193	0	100	0	525	1 =
Brighton and Hove	0	102	0	100	0	353	1 =
Chichester	0	8924	0	100	0	32617	1 =
East Hampshire	41	8680	0.5	99.5	120	25426	9
Horsham	7	480	1.4	98.6	28	1946	10
Winchester	736	1776	29.3	70.7	2851	6880	11
Total/Average	784	29881	2.6	97.4	3000	96838	

Plan 6: Access to ANG Greater than 100 hectares within 5km

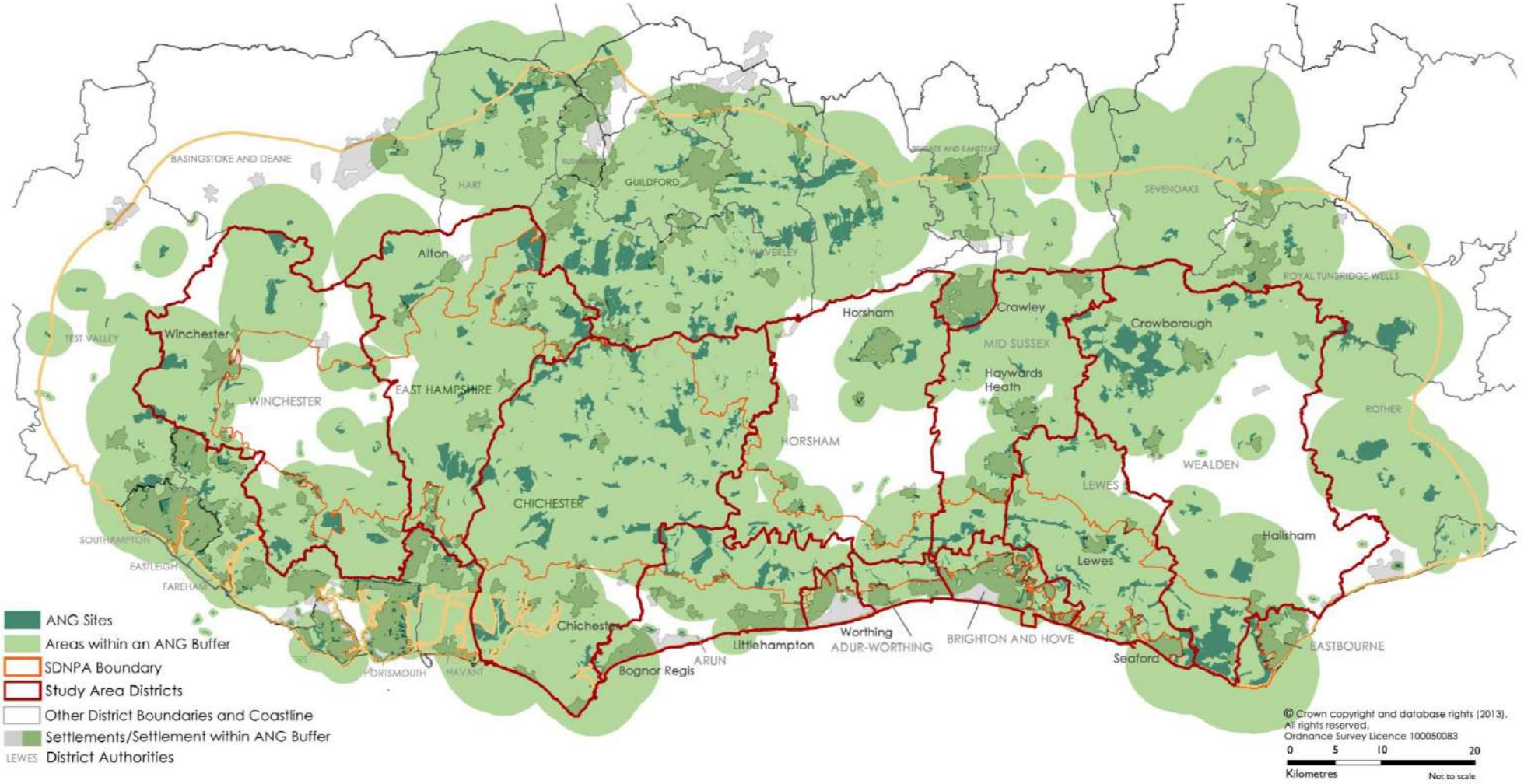
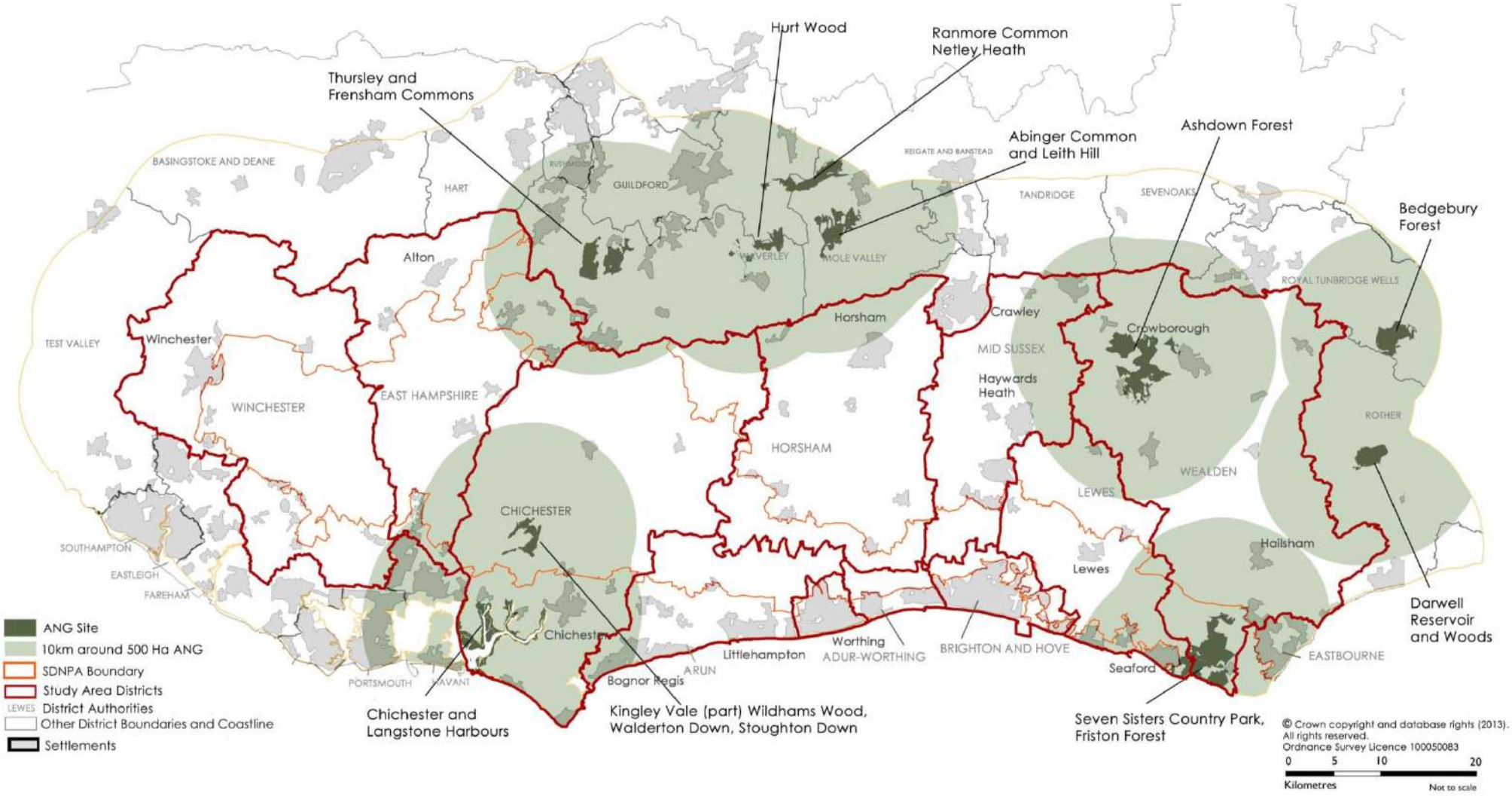


Table 6: Access to Regional Scale ANG

	Households - no 10km ANG	Households - has 10km ANG	% Population - no 10km ANG	% Population - has10km ANG	Population - no10km ANG	Population - has 10km ANG	Rank 1=best
Whole District							
Eastbourne	0	33937	0	100	0	99412	1
Wealden	3980	39075	9.2	90.8	13766	135149	2
Chichester	4443	23389	16.0	84.0	18166	95628	3
Lewes	11834	21074	36.0	64.0	35063	62439	4
East Hampshire	15825	15805	50.0	50.0	57841	57767	5
Mid Sussex	28214	12548	69.2	30.8	96806	43054	6
Arun	40191	14798	73.1	26.9	109281	40237	7
Horsham	29636	2747	91.5	8.5	120163	11138	8
Winchester	30054	43	99.9	0.1	116428	167	9
Adur-Worthing	60805	0	100	0	165822	0	10=
Brighton and Hove	73732	0	100	0	273369	0	10=
Total/Average	298714	162891	64.7	35.3	1007273	544423	
Within South Downs National Park Area							
Wealden	0	1083	0	100	0	3746	1=
Eastbourne	0	5	0	100	0	15	1=
Chichester	3993	4931	44.7	55.3	16326	20161	3
East Hampshire	8223	498	94.3	5.7	30055	1820	4
Lewes	7203	260	96.5	3.5	21688	783	5
Mid Sussex	193	0	100	0	662	0	6=
Brighton and Hove	102	0	100	0	378	0	6=
Adur-Worthing	92	0	100	0	251	0	6=
Arun	1083	0	100	0	2945	0	6=
Horsham	487	0	100	0	1975	0	6=
Winchester	2512	0	100	0	9731	0	6=
Total/Average	23888	6777	77.9	22.1	84011	26524	

Plan 7: Regional Scale ANG (500 Hectare and Greater Sites)



Access to ANG – All Scales

Plan 8 shows access to ANG of all size classes. Areas in white, which do not fall under an ANG buffer of any size, therefore do not have access to ANG within the recommended proximity required by the ANG standards. Table 6 summarises analyses for each district and for portion of the district within the South Downs National Park. Plan 9 shows this information alongside households.

Most residents of the study area have access to at least one ANG site within the recommended proximity standard. In two districts all residents have access to at least one site within the recommended distance. Over 90% of residents in East Hampshire, Mid Sussex and Wealden meet at least one ANG standard, with over 80% of residents in Horsham, Winchester, Arun and Brighton and Hove. Adur-Worthing has the lowest percentage meeting any ANG standard, at 62%.

Density of ANG Provision

It is clear from Plans 8 and 9 that most residents of the study area and the National Park have access to ANG at some scale, and qualify under at least one ANG standard. However, this does not give an indication of the density of ANG provision and some residents may only have access to a limited number of ANG. This could also lead to increased pressure on ANG sites in areas where ANG choice is more limited.

Plan 10 demonstrates the density of ANG provision, showing where the buffers of each ANG sites coincide. This provides an indication of the choice of ANG sites for any given area. Chichester District and Eastbourne have good ANG provision across most of the district. East Hampshire, Wealden, Lewes and Mid Sussex also have good provision in some areas, but also have areas of low provision. Winchester and Horsham only have isolated areas with good levels of ANG choice.

Within the South Downs National Park, ANG density is generally greater. Certainly the eastern end of the National Park provides some of the densest pockets of ANG provision for residents in Lewes, Eastbourne, Wealden and Mid Sussex (along with the Ashdown Forest for the latter two districts). However, the ANG density within the National Park in Winchester District is very low.

Provision of Local Nature Reserves

The standard for provision of Local Nature Reserves set by Natural England calls for a minimum of one hectare of statutory Local Nature Reserve per thousand population.

Most districts pass this standard, as shown in Table 5. This is, however, a fairly crude measure when calculated at district level. A district with a few, but large, LNRs will return a higher area of LNR per 1000 population, but pressure on these few sites may be greater. The sites may also not be close to settlements, so the sites may not be locally accessible despite a high level compliance with the standard.

Plan 11 shows the Local Nature Reserves of the study area surrounded by a 2km buffer and with households outside of this buffer highlighted. This helps to understand the spatial distribution of LNRs in the study area and their proximity to settlements.

East Hampshire has the greatest number of LNRs at 13, whilst Chichester has the greatest area at 1639 hectares. Brighton and Hove has the lowest percentage of population which does not have access to a LNR within 2km, with only 20% not having access. This is due to a network of

LNR sites around the urban edge on the downs, which are therefore within 2km of a large population. Winchester district has only a few LNR sites which, due to their location, are only within 2km of small settlements. Therefore most of the population of Winchester district does not have access to an LNR within 2km.

Table 7: Provision of Local Nature Reserves

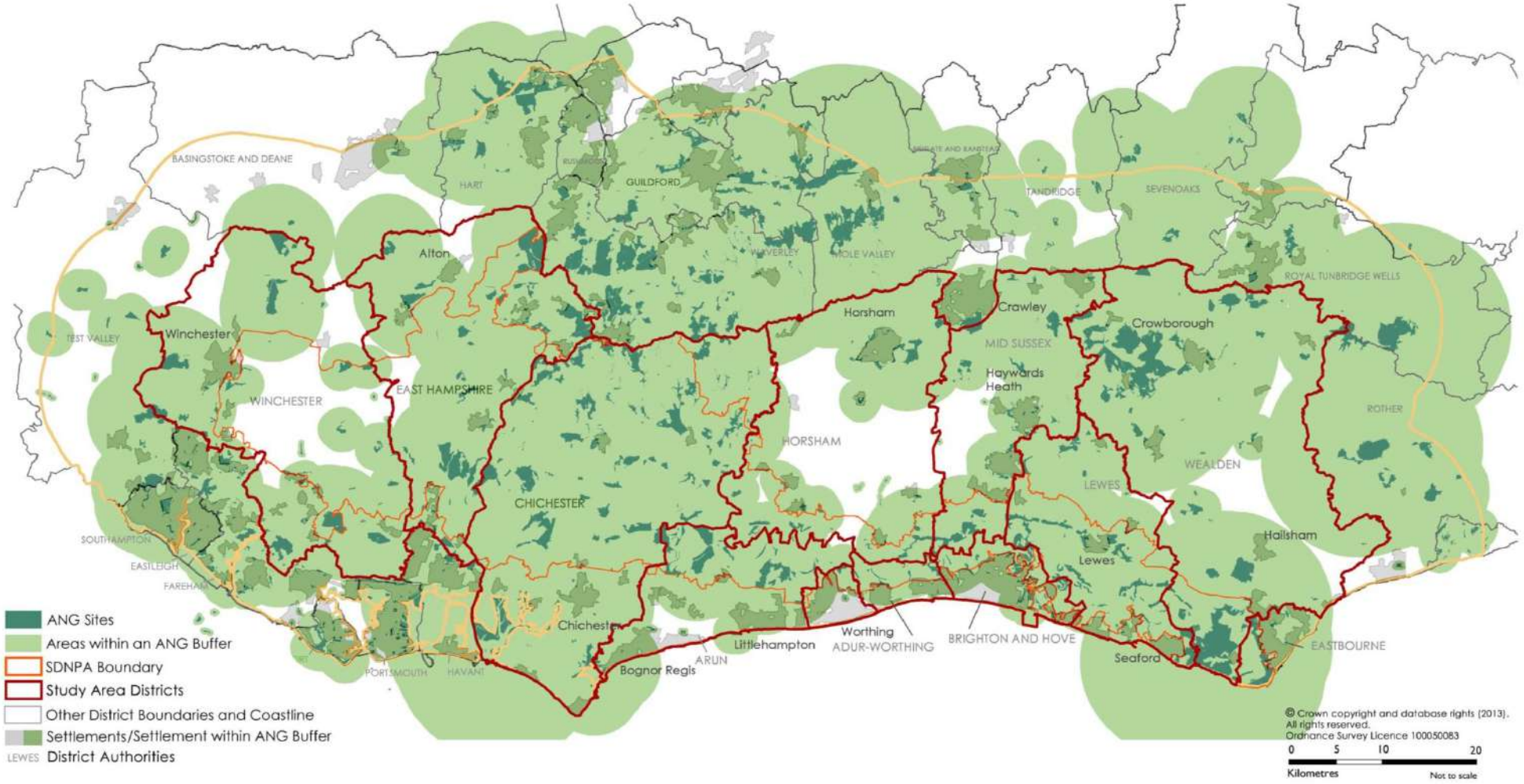
Passes Natural England Standard	

	Population (Census 2011)	Number of LNRs	Total Areas of LNRs (Ha)	Total Households	Households without LNR within 2km	% Households without LNR within 2km	Rank by Area of LNR (Ha) 1=Best	Rank by % of Households with LNR within 2km 1=Best	Hectares of LNR per 1000 population
Chichester	115608	9	1639	27832	16432	59.0	1	6	14.2
Brighton and Hove	113794	8	596	73732	14918	20.2	3	1	5.2
Lewes	97502	5	407	32383	14772	45.6	5	3	4.2
Wealden	148915	7	538	43055	32575	75.7	4	9	3.6
East Hampshire	99412	13	336	31630	12756	40.3	7	2	3.4
Mid Sussex	139860	8	394	40762	21002	51.5	6	4	2.8
Arun	273369	4	695	54989	31594	57.5	2	5	2.5
Winchester	116595	9	109	30097	24738	82.2	8	10	0.9
Adur-Worthing	149518	4	77	60805	39183	64.4	9	8	0.5
Horsham	131301	3	52	32383	20689	63.9	10	7	0.4
Total/Average	1385874	70	4843	427668	228659	53.5			

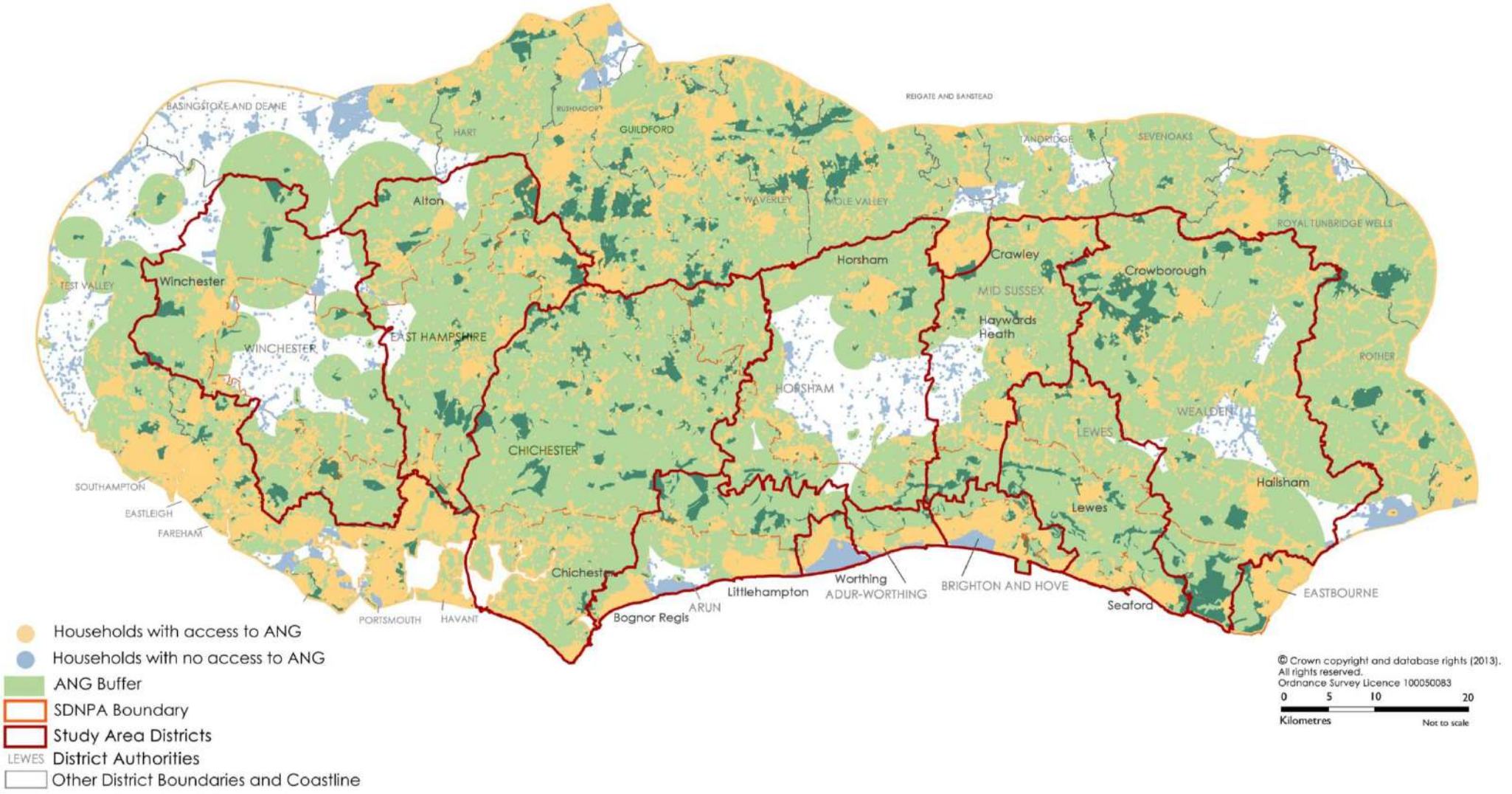
Table 8: Access to any ANG

	Households - no ANG	Households - any ANG	% Population - no ANG	% Population - any ANG	Population - no ANG	Population - any ANG	Rank 1=best
Whole District							
Chichester	0	27832	0.0	100.0	0	75901	1 =
Eastbourne	0	33937	0.0	100.0	0	92276	1 =
Lewes	15	32893	0.0	100.0	44	97458	3
East Hampshire	403	31227	1.3	98.7	1648	127675	4
Mid Sussex	568	40194	1.4	98.6	2076	146910	5
Wealden	1448	41607	3.4	96.6	4242	121880	6
Horsham	3406	28977	10.5	89.5	13810	117491	7
Winchester	3816	26281	12.7	87.3	11490	79129	8
Arun	7300	47689	13.3	86.7	25047	163627	9
Brighton and Hove	13986	59746	19.0	81.0	48374	206644	10
Adur-Worthing	23113	37692	38.0	62.0	89539	146018	11
Total/Average	54055	407550	11.7	88.3	196266	1365562	
Within South Downs National Park Area							
Eastbourne	0	5	0	100	0	17	1 =
Adur-Worthing	0	92	0	100	0	277	1 =
Arun	0	1083	0	100	0	4428	1 =
Wealden	0	1083	0	100	0	4015	1 =
Lewes	0	7463	0	100	0	20352	1 =
Mid Sussex	0	193	0	100	0	525	1 =
Brighton and Hove	0	102	0	100	0	353	1 =
Chichester	0	8924	0	100	0	32617	1 =
East Hampshire	41	8680	0.5	99.5	120	25426	9
Horsham	7	480	1.4	98.6	28	1946	10
Winchester	736	1776	29.3	70.7	2851	6880	11
Total/Average	784	29881	2.6	97.4	3000	96838	

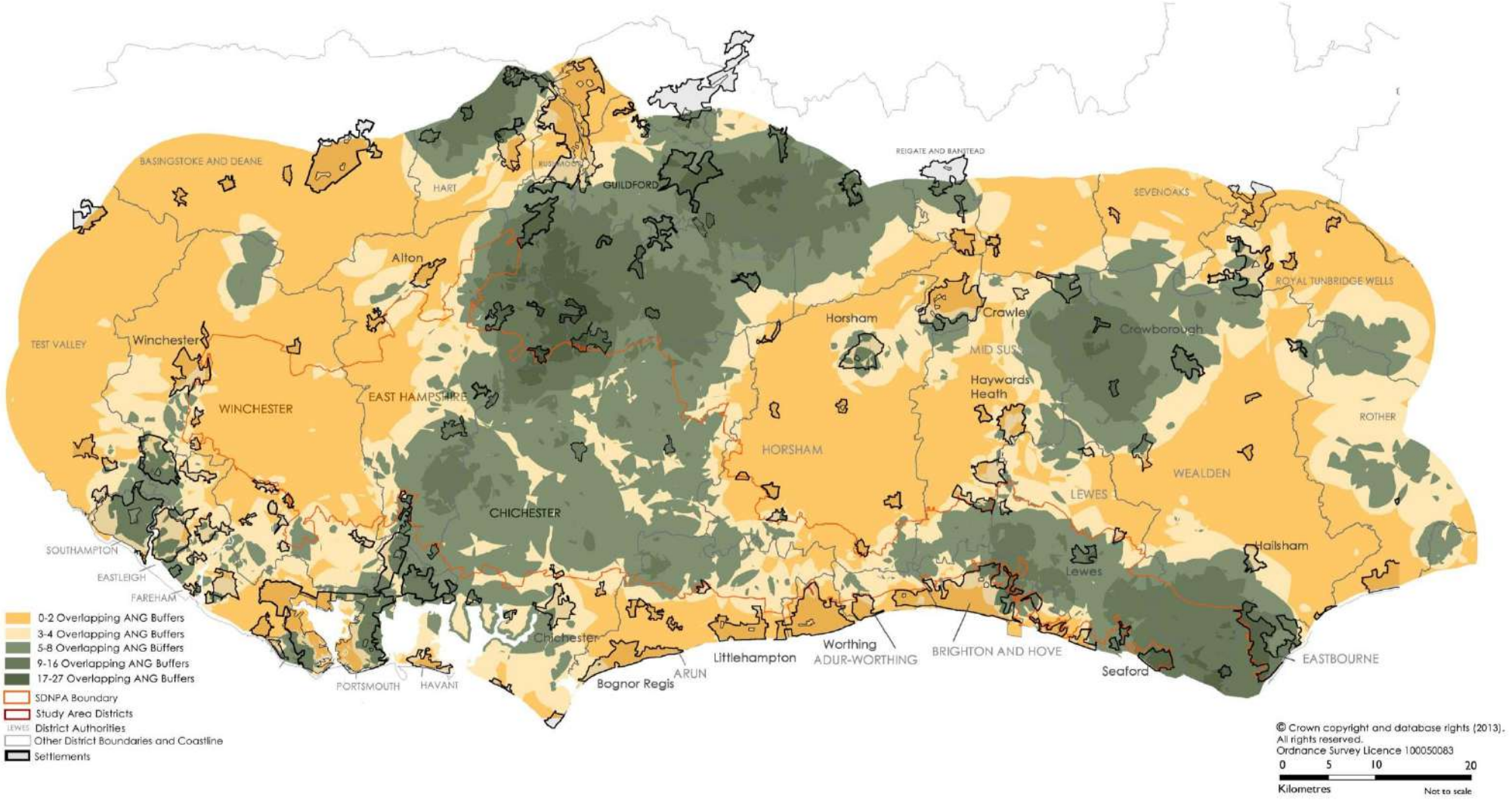
Plan 8: Areas with Access to any ANG/no ANG



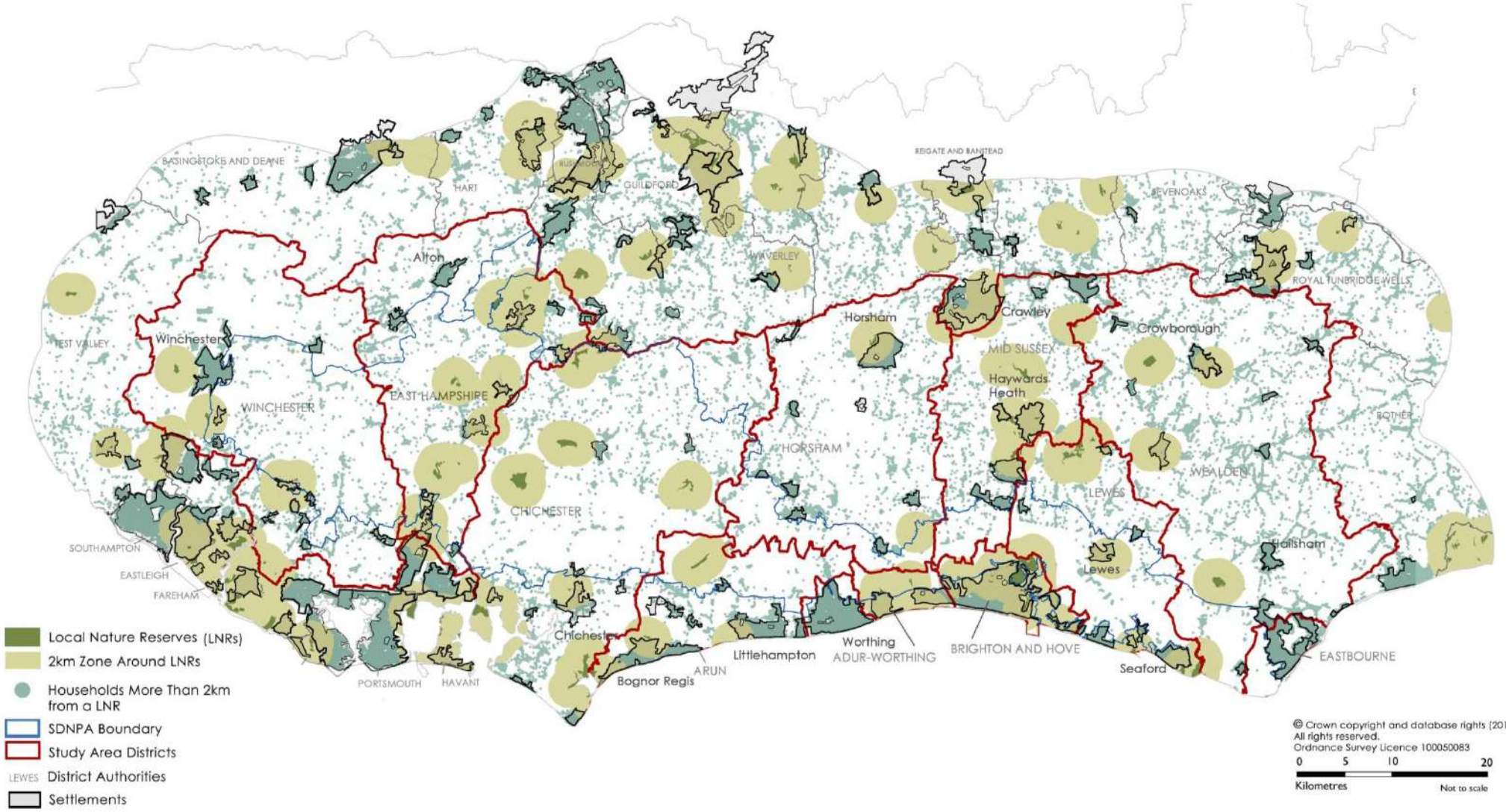
Plan 9: Areas with Access to ANG/No ANG – All Households



Plan 10: Density of ANG Provision



Plan 11: Local Nature Reserves with 2km Buffer



Summary of Key Points

- Chichester District has the best overall provision of ANG, with no residents lacking ANG at some scale. Provision is also good in the whole SDNPA area of Chichester;
- Of the non-coastal urban districts, Winchester has poor ANG provision, lacking in ANG on most scales and not scoring higher than 7th for any ANG type. There is also very little ANG provision in the entire SDNPA area of Winchester. Although this area is sparsely populated, this does have implications for the rural communities of this area as outlined previously. This area also has moderate to low provision of rights of way. This deficit is recognised in the Winchester City Council Green Infrastructure Strategy. The workshop carried out in the development of this strategy indicated that the biggest deficit in Winchester is the lack of natural green space close to settlements for casual walking and dog exercise. Other needs for the local authority area reported include gaps in existing rights of way provision and need to create new strategic links along with a deficit of 500ha sites within 10km of home to serve the District. The strategy sets out policies and actions to work towards addressing these deficiencies;
- The coastal towns all have low provision of ANG within the urban areas;
- Of the coastal towns, larger areas of Brighton and Eastbourne in comparison to other coastal towns have access to ANG within 2km due to good provision on the outskirts of the towns, most of which is within the SDNP;
- Bognor Regis, Littlehampton, Worthing, eastern Brighton town and Peacehaven are the most poorly served by ANG (south of the National Park);
- Within Arun and Adur-Worthing virtually all ANG is within the National Park and not within the urban area;
- Residents of Adur-Worthing, Arun and Brighton and Hove have no or very little access to regional scale ANG;
- The National Park is an important area for provision of ANG for the whole urban coastal belt;
- Horsham as a district has the largest area which does not have any ANG provision. However, due to the pattern of ANG and settlements coinciding, the majority of the population are within a 2km distance of an ANG site. It should be noted that significant areas of major development are planned for Horsham District and neighbouring Crawley, see Plan 20;
- Larger urban areas where ANG choice is limited to two or less sites are, outside of the coastal towns, Winchester, Haywards Heath, Burgess Hill and Alton;
- Several smaller rural towns and larger villages also lack ANG. Overall statistics for the district as a whole can mask deficiencies in these settlements as these have smaller populations;
- Smaller towns and villages on the boundary or within SDNPA lacking ANG include:
    - New Alresford, Twyford, Bishop's Waltham, Swanmore (all Winchester);
    - Four Marks (East Hampshire);
    - Pulborough, Chiltington, Storrington, Steyning (all Horsham);
- ANG provision is generally higher in the South Downs National Park than the surrounding area, with particular concentrations in the SDNPA areas within the districts of Wealden, Lewes and Mid Sussex.

Discussion

The distance thresholds of the ANG Standards relate to the distances people are willing to travel to access natural greenspace. It is clear that meeting the 300m ANG standard is particularly challenging, especially in urban areas and rural settlements where the opportunity for new greenspace is limited.

The 300m and 2km ANG standards are particularly important to strive to attain, however, as they provide access to natural areas within easy access distances. This is particularly apposite when considering links with physical activity and health, as proximity and ease of access are key factors in increasing levels of physical activity.

It is difficult to 'retro-fit' ANG into existing urban areas. This means that it is particularly important for ANG to be incorporated into new housing developments and growth areas. This is explored in more detail in the section on 'Development'. The provision of additional ANG sites in new development can, however, be regarded as an additional burden to the amenity greenspace already required. It is therefore important to integrate the naturalness component into other greenspace requirements.

It may also be difficult to provide new ANG in rural areas. This is pertinent to several smaller towns and larger villages in the study area.

In areas where there is a low level of accessible greenspace other areas take on a greater significance for providing access opportunities. The public rights of way network and other linear routes, for example, become increasingly important both for an access resource in themselves and for improving connectivity, see section 'The Access and Public Transport Network'.

The urban fringe is a particularly important area for ANG provision. Innovative approaches to increase access, improve nature and improve connectivity in the urban fringe area can make a significant contribution to local access provision. Such an approach is being developed in Petersfield.[31]

It is also possible to increase access to natural spaces through increasing the natural component of existing greenspace sites. This can be achieved by improving habitats and providing more natural areas in more formal parks or other greenspaces. This will also help local authorities to meet the 'biodiversity duty' under Section 40 of the Natural Environment and Communities Act (2006). This could be particularly important for urban areas where the opportunities for provision of new greenspace are limited.

Although areas which have deficits in ANG may be obvious targets for action, particularly those in urban areas with high populations and low health, those areas which have good ANG provision should not be overlooked. In these areas the public, health, biodiversity and tourism benefits of a concentration of ANG sites need to be maintained through a policy of protecting and enhancing these areas. These areas may also receive high numbers of visitors, requiring support in visitor management (see section Biodiversity and Recreation).

[31] See the East Hampshire Green Infrastructure Strategy (2013).

Health and Other Socio-Economic Factors

Introduction

The links between physical and mental health and access to the countryside and green spaces are well-documented. The natural environment can help to reduce stress, anxiety and depression, can enhance social interaction and promote independent living and it can help promote and sustain increased physical activity.

The Effect of the Natural Environment on Health Inequalities

In England the most deprived communities are 10 times less likely to live in the greenest areas. Understanding the relationship between proximity of green space and its impact on health is improving. A UK study found that income-related inequality in health is affected by exposure to green space.[32] It demonstrated that:

- those with close access to green space lived longer than those with no green space, even when adjusted for social class, employment, smoking etc. and the impact was significantly greater amongst the least well off;
- the survival of older people increases where there is more space for walking near their home, with nearby parks and tree-lined streets;[33]
- children's physical activity levels are increased when they live closer to parks, playgrounds, and recreation areas.[34]

It is known that those at risk of the worst health often live in the worst environments; this contributes to chronic stress, low self-esteem, obesity and physical inactivity. Overall, better health is related to access to green space regardless of socio-economic status,[35] highlighting the importance of providing accessible green spaces to reduce socio-economic health inequalities.

The long term conditions of obesity, diabetes, heart disease and dementia are much more prevalent in deprived communities. These communities are often those which have the least access to greenspace. However, even when adjusted for lifestyle issues such as smoking, alcohol and inactivity, there is still a strong link with lack of access to greenspace. It is thought that the chronic stress of poverty and a hostile environment are also contributory factors.

[32] Mitchell R, Popham F, (2008). Effect of exposure to natural environment on health inequalities: an observational population study. The Lancet 372 (9650): pp 1655-1660.

[33] 436 Maas J, Verheij RA, de Vries S, Spreeuwenberg P, Schellevis FG and Groenewegen PP (2009) Morbidity is related to a green living environment. Journal of Epidemiology and Community Health 63: 967–97.

[34] Davidson K and Lawson C (2006) Do attributes of the physical environment influence children's level of physical activity? International Journal of Behavioural Nutrition and Physical Activity 3 (19): 1-17.

[35] Greenspace Scotland, 2007. The links between greenspace and health: A critical literature review. Greenspace Scotland

Data Sources - Health

In this study a range of health issues were mapped. The results were compared with the availability of natural greenspace in order to identify areas which coincide.

Composite Health Score

Natural England has developed a Composite Health Score comprised of 5 grouped categories of health indicators. It was developed to provide a measure of the types of health issues which are linked most strongly to, or can be improved through, access to the natural environment:

- Life expectancy: Overarching health indicator;
- Physical activity Indicator: 3x30mins per week sport activity;
- Heart disease & stroke, hip fracture and obesity: Physical conditions where natural environment can help (NB diabetes information not available in the format required so not included);
- Mental health: Wellbeing issues where the natural environment can help with stress reduction / blood pressure etc., data (from IMD) showing incidence of benefit claimants.

The health data is provided by SEPHO (South East Public Health Observatory), Sport England and ONS (Office for National Statistics). The data sets are derived from the 2001 Census plus later datasets from SEPHO. Although some of the information is dated, it is still a useful and relevant coalescing of health data.

Data is presented by Middle Super Output Area.

General Health, Census 2011

General health is a self-assessment of a person's general state of health. People are asked whether their health was, good, fair, bad or very bad. This is not based on their assessment of health over a given time period.

Long-term Health Problem or Disability, Census 2011

This is a self-reported assessment of whether a person's daily activities are limited by a health condition. People are asked whether their daily activities are limited, either 'a little' or 'a lot'. A long-term health problem or disability is considered to be one that limits a person's day-to-day activities and has lasted, or is expected to last, at least 12 months.

This and the General Health data can also be regarded to some degree as proxy indicators for quality of life, as they are self-reported indicators and thus reflect the view of the respondent on issues which limit their life in some way.

Data Sources – Socio-Economic Factors

Indices of Multiple Deprivation

Indices of Deprivation provide a relative measure of deprivation.

Deprivation covers a broad range of issues and refers to unmet needs caused by a lack of resources of all kinds, not just financial. The English Indices of Deprivation attempt to measure a broader concept of multiple deprivation, made up of several distinct dimensions, or domains, of deprivation.

Areas are ranked from least deprived to most deprived on seven different dimensions:

- Income deprivation;
- Employment deprivation;
- Health deprivation and disability;
- Education deprivation;
- Crime deprivation;
- Barriers to housing and services deprivation;
- Living environment deprivation.

Car and Van Ownership, Census 2011

This Census data-set records the number of cars or vans owned, or available for use, in a household.

Analyses - Health

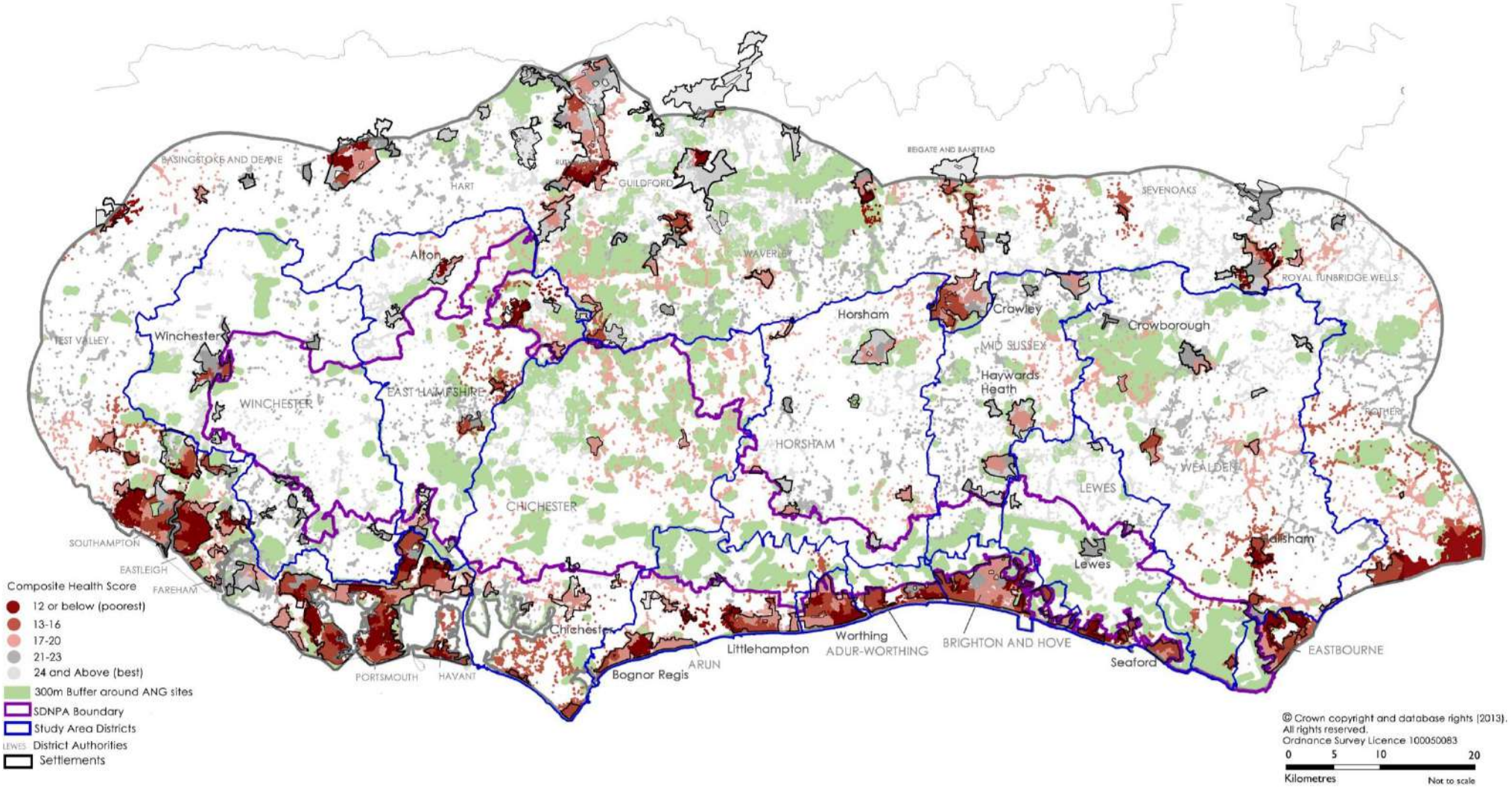
Composite Health Scores

Plan 12 shows all Composite Health Scores mapped using OS household address points alongside ANG sites with 300m buffers. This plan highlights areas with relatively poor/good health in relation to provision of ANG. The lowest scores are the 'unhealthiest' (lowest 6) and the highest scores are the 'healthiest' (29). The plan also shows the 300m catchment area for local ANG.

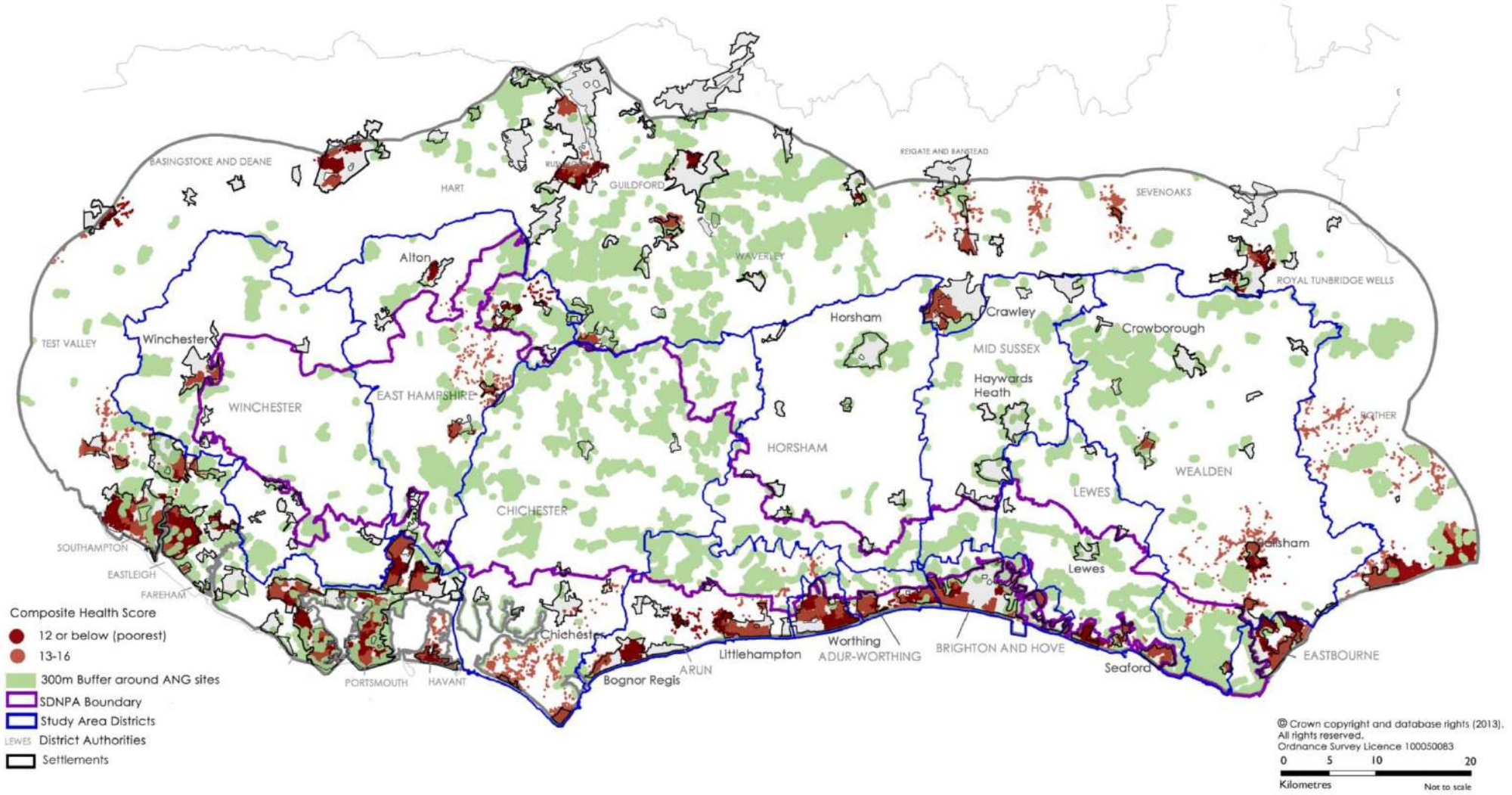
Plan 13 shows households in the two lowest Composite Health Score groupings which fall outside of the 300m ANG buffer, i.e. those who do not have access to local ANG within a short walking distance. This analysis can assist in targeting areas for increased provision of ANG.

Plan 14 shows areas which are in the lowest 25% of Middle Super Output Areas along with those areas with below average scores for Composite Health. This clearly highlights the areas along the south coast.

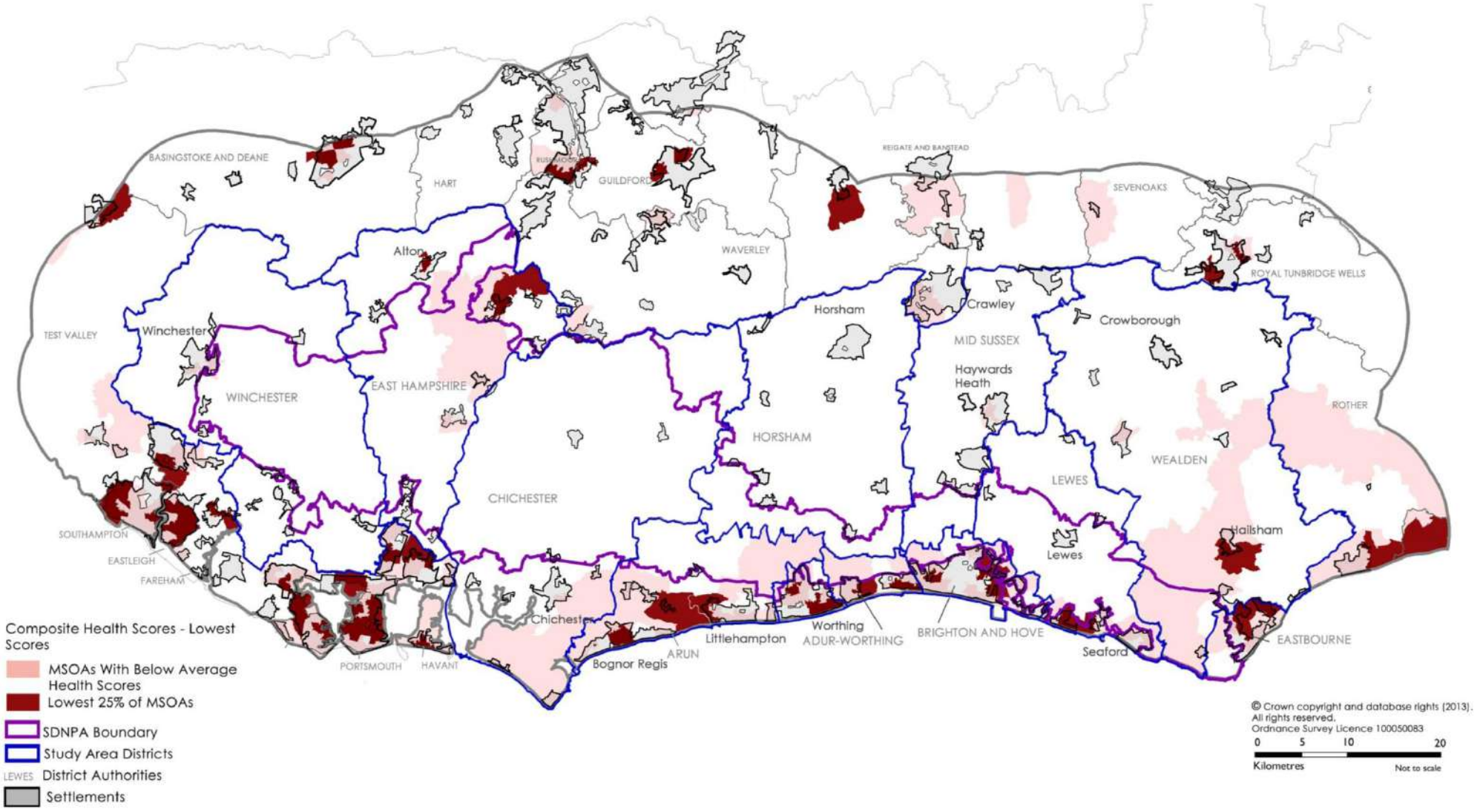
Plan 12: All Composite Health Scores with ANG, 300m Buffer



Plan 13: Two Lowest Composite Health Score Categories, ANG with 300m Buffer



Plan 14: Areas with Below Average Health, Composite Health Score



General Health

Plan 15 shows the General Health of the population, presenting the proportion of the population which responded as having 'bad' or 'very bad' health.

Areas where more than 10% of the population consider themselves to be in bad or very bad health are mostly located in small pockets along the coastal towns in the east of the study area and in Havant, Portsmouth and Southampton in the west. There is a small area around Cuckfield/Haywards Heath with a similarly high level.

In the National Park the levels of general health are better than areas to the south, but similar to areas to the north of the National Park, with a small area on the National Park boundary in Brighton and Hove recording levels of between 6% and 10%.

In East Hampshire an area around Liss has levels of 8% to 10%; and in Lewes, north of Seaford and Newhaven, and in Chichester in the rural areas around Petworth there are levels of 6% to 8%.

There are a number of large rural areas in the National Park where levels of 4% to 6% are recorded.

Long-term Health Problems or Disabilities

Plan 16 shows long-term health problems or disabilities that are considered to be 'limiting'. This data was derived from the latest 2011 Census. This is a self-reporting data set.

Areas where more than 25% of the population report that they have health issues or disabilities that are 'limiting' are found in Waverley, in rural parts of Wealden district just outside the National Park, in Eastbourne and in parts of most of the coastal towns and conurbations to the south of the National Park.

Within the National Park there are extensive areas of largely rural populations that report levels of between 15% and 25%.

The self-reporting health conditions and illnesses which limit people in some way can be a proxy for quality of life; in that people self-report so it is a reflection of how people view the quality of their life in terms of how a health condition affects it.

Analyses – Other Socio–Economic Factors

Indices of Multiple Deprivation

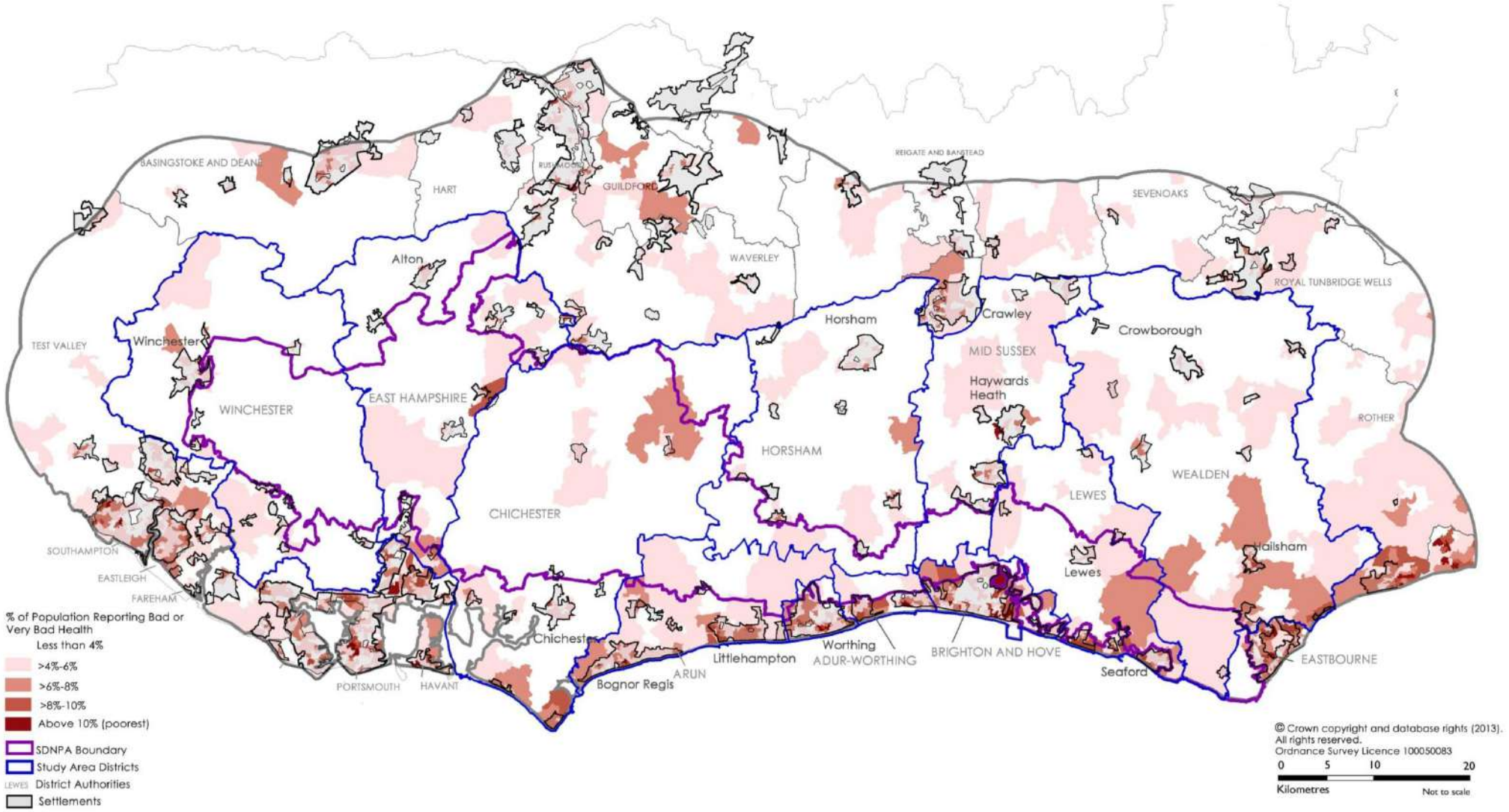
Plan 17 shows areas with some level of deprivation. Scores of below 15 indicate very low levels of deprivation and scores of over 45 indicate areas with the highest (or worst) levels of deprivation.

With the exception of areas closer to the coast in Brighton and Hove and in Lewes District, the National Park appears to be a prosperous area, with low levels of deprivation (i.e. below 25). The poorest scores for deprivation are found along the coast in the towns and conurbations including Brighton, Hove, Littlehampton, Havant, Portsmouth and Southampton.

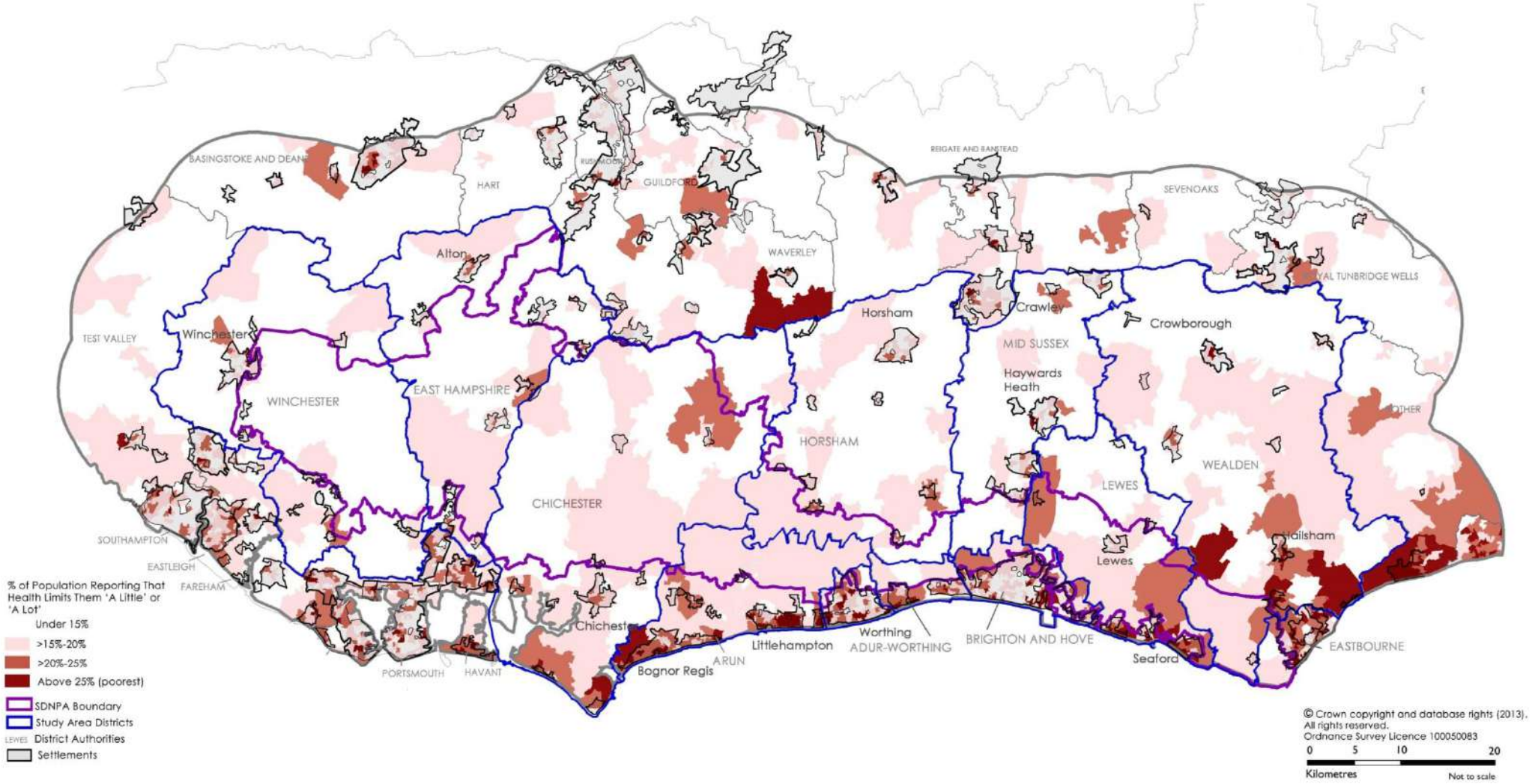
Car and Van Ownership

Plan 18 shows the percentage of households with no car or van. The urban areas along the coast have the lowest percentage of car ownership, with over 40% of households with no car in parts of Brighton, Worthing, Portsmouth and Southampton.

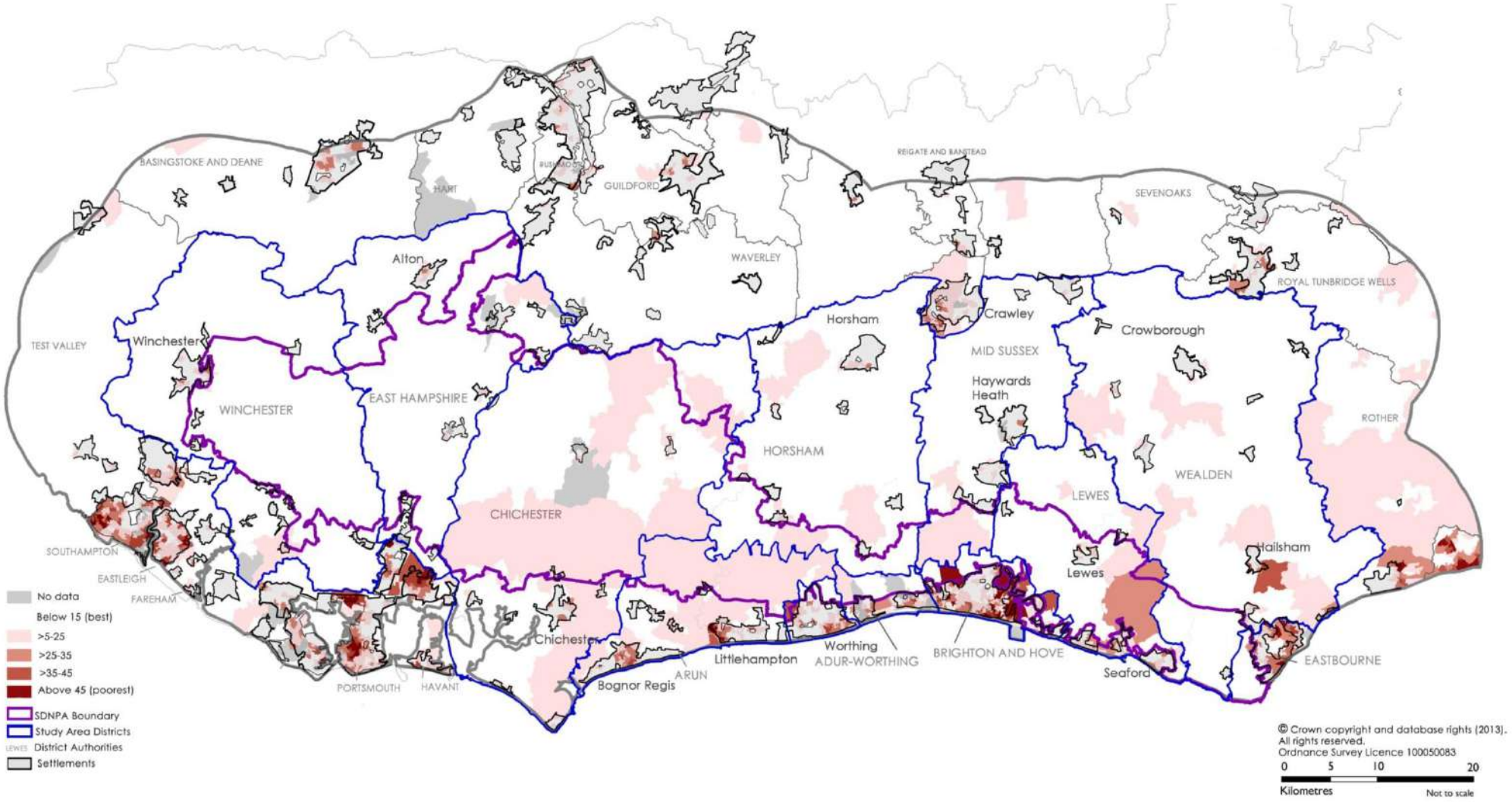
Plan 15: General Health, Bad or Very Bad (Census 2011)



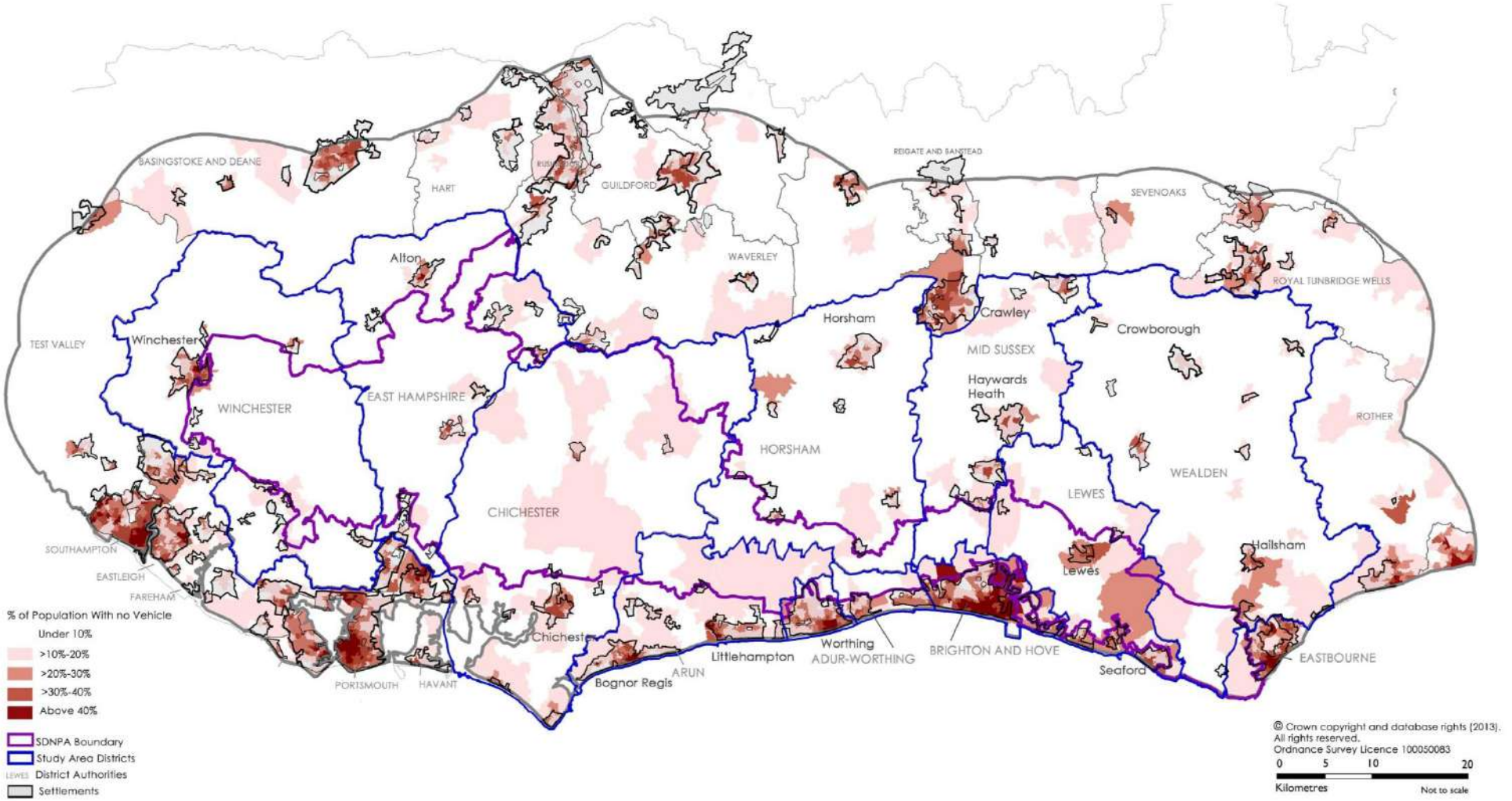
Plan 16: Long Term Health Problems or Disabilities (Census 2011)



Plan 17: Indices of Multiple Deprivation



Plan 18: Car or Van Ownership, No Car or Van (Census 2011)

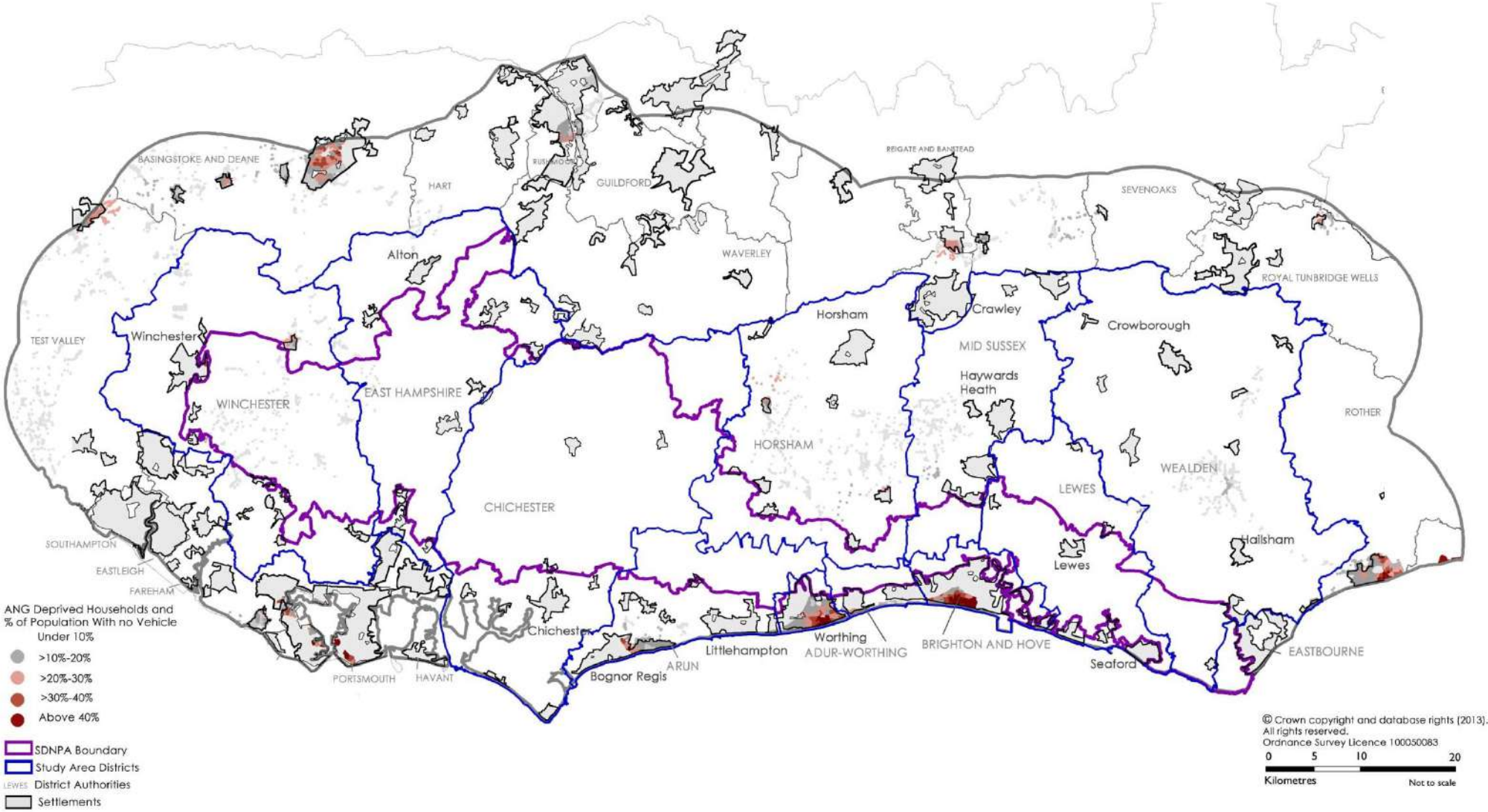


In the National Park car ownership levels are higher, with less than 20% without cars across all the area, with the exception of some areas around Brighton and Lewes near the coastal towns.

To the north of the National Park car ownership levels are even higher, with the exception of some of the towns.

Plan 19 shows households that have no car or van and which also fall outside of any ANG buffer area. Across significant areas of Worthing and Hove, and small areas in Bognor Regis and in Portsmouth more than 40% of the population are in this category. Both Brighton and Portsmouth are University towns, which may contribute to lower levels of car ownership.

Plan 19: No Car or Van, Households which fall outside of any ANG Buffer



Discussion

Within the study area the households with the poorest levels of health can be found mostly in the coastal conurbations outside the National Park. Other areas with poor levels of health are found close to the northern boundary of the National Park, including parts of Winchester, Alton, Whitehill & Bordon, Haslemere, Hailsham and Eastbourne.

Within the National Park the levels of health are generally better than in other parts of the study area, although the second lowest Composite Health Scores are found in parts of East Hampshire and areas close to the coastal conurbations. None of the lowest scoring areas occur within the National Park.

There is a strong coincidence between areas with the poorest levels of health, low levels of car ownership and lack of local accessible greenspace.

Several areas with the poorest health also coincide to some extent with sites for planned major housing developments (see Major Development section).

The strong coincidence between areas of poorer health and lack of ANG may indicate that interventions are appropriate in order to improve the planning and provision of ANG. There may be particular opportunities to do this in new developments where there is scope to influence the design, quantity and quality of ANG.

However, in areas where poor health coincides with adequate levels of ANG it may also be necessary to intervene in order to improve the use of ANG by particular target groups in the population, to support access and better use of existing areas of natural greenspace (see Table 8).

Table 9: Interventions to Improve Health through Greenspace Provision

Health and ANG Issues	Potential Interventions
Scenario 1: Where there are areas of poor health and natural greenspace is easily accessible and has capacity for more use.	• Promote commissioning of green exercise, its use and benefits; • Remove barriers; • Improve quality and management; • Establish outreach programmes that link health services with greenspace use. <u>Connect People To Greenspace</u> • Ensure GI is designed and managed to appeal to communities suffering health inequalities; • Promote measures to encourage use of GI by target communities (e.g. health walk provision, links to Health facilities, reducing social and cultural barriers).
Scenario 2: Where there are areas of poor health and a lack of nearby natural greenspace.	• Influence planning and green infrastructure development. <u>Infrastructure Provision</u> • Provide accessible natural greenspace close to people's homes; • Ensure GI is identified as an integral part of 'health service' provision, along-side surgeries, hospitals etc.

Development

Introduction

Part of the study brief was to undertake an analysis of the larger development areas and the impact that this is likely to have upon ANG. At this early stage in the drafting of the SDNP Local Plan, there is no clear picture of the scale or distribution of housing development in the National Park. While major development can be viewed as sites of > 10 houses, the SDNPA was not in a position to collate data at this level of resolution. For the purposes of this study, the scale of development which has been considered was sites comprising over 100 houses, i.e. major site allocations that are under consideration or approved by Districts for which there is a potential impact on ANG.

All local planning authorities of the core districts, plus selected local planning authorities in the buffer area which were in closer proximity to the National Park, were contacted to ascertain housing allocation sites and numbers. The local planning authorities are at various stages in their Local Development Framework/Local Plan processes, and very few have approved Joint Core Strategies in place. Most are between consultation and examinations in public of their Core Strategies and most do not have agreed housing figures and locations for major housing development. The data presented here should, therefore, be regarded as the best information available at the time, but that it is likely to change.

Due to the complexity and the different stages at which the local planning authorities are at in plan development, it was not possible to include those sites which are currently being built, but rather only includes housing numbers as set out (or proposed) in Local Plans.

A summary of indicative housing allocation numbers is shown in Table 8. This data should be read in conjunction with the further information provided on major development in the Supporting Document.

Table 10: Housing Allocations

Local Planning Authority	Plan Period	Total Housing Allocations[36]
Adur – Core Strategy	Adopted. Housing allocations out for consultation. 2006 – 2008.	3,150
Arun – Core Strategy	In preparation. 2011 – 2028.	2,490
Brighton and Hove – Core Strategy	In preparation. 2014 – 2030.	11,350
Chichester – Local Plan	In preparation. 2012-2029.	6,973
Eastbourne – Core Strategy	Adopted. 2013 – 2007.	5,022
East Hampshire – Joint Core Strategy	In preparation. 2006-2028.	Between 9,200 and 11,000, to be determined
Horsham – Core Strategy	Adopted 2007. 2007 – 2018.	10,000 – 13,000
Lewes – Local Plan Joint Core Strategy	In preparation. To 2030.	4,500
Mid Sussex – District Plan	In preparation. To 2031.	3,980
Winchester – Joint Core Strategy	2013-2031.	4,000
Wealden – Core Strategy	In preparation. To 2030.	9,600
Worthing – Core Strategy	Adopted 2011. 2011 – 2026.	4,000

[36] Some of these allocations may change, as discussed.

Analyses

Distribution of Housing Allocations

The distribution of housing allocation sites, along with an indication of their potential size is shown in Plan 20. It must be noted that for some local planning authorities, especially those with Local Plans currently passing through the consultation stage, there were sensitivities in highlighting the precise locations or scale of housing. Therefore the exact locations of the housing allocations and numbers are not shown. Instead blue circles of increasing size depict the main four housing allocation categories used in this study.

Housing Allocations in Relation to Accessible Natural Greenspace

Plan 21 shows housing allocation locations with a buffer of 5km and 10km. The 5km buffer represents the distance people may travel to reach local sites, while the 10km buffer represents the distance people may travel to reach larger greenspace sites.

Together, they can be considered to represent a 'zone of influence' of the major development sites on accessible natural greenspace. It can be seen that, taking this approach, most of the study area core districts fall under the 'zone of influence'.

Density of Housing Allocations

The major development sites, plotted as blue-green circles, represent housing developments of a wide range of sizes. Some sites represent 100 houses, others over 3000 dwellings. The influence of these developments, therefore, is not equal.

In order to take account of this difference, the buffer areas of the developments were given a different number to produce a scaling effect. Although not precise as each category does not have an equal range, this simple method gives more weight to the larger development size classes. This also has the advantage of showing the cumulative influence of major development across local authority boundaries.

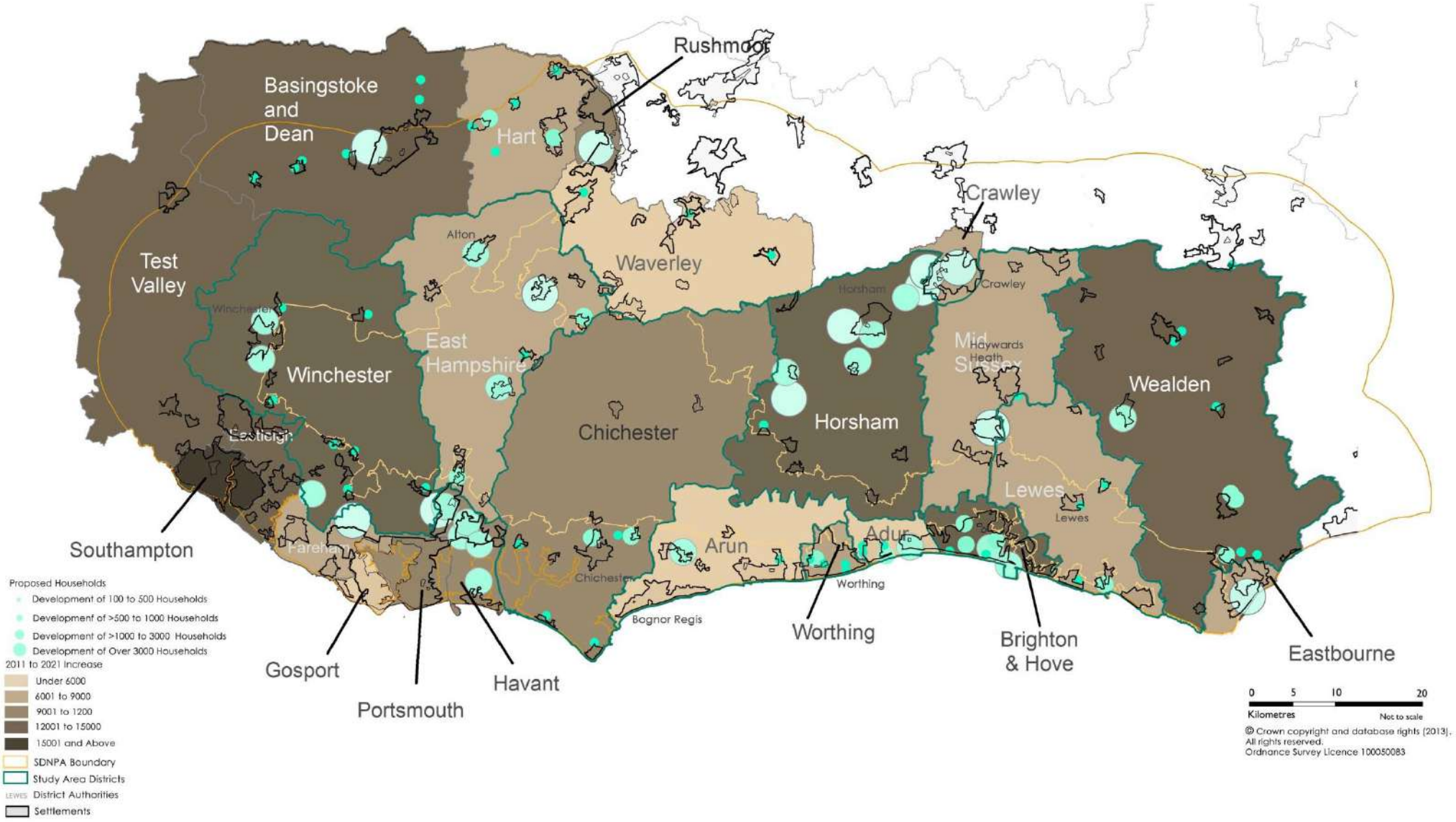
The higher the total number produced when the buffer areas overlap the darker the colour, producing a visual representation of areas of concentration of development. The numbers applied to the buffer areas are shown in Table 9.

Table 11: Weighting of Major Development Buffers

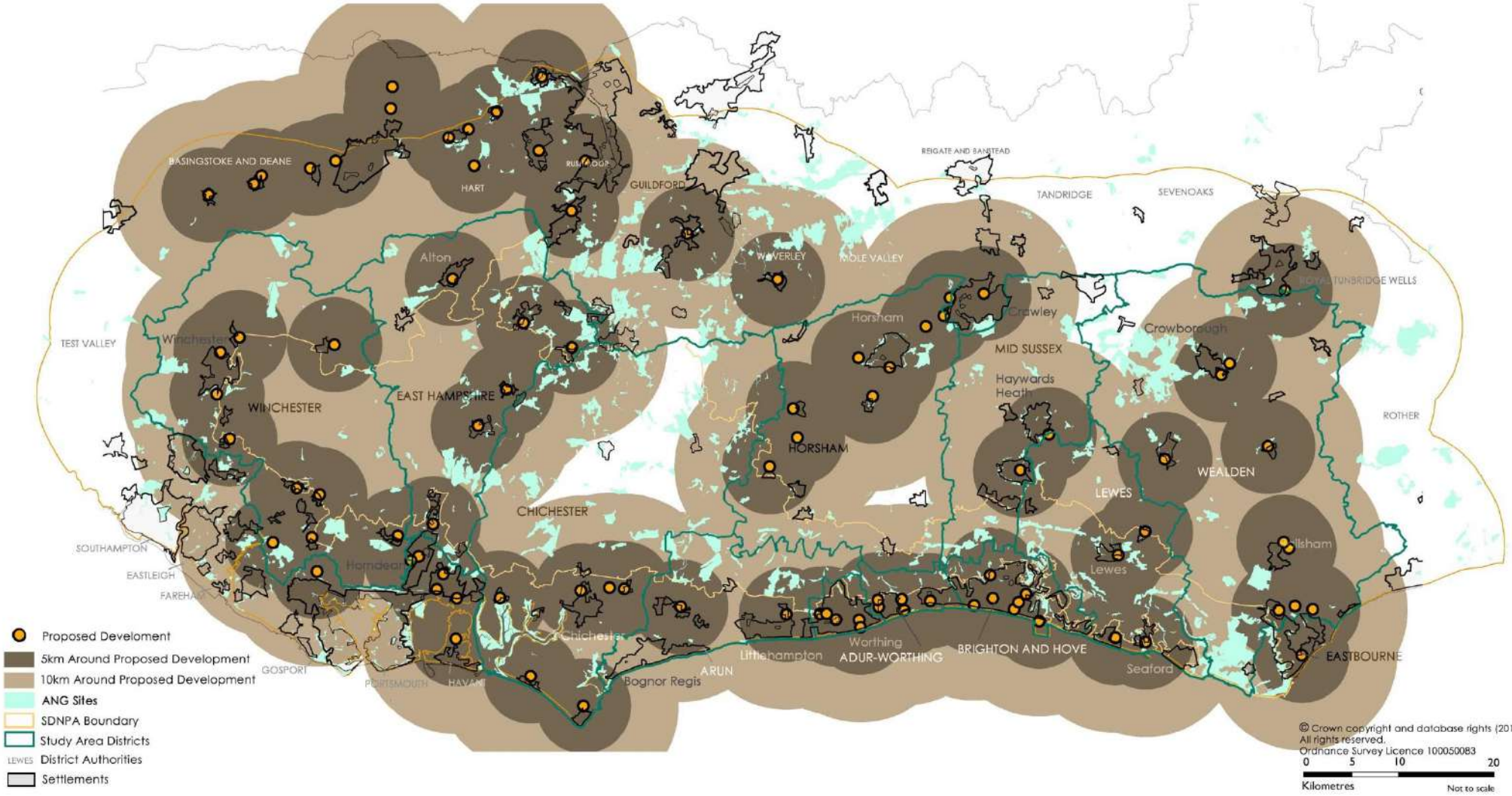
Housing Allocation Category	Mid-point	Scaling Applied to Buffer
100-500	250	1
500-1000	750	2
1000-3000	2000	4
3000+	3500	6

Plan 22 shows major development sites with a 10km buffer and Plan 23 shows sites with a 5km buffer, with this weighting applied.

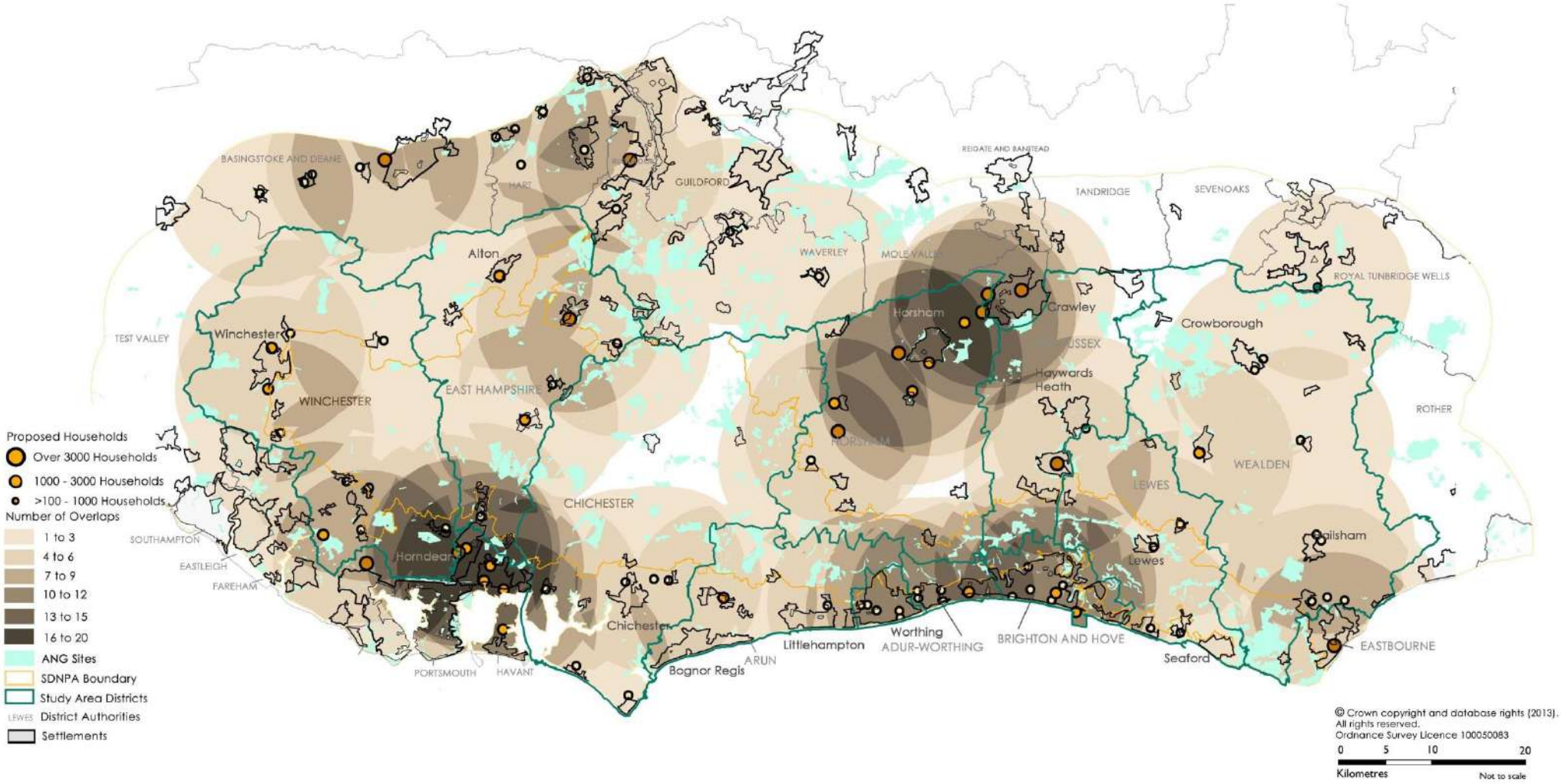
Plan 20: Housing Allocation Sites and Increase in Housing by District



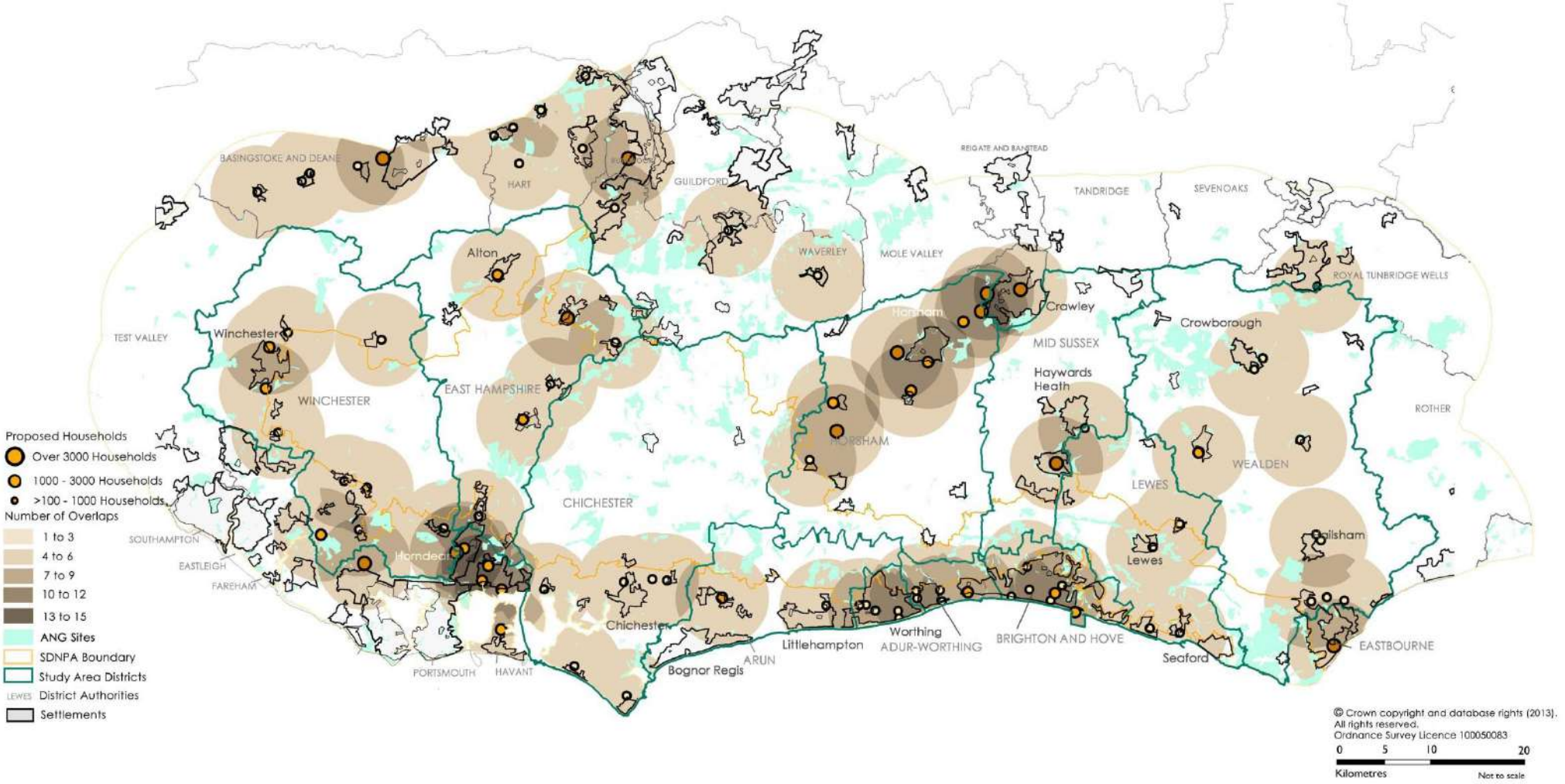
Plan 21: Housing Allocation Sites with 5km and 10km Buffers



Plan 22: Housing Allocation Sites with Weighted 10km Buffer



Plan 23: Housing Allocation Sites with Weighted 5km Buffer



These analyses begin to reveal where there are concentrations of housing development and of the larger increases in population. In these plans three areas stand out:

- Horsham and Crawley;
- Coastal belt between Worthing and Brighton and Hove;
- Fareham, Havant and Portsmouth.

Other areas which also have significant areas of overlap are:

- North East of East Hampshire District (generated primarily by Whitehill & Bordon);
- Aldershot and Basingstoke;
- Winchester;
- Eastbourne;
- Haywards Heath.

Major Development and Accessible Natural Greenspace

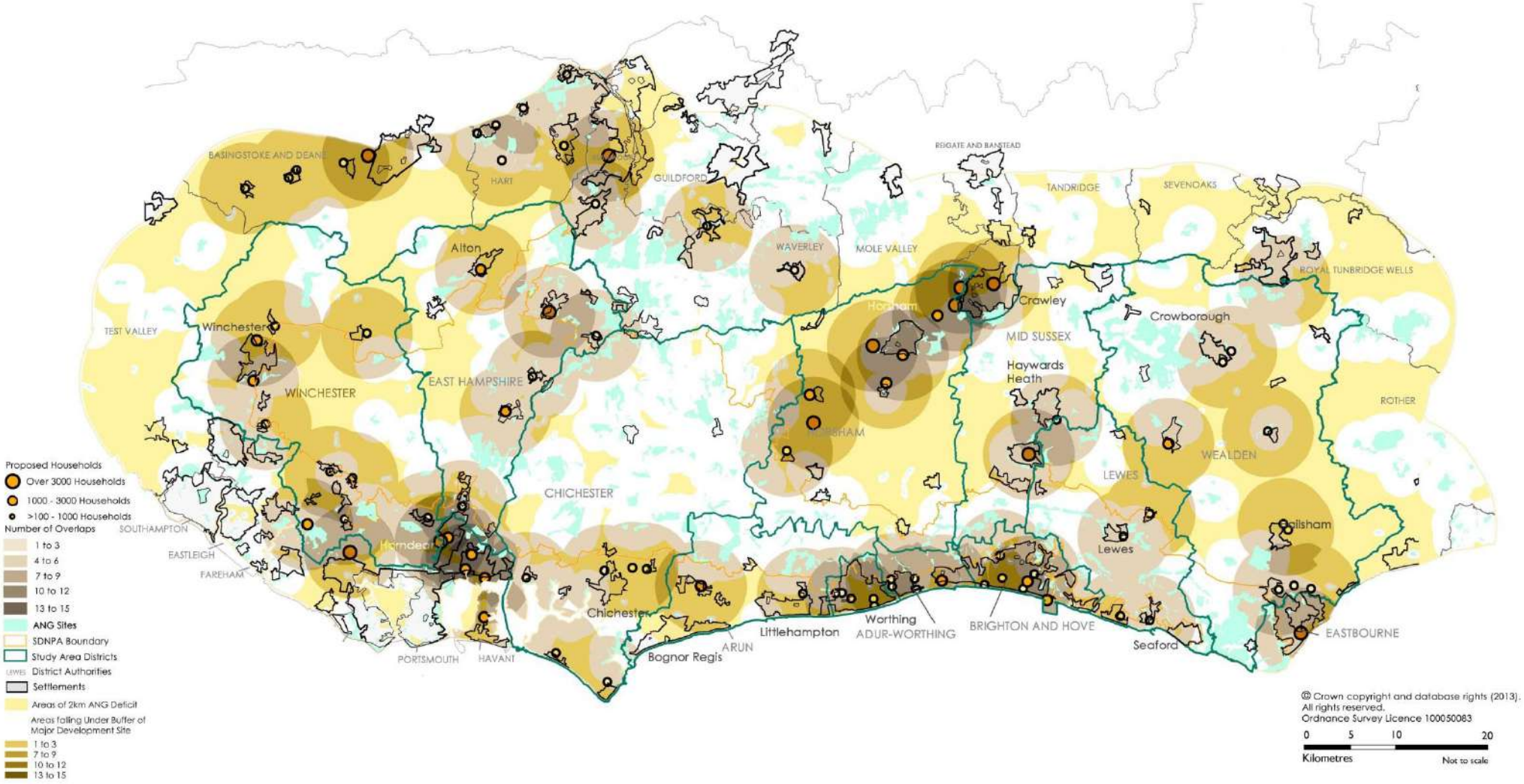
Accessible Natural Greenspace sites are also shown on Plans 22 and 23. Plan 23 is particularly important in this regard, showing sites within 5km of new development. Plan 24 shows the development sites with weighted 5km, along with areas which are deficient in ANG within 2km.

Some key areas of ANG fall within the 5km buffers of major development:

- Coastal belt: sites in the National Park to the north of the coastal belt between Worthing and Brighton are already of great significance due to the lack of ANG in the coastal towns themselves, and fall within the catchments of several proposed development sites;
- Burgess Hill: although there is some ANG around the urban fringe, this larger development of potentially up to 3980 houses[37] is in close proximity to the South Downs National Park;
- Eastbourne: although residents of Eastbourne town would appear to be well-served by ANG, closer inspection reveals that this ANG is mostly located on the downs. New development is therefore likely to increase visitors to these sites. In addition several sites are proposed on the outskirts of Eastbourne in neighbouring Wealden district;
- Horsham and Crawley: together these areas form a significant development area. There is also limited ANG in this area, although this area is some distance (approx. 25 km) from the South Downs National Park;
- Southwater, Billingshurst and Pulborough: these possible minor development sites are currently being consulted on and could change; however, these sites are in an area lacking in ANG. The South Downs National Park is in close proximity and provides most of the ANG for these settlements;
- Havant: there is a concentration of sites around Havant, just outside the National Park boundary, in close proximity to Queen Elizabeth Country Park;
- Winchester: ANG is limited both in Winchester district and around Winchester city. There are larger development sites proposed around Winchester city with limited ANG sites on the urban fringe. Other, albeit smaller, developments are proposed for smaller settlements at New Alresford, Bishop's Waltham, Denmead and Swanmore. All of these settlements are lacking in ANG provision.

[37] Burgess Hill 1 Strategic Development Site, approx. 3500; Burgess Hill 2 Strategic Development Site, approx. 480 (pers. comm. Andrew Marsh).

Plan 24: Major Development Sites with 5km and Areas of 2km ANG Deficit



- Fareham: a new strategic large development area on the border of the Borough and Winchester District is planned in an area with limited ANG although provision of new ANG is included in the approved masterplan;
- East Hampshire: a concentration of development is highlighted in north east East Hampshire due to the large size of Bordon & Whitehill eco-town, although this site should provide its own greenspace.

The larger, single major development sites, including eco-towns, urban extensions and strategic development areas will be required to provide sufficient areas of greenspace within their masterplans. A more significant effect on ANG could potentially arise where there is a cluster of smaller developments in close proximity, especially where these cross local planning authority boundaries, for example in Adur-Worthing, south of Chichester and Eastbourne.

Existing Major Populations

The existing settlements of over 50,000 people are shown in Plan 25, with buffers of up to 10km around the settlements; also shown are the major development housing allocation sites. Several of the major development sites, as would be expected, are located within existing larger population centres.

Population Projections

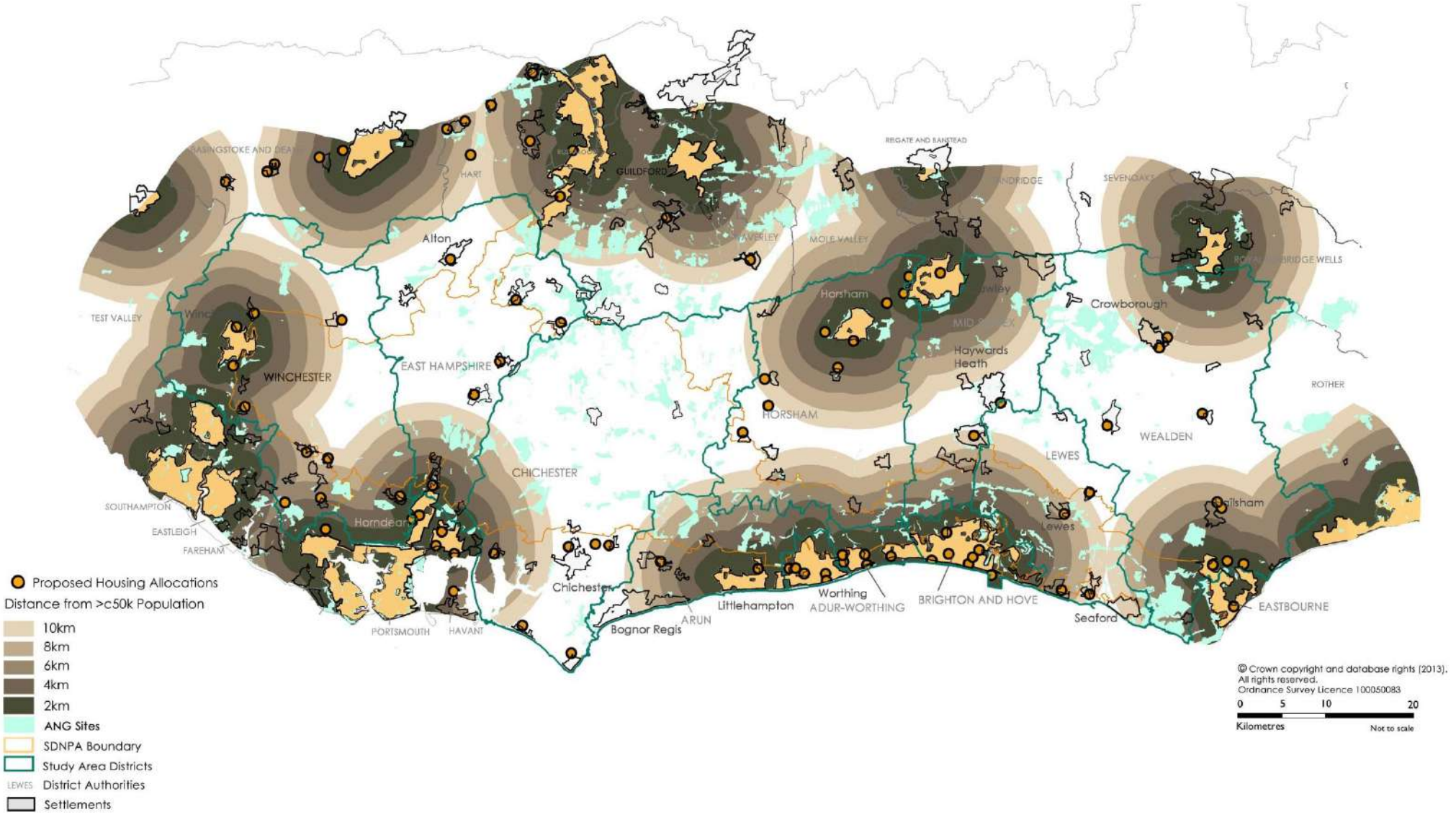
Plan 26 shows the current population by local authority area. Plan 27 shows the projected population using data from the Office of National Statistics.[38]

Subnational population projections use past trends to project forward the population, giving an indication of the future population. They provide indicative figures of likely population levels if recent demographic trends were to continue.[39] The projections are not forecasts and do not take any account of future government policies, changing economic circumstances or the capacity of an area to accommodate the change in population. They provide an indication of the future size and age structure of the population if recent demographic trends continued. Population projections become increasingly uncertain the further they are carried forward, and particularly so for smaller geographic areas.

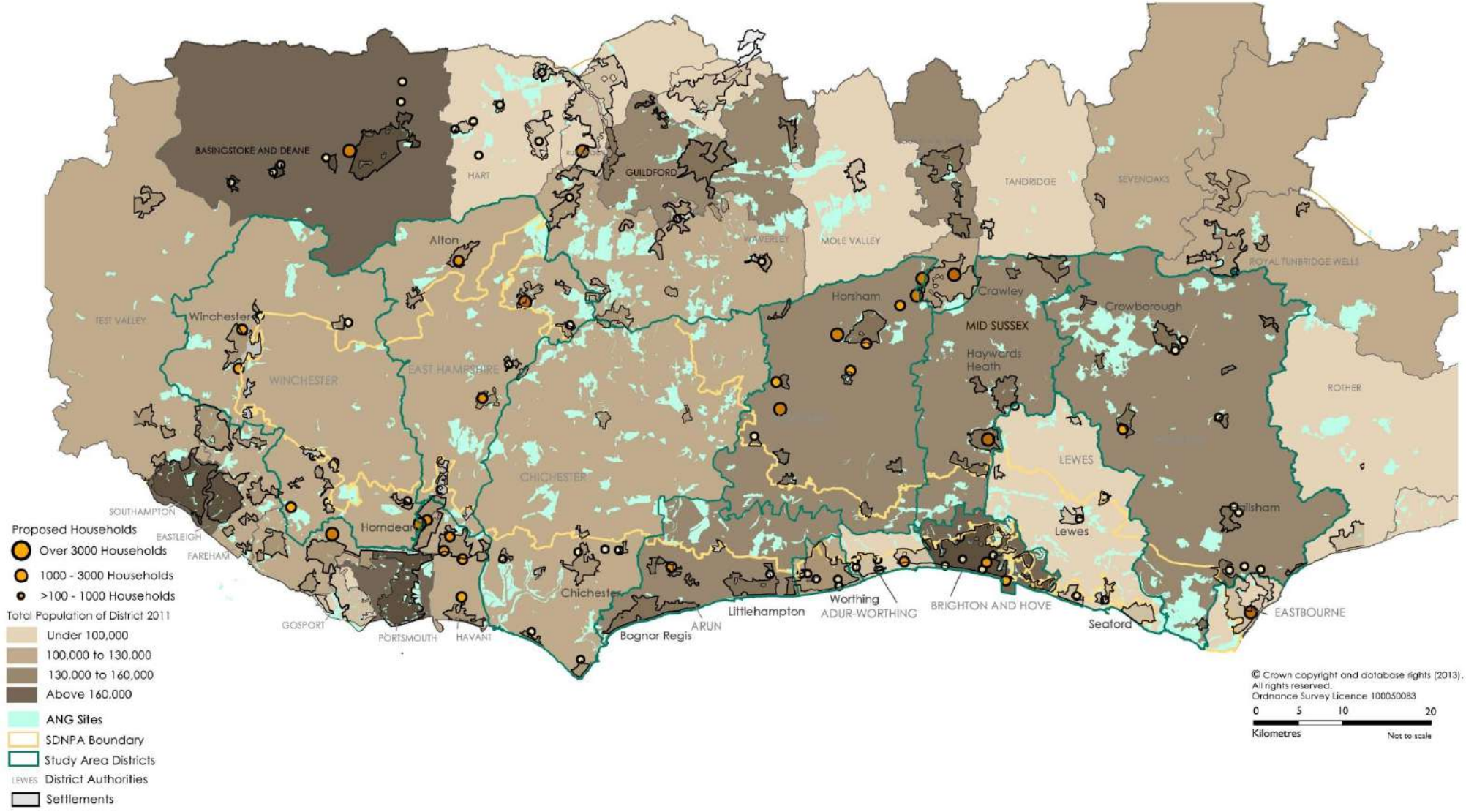
These plans also demonstrate the concentration of population in the coastal belt, Crawley and the Portsmouth, Southampton and Solent areas. The population projections also indicate that, if past trends continue, the population in these areas may also increase by the largest amount.

[38] Interim 2011-based subnational population projections for England.
[39] The Population Projections used are based on the 2011 mid-year population estimates published in 2012 using recent trends as used in the 2010-based subnational population projections.

Plan 25: Existing Settlements with Greater than 50,000 People (approx.)



Plan 26: Population by District, 2011 Census



Plan 27: Population Projections by District, 2021

Discussion

The preceding analyses highlight the concentrations of high population in the study area and also show that these areas are likely to grow substantially in population in the future.

Given existing shortfalls in ANG provision, new, larger scale developments need to incorporate greenspace within the site, or make provision for new greenspace in the near vicinity if the population at large is not to have access to greenspace further depleted. Opportunities to include more natural elements within the greenspace design should be realised wherever possible. This is particularly important in areas with a deficit in ANG and in close proximity to the National Park.

There is a concentration of development along the coastal belt between Worthing and Brighton which will grow in the future. The South Downs National Park is the main location of Accessible Natural Greenspace for these areas, with little ANG in the urban centres and potentially little opportunity to increase ANG. The links between the urban centres and the South Downs will become increasingly important in these areas.

Alongside the large scale development sites, smaller scale developments in the smaller towns and large villages warrant attention. Many of these sites are located on or near the South Downs National Park boundary and are also deficient in ANG (see also 'Summary of Key Points' in ANG Analyses section). These potential sites include:

- Southwater, Billingshurst and Pulborough (Horsham);
- New Alresford, Bishop's Waltham, Denmead and Swanmore;
- Outskirts of Eastbourne within Wealden.

It is unclear whether ANG will be provided within these developments, but given the current low level of resource, opportunities for increasing provision should be sought.

In Hampshire PUSH (The Partnership for South Hampshire) has responded to the challenge of strategically planning for substantial growth in the sub-region. The preparation of a green infrastructure strategy and framework has been undertaken to assist the process of accommodating the substantial levels of new development in the area of South Hampshire just to the south west of the National Park. A separate section of this report explores the lessons to be learnt from strategically identifying and planning the green infrastructure resources and needs of an area subject to such major development pressure (see Section on PUSH).

Recreation and Biodiversity

Introduction

Scope and Limitations

Identifying sites for which there is the potential for recreation having a detrimental effect on biodiversity interest was an area highlighted as important in the pilot study of 2011.

The debate and evidence relating to recreation and wildlife is complex. It is not the purpose of this report to offer detailed evidence of any detrimental effects on biodiversity arising from recreation for any particular site. Indeed for most sites listed within this report, visitor surveys, species surveys and studies to link recreational use with impacts on biodiversity have not been carried out.

The purpose of this reporting is to highlight at a strategic level those sites which may be sensitive to impacts from recreation. These impacts and other recreational impacts have also been explored in the 'Environmental Element' of the South Downs National Park Visitor Survey reporting.[40] Together, these reports provide a first step in furthering understanding of recreational impacts on sites within the South Downs and the wider study area.

Within this report, sites have been considered in two groupings. Contained within the first group are sites designated under European law for which an assessment under the Habitat Regulations has indicated that recreation could have an effect on the species or habitats for which the site is designated. These are contained in the section 'Natura 2000 and Ramsar Sites'.

The second group of sites contains other sites which have been highlighted through discussion with the South Downs National Park officers, Natural England, the National Trust and the Wildlife Trusts of Sussex and Hampshire and Isle of Wight.

The Natura 2000 and SSSIs sites in the study area are shown in Plan 28.

Recreational Impacts

Trampling and Erosion

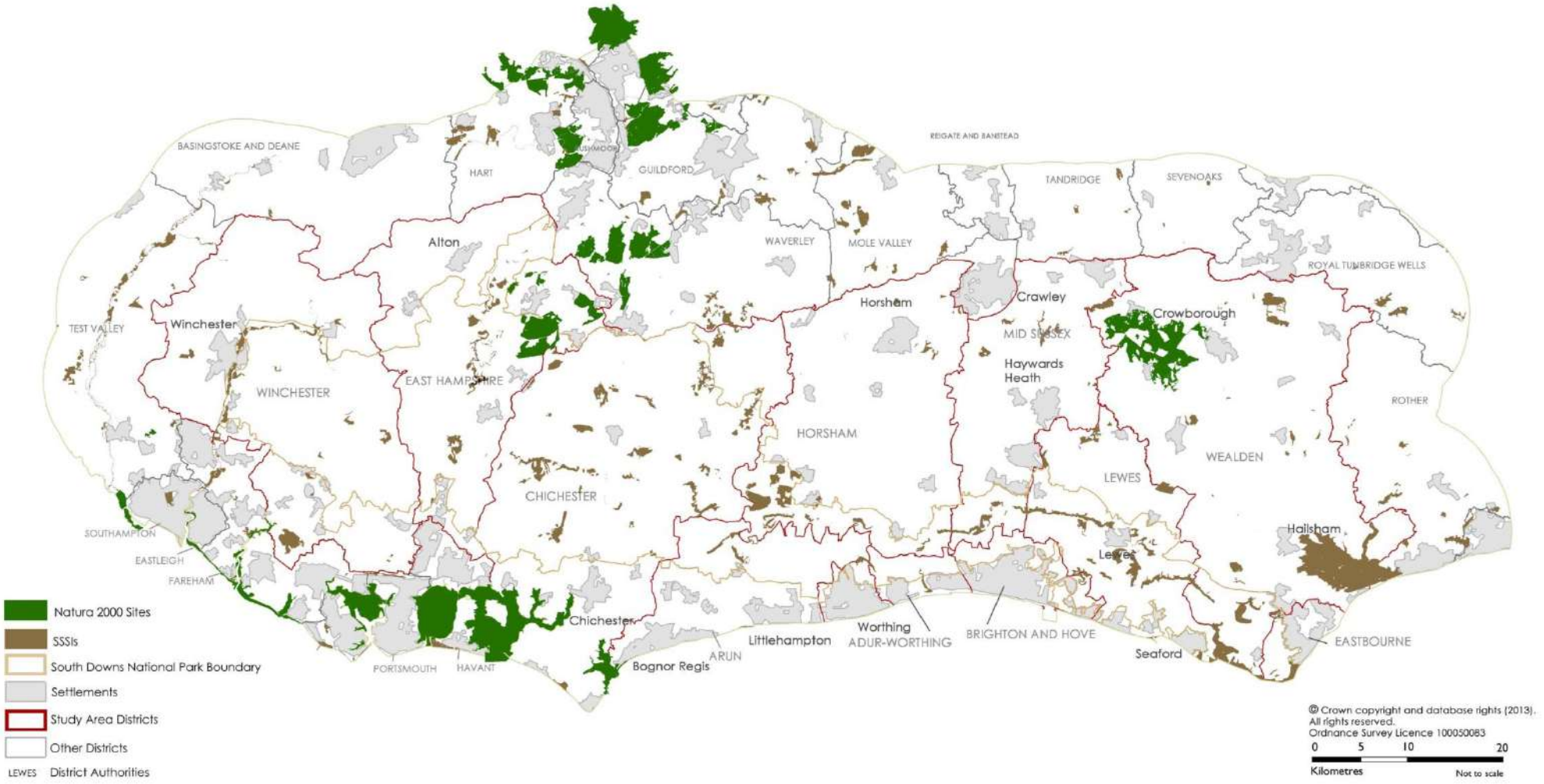
Most habitats can be affected by trampling and erosion from recreational use, including chalk grassland, heathland, wetlands, woodlands and dunes.

Perhaps the most obvious impact is erosion. Motorcycles and vehicles can cause more serious erosion, but high numbers of walkers will also have an impact. Such activity can also cause soil compaction.

Trampling can also affect the vegetation composition of a site. The effect on any given habitat will vary according to the tolerance of plant communities and ability to recover, but once the threshold of tolerance is passed this will lead to the loss of vegetation cover and lowering of species diversity.

[40] South Downs National Park, Visitor Survey 2012, Environment Element, Final Report.

Plan 28: Natura 2000 Sites and SSSIs



Walkers with dogs also contribute to pressure on sites through nutrient enrichment via dog fouling. They also have potential to cause greater disturbance to fauna as dogs are less likely to keep to marked footpaths.

Disturbance of Wildlife

Recreational activity can also disturb wildlife and lead to adverse effects on species. There is a body of research around the effects of disturbance on bird species, but other species which require minimal disturbance can also be affected.

Bird disturbance is of particular relevance in coastal, estuarine and wetland habitats, for example where over-wintering birds feed or birds breed. Ground nesting birds are also susceptible to disturbance, particularly from dogs, including a range of heathland species such as nightjar and woodlark, as well as other heathland species such including Dartford warbler.

The effects on bird species primarily result from birds expending energy unnecessarily through vigilance, avoidance and defence behaviours. This can adversely affect the 'condition' and ultimately the survival of the birds. Disturbance may displace birds from a feeding site, increasing pressure on the resources available in the remaining sites as they accommodate more birds. Disturbance to breeding birds also increases the likelihood of cooling or abandonment of the nest.

Urban Edge Impacts

This includes a range of impacts which can be detrimental to sites. Generally these are more prevalent where sites are in close proximity to an urban area, although they are not exclusive to these sites and can occur in more remote locations.

Some of the impacts include (amongst others):

- Fly-tipping (which can also be on a commercial scale and some distance from urban areas);
- Arson;
- Camping;
- Damage to site infrastructure (fences, trees, benches etc.);
- Littering;
- Increased anti-social motor vehicle use (four wheel drive, motorcycles, mini-motos);
- Use by prohibited user groups (e.g. cycles in pedestrian only sites)

Limiting Conservation Management

Another key impact of recreational use is that of high levels of recreation limiting the ability of site managers to implement appropriate conservation management. This is more difficult to quantify, but this issue was raised by several site managers interviewed for this study, with some having abandoned grazing on sites due to difficulties.

Many lowland habitats, in particular grasslands and heathlands, require management in order to maintain their biodiversity value. For many sites, the most appropriate management is grazing. If grazing cannot take place, the biodiversity interest of the site will decrease, exacerbated by associated issues which require further management input, such as the need to control scrub encroachment.

Recreation with dogs can be particularly problematic for grazing using both sheep and cattle and several site managers reported recent dog attacks on stock. Other impacts include cutting of fences and damage of infrastructure.

Natura 2000 and Ramsar Sites

Natura 2000 is a Europe wide network of protection areas established under the Habitats Directive 1992. It is formed from Special Areas of Conservation (SACs) designated under the Habitats Directive, along with Special Protection Areas (SPAs) designated under the Birds Directive 1979.

These sites are strictly protected as high-quality conservation sites which make a significant contribution to conserving particular habitat types and species in the case of SACs, or vulnerable bird species in the case of SPAs, in need of protection at a European level.

Ramsar sites are wetlands of international importance as designated under the Ramsar Convention. Many Ramsar sites are also SPAs. Under UK law these sites are treated as if they were part of the Natura 2000 network.

The SAC, SPA and Ramsar sites in the study area are show in Plan 29 and Table 10.

Table 12: SAC, SPA and Ramsar Sites

	Sites highlighted in an assessment under the Habitats Regulations as being sensitive to recreation.

Special Area of Conservation	Special Protection Area	Ramsar
Arun Valley	Arun Valley	Arun Valley
Ashdown Forest	Ashdown Forest	Chichester and Langstone Harbours
Butser Hill	Chichester and Langstone Harbours	Pagham Harbour
Castle Hill	Pagham Harbour	Portsmouth Harbour
Duncton to Bignor Escarpment	Portsmouth Harbour	Thursley and Ockley Bogs
East Hampshire Hangers	Solent and Southampton Water	
Ebernoe Common	Thames Basin Heaths	
Emer Bog	Thursley, Hankley and Frensham Commons	
Kingley Vale	Wealden Heaths Phase II	
Lewes Downs		
River Itchen		
Rook Clift		
Shortheath Common		
Singleton and Cocking Tunnels		
Solent Maritime		
The Mens		
Thursley, Ash, Pirbright and Chobham		
Woolmer Forest		

Part 6 of the Habitats Regulations 2010[41] relates to the assessment of plans and projects for their effects upon European designated sites, their interest features and conservation objectives and provides a process by which the consideration of potential effects and the decisions made with regard to whether plans and projects can proceed.

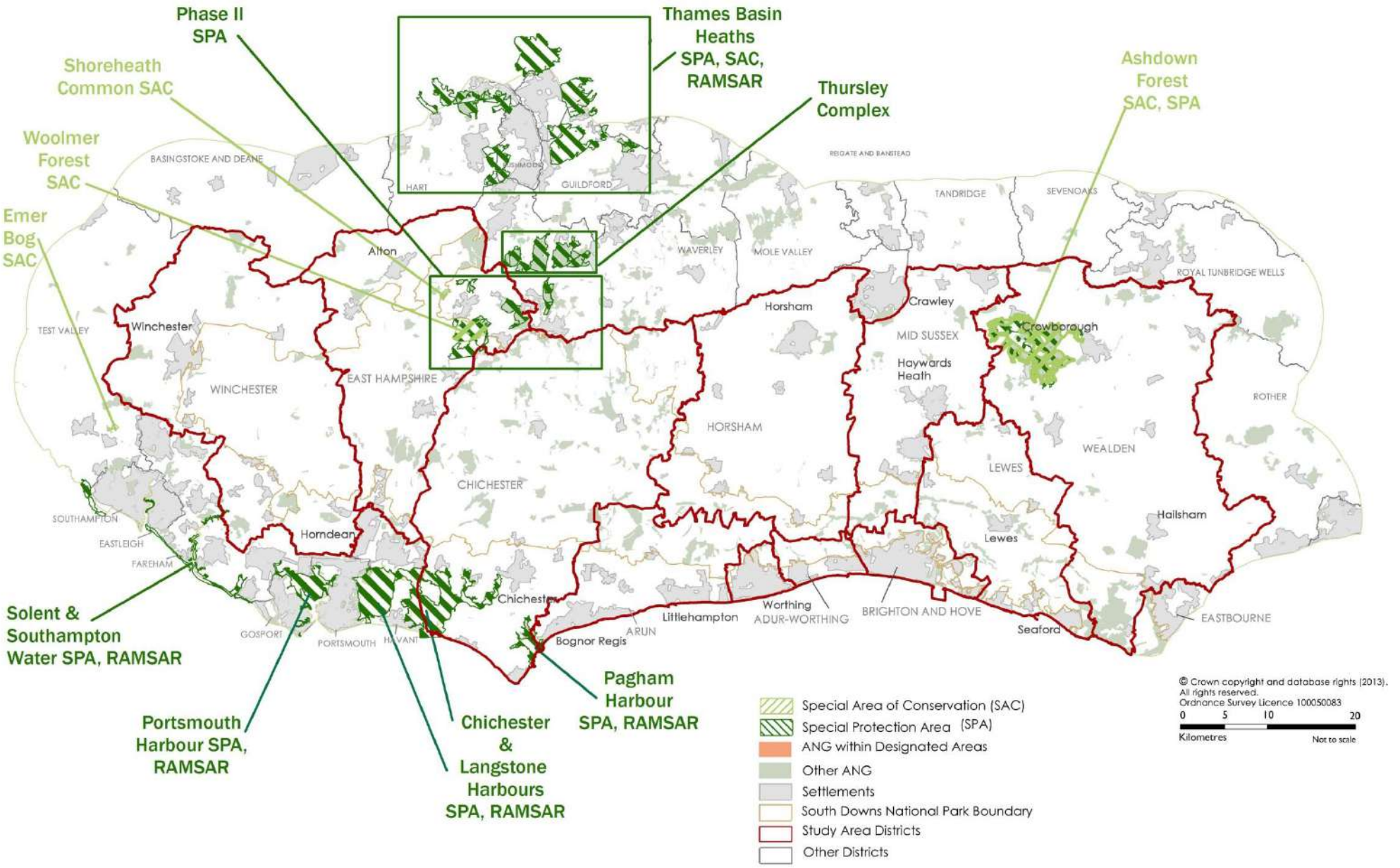
Before undertaking a project, giving permission for a project, or giving effect to a plan, which includes the production of Core Strategies and other Development Plan Documents, Regulation 61(1)[42] requires competent authorities, including local planning authorities, to consider whether such a plan or project is likely to have a significant effect on the integrity of a European site, either alone or in combination with other projects.

The sites listed in this section have been highlighted in an assessment under the Habitats Regulations as being sensitive to recreation, insomuch as a likely significant effect on the site from recreation cannot be ruled out, prior to any mitigation measures being implemented. It is accepted that mitigation measures are being implemented or developed for many of these sites and it is not the purpose of this report to comment on such measures. This report simply highlights these sites and the strategic role they have in the suite of ANG of the study area.

[41] The Conservation of Habitats and Species Regulations 2010 (Habitats Regulations). These Regulations replace the previous Conservation (Natural Habitats &c.) Regulations 1994 normally referred to as the 'Habitats Regulations.'

[42] 'A competent authority, before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which:
(a) is likely to have a significant effect on a European site or a European offshore marine site, (b) (either alone or in combination with other plans or projects), and (c) is not directly connected with or necessary to the management of that site must make an appropriate assessment of the implications for that site in view of that site's conservation objectives.

Plan 29: Natura 2000 and Ramsar Sites, Sensitive to Recreation



Ashdown Forest

The Ashdown Forest is both an SAC and SPA.

Ashdown Forest SPA qualifies due to the presence of breeding Dartford warbler (*Sylvia undata*) and nightjar (*Caprimulgus europeaus*).

The HRA for Wealden District Council's Local Plan[43] outlines that research indicates that the current level of visitor pressure is not affecting the distribution of nightjar or Dartford warbler within the SPA. However, as bird densities are low and as there is not clear understanding why bird densities are low, it cannot be concluded that the ecological integrity of nightjar and Dartford Warbler populations is not being adversely affected by a combination of existing pressure and/or habitat management.

From this the HRA concludes that, in combination with other plans and projects, increased recreational pressure associated with new housing allocations could lead to adverse effects on the ecological integrity of the SPA and that this effect can be classed as significant. It concludes that this effect could arise from new residential development that falls within a 7km straight line distance from the boundary of the SPA and that, in accordance with the precautionary principle, mitigation is required to remove or reduce any potential effects caused by new development within 7km of the SPA.

Ashdown Forest SAC qualifies due to European dry heaths and Northern Atlantic wet heaths, along with its population of great crested newts.

The HRA concludes that fragmentation, trampling and erosion of habitats through straying from paths are unlikely to lead to a significant effect. Likewise, the effect of recreation restricting grazing is also not considered to result in a significant effect. It concludes that the mitigation measures for the SPA will be sufficient to address the deminimus impacts on the SAC.

Wealden Heaths Phase II SPA

The Wealden Heath Phase II SPA in East Hampshire and Waverley local authority areas. It is made up of four separate SSSI's. One, Woolmer Forest between Bordon and Liss in East Hampshire District, is also a SAC.

Wealden Heaths Phase II SPA qualifies due to its populations of breeding nightjar, woodlark and Dartford warbler. Woolmer Forest SAC qualifies due to its wet and dry heath and mire habitats, along with lakes and ponds.[44]

The HRA for East Hampshire highlights that both informal and organised recreation are a potential threat to the success of the breeding birds on the site. Mitigation against the recreation impacts of the Whitehill & Bordon eco-town is being developed.

Shortheath Common SAC

Shortheath Common SAC qualifies primarily for its very wet mires, along with dry heaths and bog woodland. Nightjar has also been recorded nesting at the common and woodlark has also been recorded.[45]

[43] Wealden District Council, Habitat Regulations Assessment, Proposed Submission Strategic Sites, Local Plan (June 2013).

[44] For the purposes of this study, no ANG Is mapped within Woolmer Forest as access is limited due to its use as a Ministry of Defence Range.

[45] East Hampshire District Council; Habitats Regulations Assessment – Appropriate Assessment Report (July 2013), p31.

The Appropriate Assessment Report for East Hampshire District's Core Strategy indicates that there are recreational pressures associated with this site, including off-road vehicle use. Visitor surveys for Whitehill & Bordon[46] record that the majority of visitors were dog walkers and that the median distance travelled to reach the site was 5km, meaning that most visitors are local and that the largest future increase is predicted to be from Whitehill & Bordon.

Thursley Complex

This extensive suite of overlapping sites is made up of:

- Thursley, Ash, Pirbright and Chobham SAC
- Thursley and Ockley Bogs (Ramsar)
- Thursley, Hankley and Frensham Commons SPA

These sites represent some of the best remaining heathland in Southern England, with Thursley Common regarded as one of the best in Britain.[47]

The SPA qualifies due to breeding nightjar, woodlark and Dartford warbler.

Pagham Harbour

Pagham Harbour SPA lies within Chichester District on the border with Arun District, on the Manhood Peninsular two miles north of Selsey Bill. It is an estuarine basin with extensive saltmarsh and intertidal mudflats surrounded by lagoons, shingle, open water, reed swamp and grassland. The area supports internationally important bird assemblages and qualifies for breeding little tern and common tern and overwintering ruff, pintail and dark-bellied brent goose.

A survey of visitor activity was carried out in 2012.[48] The Habitats Regulations Assessment for Arun District Local Plan[49] details mitigation approaches to limit increases in recreational pressures, including zoning of development and additional measures including wardening and access and visitor management measures.

Chichester and Langstone Harbours SPA, Ramsar, Portsmouth Harbour SPA and Ramsar, Solent and Southampton Water SPA

This group of sites along the Solent estuary have a range of qualifying habitats and species, including breeding little tern, sandwich tern and common tern and assemblages of over-wintering birds.

Of these sites, Chichester and Langstone Harbour is the most significant in terms of total ANG provision, but the coast and these sites are important for recreation for the large urban area surrounding the Solent.

These sites are the subject of the Solent Disturbance and Mitigation Project. Extensive research into visitors and bird populations has been carried out and the project is now developing mitigation strategies.

[46] UE Associates and University of Brighton, Visitor Access Patterns on European Sites Surrounding Whitehill and Bordon, East Hampshire (2009).
[47] URS Scott Wilson, Waverley Borough Council Local Development Framework, Pre-Submission Core Strategy Habitat Regulations Assessment (2012).
[48] Cruikshanks, K. and Liley, D., Pagham Harbour Visitor Survey (2012) for Chichester District Council.
[49] Urban Edge Environmental Consulting, Habitats Regulations Assessment for the Arun District Local Plan (2013).

Thames Basin Heaths SPA

The Thames Basin Heaths is on the northern outskirts of the study area and consists of a number of fragments of lowland heath in Surrey, Hampshire and Berkshire. Predominantly dry and wet heath, it also contains deciduous woodland, scrub, and mire as well as conifer plantations. It qualifies due to the presence of nightjar, woodlark and Dartford warbler.

The Thames Basin Heaths have been subjected to high development pressure and a strategic approach to mitigating these pressures is in place across the many districts involved.[50]

Emer Bog SAC

Emer Bog SAC, designated as a SAC in 2005, qualifies for its areas of transition mire and quaking bog habitat, for which it holds one of the best examples in the UK. This site is also vulnerable due to its small size.

Visitor surveys indicate that the sites has a small catchment for visitors, with most visitors being local and dog walkers. However, the assessment recommends that further information is required.[51]

The Remaining Natura Sites

As stated, the sites previously listed in this section have been highlighted in an assessment under the Habitats Regulations as being sensitive to recreation, insomuch as a likely significant effect on the site from recreation cannot be ruled out, prior to any mitigation measures being implemented. There are, however, many other Natura sites in the study area for which recreation is a potential impact pathway for habitats or species, but for which recreation has been assessed not to have a significant effect.[52] A summary of these sites is shown in Table 11. For some of these sites a potential recreational impact was highlighted during the consultation exercise to develop a more complete list of sites, see following section, page 77.

[50] Through the Thames Basin Heaths Special Protection Delivery Framework (2009), published by the Thames Basin Heaths Joint Strategic Partnership Board.
[51] Test Valley Borough Council (2013), Habitats Regulations Assessment for Revised Local Plan DPD, February 2013.

[52] It is beyond the scope of this report to determine whether the HRA process or conclusion was robust.

Table 13: Other Natura 2000 Sites, Habitats Regulations Assessments, Recreational Impacts

Site	HRA Commentary	Potential Recreational Impact Identified in Consultation
Arun Valley SAC, SPA, Ramsar	Screened out of Horsham, although recreational impacts only considered at screening stage for Thursley complex, Woolmer Forest and Ashdown Forest. Horsham considers only water quality and water levels.[53] Arun Appropriate Assessment[54] lists recreational disturbance to livestock a potential impact but not a significant effect.	Yes
Butser Hill SAC	HRA for East Hampshire District Local Plan reports that the SAC is not particularly vulnerable to well-managed recreational pressure.[55] Screened out of Winchester HRA.	Yes
Castle Hill SAC	Screened out of Lewes LDF Appropriate Assessment.[56]	
Duncton to Bignor Escarpment SAC	No HRA for Chichester District. No recreational impact listed in Arun Appropriate Assessment.	
East Hampshire Hangers SAC	HRA for East Hampshire District Local Plan concludes: "*relatively low sensitivity of the SAC to recreational pressure (compared to the Special Protection Areas), including both greater resilience of interest features and inherent controls on recreational activity through topographical limitations to off-track activities*."[57]	Yes – some sites
Ebernoe Common SAC	Arun Appropriate Assessment states no increased disturbance to bats as the site is distant from the district boundary. No HRA for Chichester District.	Yes
Kingley Vale SAC	No HRA for Chichester District.	Yes
Lewes Downs SAC	Unclear whether screened out, Appropriate Assessment states "*It was not thought that the Core Strategy would significantly increase the number of visitors to the site. This is because the site is not currently being adversely impacted upon from visitors.*" [58]	Yes

[53] Appropriate Assessment of Horsham District Council Core Strategy (2006), p2.
[54] Appropriate Assessment Screening Exercise for the Arun District Local Development Framework Core Strategy (2007). NB subsequent HRA for Arun (Habitats Regulations Assessment for the Arun District Local Plan, Draft March 2013) only considers disturbance at Pagham Harbour.
[55] East Hampshire District East Hampshire District Local Plan: Joint Core Strategy – Preferred Housing Option Habitats Regulations Assessment Habitat Regulations Assessment Report July 2013 Para 7.4.2 [Butser Hill] "*has been subject to organised recreational events numerous times in the past* [...] *This implies that while calcareous grassland can be damaged by repeated excessive recreational trampling over long periods of time, the grasslands of Butser Hill SAC are not considered to be particularly vulnerable to well-managed recreational pressure and activity, even when relatively large events are held*."
[56] Lewes District Council and the South Downs National Park LDF, Appropriate Assessment Screening Opinion, para 4.6.
[57] Note 55, para 4.4.17
[58] Note 56, p10.

Site	HRA Commentary	Potential Recreational Impact Identified in Consultation
River Itchen SAC	Winchester City Council HRA identifies disturbance as potential significant effect requiring further Appropriate Assessment. However it states that there is little available information on the current levels of recreational activity occurring at the site. Due to this, "assessing the effect of increased recreational activity on the River Itchen SAC is complex, as there are a range of factors that ultimately determine significance. There is no information available on the current levels of recreational activity occurring on the River Itchen. Site level information available on the SAC from the JNCC and NE does not indicate that recreational activities are currently having significant effects on qualifying features, with water levels and water quality being identified as the key issues in maintaining site integrity."[59]	Yes
Rook Clift SAC	No HRA for Chichester District.	
Singleton and Cocking Tunnels SAC	No HRA for Chichester District. Arun Appropriate Assessment states no increased disturbance to bats as the site is distant from the district boundary.	
The Mens	Arun Appropriate Assessment states no increased disturbance to bats as the site is outside of the district boundary. No HRA for Chichester District.	Yes

[59] Winchester Local Development Framework Habitats Regulations Assessment (HRA) Report (June 2012), para 4.27 and 4.34.

Other Sites Potentially Sensitive to Recreation

Developing a List of Sites

As stated in the introduction to this section, there is very little empirical evidence to link recreation with measurable declines in species or quality of habitats. Therefore, limiting the list of sites under consideration to those for which such evidence exists would be to potentially under-represent the extent of sensitive sites.

In order to draw together a wider list of sites for which recreation might have an impact on biodiversity site managers and others with local knowledge of sites were consulted:[60]

- Area Managers for the SDNPA;
- National Trust;
- Hampshire and Isle of Wight Wildlife Trust;
- Sussex Wildlife Trust;
- Natural England.

As a first stage, SDNPA Area Managers were interviewed to compile a list of potentially sensitive sites. This list was then circulated to the National Trust, the two Wildlife Trusts and Natural England.

Each was asked to comment on the following:

- Sites managed by that organisation which are considered to be sensitive to recreation and/or those which have reached 'capacity';[61]
- Comments on the sites identified by the SDNPA Area Managers;
- Any other sites, not managed by that organisation, which should be included;
- Any other comments on recreational pressure, provision of ANG and accessible greenspace, future direction for SDNP and requirements for further study on this issue.

The consultation forms a first step in gathering more information on potentially sensitive sites. The primary limitation in the approach is the subjective nature of the assessment; inclusion on the list is based on personal views, albeit of organisations which have good knowledge of biodiversity issues and are the managing organisations in many cases.

Most sites identified were within the South Downs National Park boundary, primarily due to the knowledge of those canvassed. Therefore this list does not represent a full compilation of potentially sensitive sites across the entire study area.

The primary focus was also on potential impacts to the biodiversity features of the sites. Inevitably, however, other damaging activities also take place on these sites, with a range of 'anti-social' issues reported such as fires, vandalism, fly tipping etc.

[60] The approach was agreed at a meeting on 12th June 2013, with Sussex Wildlife Trust, SDNPA officers and Natural England.

[61] 'Capacity' is a subjective term but was included to generate discussion around levels of visitors.

Additional Sites Highlighted

A total of 57 additional sites were generated through this exercise. These are shown on Plans 30, 31 and 32 with a summary in Table 12 and a full table with comments in the Appendix document.

Many of the sites identified, but not all, were designated under a nature conservation designation.

Several were SACs, SPAs or Ramsars:

- Arun Valley SAC, SPA, Ramsar;
- Butser Hill SAC;
- East Hampshire Hangers SAC (some sites);
- Ebernoe Common SAC;
- Kingley Vale SAC;
- Lewes Downs SAC;
- River Itchen SAC;
- The Mens SAC.

The largest grouping was SSSIs, with 27 sites highlighted (excluding sites which are also SACs or SPAs). Also included in the list are Local Nature Reserves (12) and Sites of Nature Conservation Importance (3).

The main habitat types were heathland and chalk downland, although other habitats such as rivers and woodlands were also included.

The most common impacts recorded were:[62]

- Disturbance to breeding birds (primarily heathland but some chalk downland sites highlighted);
- Impeding implementation of conservation grazing, especially worrying of livestock (both chalk downland and heathland sites);
- Dog arisings (nutrient enrichment and anti-social element);
- Erosion;
- Various anti-social behaviours e.g. fires, vandalism, damage, unauthorised camping.

Consultees were also asked to identify those sites with 'high' visitor numbers. Although this is subjective, due to the lack of information on visitor numbers for most sites it was not possible to set a certain level of visitors above which numbers could be considered 'high'. Responses included well known sites with a regional draw, such as the Devil's Dyke, Ditching Beacon and the Seven Sisters Country Park, alongside those which are popular more locally.

[62] See further commentary for sites in the Appendix.

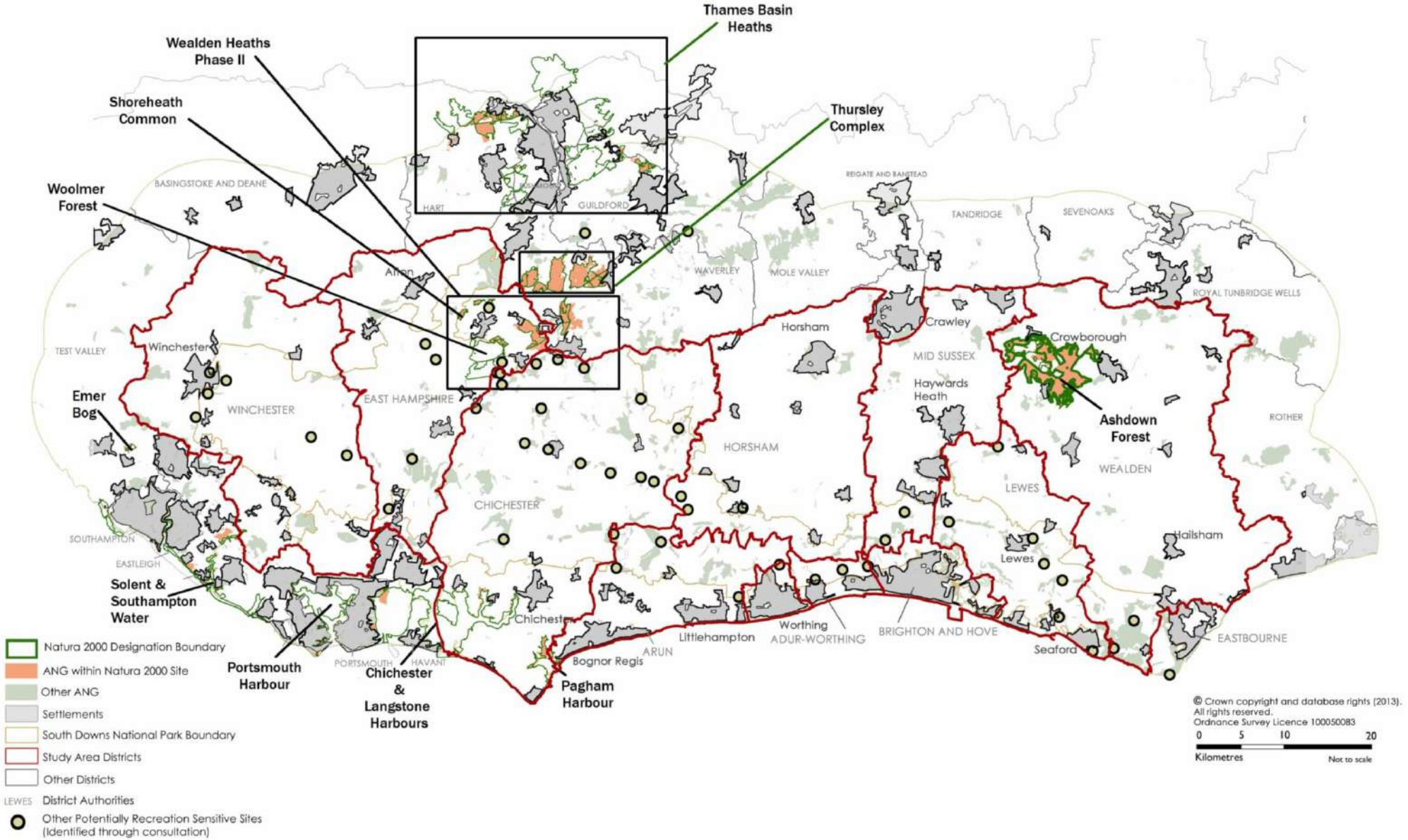
Table 14: Sites Potentially Sensitive to Recreational Impacts – Summary of Other Sites Identified During Consultation

	Site indicated as receiving 'high' numbers of visitors

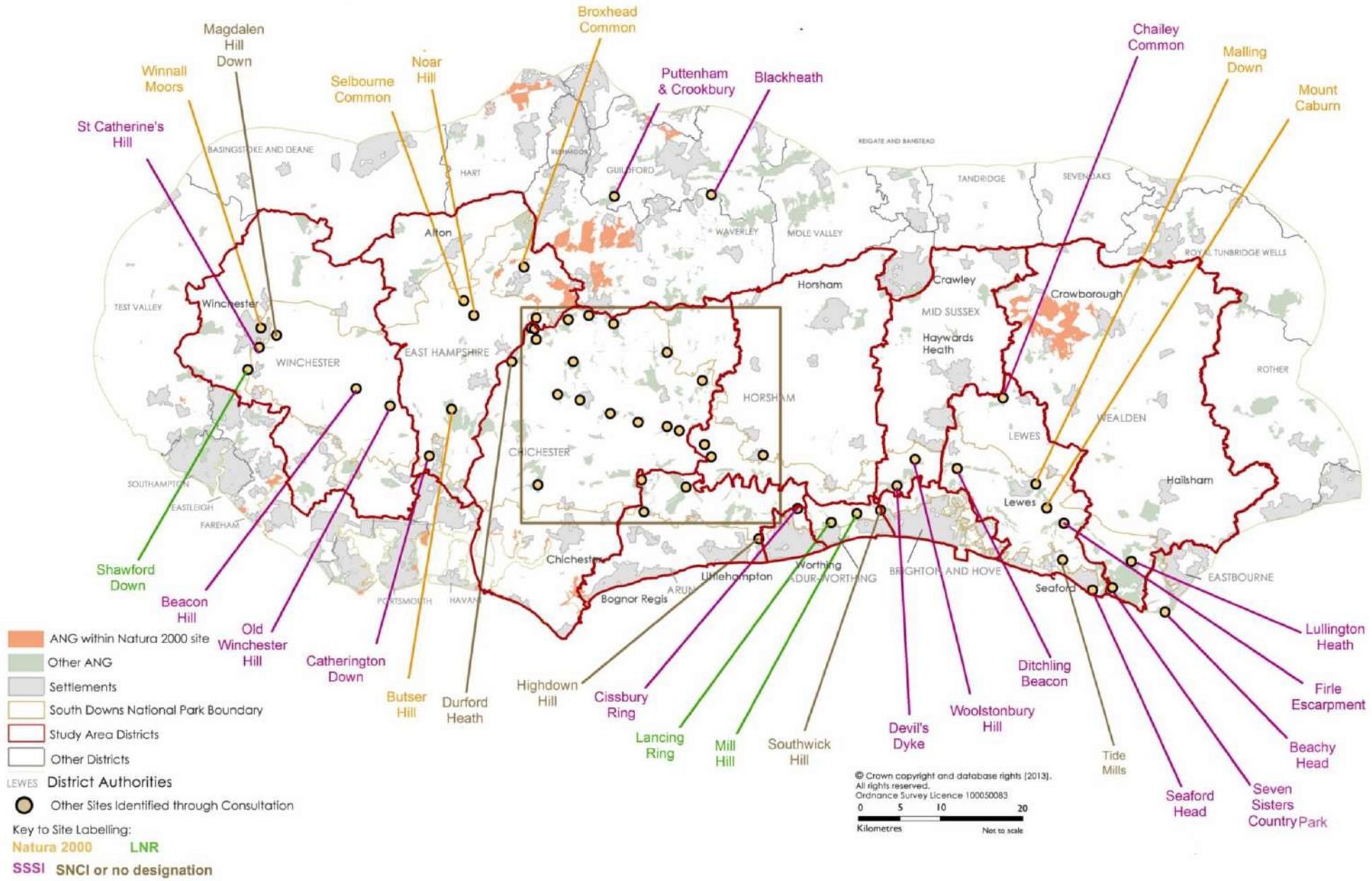
Site Name	Designation	Main Habitat Type[63]	Site Name	Designation	Main Habitat Type
Ambersham and Heyshott	SSSI	Heath/wood	Lords Piece		Heath/wood
Arun Valley	SAC, SPA, Ramsar, SSSI		Lullington Heath	NNR, SSSI	Chalk heath
Beachy Head (Including Belle Tout)	SSSI (Seaford to Beachy Head SSSI)	Chalk grassland	Magdalen Hill Down		Chalk grassland
Beacon Hill	NNR, SSSI	Chalk grassland	Malling Down	SAC (Lewes Downs), SSSI (Lewes Downs)	Chalk grassland
Black Down	SNCI	Heath/wood	Marley Common	LNR (part)	Heath/wood
Blackheath	SSSI	Heath/wood	Midhurst Common	SNCI	Heath/wood
Broxhead Common	SPA, SSSI, LNR	Heath/wood	Mill Hill	LNR	Chalk grassland
Burton Mill Pond	SSSI, LNR	Wetland	Mount Caburn	SAC (Lewes Downs), NNR (Mount Caburn), SSSI (Lewes Downs)	Chalk grassland
Butser Hill	SAC, NNR, SSSI	Chalk grassland	Noar Hill	SAC (East Hampshire Hangers), SSSI	Chalk grassland
Catherington Down	SSSI, LNR	Chalk grassland	Old Winchester Hill	NNR, SSSI	Chalk grassland
Chailey Common	SSSI	Heath/wood	Puttenham & Crooksbury Commons	SSSI	Heath/wood
Chapel Common	SSSI	Heath/wood	Seaford Head	LNR, SSSI (Seaford to Beachy Head)	Chalk grassland
Cissbury Ring	SSSI	Chalk grassland	Selbourne Common	SAC (East Hampshire Hangers), SSSI	Woodland
Devil's Dyke	SSSI (Beeding Hill to Newtimber Hill)	Chalk grassland	Seven Sisters Country Park, Birling Gap, Crowlink	LNR (Seaford Head), SSSI (Seaford to Beachy Head)	Chalk grassland
Ditchling Beacon	SSSI (part of Clayton to Offham Escarpment SSSI)	Chalk grassland	Shawford Down	LNR	Chalk grassland
Durford Heath	SNCI	Heath/wood	Slindon Woods	SNCI	Woodland
Eartham Woods		Woodland	Southwick Hill	SNCI	Chalk grassland
Ebernoe Common	SSSI, SAC	Ancient woodland	St Catherine's Hill	SSSI	Chalk grassland
Fairmile Bottom	SSSI, LNR	Yew woodland /chalk grassland	Stanley Common & Lynchmere Common	LNR	Heath/wood
Firle Escarpment	SSSI	Chalk grassland	Stedham with Iping	SSSI, LNR	Heath/wood
Fittleworth Common	SNCI	Woodland	Sullington Warren	SSSI	Heath/wood
Forest Mere	SSSI	Lake /wetland	The Mens	SSSI, SAC	Woodland
Harting Downs	SSSI, LNR	Chalk grassland	Tide Mills		Shingle
Highdown Hill	SNCI	Chalk grassland	Waltham Brooks	SSSI	Wetland
Kingley Vale	SAC, NNR, SSSI	Chalk grassland	Weavers Down	Part of Woolmer Forest SAC	Heath/wood
Lancing Ring	LNR	Chalk grassland	Winnall Moors	SAC (River Itchen), SSSI (River Itchen)	Wetland and river
Lavington Common*	SSSI	Heath/wood	Woolbeding and Pound Commons	SSSI	Heath/wood
Longmore	Part of Woolmer Forest SAC, SSSI	Heath/wood	Wolstonbury Hill	SSSI	Chalk grassland

[63] It is acknowledged that some of these sites have a range of habitats present.

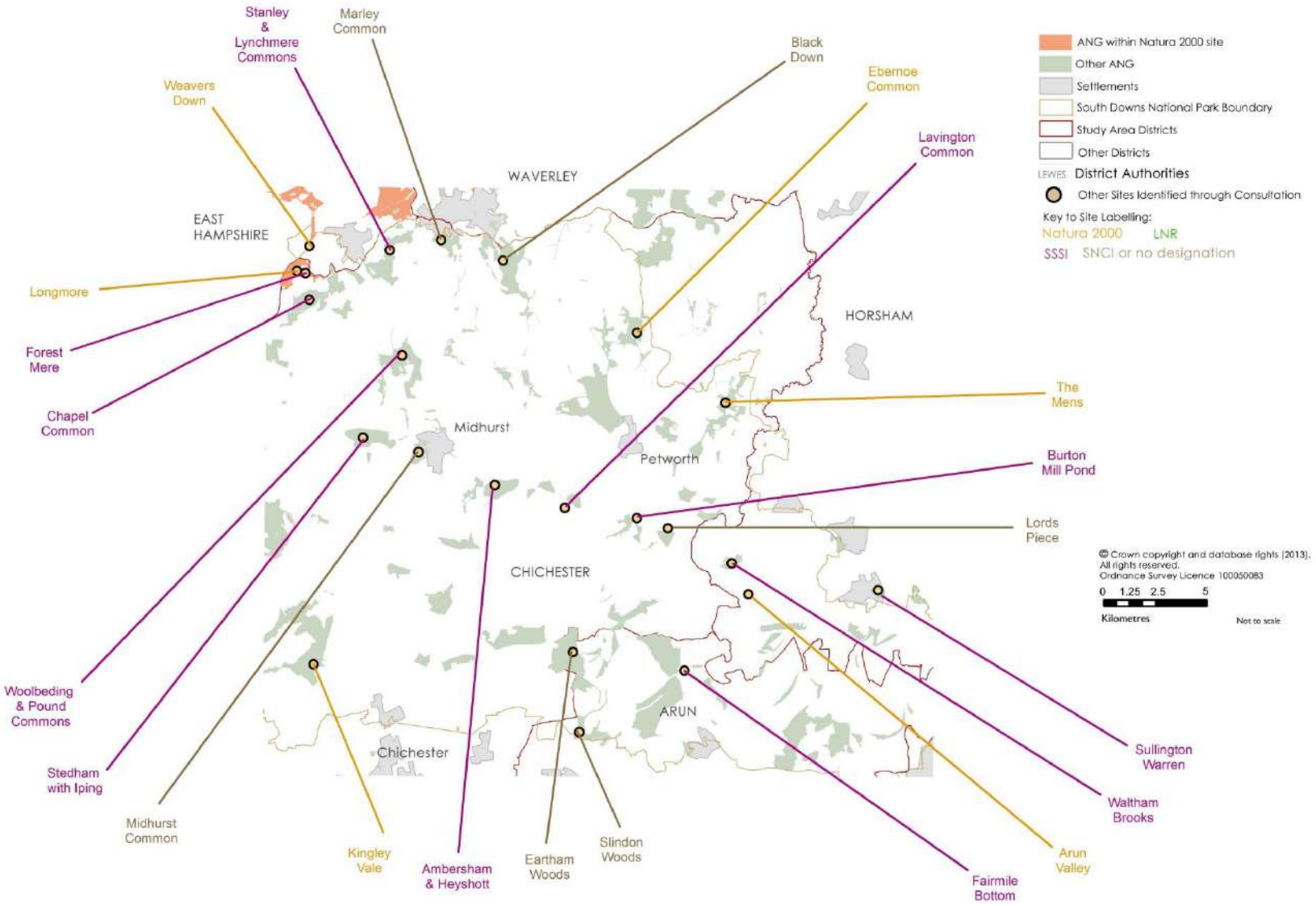
Plan 30: All Sites Identified - Potentially Sensitive to Recreation Impact



Plan 31: Other Sites Identified as Potentially Sensitive to Recreation (Named)



Plan 32: Other Sites Identified as Potentially Sensitive to Recreation (Inset - Named)



Contribution to ANG Provision

Natura 2000 Sites

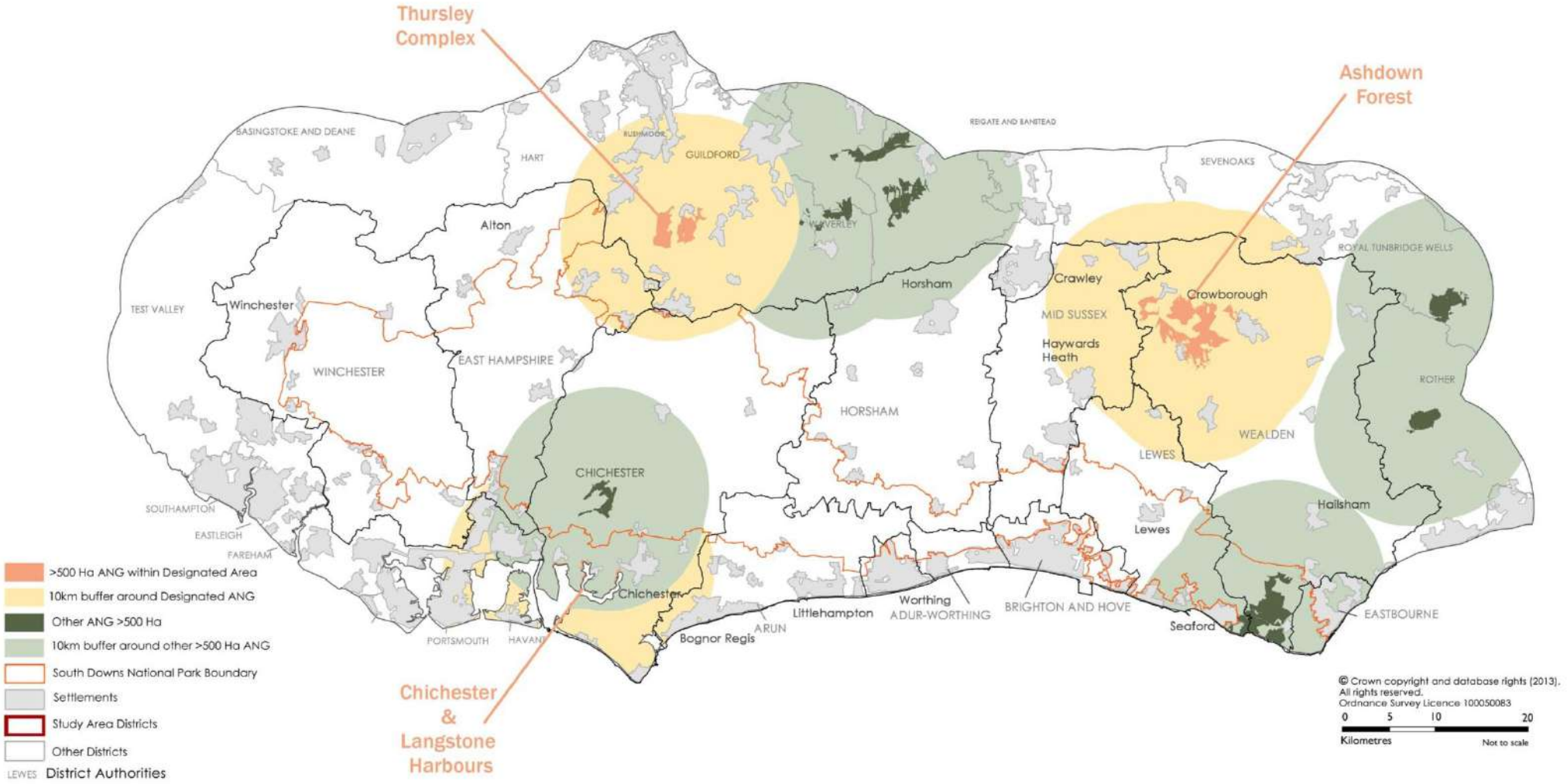
Only parts of the Natura 2000 and Ramsar sites highlighted as being sensitive to recreation are categorised as ANG within this study. Those parts of the site which are ANG are show in Plan 33. The entire area of ANG within a designation is shown on this plan, although it is accepted that not all parts of the site will be equally sensitive.

Plan 34 shows the ANG sites in relation to the density of ANG in the area. This demonstrates that there is good ANG choice surrounding the Ashdown Forest and the heathland sites to the North East of East Hampshire District and Waverley. The ANG within the designated area does, of course, make up some of this provision, but in these areas there are more than 9 ANG buffers overlapping.

Langstone and Chichester Harbours and Pagham Harbour, however, fall in areas which have lower ANG choice.

Several of these sites provide a significant contribution to regional scale ANG, i.e. sites greater than 500 hectares, as show in Plan 35. The Thursley Complex, Ashdown Forest and Chichester and Langstone Harbours all fall within this category.

Plan 33: ANG within Natura 2000 and Ramsar Sites which is Regional Scale



Other Sites

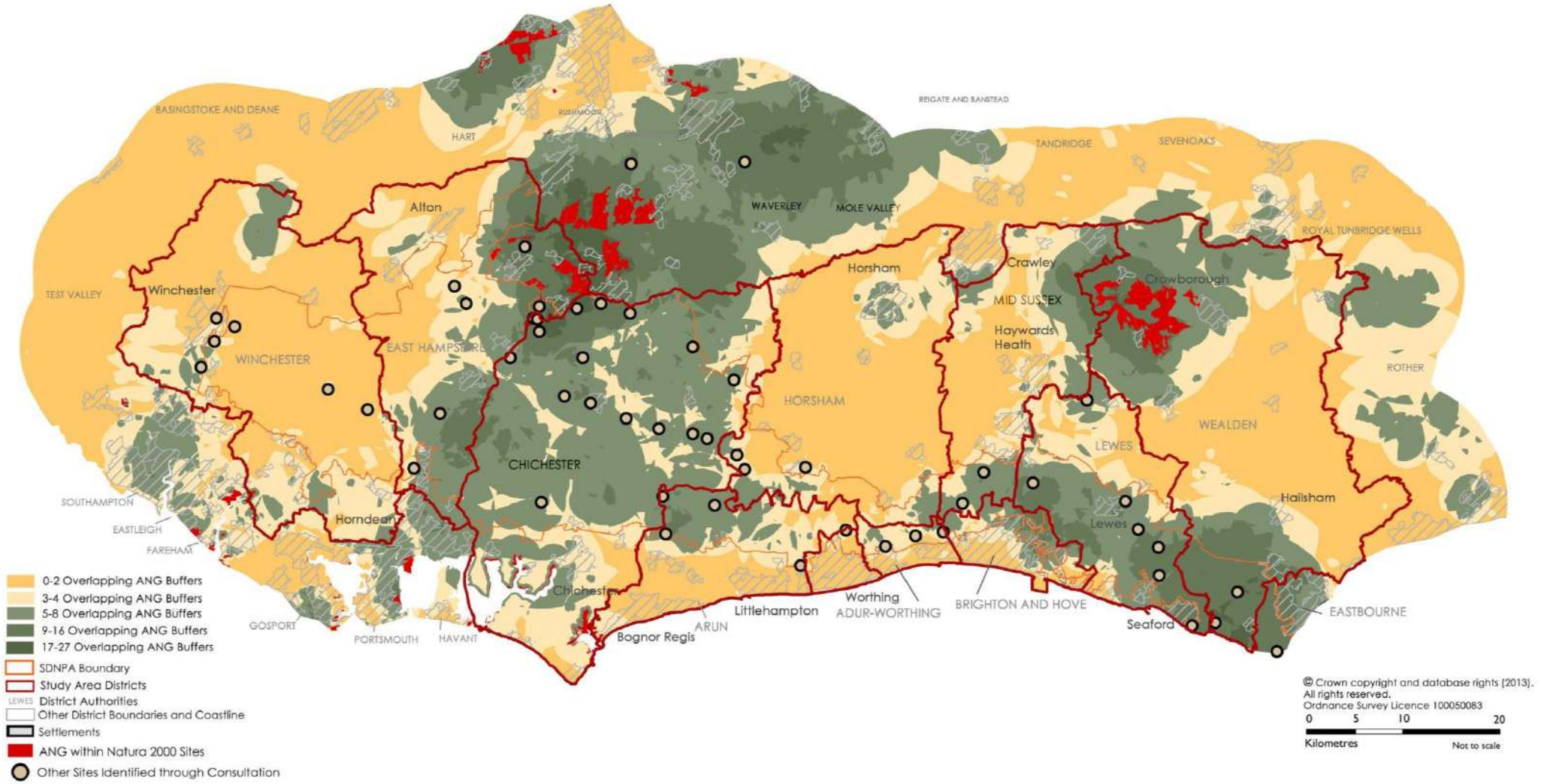
The spatial distribution of the sites alongside ANG density and the Natura 2000 sites highlighted are shown in Plan 36.

Due to the limitations in formulating the lists of sites, as previously discussed, this plan should not be treated as a full representation of all sensitive sites.

It was also not possible to calculate accurately the amount of ANG contained within these sites, as this would compound the subjectivity already inherent in the approach. For some sites it was clear from the discussion that pressure only existed at certain points of the site, for example around car parks or the areas closest to urban populations. It was not possible within the scope of this study to accurately map with each site manager the extent of the area considered to be sensitive.

Nonetheless, the exercise does provide a useful spatial representation from which to further develop an evidence base, with some key areas identified.

Plan 34: Density of ANG Provision with ANG within Natura 2000 and Ramsar Designated Sites plus Other Sites Identified through Consultation



Urban Fringe around Coastal Towns

As demonstrated in the preceding ANG analysis, the sites within the South Downs National Park just beyond the urban fringe of the coastal towns provide essential ANG for these communities.

In general there is good density of ANG within the National Park along this edge.[64] However, the area to the north of Adur-Worthing has the lowest density of ANG along the coastal towns' urban fringe.

It is perhaps not surprising therefore that five sites to the north of Adur-Worthing were identified:

- Highdown Hill SNCI;
- Cissbury Ring SSSI;
- Lancing Ring LNR;
- Mill Hill LNR;
- Southwick Hill SNCI.

Seaford Head Nature Reserve to the south east of Seaford was also identified.

Not all of the ANG sites along this urban fringe were identified as being potentially sensitive. Around Brighton, for example, a good provision of ANG sites, including larger sites such as Stanmer Park, plus initiatives such as increasing access to farmland, currently being implemented by Brighton and Hove Council, will help to diffuse pressure.

There is a high level of development planned for the entire coastal area. Given the concerns raised during this consultation, careful consideration of visitor management and greenspace provision needs to be made in this area including around Brighton and Hove, where fewer issues were raised in this consultation exercise but, nonetheless, a high population and high levels of expected prevail.

East Hampshire/North Chichester/Waverley Heathland Sites

The Natura 2000 sites of the Thursley complex, the Wealden Heaths Phase II SPA and Shortheath Common SAC have been assessed as being sensitive to recreational pressure, with mitigation measures proposed. However, the consultation has also identified several further sites which site managers also consider to be potentially sensitive to recreation:

- Black Down SNCI;
- Broxhead Common (part of Wealden Heaths Phase II SPA);
- Durford Heath SNCI;
- Forest Mere SSSI;
- Marley Common LNR (part)
- Longmore (part of Woolmer Forest SAC);
- Stanley and Lynchmere Commons SSSI;
- Weavers Down (part of Woolmer Forest SAC);
- Woolbeding and Pond Commons SSSI.

This further consultation supports the recommendation in the East Hampshire Green Infrastructure Strategy (2013) that a cross-boundary approach to visitor management would be beneficial. The Wooded Heaths Project could provide a catalyst role, however, it does not cross the boundary into Waverley or include parts of the Wealden Phase II Heaths SPA in East Hampshire.

[64] Although the high proportion of open access land in the ANG dataset, some of which is not fully accessible, may overstate the level of provision.

Winchester City Council Area

There is a low density of ANG in Winchester local authority area. This deficit is recognised in the Winchester Green Infrastructure Strategy, with the strategy reporting that "*the biggest deficit in Winchester is the lack of natural green space close to settlements for casual walking and dog exercise*" as well as a deficit in Local Nature Reserves.[65]

This consultation exercise highlighted four particular sites around Winchester city:

- Magdalen Hill Down;
- Shawford Down LNR;
- St Catherine's Hill SSSI;
- Winnall Moors.[66]

Two other sites in Winchester local authority area were also reported. Both of these National Nature Reserves are in the National Park but are not near major population centres and neither was reported as being particularly heavily visited:

- Beacon Hill NNR, SSSI;
- Old Winchester Hill NNR, SSSI;

Development is planned for Winchester city as well as smaller allocation in south of the district. The green infrastructure strategy acknowledges that more publicly accessible greenspace is required to accommodate new development in the local authority area.

Northern Chichester District

The northern part of Chichester District has a particularly dense coverage of ANG sites. However, there is also a cluster of sites which have been identified as potentially sensitive to recreation:

- Ambersham and Heyshott SSSI;
- Burton Mill Pond SSSI, LNR;
- Chapel Common SSSI;
- Lavington Common SSSI;
- Lord's Piece;
- Midhurst Common SNCI;
- Stedham with Iping SSSI;
- Woolbeding and Pound Common SSSI.

Most of these sites are within the Wooded Heaths Project boundary, which could offer the opportunity for a more coordinated approach to building an evidence base and visitor management.

[65] Winchester City Council Local Development Framework Green Infrastructure (GI) Study (May 2010), page 32 and para 4.26.
[66] HIWWT reserve, public access but not included in ANG dataset. Part of River Itchen SAC.

Discussion

Debate around recreational impacts on biodiversity is complex and contested. There are many sites at which both recreational activity and biodiversity can be accommodated; others at which it can potentially be detrimental to the biodiversity interest.

The following section summarises some key points.

Evidence Base

Gathering information on visitors and impacts on species is resource intensive. Those sites for which good data exists are generally those in the Natura 2000 network for which an evidence base has been required for HRA. For many others there is an absence of data, either on the link between the effects of recreation on habitats or species or on visitors.

There are limitations in the approach taken here. The perception of 'negative impact' and of what constitutes a detrimental number of visitors will vary with the perspective of the site manager and the role they consider the site fulfils.[67] Sites reported are also primarily confined to the South National Park, as this was the knowledge base of the consultees. It is considered, however, important to widen the search for sites and, in the absence of evidence, this approach provided a baseline from with the South Downs National Park Authority can now build.

[67] This report does not therefore set out to prove or disprove any recreational impact on the sites listed.

There is clearly a need for more evidence on visitors and impacts across the National Park. It would be beneficial to standardise the approach in order to obtain comparable and robust data from sites which can then be used to build a coherent picture of visitors. Joint working by authorities offers substantial opportunities for standardising the gathering of visitor information.

In designing visitor surveys, some factors which could be standardised include:

- Visitor characteristics: where visitors originate from; how they have travelled including postcodes? age group and gender;
- Visitor behaviours: where they go on site, how long they stay, what routes do they walk/cycle? Whether they have dogs or not; whether they let dogs off the lead; how often do they visit? Does this vary with season? What other sites do they use?;
- Visitor motives and activities and, linked to this, willingness to carry out these activities elsewhere;
- Visitor perceptions of damaging activities, the scale of impact and how damage can be reduced?;
- Where visitors source educational material and their perception of its quality. Did it alter their perception?;
- Visitor perceptions of recreational activities and the impacts on wildlife and habitats; and
- Visitor awareness of site designations, sensitive flora and fauna and habitats.

Evidence to determine conclusively a recreational impact on biodiversity, for example through species surveys etc., is costly to implement and beyond the scope of most managing organisations.

However, managers of the sites have good insight into pressures. A more complete survey of land managers, widening the organisations and individuals surveyed and using a standardised approach and recording, would help to build more evidence on potential impacts.

Natura 2000 Network and Links with Other Sites

Natura 2000 sites are afforded the highest level of legal protection and any plan or project which may have an adverse effect on the species or habitats must avoid these impacts or reduce them to levels which will not detrimentally affect the conservation interest of the site. Mitigation is required when the effects cannot be avoided.

Although assessment and mitigation may reduce impacts on Natura sites, the limitations in scope may not support wider visitor management of sites which do have such a designation.
First, mitigation must address the issue or issues causing the significant effect specific to the plan, project or development and not to ameliorate pre-existing impacts.[68]

Mitigation and assessment is also only required for Natura 2000 sites and does not cover other 'lower tier' designations. However, the previous analysis shows that visitor pressures are not confined to Natura 2000 network, with many sites outside but close to the designated sites identified by the consultees.

Several additional Natura sites which for which a significant effect from recreation had not been concluded were also highlighted by consultees. In some cases an assessment had determined that any impact was below a 'significant' level.

Green Infrastructure

There are clearly links between green infrastructure provision and recreational impact. However, although the green infrastructure typology under consideration here, ANG, is useful in determining levels of provision to accessible land, it is a limited dataset. The full accessible greenspace resource, including parks, rights of way, accessible urban fringe land and country parks all contribute to the spaces available for informal recreation.

Local provision is particularly important. Evidence from visitor surveys, carried out primarily for Natura 2000 sites, indicates that, for the majority of sites, the highest proportion of visitors are local. The mean distance travelled to the site by the majority of visitors varies between sites, but these surveys often reveal a core catchment of between 2km and 8km from the site.

Clearly then, assessment of the total open space resource at a more local level is required to determine pressures, deficits and opportunities for improvement. Intuitively, a recreationally sensitive site on an urban fringe where there are few other accessible spaces will be put under more pressure.

[68] Although the measures introduced may have incidental positive impacts on pre-existing conditions or to reduce existing impacts to ensure that the net effect of new plus existing impacts means there is no significant effect on a European site.

Further investigation at a district or settlement scale could include:

- A more refined approach to green infrastructure analysis and determining deficits, e.g. to determine how much of the open space network consists of biodiversity sites and, of these, which are potentially sensitive to recreational impacts;
- Determining those sites which serve a high population, for which there is limited other open space (the ANG standards are based on proximity of sites to a population, not on the hectarage of provision per, for example 1000 population);
- Building the evidence base to understand better both visitors and impacts;
- Cross-boundary investigation of green infrastructure. Sites in one local authority area will potentially serve visitors from an adjacent area;
- Developing better integrated approaches to creation of accessible areas. Those seeking recreational space, or even a degree of 'naturalness', may not necessarily need high quality biodiversity sites. Other approaches to increase access may help to relieve pressure.

Visitor Management

Visitor management approaches encompass a wide range of possible measures. They can be implemented on-site and also at a strategic scale. Measure can include restricting access, dedicated dog areas, management of car parking and access points, managing visitor flows and zoning.

Other measures can support visitor management, including signs, interpretation, leaflets, codes of conduct, education and wardening.

The South Downs National Park offers an opportunity to develop a strategic approach to visitor management.

Potential Areas for the SDNPA to Develop

Many of the issues raised need a co-ordinated multi-disciplinary approach. Some areas may benefit from combined visitor management; some from greater green infrastructure provision. Some sites may require improved management and potentially the funding to achieve this.

There are several key areas in which the SDNPA could take a role:

Evidence Base: The co-ordination evidence gathering to further the understanding of recreation and impacts has great benefits and will help to understand visitor movements and areas of demand and pressure across the area. This evidence will help to produce, monitor and refine any strategic approaches.

Strategic Approaches to Increased Provision: There may be a need in some areas to provide alternative sites. Several site managers highlighted the role of woodlands for example, as more robust habitats and as alternatives to sensitive sites at certain times of the year. The SDNPA is in the position to further this approach. There are also links with green infrastructure provision at a strategic scale.

Co-ordination of Promotion: The SDNPA is in a unique position to bring together and work with partners to co-ordinate the promotion of sites. This could be used to promote different sites at different seasons or different sites for different recreational uses.

Dog Management: The impact of dogs is a recurring issue, both for the direct impact through disturbance to, for example, breeding birds and due to the difficulties in grazing on sites heavily used by dog walkers. The South Downs could develop a strategic approach to dog management, involving other partners in a co-ordinated approach to providing information and signing, for example on areas for off-lead or on-lead walking, seasonal restrictions, responsible dog ownership etc. [69]

Funding: A strategic viewpoint can offer advantages to gaining funding, as can a robust evidence base. Landscape Partnership Schemes, for example, not only provide funding for site management, they fund community engagement and education, which can support a decrease in some of the anti-social behaviours reported by site managers.

Links with Tourism: There may be a need to raise awareness with the tourism industry and there may not be good understanding of these issues.

[69] For example Dorset Dogs http://www.dorsetwildlifetrust.org.uk/dorset-dogs.html; Paws on the Moors http://www.pawsonthemoors.org/

The Access and Public Transport Network

Introduction

A range of data was used to illustrate the strategic access and public transport network of the study area. Data on Public Rights of Way (PROW), promoted routes and public transport[70] were sourced from the County Highway Authorities, Sustrans, the South Downs National Park Authority and other open data sources.

Mapped data on ANG, countryside destinations[71] and levels of private vehicle ownership were overlaid onto the access data. The maps were then analysed to assess the effectiveness of the current network in connecting local communities and visitors to various destinations, and helped to identify gaps and opportunities for future development.

Analyses

The Public Rights of Way Network

Plan 37 shows the rights of network and Plan 38 shows the density of PROW across the study area. The PROW density within the SDNP area is, with one or two small exceptions, greater than 0.5km per km^2, and across large areas it is more than 2.5km of PROW per km^2. The National Park areas within the districts of Chichester, Horsham, Arun, Mid Sussex, Wealden and Eastbourne have particularly good PROW densities. Outside of the National Park the densities are poorer to the south (i.e. towards the coast) and in areas near to the National Park boundary in Winchester and East Hampshire.

Plans 39 and 40 show the density of PROW in relation to areas that are deficient in local ANG. In the National Park there are very few areas that lack local ANG and have low PROW density; notably areas that lack ANG at a neighbourhood level (ANG within 300m) and have very low PROW density occur in the south of the National Park around Chichester, a small area around Petworth, parts of Lewes district and the Whitehill & Bordon areas of East Hampshire.[72]

In the local 2km ANG category there is only a small area in the National Park near to the main town of Chichester that lacks ANG and has low density PROW.

Outside the National Park the situation is different. In particular the coastal towns and conurbations lack access to local ANG and PROW. The City of Winchester, situated just outside the National Park boundary is deficient in local ANG and access to PROW, as are parts of Horsham town and Haywards Heath. These three areas are also the locations for a number of planned major housing developments that will result in increased numbers of local people, and potentially increased pressure on the countryside access network (see section on Major Development).

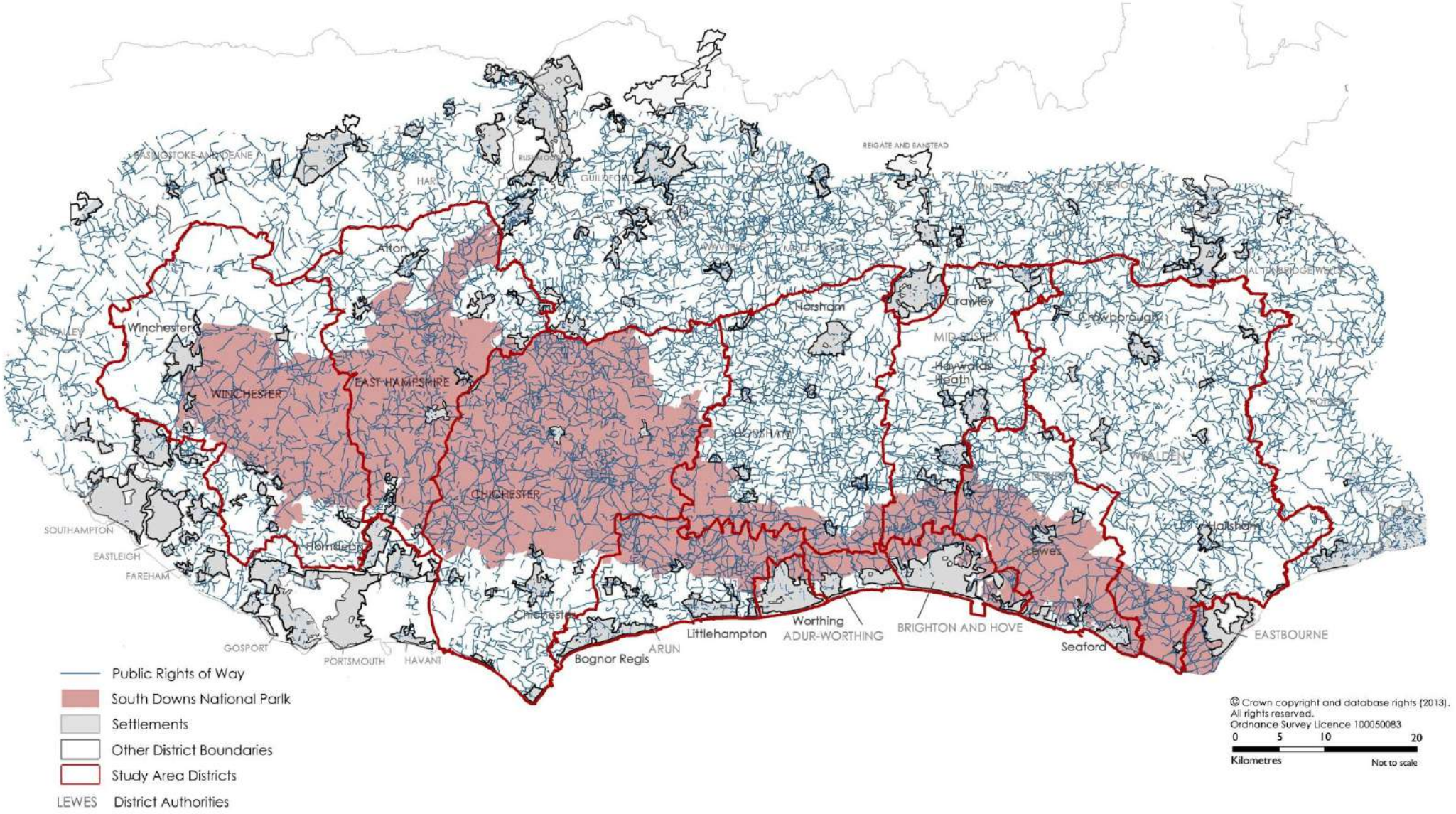
Accessible Woodland

Plan 41 shows woodland that is fully accessible to the public. Plan 42 shows all areas of woodland including sites that are closed to the public or accessible only by PROW.

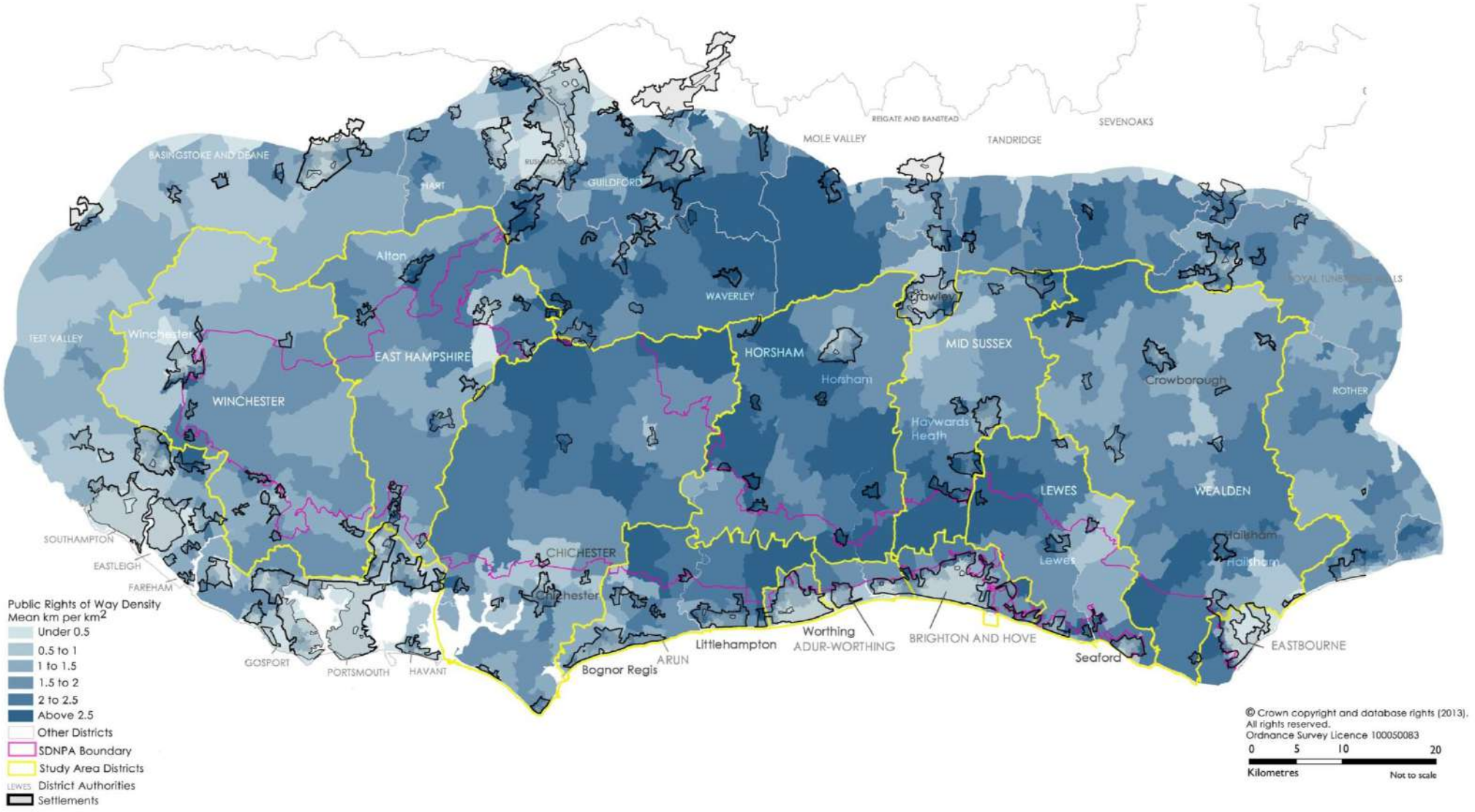
[70] Sourced from the SDNPA Transport Study, MTRU (2013).
[71] As note 70.

[72] It should be noted that a new eco town is planned for Whitehill & Bordon, and it is anticipated that ANG and linear access will be addressed as part of this development

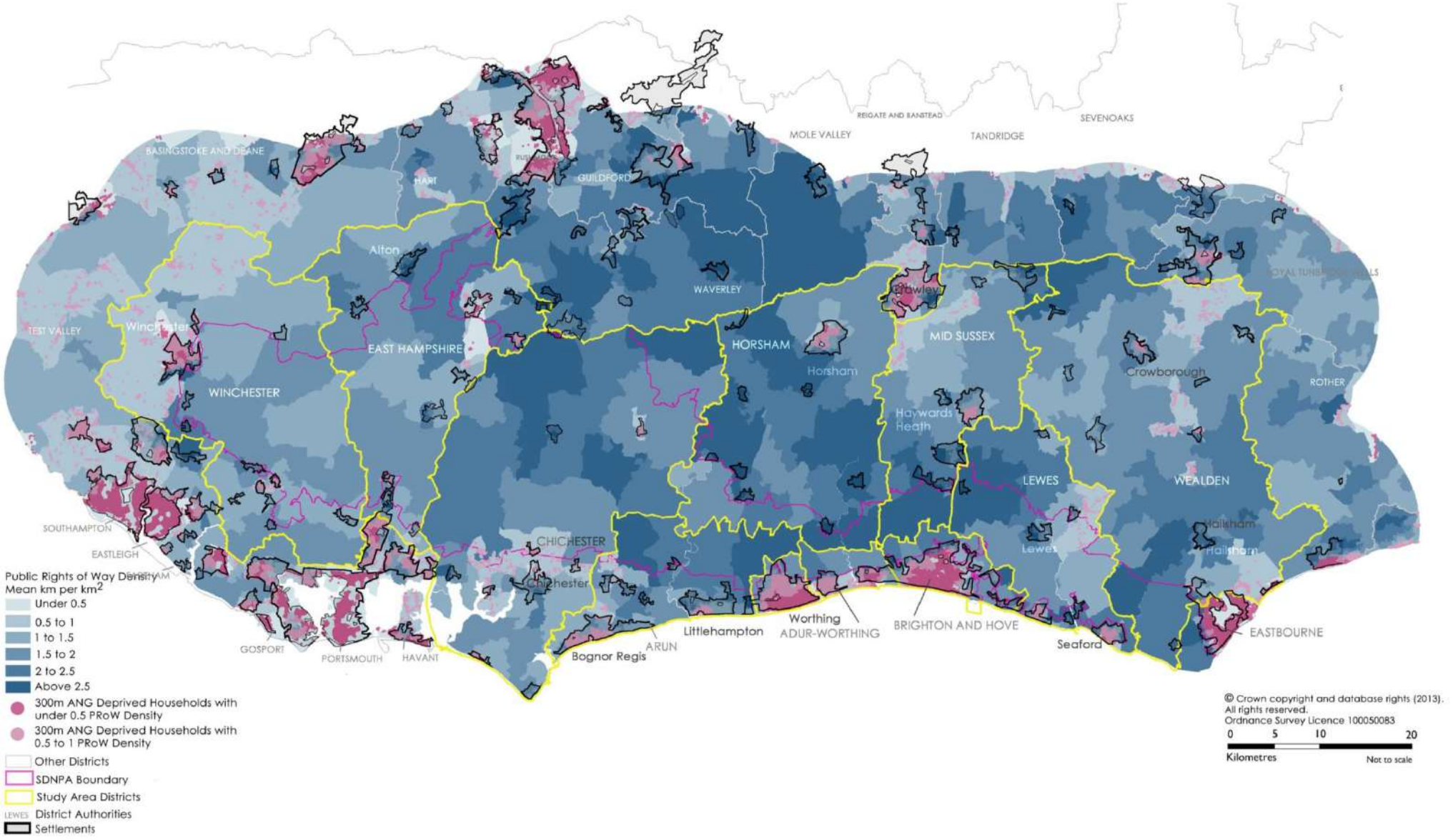
Plan 35: Rights of Way Network



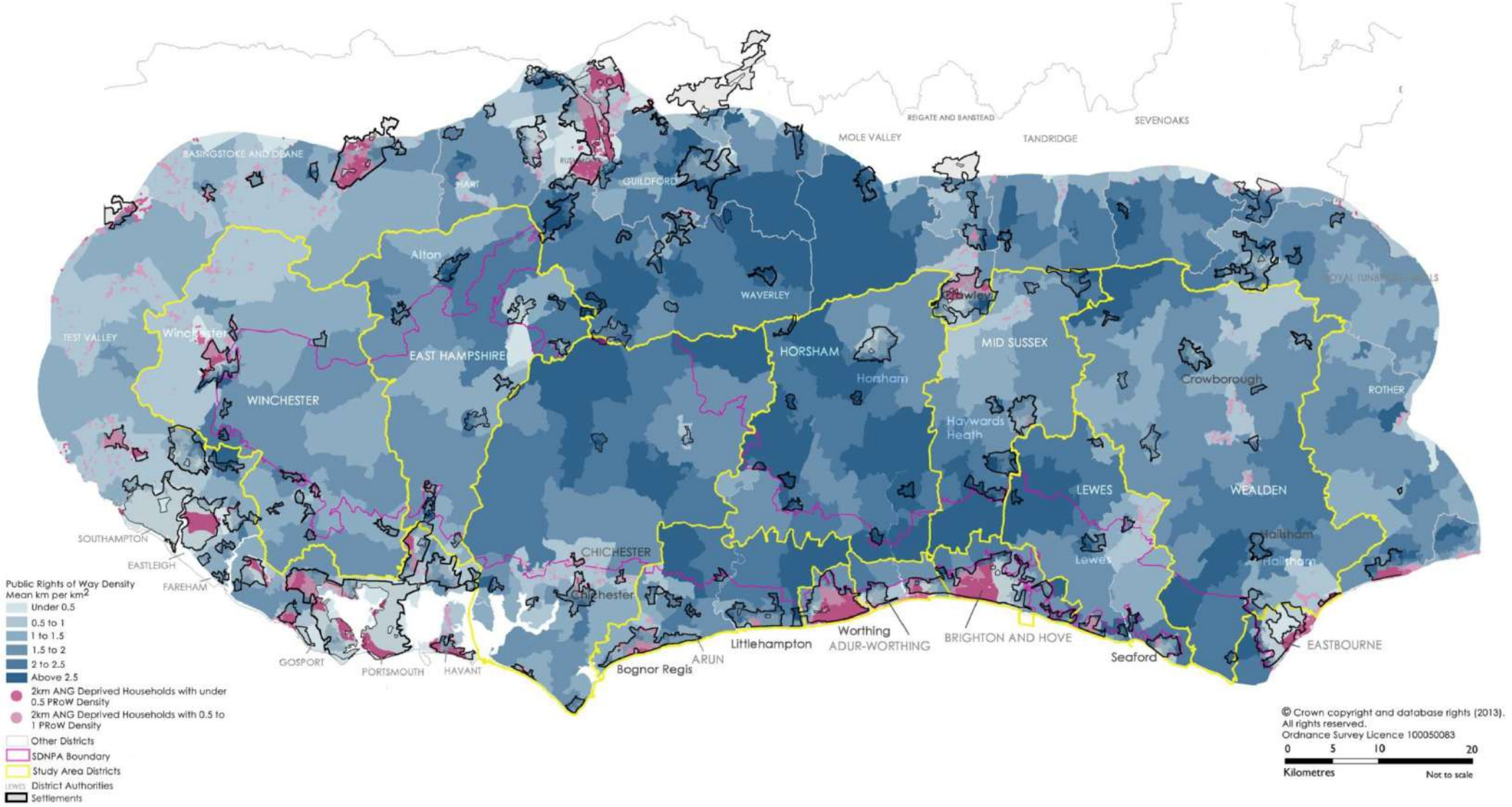
Plan 36: Density of Public Rights of Way



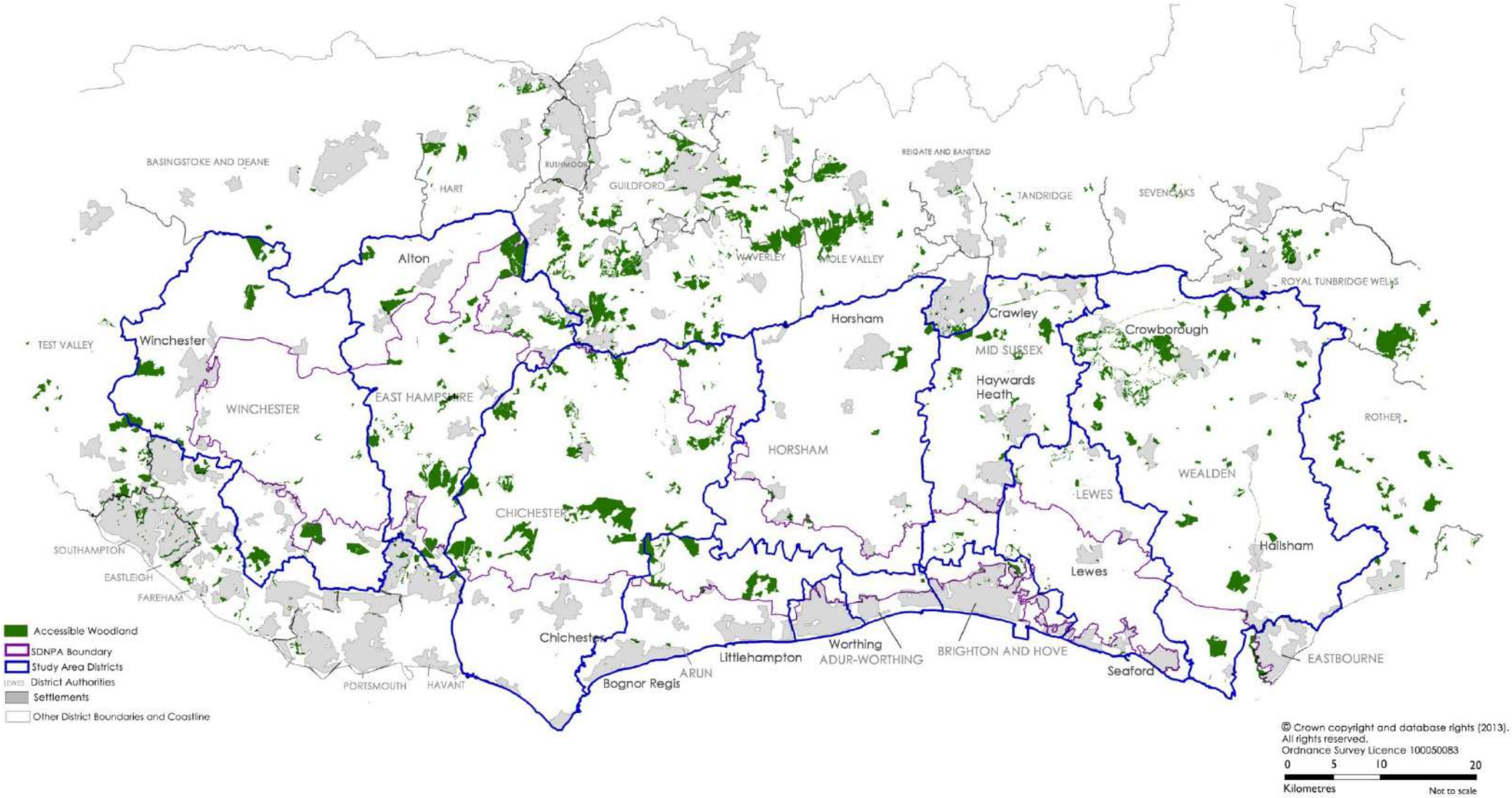
Plan 37: Density of Public Rights of Way and Households outside of 300m ANG Buffer



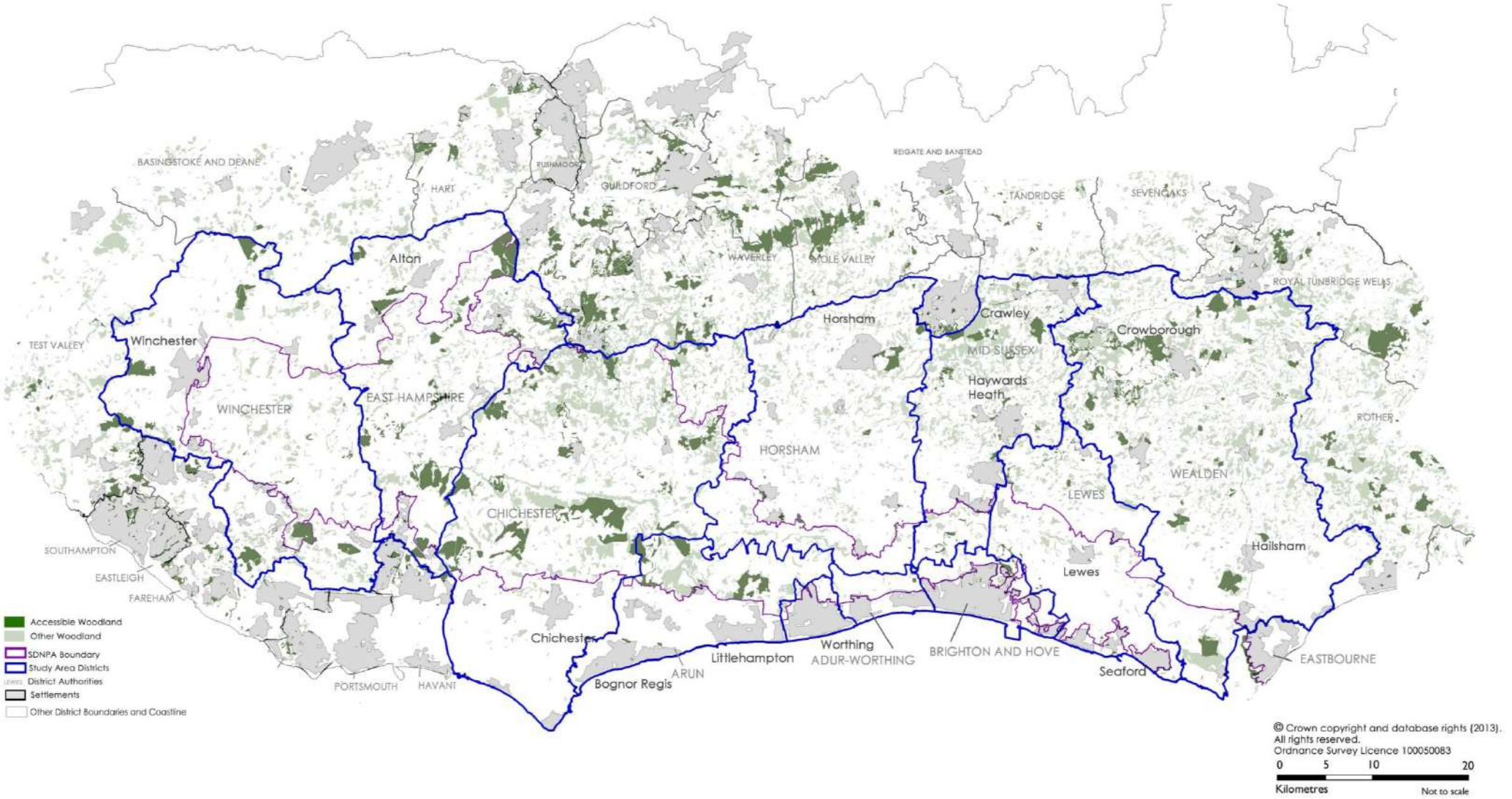
Plan 38: Density of Public Rights of Way and Households outside of 2km ANG Buffer



Plan 39: Accessible Woodland



Plan 40: All Woodland



Although there are many areas of woodland in the National Park and across the study area, a relatively small proportion is open to public access. Substantial areas of woodland lie within the control of large private estates and small landowners.

Within the National Park there are areas of woodland along the Downs and in the northern Weald, but only a few are fully accessible. There are significant areas of woodland where access could be improved and where potentially areas of local ANG could be developed, in particular in parts of Winchester district, the mid-western part of East Hampshire and southern parts of Chichester and Horsham.

Outside of the National Park there are areas of inaccessible woodland in the southern part of the district of Winchester, close to the National Park boundary, in locations that would benefit from improvements in ANG provision for the nearby existing and planned populations. Woodland in other parts of the study area could provide local and regional-scale ANG opportunities and help to relieve recreation pressure on the more sensitive areas of downland in the National Park.

Cycling

Plan 43 shows all promoted routes and PROW in the study area.[73] There are more promoted routes shown within the National Park, but it should be noted that information on promoted routes was not available or comprehensive for all the districts.

Plan 44 shows the complete cycling network, including all promoted cycling routes and PROW where cycles may be used.

A Sustrans route (no 23) from the south coast through Winchester runs along the western boundary of the National Park, linking the coast with Winchester City and into East Hampshire to Alton. The cycle-able PROW network in Winchester appears poor, particularly to the south of the National Park where the cycling network is virtually non-existent.

In East Hampshire the cycle network is fairly good, with well-developed east-west routes along the Downs, and some routes running north-south. There are gaps in the network in particular in the north-west where the PROW density is poorer and there are areas which lack ANG.

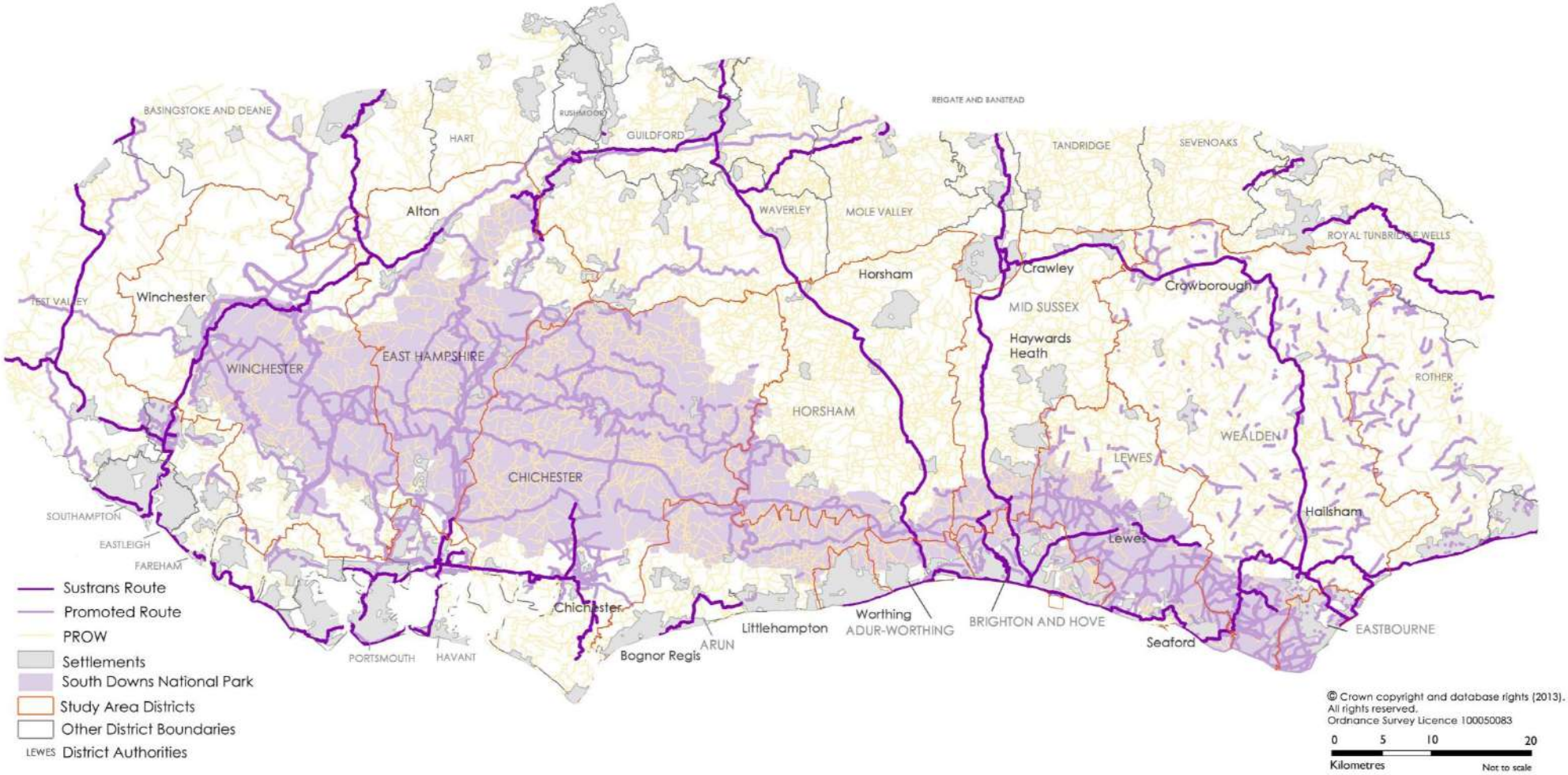
In Chichester there is a 'spur' section of promoted cycle route that connects from Chichester city northwards into the National Park; but apparently not as far as to link with the South Downs Way National Trail cycle route.

The network is good in the National Park and around the city, but to the south it is poor, and there is little permeability with neighbouring Arun. This is partly exacerbated by the 'barrier' effect of the A27

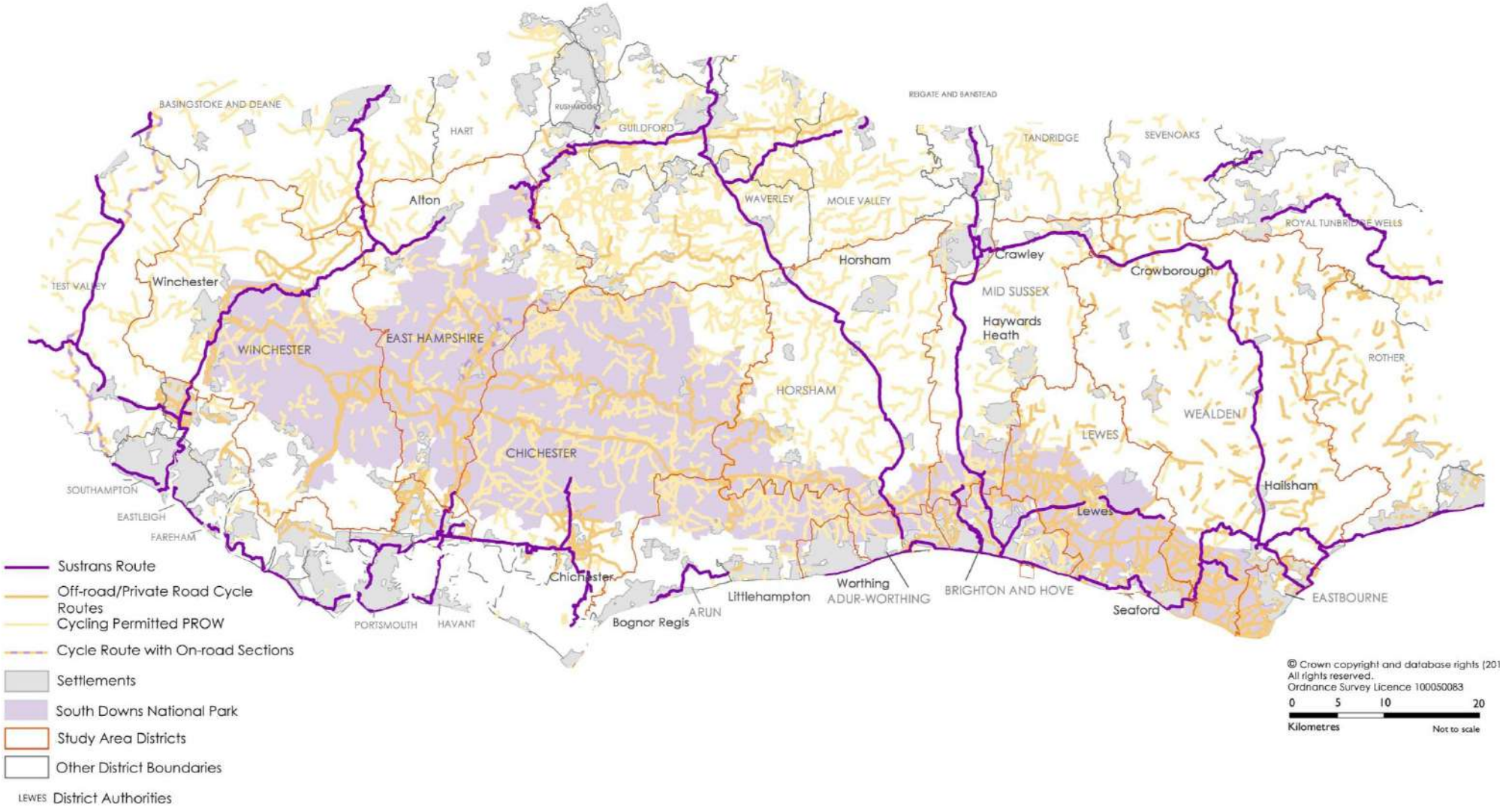
In Horsham the 'Downs Link' runs north-south through the district, linking the North Downs Way in Surrey with the South Downs Way and the coast. However the cycling network deteriorates outside the National Park, particularly to the south, and there is very poor permeability with neighbouring Mid Sussex.

[73] It should be noted that there may be signed routes that use road sections and where data is not available; also routes that are in development or informally used for cycling along old tracks and railway lines that are not yet provided on mapped information, e.g. Crawley to Horsham.

Plan 41: Promoted Routes and PROW



Plan 42: Complete Cycling Network



In **Mid Sussex** there are two promoted cycle routes running north-south through the district, linking from Crawley and Reigate down to Brighton on the south coast; and from Crawley in the west across the north of the district into adjacent Wealden District and to Eastbourne on the coast. There is a poor network outside the National Park to the north, and poor permeability with both Lewes and Wealden; but there are some links from Brighton in the south.

In **Lewes** a cycle route links Brighton to the town of Lewes and eastwards along the northern boundary of the National Park; although it is unclear if there is a link into Wealden district. North of the National Park the cycle network is poor, with very few links into neighbouring districts.

A cycling route runs through **Wealden** district from Crawley, linking several towns as it runs southwards and splits into a number of routes towards the coast. Beyond the National Park there is a poor cycling network, although it is recognised that East Sussex County Council promote a cycling network and various established multi-use routes such as the Cuckoo Trail and Forest Way include sections of roads.

Eastbourne has a very small but good network outside the town, including links with long-distance cycling routes.

There are at least three promoted cycling route links into **Brighton**, and several sections of coastal route running east-west across the study area, although this is not a continuous coastal route.

Worthing and **Adur** are well-connected to the boundary of the National Park, with patchy permeability into the towns. The Downs Link links Shoreham to the National Park along a former railway line.

In **Arun** there is an excellent network in the National Park but hardly any network in the areas beyond the park. And poor permeability with neighbouring districts.

In the National Park the main cycle route is the South Downs Way National Trail. Due to the topography of the Downs most cycling routes run east-west.

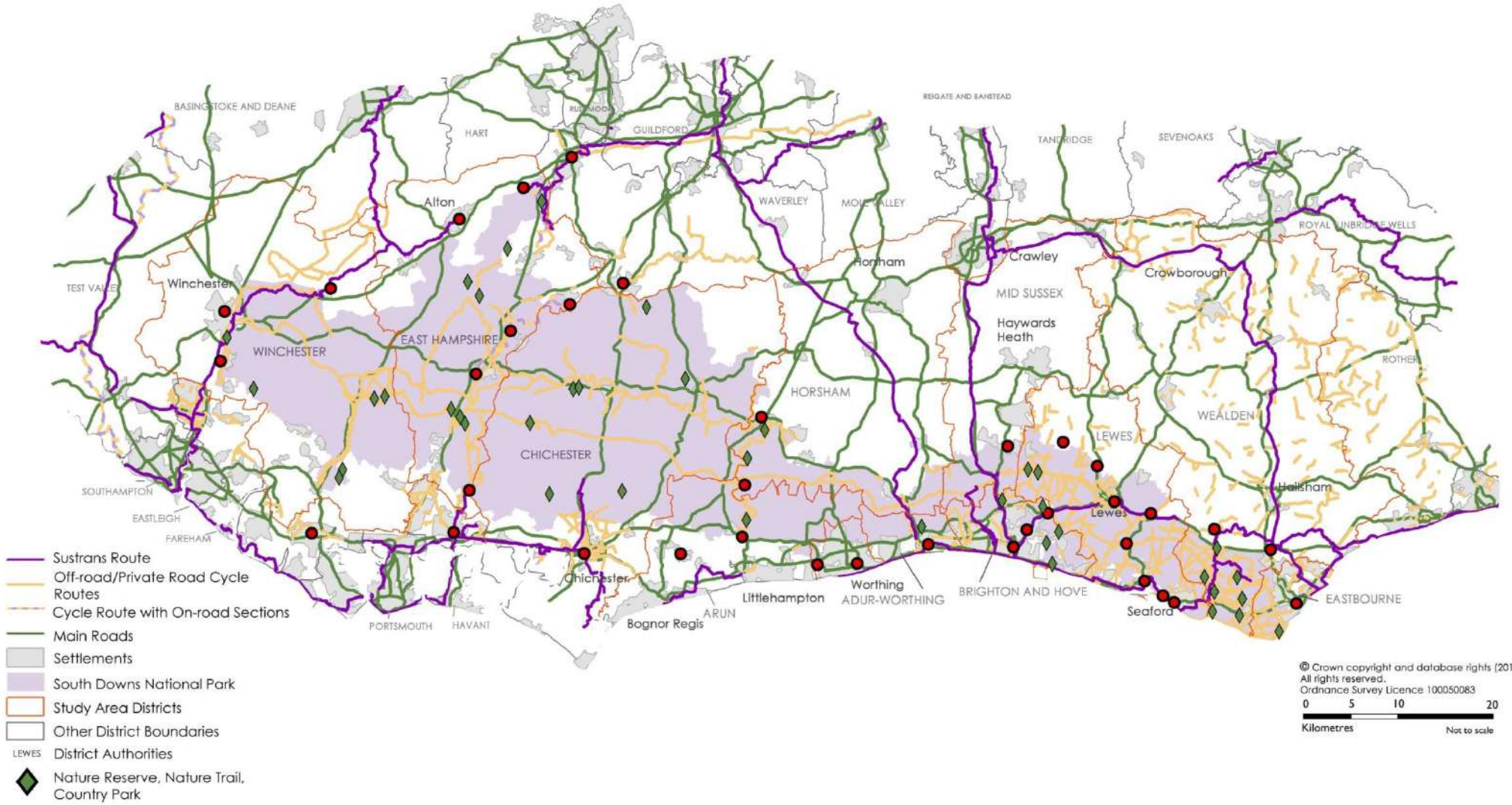
Links with Public Transport

Plan 45 shows the promoted cycling network in relation to countryside destinations and attractions and gateway railway stations. The map shows some clustering of routes and features – such as in Havant and in Winchester where there are a number of cycling routes linking into the towns and to gateway railway stations. However there are other areas such as the coastal areas to the south of the National Park in the western part of the study area, with very poor cycle links.

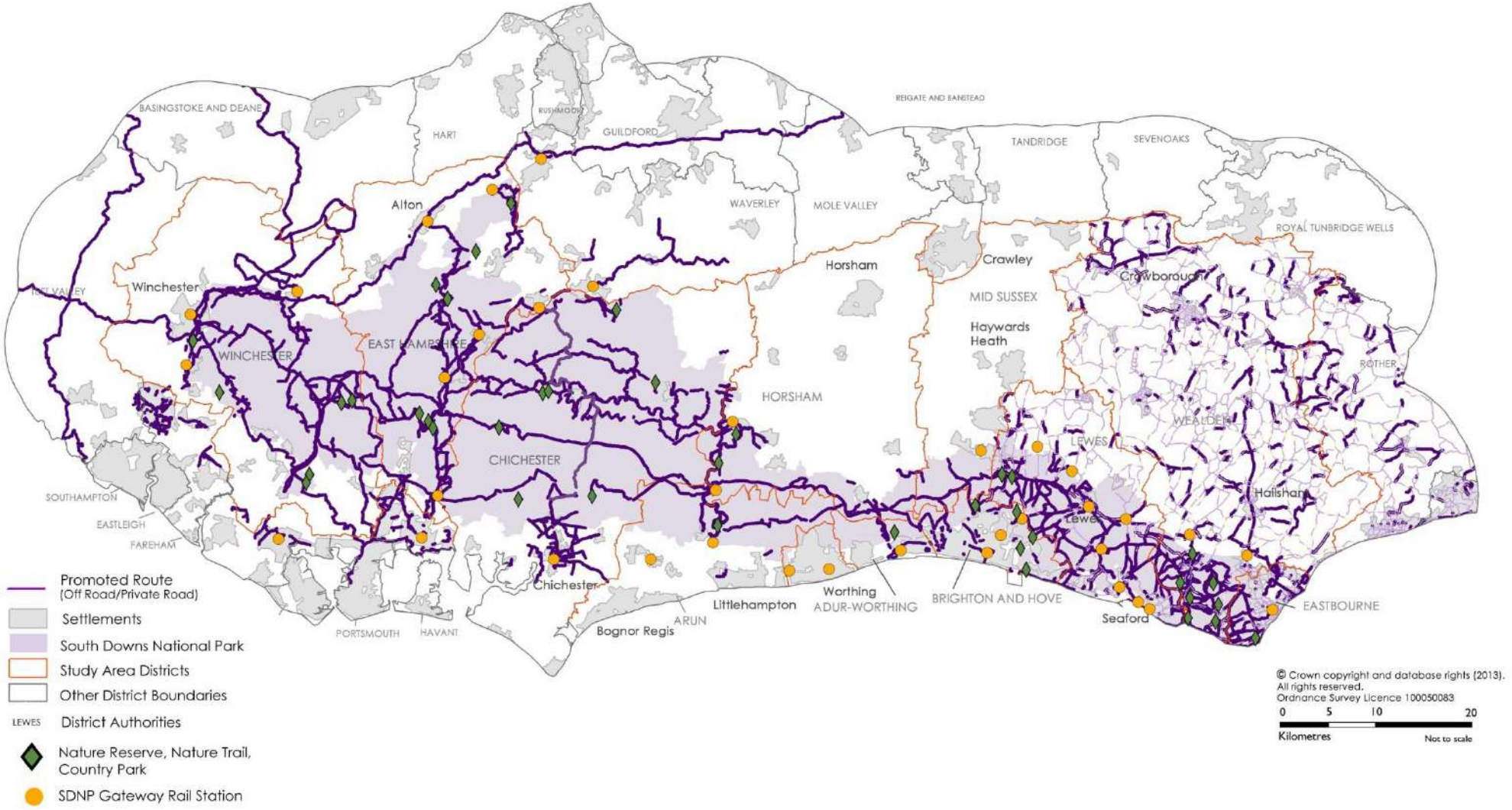
Plan 46 is similar to Plan 45 but it shows promoted walking routes instead of cycling routes. The walking route network is better developed in the National Park than outside, and would appear to be better connected to the gateway stations.

Plans 47, 48 and 49 show gateway railway stations, countryside destinations and levels of car and van ownership alongside bus routes and service frequencies for weekdays, Saturday and Sundays.

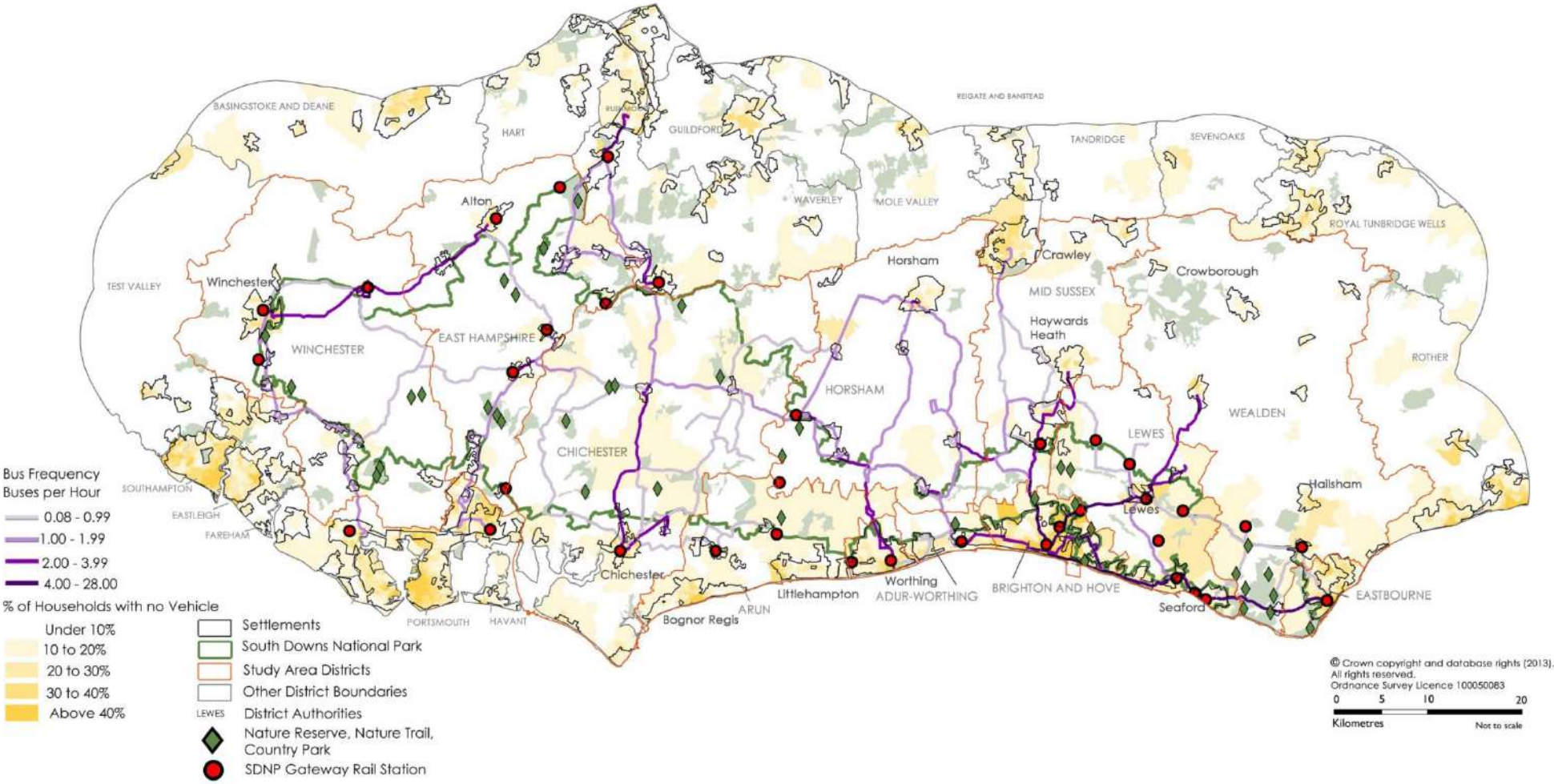
Plan 43: Promoted Cycling Network and Countryside Destinations, Attractions and Railway Stations



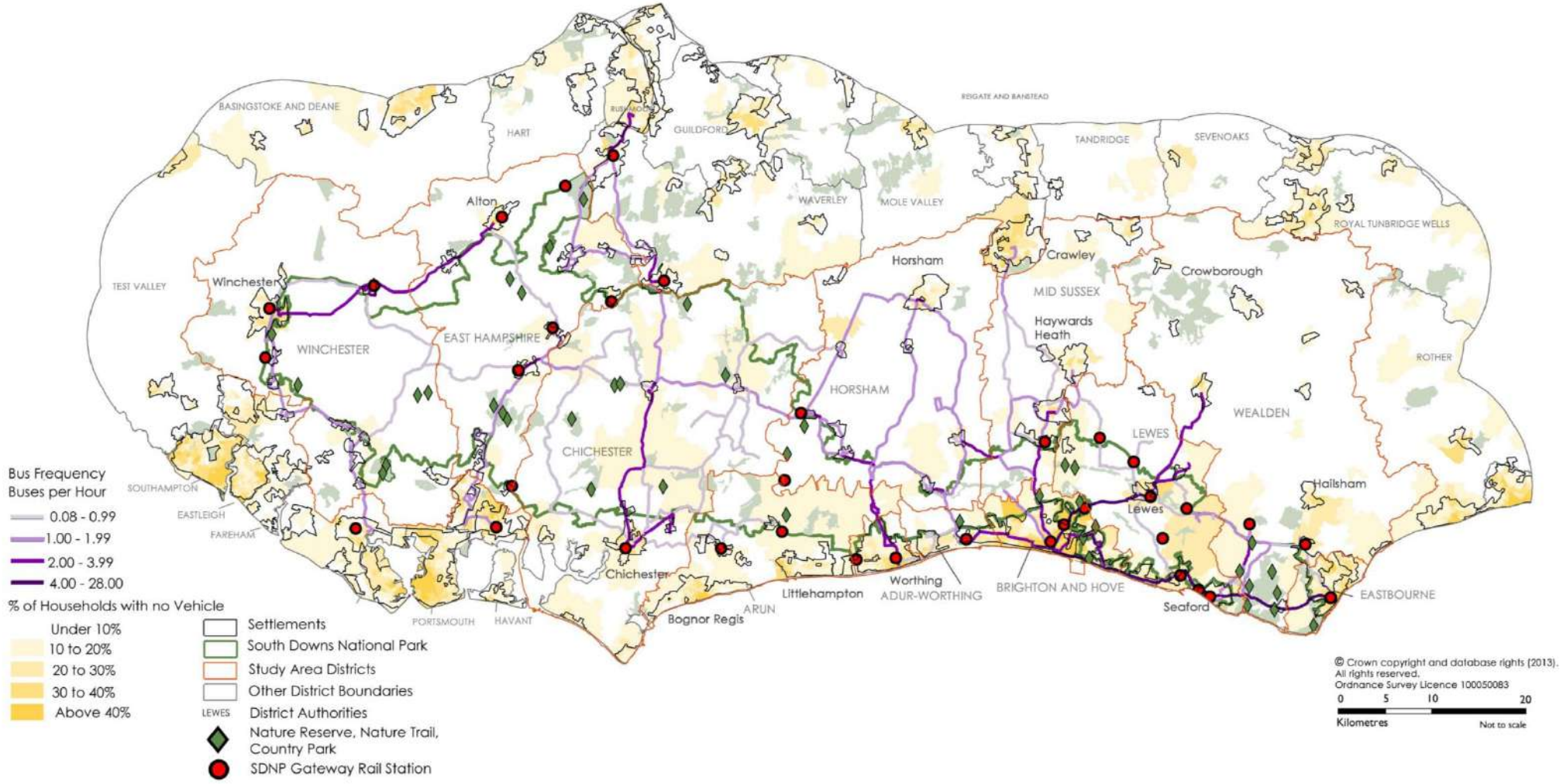
Plan 44: Promoted Walking Routes and Countryside Destinations, Attractions and Railway Stations



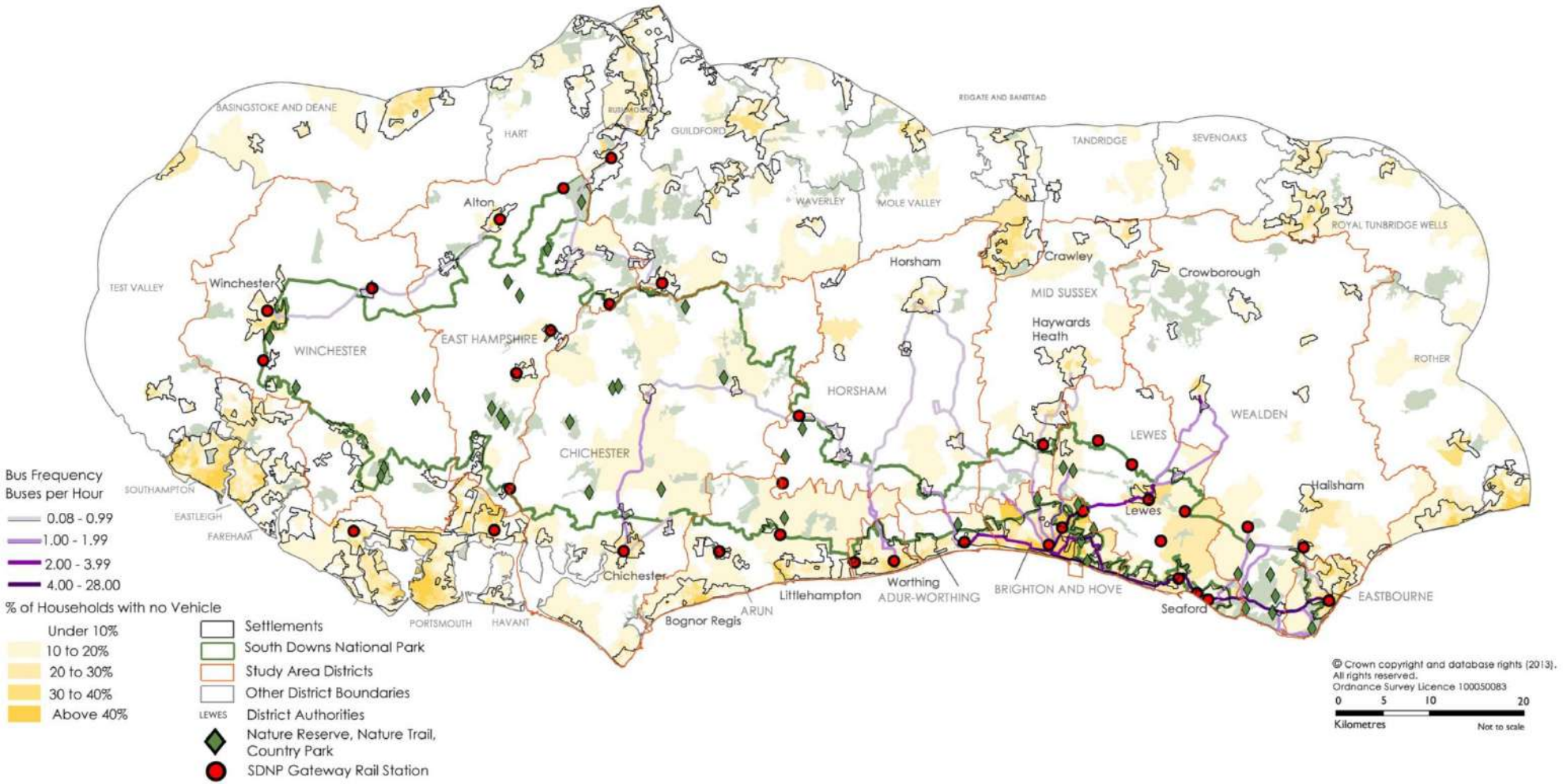
Plan 45: Countryside Destinations, Car and Van Ownership and Bus Frequency – Weekdays



Plan 46: Countryside Destinations, Car and Van Ownership and Bus Frequency – Saturdays



Plan 47: Countryside Destinations, Car and Van Ownership and Bus Frequency – Sundays



Discussion

The length of PROW per km^2 provided a useful indicator of density of the network in each district in comparison to the National Park; and was useful in comparing with other mapping such as ANG and health.

Transport mapping was used to compare against car ownership and the cycling and walking network in order to assess where there are gaps and where links may be proposed.

There are some apparent anomalies in the mapping and it can only be as good as the data collected. For example the promoted routes data on Plan 41 shows considerable differences between the data provided for West Sussex and that collected for East Sussex. This contrasts with Plan 38 where the PROW networks are shown to be similar

The cycling network is generally better developed in the National Park. The Sustrans and other long-distance cycle routes make a very positive contribution to cycling opportunities that link the National Park to the coast and to main towns. However, there are gaps particularly in local networks, links between settlements and links to railway stations. This may deter cyclists from making journeys that could link with public transport. Also there is an inconsistent picture of connectivity between the neighbouring districts and with the National Park.

The eastern coastal towns are relatively well-served by buses, both locally and linking beyond the coast into the National Park and towns to the north of the study area. However on Sundays the longer distance routes do not operate.

Bus services in the west of the study area are better in the northern rural areas, and poor in the coastal conurbations to the south of the National Park. The services in the western part of the study area appear to be very poor on Sundays.

The bus service will, to some extent, limit the mobility of visitors; in particular in those areas where the ownership of cars and vans is low. Plans 47, 48 and 49 show information on public transport as well as indicating where there are fewer privately owned vehicles. It is clear that the coastal towns in particular have lower levels of car and van ownership. When considered together with data on health, deprivation and ANG, and plans for major housing developments, the mapping provides useful information on where intervention may be required.

The Coast

The Coast as an Access Resource

The coastline of the study area extends from the Test Estuary and the Solent in the west, through to Hastings in the east. Along this coast are many significant settlements, including the Solent towns of Southampton, Portsmouth, Fareham, Havant and Gosport, Bognor Regis, Littlehampton, Worthing, Brighton and Hove and Eastbourne, alongside many smaller towns. Some of this coastline is developed; some can be considered more natural.

Of this coastline, the Sussex Heritage Coast extends encompasses 23.7km of undeveloped coastline from the east of Seaford through to Eastbourne; all of this lies within the SDNP. Alongside the Heritage Coast, part of the coast within the SDNP is also a SSSI,[74] part is a Local Nature Reserve[75] and part is a voluntary marine nature reserve. The Beachy Head West recommended Marine Conservation Zone is also under consideration by Defra for inclusion in the first tranche of marine protected areas under the Marine and Coastal Access Act. The site extends from 100m westwards of Brighton Marina to Beachy Head.

There are also two further sections of SDNP undeveloped coastline from the eastern end of Brighton Marina through to Rottingdean and at Telescombe Cliffs.

[74] Seaford to Beachy Head SSSI.
[75] Seaford Head Local Nature Reserve.

There is access along much of the coastline of the study area, through rights of way, accessible greenspace and beaches. There are 50 beaches with access listed in the 'Good Beach Guide'.[76] Most beaches, 45 out of 50, had parking, but 31 out of 50 beaches also had dog restrictions, usually in the summer months, typically between May and September.

Beaches and the coastline undoubtedly provide a valuable contribution to the access resource of the study area. Coastal access provides a unique experience and can supplement other accessible greenspaces.

The coast is clearly valued by both visitors and residents. In Adur and Worthing, for example, 92% and 97% of residents respectively believe beaches are an important open space.[77] In Worthing, 25% of respondents visited the beach daily and 45% on a weekly basis.[78]

Within the National Park, Seven Sisters Country Park is one of the most visited countryside sites in the study area, with around 300,000 annual visitors. The 280 hectare site includes cliff top downland, the Cuckmere River and coastal habitats including vegetated shingle and saline lagoons, along with promoted walking routes.

Beachy Head also receives a very high number of visitors. Beachy Head and 4200 acres of surrounding downland, farmland and a golf course

[76] Marine Conservation Society www.goodbeachguide.co.uk, see Appendix for full table.
[77] Adur Open Space, Sport and Recreation Study (2005), Worthing Open Space, Sport and Recreation Study (2006).
[78] Worthing Open Space, Sport and Recreation Study (2006).

was purchased by the Corporation of Eastbourne in 1929 to protect it from development and for the "*preservation of the amenities of Eastbourne*".[79]

The Contribution of the Coast to Greenspace Standards

Natural England in its assessments of accessible natural greenspace does not generally include coast. The Natural England 'Nature Nearby' case studies, carried out on several eastern coastal counties, did not include beaches or coastline, except where accessible natural greenspace was situated by the coast.[80]

The 2007 report on accessible greenspace in the South East,[81] despite collecting data on the entire coastline, did not include this in analyses of accessible natural greenspace provision. This was due to difficulties in ascertaining levels of accessibility and in quantifying the extent of the spaces. It did, however, retain the coast as a separate dataset, recognising that '*if a large population by the coast had no other greenspace available, to exclude this feature would not provide an accurate reflection of the actual level of available natural greenspace*'.[82]

Local authorities in their PPG17[83] or open spaces assessments often take a similar view. Despite beaches and coastline not being a recognised category for PPG17 assessments, many of the local authorities in the study area include them as a valuable access resource for residents. Lewes District's Recreation Space Study,[84] for example, recognises the importance of the beach and coastline, recognising West Beach in Newhaven as 'semi-natural greenspace' or areas for 'informal recreation'.[85]

Most do not, however, include the beach as contributing to quantity standards, but rather concentrate on quality standards and recognition that for coastal towns the beach and coastline is an important contributor to open space. A summary of how beaches and coastline are assessed by the local authorities of the core study area is shown in Table 13.

Eastbourne Borough Council, however, is the only local authority of the study area which does quantify the beach resource within a PPG17 assessment, using beaches to compensate open space deficiency. The authority reports that there is low provision of play areas, amenity space and outdoor sports, "*However, when Beaches and Downland are taken into account, the picture is more favourable as the space provided by these natural areas compensates for deficiencies in other areas*".[86] The assessment records 12 beaches, with a total of 81.7 hectares providing 4.8% of Eastbourne's sites and 7.3% of total greenspace area.[87] The beaches included in this assessment were those fronting the urban area, and not those below Beachy Head.

[79] As recorded on commemorative tablet.
[80] http://publications.naturalengland.org.uk/publication/40004 , included the counties of Essex, Norfolk and Suffolk.
[81] P. McKernan & M. Grose, An Analysis of Accessible Natural Greenspace Provision in the South East, South East AONBs, Forestry Commission, Natural England
[82] Note 81, page 8.
[83] Planning Policy Guidance 17 (PPG17): Sport and Recreation is no longer planning policy, but often the PPG17 typologies are used for Open Space Assessments, which form an important evidence base for local authorities.
[84] Lewes District, Information Recreational Space Study (2005)
[85] Note 84 and An Open Space Strategy for Newhaven (2005)
[86] Note 87 p34.
[87] Eastbourne Open Space Assessment, Evidence Document for Local Development Framework, p23

Table 15: Coastline within Open Spaces Assessments and Green Infrastructure Studies (Core Districts of Study Area)

District	Beaches and Coast Included as:		Commentary
Chichester	Access Typology	Yes	Open Space, Sport and Recreation Facilities Study 2013-2029 includes 'beaches and headlands' as a typology, but only applies quality not quantity standards. Planning the Green Infrastructure, including the ecological networks, within Chichester District (2013) does not include beaches and coast as a typology.
	Open Space Quantity Measurements	No	
	Green Infrastructure Typology	No	
Arun	Access Typology	Yes	Addition of beaches and coastal areas as PPG17 typology within Open Space Sport and Recreation Study (2009) and as a green infrastructure typology in Arun Green Infrastructure Study (2012). Quantity standards not set for beaches, but value as a recreational resource recognised.
	Open Space Quantity Measurements	No	
	Green Infrastructure Typology	Yes	
Adur-Worthing	Access Typology	Yes	Adur Open Space, Sport and Recreation Study (2005) and the Worthing Open Space, Sport and Recreation Study (2006) follow a very similar format. Both recognise that beaches are an asset to residents and may offset any shortfall in the provision of green corridors (Adur para 12.27, Worthing para 6.52). However, both state that beaches and coast should not be included in quantity audits (Adur para 13.3, Worthing para 13.18). Adur District Council green infrastructure maps (2009) show coastline and beaches as 'urban green space'.
	Open Space Quantity Measurements	No	
	Green Infrastructure Typology	Yes	
Brighton and Hove	Access Typology	Yes	Open Space, Sport and Recreation Study (2008)" *It is recognised that beaches and seafront constitute a significant open space both in terms of size and importance within Brighton & Hove, contributing to its identity as a regional and national tourist destination*" (para 13.2). At para 13.5 "*The beach has not been included within the audit. While it has been considered when setting standards for all other typologies, it would be incorrect to assume it can compensate for shortfalls in other typologies because of its unique characteristics*."
	Open Space Quantity Measurements	No	
	Green Infrastructure Typology	No	
Lewes	Access Typology	Yes	Recognises the contribution of the various beaches to recreation space provision. Open Space Strategy for Newhaven and Lewes Open Spaces Study (2005) categorise beaches as 'natural and semi-natural urban greenspace'.
	Open Space Quantity Measurements	?	
	Green Infrastructure Typology	n/a	
Wealden	Access Typology	No	Wealden PPG17 Assessment (2008) with amendments (2010) does not include either beaches or coastline, but includes the cliff top at Seven Sisters Country Park as 'natural greenspace'. Not specifically included in LDF Background Paper 6: Green Infrastructure (2011).
	Open Space Quantity Measurements	No	
	Green Infrastructure Typology	No	
Eastbourne	Access Typology	Yes	Beaches included in LDF Evidence, Eastbourne Open Space Assessment, under both quantity and quality standards.
	Open Space Quantity Measurements	Yes	
	Green Infrastructure Typology	n/a	

Quantifying the Contribution of Coastal Access

One of the obstacles to quantifying the contribution of beaches and coastline to greenspace provision is the difficulty of measuring the actual size of the open space as, unlike wholly land based greenspaces, and the size of the open space available will vary with the tides.

To be comparable with other open spaces it would seem logical that the measurement should be based on the amount of open space which is permanently available, rather than that which is only available for portions of the day. This would mean taking area measurements from the high tide mark.[88] In some cases, however, this would mean that the entirety of the beach is omitted from the calculation of open space if the high tide mark completely covers the beach.

If considering the coastline as part of the total accessible natural greenspace provision, difficulties also arise in assessing the 'naturalness' of the beach or coastline. Assessments of 'naturalness' within the typology of 'natural greenspace' inevitably involve a degree of subjectivity, but the coast presents some unique challenges. Considerations such as the presence or relative density of groins, whether the beach is backed by a nature reserve or a promenade, or the degree to which defence features dominate the coastline are all potentially determining factors.[89]

[88] For example as recommended in Countryside Council for Wales (2006), Providing Accessible Natural Greenspace in Towns and Cities (SD106).
[89] Note 88, page 20.

Discussion

The coast is an important provider of areas for access and recreation, especially for those living in coastal settlements. This resource becomes even more important for those coastal settlements for which access to other greenspace is limited, of which there are several within the study area.[90]

It is clear from residents' surveys which support several of the PPG17 strategies that access to beaches and the coastline are important to the residents of the coastal towns.

In the main, local authorities also recognise the importance of the beaches and coast as an access resource additional to other greenspace assets. However, most do not attempt to quantify this resource, perhaps due to the difficulties in measuring the resource and the fact that this was not a recognised PPG17 typology. Many do include quality and maintenance targets.

Most local authorities prioritise improving the quality of the coastal open spaces. There is a compelling requirement to do this as these sites not only provide access for local residents, they are an important component of the tourism infrastructure of these towns. There are opportunities for collaborative tourism marketing between the National Park and the coastal towns and resorts. This could help to draw different groups of visitors into the park and broaden the target audience as well as relieving pressure on the coast.

The stretches of undeveloped coast along the whole length of the study area are well protected by local authorities who regard them as

[90] See Supporting Information document for further analysis of ANG provision in coastal towns.

strategic gaps between settlements and important areas for conservation and recreation. The Sussex Heritage Coast, the first to be designated in 1976 and the SDNPA is in consultation with other authorities to re-vitalise the importance of this resource and the need for effective management to protect its natural beauty and enjoyment by the public.

Natural coastal areas free from sea defences and with minimal human influence are rare in south east England but can be found along the Heritage coast between Seaford and Eastbourne at the Climping Gap between Littlehampton and Middleton near Bognor Regis and in Pagham, Chichester and Langstone Harbours. These areas are vital for conservation and recreation although only certain stretches can be considered for ANG.

The Selsey to Beachy Head Shoreline Management Plan 2 that incorporates most of this coastline, encourages a transition to more natural coastal processes where this does not present an immediate risk to communities.

Beaches along the developed urban and semi urban sections of the Sussex and Hampshire coast should be considered as contributing to accessible greenspace provision and maintained and improved to ensure that this access is available to a wide range of users. For example, new coastal recreation sites are being created to provide ANG in Portsmouth and Gosport.

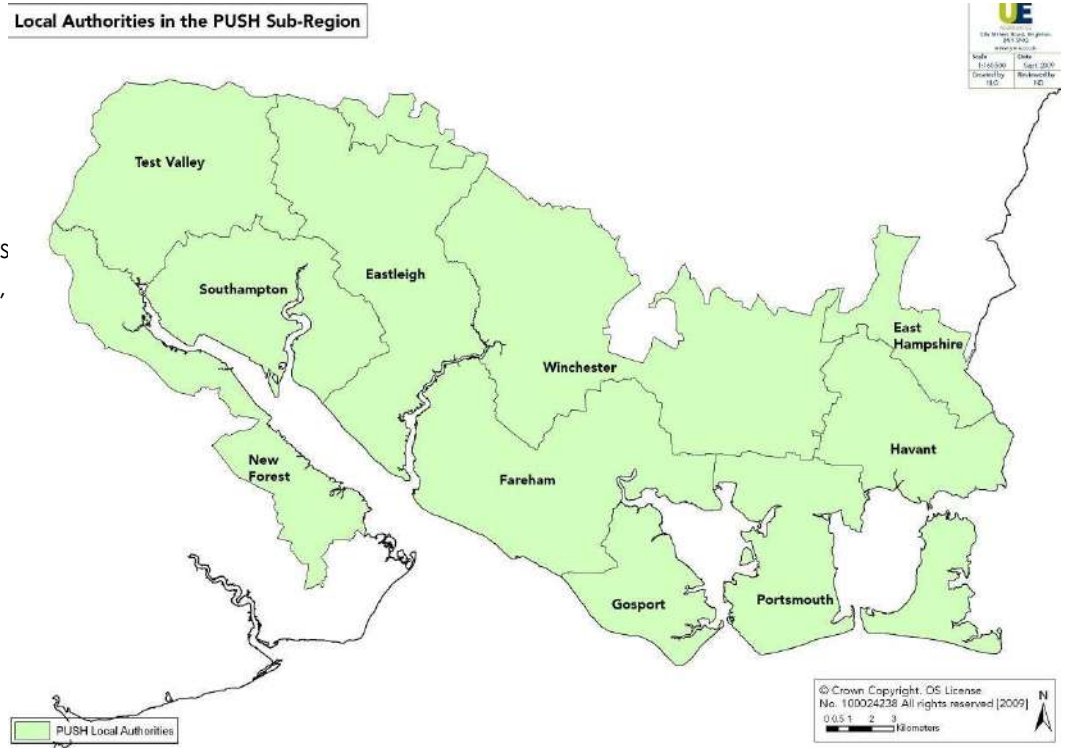
Many of the coastal towns lack accessible greenspace and, while the coast and beaches can usefully provide accessible areas complementary to inland sites, inclusion of beaches should not be at the expense of provision of other greenspace sites.

Review of Sub-Regional Green Infrastructure Policy and Delivery - 'PUSH' Area

Introduction

This section of the report provides a strategic review of the PUSH Green Infrastructure Strategy and Implementation Framework and its implications for the provision of green infrastructure in the South Downs National Park.[91]

The Partnership for Urban South Hampshire (PUSH) is a strategic partnership that aims to add value to the efforts of the individual partners on strategic sub-regional issues. The partnership is made up of 10 unitary, county and district authorities covering Portsmouth, Southampton and South Hampshire, working with local partners and government agencies to deliver sustainable, economic-led growth and regeneration in South Hampshire.[92] The PUSH area was designated as one of the previous Government's New Growth Points in 2006, as well as a Diamond for Investment and Growth in the now revoked South East Plan.



Plan 48: Local Authorities in the PUSH area

Ref: From PUSH Green Infrastructure Strategy (2009)

[91] At the project inception meeting on 4th March 2013, the level and scale of this review was discussed. It was accepted that a full detailed review of the PUSH Strategy was not required and that the review should be at a strategic level. After investigations into the availability of data it was also agreed that the project should not focus on a high level analysis of the PUSH green infrastructure data, due to time limitations. However, lessons learnt from the PUSH Green Infrastructure Strategy and its implications for developing a similar strategy for the South Downs National Park would be assessed and recommendations put forward.

[92] The New Forest District Council withdrew from PUSH in April 2011, although it is likely to be returning shortly.

Assessment of the PUSH Green Infrastructure Strategy and Implementation Framework has included discussions with the Head of Planning Policy and Transport Service for Test Valley Borough Council, who currently co-ordinates delivery of PUSH green infrastructure projects, and Natural England. The current national green infrastructure policy context has also been considered as well as other sub-regional examples of green infrastructure strategies.

Green Infrastructure Strategy

PUSH identified the need for a Green Infrastructure Strategy to deliver its environmental policy objectives and its vision to improve South Hampshire's quality of life.

The PUSH Green Infrastructure Strategy (2009) was adopted in June 2010. The vision for the Strategy is to provide a long term framework (to 2026) to shape and enhance a connected and multifunctional green network of South Hampshire's distinctive local environments.

The purpose of the Strategy is to identify existing green infrastructure and consider what enhancements or introductions should be made, and to recommend how the Strategy might be delivered. The Strategy was prepared in partnership with the PUSH local authorities (see Table 12), and other key organisations, including the National Trust, Wildlife Trusts, Natural England and the Environment Agency.

The aims of the Strategy are to:

- Identify sub-regional strategic initiatives and project proposals to provide a high quality of life for the people who live and work in the sub-region;
- Seek to maximise multifunctional use of open space and natural spaces for a range of benefits including biodiversity, climate change, economic investment and activity, health, landscape, recreation and well-being;
- Promote connectivity of all types of greenspace at a range of scales;
- Provide a key element of the sub-region's mitigation strategy in relation to the Habitats Regulations.

The Strategy identifies 8 key themes and 17 objectives, which form the basis for the assessment of potential PUSH projects. It also examines the sub-region in considerable detail in respect of the existing green infrastructure and the potential to enhance it. In total 46 projects are proposed under the five headings of:

- The Green Grid
- Coast for People, Wildlife and Improved Water
- The Forest of Bere Land Management Initiative
- Country Parks and Woodlands
- Greener Urban Design

The Strategy does not examine in detail how the projects can be delivered or propose an order of priority. It does recognise that more projects would come forward after adoption. To support the delivery of the Strategy, a significant amount of data and information was

evaluated and translated as part of understanding green infrastructure in the sub-region.[93]

Green Infrastructure Implementation Framework

On the basis of this in-depth analysis of factors and evidence in the strategy, a Green Infrastructure Implementation Framework was drawn up made up of the themes and objectives that guided the direction of the Strategy.

The Framework was published in October 2012 and is designed to work as a guide to green infrastructure development; to support the development of the existing green infrastructure of the area; the delivery of key strategic projects and assist partner authorities to develop their own mitigation strategies where new development is being considered.

[93] Many people involved in developing the PUSH Green Infrastructure Strategy are no longer in post and the consultants who were responsible for coordinating data and analysis have not been available. It has been very difficult for the PUSH local authorities to confirm the validity of the PUSH GIS data. It is not the remit of this report to investigate whether specific GIS data used by PUSH were robust or not.

Review of the PUSH Strategy and Implementation Framework

The strategic review of the Strategy and Implementation Framework is focused on the following areas:

- Policy
- Governance
- Projects
- Implementation
- Funding

Policy

The PUSH Green infrastructure Strategy recommended a model green infrastructure policy that could be adopted by partner authorities within their Core Strategies to provide a consistent green infrastructure policy position across PUSH partners. Embedding the green infrastructure approach into Local Development Framework documents was considered critical to promote the adoption and use of the Green Infrastructure Strategy.

The PUSH Strategy's policy approach has been relatively successful and local authorities have gradually adapted the model policy to create their own green infrastructure policies, green infrastructure studies or strategies. These tools have been used to assist planners and developers in implementing green infrastructure and have been embedded in their Local Development Frameworks. In the light of the introduction of the National Planning Policy Framework,[94] each local authority is at a

[94] Department for Communities and Local Government; National Planning Policy Framework (March 2012)

different stage in their local plan process and it will take some years for all green infrastructure policies and strategies to be fully embodied in adopted planning documents.

PUSH also has explored producing supplementary planning guidance, and has prepared a Supplementary Planning Document (SPD) to help implement its Greener Urban Design Initiative. A Quality Places model SPD was prepared to guide green infrastructure in urban design and planning. The Greener Urban Design Initiative was targeted in particular at new large developments proposed within the PUSH area. However, the SPD has yet to be fully adopted by all the partner authorities.

Governance

PUSH is governed, at a strategic level, by a Joint Committee comprising of the Leaders of all the PUSH authorities. It is a formal Joint Committee established under the Local Government Acts 1972 and 2000. Themed Delivery Panels, which are each chaired by an elected Councillor who also sits on the Joint Committee, are responsible for overseeing work on individual topics. The Delivery Panels are:

- Economic Development;
- Housing and Planning;
- Sustainability and Community Infrastructure;
- Quality Places;
- External Funding and Resources.

A number of technical officer groups meet regularly to support the Panels. At present these include the:

- Planning Officers Group;
- Economic Development Officers Group;
- Housing Officers Group.

Table 16: PUSH Green Infrastructure Policy Review

Authority	GI Plan / Strategy	PUSH included in Local Plan / Core Strategy	GI Policy in Local Plan / Core Strategy
Test Valley	GI Strategy 2012.	Yes -progressing PUSH projects.	Yes
Eastleigh	Not intending to produce green infrastructure strategy.	Yes - progressing PUSH projects.	No, but green infrastructure background paper to support the emerging Local Plan.
Winchester	Green Infrastructure Study 2010	Yes	Yes
Southampton	No	Yes	No
East Hampshire	Green Infrastructure Study 2010 GI Strategy 2013	Yes	Yes
Havant	GI Study 2012	Yes	Yes
Portsmouth	No	Yes	Yes
Fareham	GI Strategy 2011	Yes	GI Chapter
Gosport	No	Yes	Yes
Hampshire CC	Consideration has been given to produce a strategy north of the county to provide full coverage.	N/A	N/A

The Green Infrastructure Strategy and Framework delivery falls within the Sustainable and Community Infrastructure Panel, which has representatives from all the partner authorities, Natural England, Environment Agency, Forestry Commission, utilities companies and the Hampshire and the Isle of Wight Wildlife Trust.

To provide an overview of progress the Joint Committee receives progress papers from the panels on specific projects, assists in the resolution of issues and advises on implementation issues. To provide a link to the delivery of the wider PUSH Spatial Strategy, senior planning officers from each local authority meet regularly as the PUSH Planning Officers Group to develop strategic policy, consider the need for joint evidence and advise the Housing and Planning Delivery Panels.

While the governance structure seems to work well, with strong political buy in and a positive collaborative approach, progress in delivering green infrastructure on the ground has been slow, primarily due to the reduction in available resources.

Projects

The strategy identified 46 strategic projects, but did not identify 'champions' or 'sponsors' for each of them, unless there was one already in place. It was considered that project leaders would be identified once the details of the projects had been developed and the strategic delivery mechanism for the Green Infrastructure Strategy had been established. It was thought that through the progression of core strategies in the sub-region, the delivery task would be shared through an integration of approaches, which would unite local and sub-regional planning.

The PUSH Strategy only provided an outline of each project and initiative in the early planning stages of the green infrastructure for the sub-region. It considered that projects should be worked up as the Strategy progressed and then only formally considered for inclusion after feasibility studies had set out a definitive shape and format for the PUSH project.

The initial projects identified in the Strategy formed the starting point to develop the Green Infrastructure Implementation Framework, which involved a detailed exercise to identify and develop a suite of strategic green infrastructure delivery projects. An additional 20 projects were brought forward by partners for consideration. All 66 potential projects were then evaluated to identify those that were considered to be of strategic importance against the themes and objectives of the Strategy and the following criteria:

- Large scale projects that would have a wide influence/effect;
- Projects which deal with recognised strategic/sub-regional issues e.g. HRA issues, coastal squeeze, flood risk management, etc.;
- Projects that make a significant contribution to one or more of the key strategic initiatives i.e.:
    a) The Green Grid
    b) Coast for People and Wildlife
    c) Forest of Bere
    d) Country Parks and Woodlands
    e) Greener Urban Design
- Infrastructure projects that are needed to support major development areas in the sub-region;
- Projects that cross local authority boundaries.

The number of projects was drastically reduced for a number of reasons but principally to avoid available resources being too thinly spread and to ensure that the focus was on projects of a strategic nature. 13 key

strategic projects were eventually identified with an average of one per partner authority. Each authority was charged with leading, funding and maintaining specific projects. The projects are listed below.

1. The Strategic Countryside Recreation Network;
2. Woodfuel Renewable Energy Project;
3. Local Sustainable Food Production;
4. Horsea island Country Park;
5. Alver Valley Country Park;
6. South West Hampshire Forest Park;
7. Manor Farm Country Park;
8. Royal Victoria Country Park;
9. Southsea Seafront;
10. Forest of Bere;
11. Havant Thicket;
12. Solent Disturbance Project;
13. Marine and Coastal Initiative.

Implementation

Delivery of the projects set out in the Green Infrastructure Implementation Framework has, overall, been relatively slow. However, several projects are making good progress, including Portsmouth Seafront Project, Hillsea Country Park, The Meon Trail, Alver Valley Country Park and the Forest Park Project.

There has also been work on a Vision for the Forest of Bere led by the Hampshire and Isle of Wight Wildlife Trust. This project is of particular importance to the National Park as it provides a buffer between urban South Hampshire and the National Park, providing an alternative site for recreation and alleviating pressure on other South Downs National Park sites.

Key to the success of these specific projects has been embedding the projects in the planning process, identifying funding streams and a strong project leader. However, little work to date has been undertaken to assess the contribution these projects are making to the delivery of the overall Green Grid network as specific monitoring measures were not clearly included in the original Strategy and Implementation Framework.

The changes in staff, reduction of resources in local authorities and government agencies, have slowed the initial impetus for progressing rapidly with PUSH projects.

Funding

Within the PUSH area each local authority is responsible for securing funding for their own project(s) and its long term maintenance. Important funding mechanisms have included contributions from planning conditions and Section 106 Agreements, Growth Area Funding, partnership funding, agri-environment grants and the Heritage Lottery Fund.

Key to securing funding for the projects has been the authorities working as a ‘family’, sharing funding opportunities as and when they arise.

Conclusion and Summary

In this report the time has not been available to carry out a full assessment of all the PUSH documentation and a detailed analysis of all the PUSH green infrastructure data has not been possible, due to the difficulties in sourcing and accessing the base data. We are therefore only in a position to give a brief resume of our views on the implementation of the PUSH strategy so far, with recommendations for

the future development of green infrastructure policy and delivery in the National Park.

The PUSH Green Infrastructure Strategy and Implementation Framework are well prepared comprehensive documents which are ambitious and have the political support of most of the partnership authorities. Nevertheless, the demise of SEERA and regional planning, the introduction of the NPPF, which has slowed the LDF process, and the extensive cutbacks in staff and resources in public bodies, has delayed the delivery of the PUSH Strategy. However, support remains and projects in the Implementation Framework will further progress as and when resources become available.

In our opinion the following has worked well in respect of the PUSH approach to green infrastructure:

- Model green infrastructure policy approach;
- Sub-regional strategic framework approach with a shared vision;
- Governance structure;
- Collaborative / partnership working across political boundaries;
- Lead Officers in each partner authority who are realistic about what can be achieved;
- Project delivery in a number of key green infrastructure sites;
- Sharing of funding opportunities;
- Contribution has been made to the overall Green Grid vision.

What has been less successful:

- A strategy that was too ambitious and did not prioritise project delivery and encourage and support project champions / owners;
- Identification of clear funding opportunities for projects;
- Data management, archiving and accessibility;
- Loss of a dedicated PUSH officer / team to drive progress;
- Developing a model Supplementary Planning Document;
- Failure to include a robust monitoring process in the Implementation Framework to gauge sub-regional delivery of the Green Grid.

In relation to lessons learnt and recommendations for the South Downs National Park Authority:

- By adopting a green infrastructure sub-regional approach the National Park could bring together the various strands of existing work being progressed at all scales across the National Park and in neighbouring authorities.

Recommendations

Main Recommendations: Taking Forward Green Infrastructure in the South Downs National Park

Introduction

The SDNPA could build on the evidence base developed in this current study, and draw this together with other local green infrastructure strategies and objectives, to develop a structured, evidence-based green infrastructure approach that will protect the vital life-support functions of green infrastructure while maximising its social, economic and environmental functions in relation to particular local needs. This would include taking a National Park-wide view of green infrastructure policy and planning, targeting delivery to where it is needed and identifying funding opportunities.

Developing a Sub-Regional Green Infrastructure Approach

National policy encourages Local Plan policies to set out a strategic approach for the creation of green infrastructure networks that contribute towards the conservation and enhancement of the natural environment and the wider aims and benefits of green infrastructure relating to landscape, biodiversity, design, open space, recreation, health and well-being, and climate change mitigation and adaptation.[95] Strategic planning at landscape scale is also vitally important in the light of the demise of SEERA and the revocation of the Regional Spatial Strategy.

[95] National Planning Policy Framework.

The green infrastructure approach will guide and coordinate the gathering of evidence for the preparation of plans, policies and strategies relating to green infrastructure at a sub-regional, county, district and local level. It will seek to draw together all other relevant strategies to deliver green infrastructure enhancements across all the partner authorities to meet national, sub-regional and local green infrastructure needs.

The approach should:

- Operate at a sub-regional level including the National Park and neighbouring authorities;
- Identify existing and new strategic large-scale green infrastructure initiatives, which can serve the whole National Park area;
- Identify locations where new green infrastructure investment would be best targeted, including opportunities for cross-boundary and landscape-scale interventions;
- Guide the neighbouring authorities in planning for green infrastructure investment in relation to locations for growth;
- Identify mechanisms for securing the long-term sustainable management and maintenance of green infrastructure;
- Provide evidence to support requests for green infrastructure contributions through CIL and other funding mechanisms;
- Provide a framework to help make the case for future funding bids for green infrastructure investment;
- Provide a strategic framework for steering coordinated approaches to maintain the green infrastructure network, through cross-boundary connectivity planning and delivery activities;

- Be widely promoted to a diverse audience;
- Be consistent in the use of common definitions and standards, guiding principles and strategic priorities;
- Instigating a common approach is crucial to coordinating the delivery of green infrastructure at all levels.

The success of other sub-regional green infrastructure approaches has been dependent on:

- Who takes ownership and drives it forward;
- How the approach is accepted and promoted politically;
- The level of funding that is made available to deliver green infrastructure on the ground;
- The strength of the approach as a policy driver;
- Its ability to be easily translated into action; and
- Wider appreciation and understanding of green infrastructure.

It is recommended that development of the sub-regional approach is progressed by the National Park, the South Downs Partnership, local authorities and relevant interested organisations. Delivery of the approach and sub-regional initiatives could be achieved through the National Park Management Plan, local plans, delivery plans and joint projects in adjoining local authorities.

The South Downs National Park Authority could, with the support of partners, play a key role by:

- Leading the development of a sub-regional green infrastructure approach that identifies a long-term, bold, strategic vision, guiding principles and strategic priorities for the provision and sustainable management of green infrastructure across the National Park and adjoining areas;
- Developing a framework and overarching policy for green infrastructure to incorporate into the National Park Management Plan and Local Plan and encourage neighbouring local authorities to include similar policies in their statutory planning documents;
- Producing a Supplementary Planning Document (SPD) to provide consistent guidance for individual Local Development Frameworks and detailed information about delivery of green infrastructure through new development, planning briefs and Habitat Regulations, as well as addressing green infrastructure in relation to the SDNPA's emerging Spatial Strategy.

The South Downs National Park Authority could also assist in drawing up a model green infrastructure policy to be included in planning and delivery documents.[96]

[96] Several good model green infrastructure policies can be found in the following documents: Town and Country Planning Association and The Wildlife Trusts (2012) Good practice guidance for green infrastructure and Biodiversity; Annex 3 Model policies and approaches.

Partnership and Governance

The National Park Authority could, with the support of the South Downs Partnership, be well placed to lead the development of the sub-regional approach and bring together existing county and district green infrastructure networks and relevant partnerships. The nature of this partnership could range from a new formal green infrastructure Partnership for the sub-region of the National Park and surrounding buffer area to a less formal agreement to develop a GI Strategy to which all parties could commit with collaboration on delivery of GI projects that are taken forward via existing partnerships.

The existing local authority and National Park networks could pool resources and share data to prevent duplication, for example, in relation to sharing of data or provision of guidance and support for the development of a green infrastructure approach.

Irrespective of the form that partnership takes, the opportunity exists to:

- Develop a single, bold vision that draws partner ambitions together, and is focused on developing a sub-regional green infrastructure network;
- Agree a set of guiding principles with local authorities;
- Develop strategic sub-regional priorities for the National Park area and its hinterland;
- Make recommendations for investing in the provision and management of multi-functional green infrastructure;
- Provide evidence to support requests for green infrastructure contributions through CIL and other funding mechanisms, and provide fund-raising support to the Partnership;
- Collaborate at a sub-regional level, in exploring and taking advantage of emerging green infrastructure approaches to unlock the many issues and problems for delivering green infrastructure.

Funding and Delivering a Green Infrastructure Approach

It is recommended that in developing a sub-regional green infrastructure approach, consideration is given to a wide range of delivery and funding options including:

- Planning conditions and obligations placed on developers;
- Special projects that draw on external funding or grant schemes; and
- Local community action, including fund raising and use of the voluntary sector and charitable trusts.

Developer Contributions, Section 106 and Community Infrastructure Levy

Within new planning permissions, planning conditions can require developers to design, establish and maintain new green infrastructure as part of a wider development proposal.

Section 106 (S106) agreements can be used to mitigate the impact of new development and fund local initiatives. The Community Infrastructure Levy (CIL) provides a funding mechanism for local and sub-regional infrastructure to support the development of the area in line with Local Authorities' development plans. Contributions should help support the funding of infrastructure that supports development and the creation of sustainable communities, which includes the development of green infrastructure.

In developing a green infrastructure approach the South Downs National Park can provide the evidence required to support requests for green infrastructure contributions through CIL. CIL rates can include capital for green infrastructure purchase, design, planning maintenance and management within its CIL schedule.

A coordinated, cross-boundary approach to CIL across LPAs is a new area. Some LPAs will struggle to raise the funds they need for their infrastructure requirements, and green infrastructure may not be at the top of the list. This highlights the need to include green infrastructure provision in the South Downs National Park Local Plan and Management Plan, as well as in Neighbourhood Plans. The SDNPA could play a role in raising awareness amongst LPAs of the importance of green infrastructure.

Community / Independent Trusts

Opportunities to establish innovative funding and management arrangements could be explored to ensure maximum multifunctional benefit from green infrastructure. Current and emerging public policy also strongly encourages community enterprise approaches to the acquisition and long-term management of public assets.

Environmental Stewardship

The current Rural Development Programme for England (RDPE) will end in 2013. Work is underway to design a new environmental land management scheme as part of a new programme.

It is hoped that new opportunities will emerge to encourage joint working with landowners, local authorities and Natural England to undertake local improvements and to fund landscape scale enhancements, such as new country parks.

Habitat Banking and Biodiversity Offsetting

The development of habitat or conservation banking is a funding approach being used to ensure that the environmental loss caused by development (such as housing, wind farms, highways, etc.) is given a monetary value. Developers offset the impact of development on ecosystem services and biodiversity by purchasing credits to compensate for the loss. The method also allows development which cannot incorporate on-site biodiversity enhancements or causes unavoidable damage to key habitats to compensate by funding enhancement and development of habitat elsewhere.

Contractual Arrangements

Green space creation or enhancement may be provided as part of a contract to deliver grey infrastructure such as transport, energy production or water management services.

Emerging New Approaches

New alternative partnership approaches to planning are emerging. For example Worcestershire County Council has set up a working group of voluntary environmental bodies, local authorities and statutory agencies, providing free advice to developers on what green infrastructure should look like at master planning stage. Exciting schemes have been developed creating some large-scale green infrastructure gains in some growth areas.

Payments for Ecosystem Services (PES)

Ecosystem services are the benefits we derive from the natural environment. This includes the provision of food, water and timber, the

regulation of air quality and flood risk; opportunities for tourism and underlying functions such as the nutrient cycle and soil formation. Maintaining and enhancing ecosystem services and restoring them where necessary is increasingly being recognized as essential for sustainable economic growth, healthy communities and prosperity. Payment for Ecosystem Services (PES) brings economic thinking and a market mechanism into the provision of natural resources, in the hopes of achieving better management and new sources of investment for conservation of natural capital.

PES schemes involve payments to the managers of land or other natural resources in exchange for the provision of specified ecosystem services. Payments are made by the beneficiaries of the services, be it individual, businesses, communities or governments. Land managers enter into agreements with those beneficiaries on a voluntary basis to provide ecosystem service benefits that pay for the maintenance of the resource. This approach provides a mechanism for the long-term maintenance of green infrastructure assets.

It is recommended that the National Park Authority explores PES opportunities and considers developing a PES approach as part of a package of funding opportunities to deliver green infrastructure across the National Park.

New 'Valuing Green Infrastructure' Models

There are currently three tools available to assess the value of green infrastructure:

i) I-Tree Eco is a software application designed to use field data from inventories and communities along with environmental data to quantify urban forest structure, environmental effects, and the value of resources to the community. The baseline data can be used for, effective resource management decisions making policy and setting priorities;

ii) InVEST is a family of tools to help map and value the goods and services from nature which are essential for sustaining and fulfilling human life. The tool helps to assess the trade-offs associated with alternative choices and can identify where investment in natural capital can enhance human development and conservation of ecosystems;

iii) HEAT – this is an online resource to estimate the economic savings resulting from reductions in mortality as a consequence of regular cycling and walking.

ITREE is being used in London, but none of these approaches have been tested sub regionally. It is recommended that the National Park consider developing an approach to valuing green infrastructure at a sub-regional level, which can help identify market opportunities to help businesses reduce their risk and in turn making payments for green infrastructure capital and maintenance.

Combining these and current approaches could unlock the many issues and problems for delivering green infrastructure.

Local Enterprise Partnership

Local Enterprise Partnerships (LEPs) and Local Nature Partnership (LNPs) will play a major role in delivering green infrastructure in the future. In July 2013 the Department for Communities and Local Government (DCLG) launched advice to LEPs on how to prepare their investment strategies. This advice was provided on the basis of themes that need to be address. Two of these were climate change and the environment. Green infrastructure will be included in both of these themes. LEPS will now need to ensure green infrastructure is embedded in their investment

strategies and the National Park Authority is well placed to work in partnership with the Coast to Capital LEP, Enterprise M3 and Solent LEP to identify green infrastructure delivery and funding opportunities.
The Government has outlined the next steps in the evolution of the nationally allocated EU programme funding 2014-20 ("the Structural Funds"). This includes a recommendation for LEPs to connect with LNPs on the design and delivery of environmental priorities.

Part 2 of this report (Supporting Information) provides analyses of the district authorities of the study area.

Part 3 (Appendix) contains further methodology and data.

Produced by Environment X Change on behalf of the South Downs National Park Authority

Main Authors: Sharon Bayne, Val Hyland GIS Analyst: Megan Davies

Supporting Authors: Andrea Byerley, Lynnette Leeson

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www.environmentxchange.co.uk