Access Network Mapping

South Downs National Park and adjacent districts

June 2011







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Acknowledgements

All GIS mapping for the South Downs Access Mapping Project has been undertaken by the GIS team at Hampshire County Council

1.1 Objectives

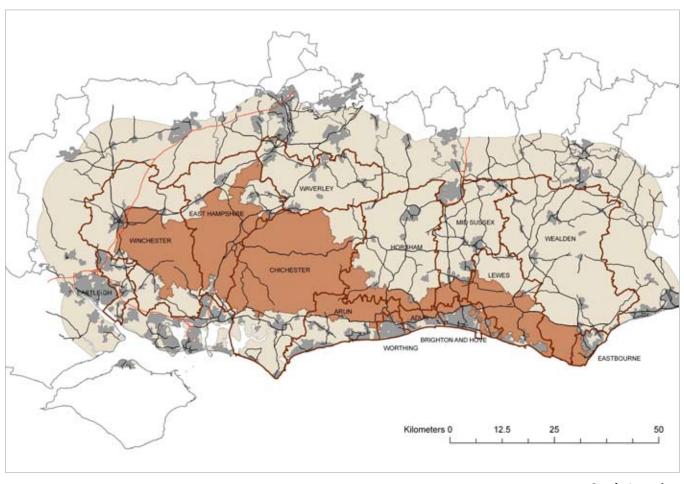
This study, focusing on the new South Downs National Park, is the third of a series of detailed reports to understand the existing access network in those areas of the South East identified by Natural England as high priority areas for access to the natural environment. Using the Accessible Natural Greenspace standards (ANGSt) as a guide, it identifies where the network is deficient and, for one local authority area, analyses the access network in more detail.

Sheils Flynn was appointed to lead the study and the GIS team at Hampshire County Council was appointed to prepare the GIS mapping. The consultant's brief is provided in Annex A and an explanation of the Accessible Natural Greenspace (ANG) standards is provided in Annex B.

This study lays the foundation for a range of potential future initiatives to analyse the provision of green infrastructure within and around the South Downs National Park. Analysis of access management seems particularly pertinent in the South Downs National Park, since the protected landscapes are adjacent to some extensive dense urban areas.

The study area is shown opposite. It includes all 14 local authority districts which are within or adjacent to the National Park. The entire area of each district is included so that the ANG data-set and analysis can potentially contribute to the evidence base for relevant Local Development Frameworks. This broad study area recognises the need to consider the relationship between densely populated urban areas and natural open space destinations within the National Park.

The ANG data-set was first compiled in 2007, when a strategic analysis of natural greenspace provision



Study Location

	Study area - districts within/adjacent to South Downs National Park + 10km buffer South Downs National Park
$\overline{}$	Districts within/adjacent to South Downs National Park
	Motorway
	Principal road
	Road
	Boundaries of surrounding local authorities
	Settlement

was undertaken for the whole of the SE region¹. This 2007 data-set provides the starting point for this study and detailed assessments undertaken in North Kent² and the Blackwater Valley³ (in 2010) have helped to develop and test the methodology set out in the brief (see Annex A).

Specific objectives are to:

- test and develop the 2007 data-set locally, so that all stakeholders agree that it provides a robust evidence base to underpin this and other studies
- establish agreements between key stakeholders for future shared use of the relevant datasets (so that there are no copyright restrictions to limit future cross boundary working)
- provide an accurate analysis of the access network for the South Downs and Coast in relation to data on households, and highlight any deficiencies in provision across the ANGST standards.
- provide an accurate analysis of the access network for one local authority area, of either major development, health, or 'access-sensitive' biodiversity, and highlight any deficiencies in provision, focussing one of the ANGST standards as the priority.

At a strategic level, this analysis is intended to add

1 An analysis of accessible natural greenspace provision in the South East – Patrick McKernan, Forestry Commission and Matthew Grose, High Weald AONB Unit, February 2007

value to a range of existing initiatives by:

- strengthening Local Development Frameworks, particularly if there is scope to incorporate or cross refer to the PPG 17 studies undertaken by local authorities and by providing the foundation for future green infrastructure strategies, including the development of the new Local Development Framework (LDF) for the National Park.
- support the delivery of Rights of Way Improvement Plans, by identifying the relationship between green-space and green-routes, to create a holistic access network
- facilitating cross boundary working between government agencies and local authorities
- making the case for investment, by providing a robust, objective means for targeting investment (which can be used in conjunction with more subjective methods) and by demonstrating potential economies of scale through data sharing and cross boundary working
- providing a case study for use by Natural England in developing methods for assessing the application of ANGSt.

1.2 Definitions

Given the importance of defining a robust existing ANG dataset to underpin this type of work, this study takes a 'pure' definition of ANG, which provides an accurate, simple baseline. By starting from a fairly restrictive, but very clearly defined baseline dataset, we will be able to test how the addition of different thresholds of accessibility and types of greenspace can contribute to ANGSt, while taking account of the impact of future development areas and considering

potential impacts on sensitive habitats (where public access could potentially lead to the degradation of biodiversity value). The definitions used in this study are based on the 2007 study:

- Accessible Natural Greenspace (ANG) sites
 which are fully accessible to the public in the
 sense that people are free to roam at will. This
 definition includes country parks, community
 woodlands, some nature reserves and publicly
 accessible greenspaces within urban areas which
 have a natural character (as defined in PPG 17
 assessments or by local authority greenspace
 officers). It excludes sites which are only accessible
 by public rights of way.
- Linear ANG regionally promoted routes, which are included in the ANG analysis (although treated as a separate, secondary ANG dataset). In accordance with the 2007 study, linear ANG is considered to provide an experience equivalent to a 20ha site in the ANGSt model (ie having an 'influence' extending to 2km). Unfortunately budget limitations prevented any analysis of linear ANG in this study.

1.3 Agreed changes to the scope of the brief

A couple of changes to the scope of the study were agreed:

- Data on public transport routes and hubs was not readily available for the study area so this part of the analysis was not included
- 2 Analysis of major development areas in the case study area was undertaken, but subsequently excluded as the development sites in Chichester were not large enough to be influential.

² Analysis of Access to the Natural Environment, North Kent - Sheils Flynn & Greening the gateway kent & Medway, 2010 (DRAFT)

³ Blackwater Valley Partnership, Accessible Greenspace Study, Surrey Wildlife Trust, 2010 (DRAFT)

2.1 Overview

The methodology for this study builds on that developed for a more detailed ANG assessment in North Kent. The principal stages were:

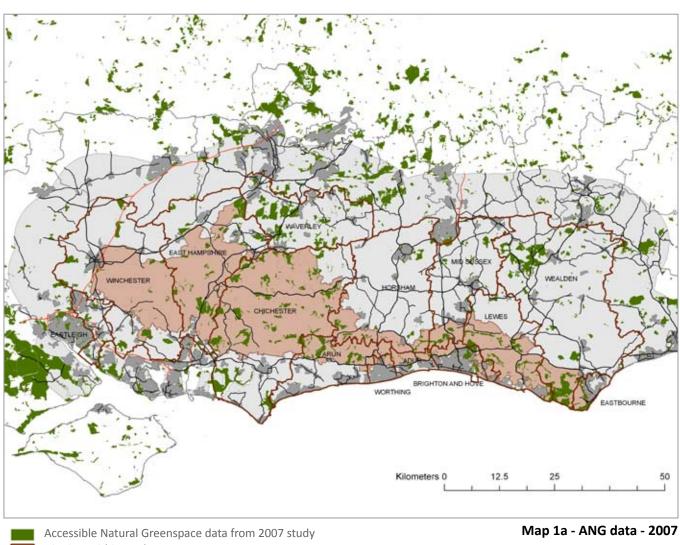
For the entire study area:

- Data proofing to ensure an accurate baseline ANG dataset across the entire study area
- Analysis of ANG in relation to population statistics to show the proportion of households meeting each of the ANG standards and to identify deficiencies in ANG across the entire study area. The analysis includes an ANGSt analysis for promoted routes (eg the South Downs Way), using the 2km:20ha ANGSt
- Analysis of ANG in relation to density of public rights of way and in relation to semi natural habitats (to highlight areas where the countryside is relatively inaccessible and where existing prow provide a relatively poor experience of 'natural' landscapes)

For one local authority district:

- More detailed analysis of ANG in relation to data for health, major developments, public rights of way and internationally important habitats (SPAs)
- Analysis of the inter-relationship between ANG sites and SPAs/heathland SSSIs in order to identify where greateer ANG choice should be available to protect SPAs and bird populations from levels of access which might cause disturbance.

A flowchart summarising the process is on page 7. This report includes only a selection of the maps prepared.



Districts within study area

Motorways

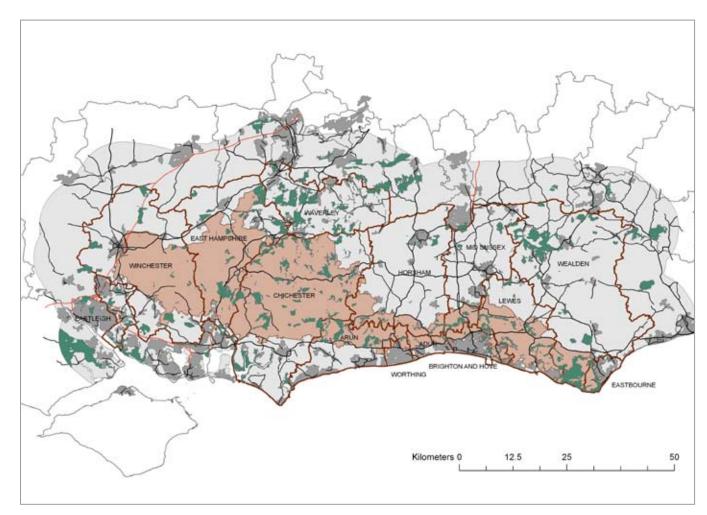
Principal roads

— Roads

South Downs National Park

Study area (including 10km buffer beyond district boundaries)

Settlements



Map 1a - Edited ANG data - 2011

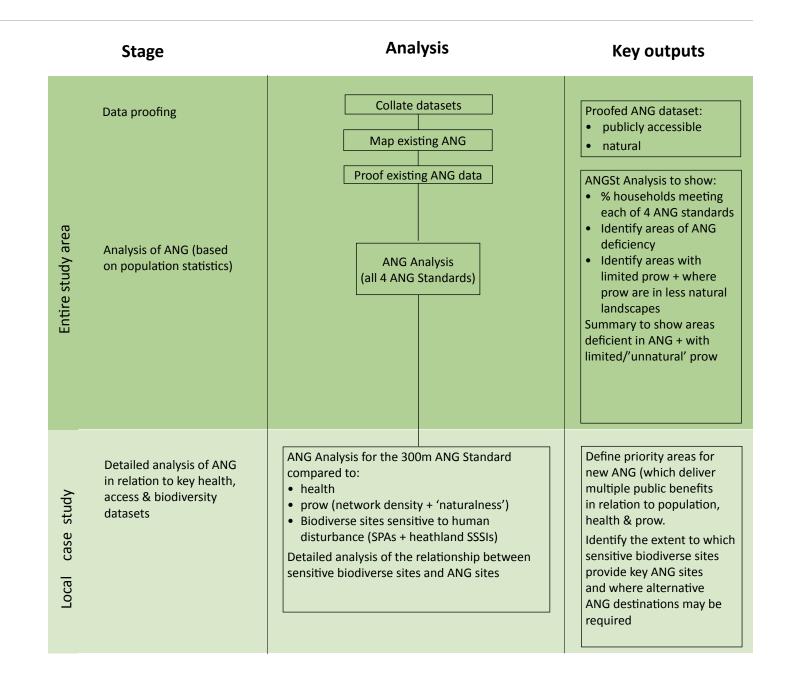


2.2 Data proofing

The first task was to check the accuracy of the 2007 ANG dataset held by Natural England against the definition of ANG used for this study (as areas which are fully accessible to the public). This data proofing was done in conjunction with greenspace and planning officers at each of the 14 local authorities and a note of the key points raised in discussions is provided in Annex D. In the majority of cases (11) meetings were held: however Eastleigh Borough Council was contacted by telephone; Arun District Council did not have sufficient resources to meet; and Waverley Borough Council had been part of the earlier Blackwater Valley study, so an updated ANG data-set was already available.

The discussions were also an opportunity to brief the local authority officers about the study, consider its potential 'strategic fit' with Local Development Frameworks (eg PPG 17 assessments) and to obtain in principle agreements on data sharing.

The 'before and after' ANG datasets are shown on Maps 1a and 1b. The sites included on the edited version (Map 1b) have been agreed with local authority officers. In most cases the included sites have been cross-checked with those on the local authorities' PPG 17 data-sets. Details are provided in Annex C. Larger ANG sites are also included within a 5km and 10km zone around the margins of the study area (in accordance with the ANGSt) to take account of relevant greenspaces outside the study area which could be used by people within it.



Methodology

Flowchart summarising the overall methodology for the study

3 Analysis - whole study area

3.1 ANGSt Analysis

3.1.1 ANG Standards

Maps 2a and 2b show the extent of the 300m (ANG sites within walking distance) and 2km (ANG sites within an easy bike ride) ANG buffers in the study area. Maps for each of the ANG Standards have been prepared as part of this study, but these two categories of map are particularly useful as they show sites which are 'on the doorstep'

An analysis of Linear ANG (using the 20ha:2km ANGSt) for the South Downs Way is described in section 3.1.3

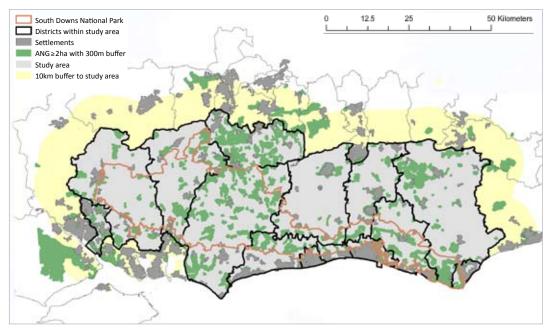
3.1.2 Analysis of ANG based on population statistics

The ANGSt model was used to show the extent to which the population of the study area is served by existing ANG sites. AddressPoint data (filtered to exclude non-residential addresses) was used as an accurate measure of the number of households. The actual population was determined by multiplying each household by the average household size (2.71)⁴.

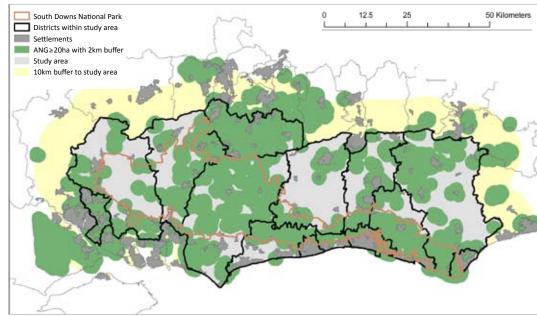
The number of households within each of the four ANG buffers was then measured by 'clipping' the AddressPoint data to the buffer. The resulting number of households was then expressed as a percentage of the total population served by each category (size/ANG distance) of greenspace.

The results (eg Maps 3a and 3b) show the number of households meeting the 300m and 2km ANG Standard.

Map 2a ANG sites with 300m buffer



Map 2b ANG sites with 2 km buffer



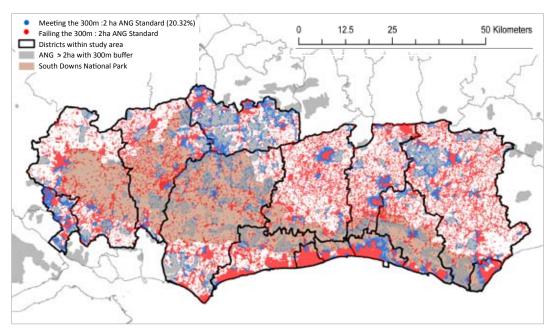
⁴ The value 2.71 was derived by dividing the estimated total population (from 2008 census data – Office of National Statistics) by the number of AddressPoints in the study area.

In the study area, 20.32% households are within 300m (walking distance) of an ANG site, 73.29% are within 2km and 90.19% are within 5km of an ANG site.

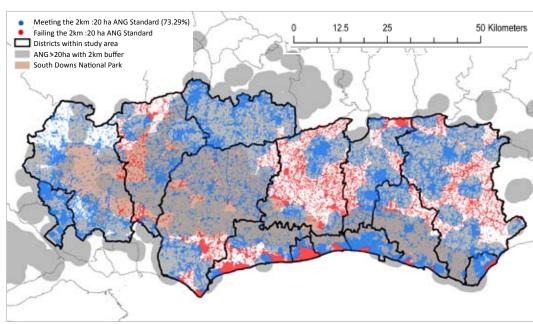
Table 1 - Summary
No. Households in study area meeting each of the
ANGSt

	% within 300m of 2ha ANG	% within 2km of 20ha ANG	% within 5km of 100ha ANG	% within 10km of 500ha ANG
Households total	20.32	73.29	90.19	70.35
621,122	126,237	455,247	560,177	436,950
Population total	in 300m ANGSt	in 2km ANGSt	in 5km ANGSt	in 10km ANGSt
1,683,241	342,102	1,233,719	1,518,080	1,184,135
Population is an estimation, based on households x 2.71				

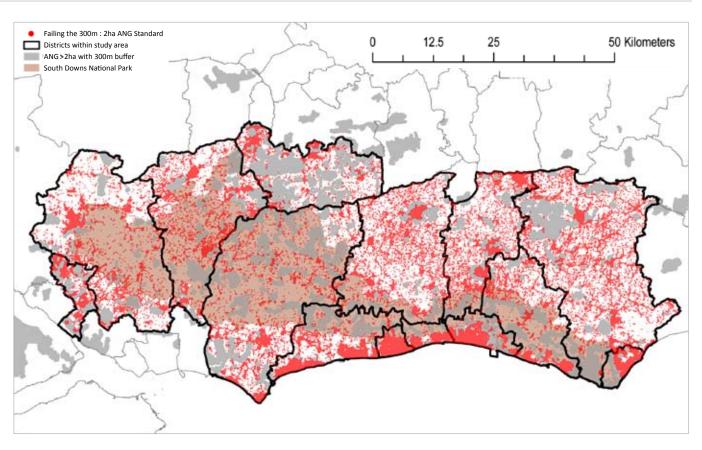
Map 3a Households meeting the 300m ANG Standard



Map 3b Households meeting the 2km ANG Standard



Map 3c summarises this stage of the analysis to show areas which are deficient in 2ha ANG. It focuses on the 300m ANGSt standard because this is the most significant of the four standards in providing ANG on people's doorstep and making a real difference to people's quality of life.



Map 3c - Households that are deficient in ANG (for 300m ANGSt)

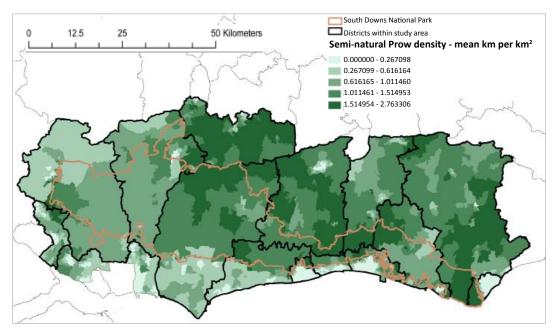
3.2 Public rights of way analysis

Public rights of way – density of the prow network in semi-natural landscapes (Map 4) – This analysis was undertaken in the following stages:

- 1. Identification of prow in semi-natural areas prow were classified in relation to the following land use categories (based on the 2000 countryside landclass data):
- semi-natural (woodland, grassland, heathland, water and wetland habitats)
- non semi-natural (urban areas + arable)
 Those prow which fell within non semi natural areas were excluded from the analysis
- 2. Density of prow network the prow mapping was analysed to produce data detailing the relative footpath density per Lower Super Output area (LSOA)⁵. This provided a useful measure of quantity of prow provision, identifying areas which suffer from a relatively limited row network.

Map 4 shows the results of the analysis and highlights LSOAs where there is a relatively dense prow network vs areas where there is a limited prow network. Only those prow which pass through landscapes which are predominantly semi-natural in character are included in the analysis.

Map 4
Density of prow
network within
semi-natural
landscapes



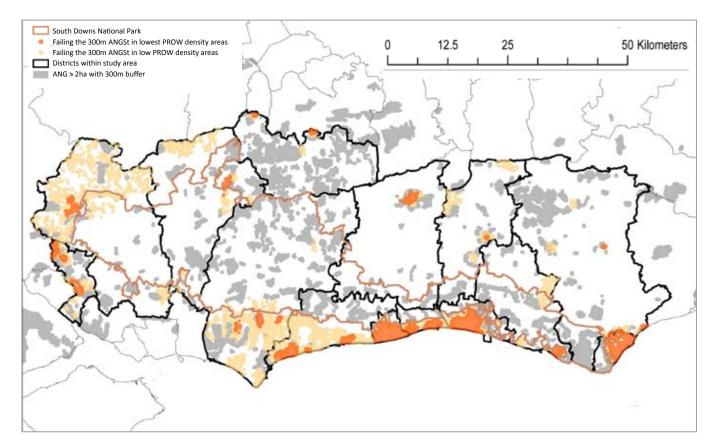
Map 4 provides a broadbrush overview of the density of prow within semi-natural landscapes. It should be noted that the LSOAs are relatively extensive in rural areas and the results can be skewed - ie a large area with a dense network of prow through semi natural landscapes in one part of an LSOA could lead to the whole LSOA being categorised as having a dense prow network.

⁵ Step 1 - Calculate The amount of kilometres of semi-natural PROW per km²; Step 2 - Calculate the mean of this sum for each LSOA; Step 3 - Divide this into 5 categories

3.3 Summary ANGSt Analysis

Map 5 shows the correlation between:

- households that are deficient in ANG (from Map 3c) and:
- areas with a limited prow network (within areas of semi-natural landscape) ie the two lowest scores on Map 4.



Map 5 - Correlation between areas with low prow density & households that are deficient in relation to the 300m ANGSt

4 Analysis - case study: Chichester District

4.1 Introduction

Chichester District was selected as a case study because:

- a relatively high proportion of the district is included within the National Park:
- a range of landscape types is represented, including coastal, chalkland and healthland landscapes; and
- the district's range of biodiversity habitats include coastal/wetland SPAs and heathland SSSIs which are particularly relevant to access management studies because of the risk of disturbance to ground nesting birds.

Chichester District is a partner within the Solent Disturbance and Mitigation Project⁶ which has already completed some survey work to measure the distribution and intensity of visitor activities and their effects on birds.

Map 6a shows the ANG data for Chichester District, which includes the wetland/coastal SPAs at Pagham Harbour and Bosham, chalkland sites such as Harting Down, Beacon Hill and Kingley Vale and heathland sites such as Woolbeding Common, Iping Common, and Heyshott Common, all of which have open access (see section 4.6 for more detail on the biodiversity analysis).



South Downs National Park

All ANG sites with no buffer

2km buffer to study area

Study area

Map 6
ANG sites in Chichester District

The Solent Disturbance & Mitigation Project aims to investigate the impacts of recreational pressure on the internationally important populations of birds that shelter, feed and breed in the Solent. The project will assess the potential effects of visitor pressure and recreational use on these sites and will establish whether avoidance or mitigation measures are necessary to ensure the future protection of the Solent's important birds. www.solentforum.org

4.2 ANGSt Analysis

The ANGSt analysis for Chichester District shows that:

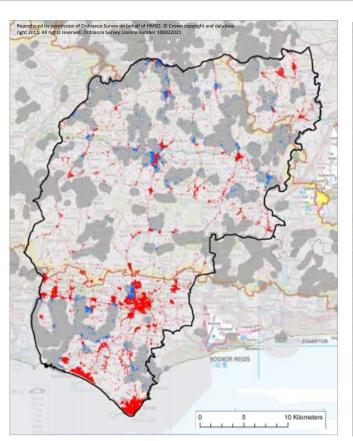
- 17.18% households meet the 300m:2ha ANGSt
- 57.64% households meet the 2km:20ha ANGSt
- 98.09% households meet the 5km:100ha ANGSt
- 91.70% households meet the 10km:500ha ANGSt

Map 7a shows the result for the 300m ANGSt. and Map 7b shows the households which are deficient in ANG in relation to the 300m ANGSt.

Table 2 - Summary
No. Households in Chichester district meeting each
of the ANGSt

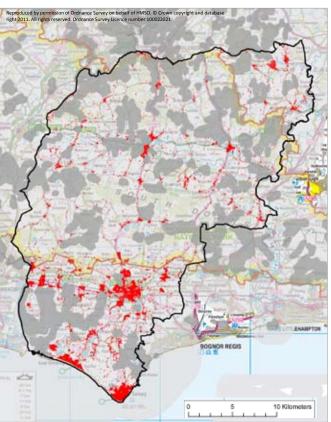
	% within 300m of 2ha ANG	% within 2km of 20ha ANG	% within 5km of 100ha ANG	% within 10km of 500ha ANG
Households total	17.18	57.64	98.09	91.7
36,701	6306	21,153	36,000	33,654
Population total	in 300m ANGSt	in 2km ANGSt	in 5km ANGSt	in 10km ANGSt
99,460	17,089	57,325	97,560	91,202

Population is an estimation, based on households x 2.71

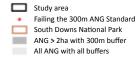


Map 7a Households which meet/don't meet the 300m ANG standard





Map 7b Summary map to show households which are deficient in ANG (300m)



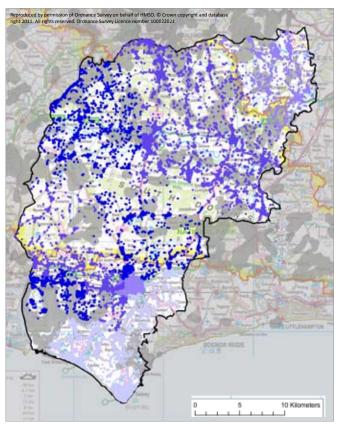
4.3 Health data

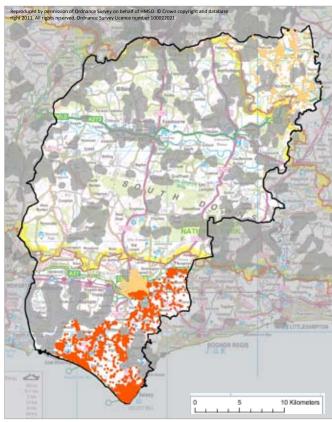
ANGSt analysis for Chichester District only

The data-set for health scores was provided by Natural England. It was developed to provide a measure of the types of health issues which are likely to be influenced by access to nature and exercise (ie cardiovascular and stress related health problems). The maps showing this health data in relation to ANG sites were revealing because they highlighted priority areas where health is poor and which are relatively deficient in ANG.

Map 8a (Health scores in relation to the 300m ANG buffer) shows areas that might be targeted for increased provision of ANG because they have populations with relatively poor health scores but are beyond the 300m ANG buffer.

Map 8b summarises the correlation between areas with poor health and areas that are deficient in ANG (Map 7b)





Map 8a Health scores in relation to the 300m ANG Buffer

Map 8b Summary map to show households with low health scores which are also deficient in ANG

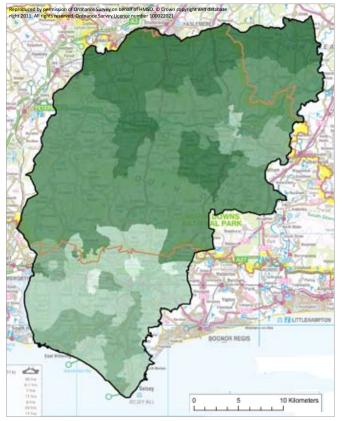




4.4 Public rights of way

Map 9a - Density of prow in semi-natural landscapes for LSOAs in Chichester District. This is an identical analysis to that described in section 3.2 (when it was undertaken for the whole study area)

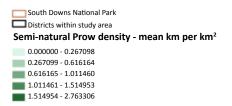
Map 9b - shows areas with limited prow that are also deficient in 300m ANG (for Chichester district - ie correlation between lowest scores on Map 9a and 7b)



Map 9a
Density of semi-natural prow for Chichester District/
LSOA



Map 9b Summary map to show households with limited prow which are also deficient in relation to the 300m ANGSt





4.5 Summary

ANGSt analysis for Chichester District only

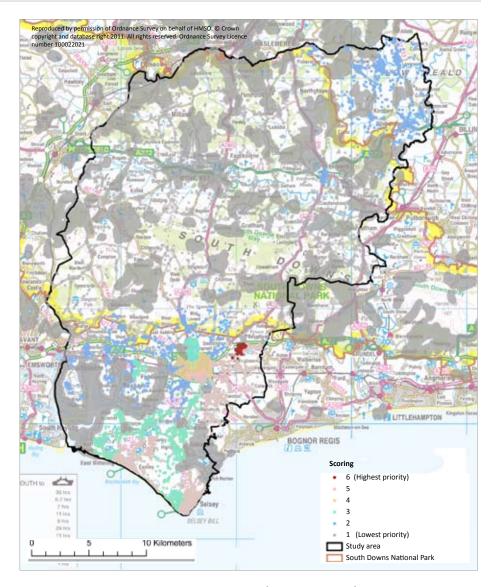
Map 11, which shows priority areas for new ANG (based on 300m ANGSt) which can deliver multiple public benefits. These are areas which are deficient in ANG (from Map 7b) plus they:

- have relatively poor health (Map 8b)
- have a relatively poor prow network (Map 9b)

The analysis of ANG in relation to major development sites was not included as the areas highlighted on map 10b were relatively small.

Households are coloured to indicate the highest category they match. The scoring is as follows:

- Priority 6 Households deficient in ANG that had both: the lowest PROW (<0.267099 km per km²) AND the lowest health scores (< 17 CHS)
- Priority 5 Households deficient in ANG that had both: low prow (0.267099-0.616164 km per km²), AND the lowest health scores
- Priority 4 Households deficient in ANG that had both: low prow, AND low health scores (17-19 CHS)
- Priority 3 Households deficient in ANG that had the lowest health, OR the lowest prow scores.
- Priority 2 Households deficient in ANG that had a low health OR a low prow score
- Priority 1 Areas deficient in ANG.



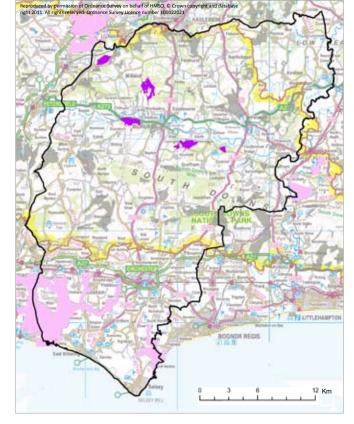
Map 10 - Priority areas for new ANG (300m ANGSt) which can deliver multiple public benefits

4.6 Analysis of ANG & biodiversity sensitive sites

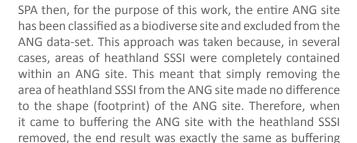
Maps 12a and 12b show the results of a separate analysis of ANG in relation to biodiversity sites which are particularly sensitive to disturbance by people. Map 12a shows the SPA and heathland SSSI sites selected for this study because they are particularly sensitive to disturbance by people (due to ground nesting birds). These sites are shown in relation to the existing ANG sites, illustrating areas where biodiverse sites are also ANG sites.

Map 12b shows these biodiverse sites in relation to an amended ANG dataset in which ANG sites which contain biodiverse sites (either heathland SSSI or an SPA) have been excluded⁷.

Map 12a Important biodiversity designations in Chichester District



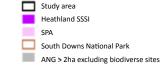
Map 12b
ANG sites and biodiverse sites (SPAs and Heathland
SSSIs) in Chichester District



the ANG site with the heathland SSSI.

Where an ANG site contains heathland SSSI or an

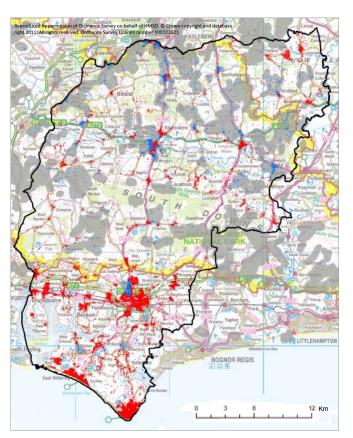




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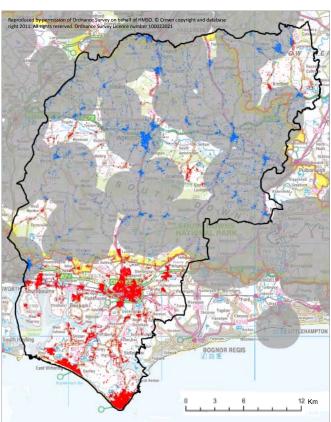
Map 12c shows the households which meet/fail the 300m ANGSt when the biodiverse sites are excluded and a 300m buffer is applied to the remaining areas. It shows that 13.06% households in Chichester District are over 300m from an ANG site when biodiverse sites are excluded, compared to 17.18% households which meet the 300m ANGSt when all the ANG sites are included (see Map 7a).

Map 12d is the equivalent map for the 2km ANGSt. It shows that 30.49% households meet the 2km ANGSt when the biodiverse sites are excluded, compared to 57.64% households which meet the 2km ANGSt when all the ANG sites are included. The majority of the biodiverse sites are in the south of the district and Map 12d shows that households in the south who would like to cycle to a natural area with full public access are likely to generally reliant on these biodiverse ANG sites and therefore are likely to be putting pressure on valuable habitats which are sensitive to such disturbance. In fact the situation is likely to be considerable worse than Map 12d suggests because Map 12d only shows the impact of households within Chichester district, whereas the urban area of Bognor Regis (which has relatively few ANG sites nearby) is just across the administrative border to the east, in Arun District.



Map 12c
Households meeting the 300m ANGSt when biodiverse
sites are excluded



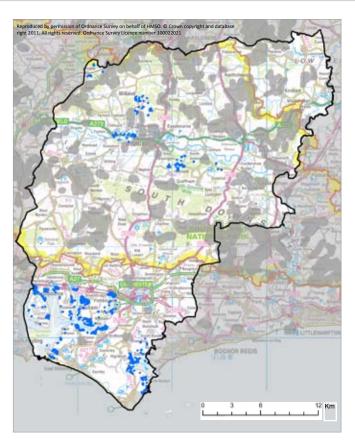


Map 12d
Households meeting the 2km ANGSt when biodiverse
sites are excluded



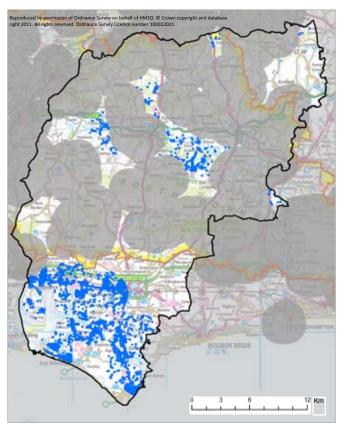
Maps 12e and 12f clarify the issue. They show the proportion of households which are likely to use sensitive biodiverse sites as their local natural greenspace (4.25% for walking distance 300m ANG and 27.14% for cycling distance 2km ANG).

This analysis is the starting point for further work, which may show that the biodiversity interest on some of these sites is at risk due to disturbance by access. Studies based on this type of analysis could show that alternative ANG sites should be made available to divert people away from those that are sensitive to disturbance.



Map 12e Households meeting the 300m ANGSt for biodiverse sites only





Map 12f Households meeting the 2km ANGSt for biodiverse sites only



5.1 Key issues to consider

The South Downs National Park Authority (SDNPA) is relatively newly established, and takes up its full powers from April 2011. Its first task will be to consult on and develop a new management plan, within which access provision and priorities will be considered. It is hoped that this report and accompanying analysis will provide an evidence base which can be used to help inform discussion and the identification of priority areas for focused action on access provision. In addition, it could be used to identify priorities for future work. To this end, the final section of the report sets out the lessons learned, issues to consider and potential agendas for future action, all for consideration by the SDNPA and its partners over the coming months.

Each of the 14 districts in or adjacent to the South Downs National Park is pursuing its own GI and access studies, in line with local need and the requirements of each LDF process. The notes from meetings with local authorities (in Annex C) summarise the wide range of existing work. Key lessons and issues to bear in mind are:

- Set in place the foundation for positive cross boundary, partnership working on GI and access studies
 - establish common data-sets eg for accessible natural greenspace, open space & recreation (PPG 17) classifications, promoted routes etc. Update regularly as new sites are added (as a result of new development and by agreement)
 - establish data-sharing agreements so that there is a 'one-stop-shop' for access, greenspace and biodiversity data sets, as well

- as for the standard mapping requirements of GIS shape/tab files for roads, settlements, prow and administrative boundaries to facilitate mapping beyond district boundaries
- continue to collate and update data-sets across the entire (14 district) study area so that work on access, recreation, habitat conservation and open space within the National Park is informed by activity within its wider hinterland. This is essential as so many users of the South Downs National Park live beyond the boundary of the protected area
- Avoid duplication and the risk of discrediting existing work – future SDNPA GI and access studies need to supplement local studies, providing data and analysis at a strategic level

5.2 Priorities and options for future work

This Accessible Natural Greenspace study was constrained by the funding limitations in the 2010-11 financial year. It has focused on updating the Accessible Natural Greenspace data-set and identifying deficiencies (against Natural England's ANGSt). It provides a starting point for further work and the list below provides some options for further consideration.

1. Carry out the detailed case study analysis (done for Chichester District only) for the whole study area and for each district. This would allow the inclusion of health data so that ANG is analysed

in relation to access to the countryside (prow) and health. It would result in a map showing priorities for ANG investment (as per Map 11 but for the whole study area) and would avoid the distorting influence of administrative boundaries. For instance, the Chichester study does not make any allowance for the fact that ANG sites in the southern part of Chichester district will be visited by households in the urban area of Bognor Regis, just across the border in Arun District. It may also be relevant to consider other areas where type of biodiversity/access management analysis undertaken for Chichester might usefully be applied

- 2. Collate an accurate data-set for promoted routes and prepare a detailed ANGSt analysis for these routes. The existing study did not have sufficient budget to analyse key promoted routes such as the South Downs Way, Worth Way and the Cuckoo Trail, but these should ideally be included, perhaps with ANG buffers of varying scales. The analysis could look at the degree to which these major ANG opportunities provide an experience of natural/unnatural landscape and the degree of linkage to prow, urban areas and ANG sites. This type of analysis would provide the evidence for specific targeted investment which builds on the success of the existing network and identifies opportunities for circular routes, links to urban areas and/or links to ANG sites.
- 3. Identify options / priorities for creating new ANG—The current work has identified areas where ANG is deficient and specific target zones where increasing provision of ANG would have multiple benefits (in terms of health and access to the countryside). Follow up GIS mapping studies could look at options for creating

new ANG in areas of deficiency - ie existing, privatelyowned, semi-natural habitats where there might be a case for increasing access (via legal agreement) and/or existing formal urban public greenspaces, where there might be a case for changing the way the landscape is managed so that it has a more natural character.

- 4. Analyse the 'push-pull' effect of the National Park the 14 districts within the study area have been included because they are expected to fall within the influence of the National Park. It would be useful to define what this means in practice so that each of the districts can be provided with consistent, objective evidence to describe the degree of influence for use in their GI strategies and LDFs. For instance, future studies might:
- a. Identify the extent to which there are good/ deficient prow and public transport connections between major ANG sites/promoted linear routes within the National Park and centres of population beyond the National Park boundary, say within a 5km (day trip cycle) zone of influence and compare these with the more subjective analysis of priorities in the Rights of Way Improvement Plans
- b. Analyse the extent to which ANG sites within the National Park are the only option for urban populations nearby (ie where there are no alternative ANG sites available) are these sites (and the prow/public transport connections to them) priorities for investment?
- c. Analyse the degree to which ANG sites are accessible by prow, and specifically the links between ANG sites and centres of population within a 5km radius. This study has highlighted the fact that the South Downs National Park has many small isolated

ANG sites (particularly on the chalk escarpment) which are open access land (in legal terms) but which are in fact totally inaccessible. This analysis would identify these inaccessible sites, and would also show ANG sites which are close to urban areas which would benefit from new or relocated prow links. This study also revealed that some open access land is managed as arable farmland and does not have a natural character. A correlation between ANG sites/open access land and land cover would reveal specific examples, which might (if close to centres of population) be targeted for action.

5. Delivering multiple benefits on the same piece of land – additional data sets could be used, in combination with data for ANG, health and heathland SSSIs, to identify priorities for creating new ANG and for increasing the size of existing ANG.

The work could build on studies carried out by Brighton University which analyse the diversity of plant species in relation to the patch size. The findings demonstrate that 'bigger is better', but that the gradient of the species-area curve begins to decrease at around 20 ha. This means that increasing the patch size beyond that point will give a diminishing return in terms of species richness. Whilst patches of chalk grassland larger than 20 ha are desirable, it could be argued that a minimum size of 20 ha should be sought.

Habitat Potential Mapping work (also carried out by Brighton University) has identified areas across the chalk block which have the correct environmental parameters to support re-created chalk grassland (thin soils, steeper slopes etc), and where the priorities are for re-creation in relation to the existing resource. The evidence from these two types of analysis tells us

where we could re-create chalk grassland habitats and the minimum patch size to aim for.

20 ha also happens to be the size of the third ANG standard, and it would be possible to correlate areas where households are deficient in the 20ha:2km ANGSt with the chalk grassland re-creation priorities, thereby delivering targeted ANG and chalk grassland re-creation on the same piece of land.

Similarly, it would be useful to include data on Source Protection Zones (SPZs) around drinking water boreholes, identified by the Environment Agency as benefitting from low input land management systems (eglowinput permanent grassland) as another targeting layer, and another opportunity to look for overlap and multiple benefits. There will be areas of land that with appropriate management could deliver access in ANG deficient areas, re-created chalk grassland and clean drinking water — win-win-win.

Annexes



1 Purpose and Objectives

This study, focusing on the new South Downs National Park, is the third of a series of detailed reports to understand the existing access network in those areas of the South East identified by Natural England as high priority areas for access to the natural environment. It will identify where to strengthen the network, in terms of both greenspace and routes, using the Accessible Natural Greenspace standards (ANGSt) as a guide (Annex A provides background information on ANGSt), for the National Park and adjacent Districts, including centres of population.

The study takes a holistic view of the access network across all providers, including accessible green space/routes provided by government bodies such as Natural England and the Forestry Commission, the local authority rights of way network and open spaces (as defined in PPG17), through to third sector-provided access eg land held by the National Trust.

The study will build on the 2007 report, 'An analysis of accessible natural greenspace provision in the South East' — Patrick McKernan, Forestry Commission and Matthew Grose, High Weald AONB Unit.

The specific objectives are to:

- test and develop the 2007 data-set locally, so that all stakeholders agree that it provides a robust evidence base to underpin this and other studies
- establish agreements between key stakeholders for future shared use of the relevant datasets (so that there are no copyright restrictions to limit future cross boundary working)
- provide an accurate analysis of the access network for the South Downs and Coast in relation to data on households, and highlight any deficiencies in

provision across the ANGST standards.

provide an accurate analysis of the access network for one local authority area, of either major development, health, or 'access-sensitive' biodiversity, and highlight any deficiencies in provision, focussing one of the ANGST standards as the priority.

At a strategic level, this analysis is intended to add value to a range of existing initiatives by:

- strengthening Local Development Frameworks, particularly if there is scope to incorporate or cross refer to the PPG 17 studies undertaken by local authorities and by providing the foundation for future green infrastructure strategies, including the development of the new Local Development Framework (LDF) for the National Park.
- supportthedelivery of Rights of Way Improvement Plans, by identifying the relationship between green-space and green-routes, to create a holistic access network
- facilitating cross boundary working between government agencies and local authorities
- making the case for investment, by providing a robust, objective means for targeting investment (which can be used in conjunction with more subjective methods) and by demonstrating potential economies of scale through data sharing and cross boundary working
- providing a case study for use by Natural England in developing methods for assessing the application of ANGSt.

2 Methodology

2.1 Study Area

The area for this study is shown on the attached map at Annex 2, and covers all of the Districts that enter the National Park, including all of the West Sussex South Coast Plain, and adjacent urban areas.

2.2 Overview

The proposed methodology for this study is set out below. It draws from the previous studies undertaken in N Kent and the Blackwater Valley in Hants/Surrey. The principal stages would be:

- Access Data gathering and proofing to ensure an accurate baseline access dataset
- Analysis of access provision in relation to households - to show the proportion of households meeting each of the ANG standards;

Access Data gathering and proofing in one local authority area of:

- data for health to identify deficiencies in ANG and to define priority areas (of need)
- planned major developments to take account of the planned growth and location of new households
- biodiversity to identify possible impacts on sensitive habitats

2.3 Data gathering and proofing

 Greenspace: Check the accuracy of the ANG dataset held by Natural England to ensure that it identifies areas which are fully accessible to the public and to fill any data gaps, eg PPG17 data. This data proofing would be done in conjunction with local authority greenspace, planning and access officers. These meetings would also be an opportunity to brief the local authority officers about the study, discuss its potential 'strategic fit' with Local Development Frameworks (eg PPG 17 assessments) and to obtain in principle agreements on data sharing.

- PROW: The definitive PROW network maps would also be included within this exercise and the density of the network per LSOA would be used to provide a measure of quantity of prow provision. Map of open access provision in relation to the PROW network as one of the outputs.
- Access sites within a 10km zone: around the margins of the study area would also be included, to take account of relevant greenspaces/routes outside the study area which could be used by people within it.
- Public transport: Collect data on public transport routes and hubs, and illustrate with existing PRoW network.

2.4 Analysis

Households (whole geographic scope)

The ANGSt model would be used to show the extent to which the population of the study area is served by existing access sites/routes. AddressPoint data (filtered to exclude non-residential addresses) would be used as an accurate measure of the number of households. The actual population would be determined by multiplying each household by the average household size.

The number of households within each of the four ANG buffers would be measured by 'clipping' the AddressPoint data to the buffer, with the resulting

number of households expressed as a percentage of the total population served by each category (size/ ANG distance) of greenspace.

For one local authority area:

Health

Maps for each category of ANG would be prepared to show the relationship between ANG and data for health. NE would provide a dataset for health scores which has been developed to provide a measure of the types of health issues which are likely to be influenced by access to nature and exercise (ie cardiovascular and stress related health problems). The maps showing this health data in relation to ANG sites would indicate areas where health is poor and which are relatively deficient in ANG.

Major new developments

The principal planned new developments in the area would also be mapped in relation to ANG sites to show any forthcoming areas of population which are likely to be deficient in ANG. These include Shoreham, Chichester, Borden, Winchester, and King Edward VII Hospital.

Sensitive Biodiversity

Special Protection Areas (SPAs) —SPAs would be identified and compared to the ANG data to identify where greater ANG choice should be available in order to protect the SPA habitats and bird populations from levels of access which might cause disturbance. Chichester & Langstone Harbours SPA, Arun Valley SPA, Wealden Heaths Phase II SPA, and proposed Wealden Heaths Phase III SPA (West Sussex heathland SSSIs)

3. Project Deliverables

As a result of the above methodology, the consultant would provide the following outputs from the contract:

- Consultant report containing summary and key findings, introduction, background, detailed methodology, results and conclusion. The report to include GIS maps of each stage of the above methodology.
- Presentations of the project:

Summary presentation of study area for SDNPA and Local authority members.

Detailed presentation of study area for SDNPA and Local authority officers, including those in the planning, access and green-space teams.

4. Project Governance and Communications

The project steering group will consist of representatives from the SDNPA and from Natural England. The consultant would attend three monthly meetings (2 no. face-face for start-up and review of draft report, with 1 telecom) of this project steering group.

Natural England contact:

Roger Matthews, tel: 0300 060 4082, e-mail roger.matthews@naturalengland.org.uk South Downs National Park Authority contact:

Claire Kerr, tel: 0300 303 1053,

e-mail Claire.Kerr@southdowns.gov.uk

The project is to have been completed by 31 March 2011, commencing in January 2011.

Annex B Accessible Natural Greenspace standards

Natural England's ANGSt standard

Natural England's Accessible Natural Greenspace Standards (ANGSt) were developed in the early 1990s and were based on research into the minimum distances people would travel to the natural environment ¹. ANGSt establishes a range of accessibility standards for natural sites within easy reach of people's homes. The recommended standards are: -

That everyone, wherever they live, should have an accessible natural greenspace:

- of at least 2ha in size, no more than 300m (5 minutes walk) from home;
- at least one accessible 20ha site within 2km of home;
- one accessible 100ha site within 5km of home;
 and
- one accessible 500ha site within 10km of home; plus
- one hectare of statutory Local Nature Reserves per thousand population.

ANGSt provides a tool for assessing current levels of accessible natural greenspace and planning for better provision in areas where the standards are not met.

Natural England's Guidance for 'Nature Nearby 2,' prepared in February 2010, explains how ANGSt should be applied in the current policy context. ANGSt tackles the issues of quantity and accessibility of greenspace; it does not consider the quality of accessible natural

greenspace sites or the visitor services that they provide. The February 2010 Guidance addresses this issue by proposing that ANGSt be adopted in conjunction with standards for visitor services for each type of site (nature reserves and country parks) and a national quality standard (the Green Flag Award).

The role of ANGSt in access management studies

ANGSt is a potentially powerful tool which can be used to identify:

- those sites which might be considered 'natural';
- areas within other sites which might have a value for nature; and
- areas of deficiency which might be targeted for action.

The practical application of the standard as an objective tool for assessing these criteria involves GIS mapping and analysis and relies on the availability of spatial demographic and environmental data.

A study undertaken in 2007 ³ provided the first review of existing levels of accessible natural greenspace (ANG) throughout the South East and a framework for assessing the need for additional ANG in areas of deficiency. The 2007 study established the strategic direction for this type of GIS based analysis.

Accessible Natural Greenspace Standards in Towns and Cities: A Review and Toolkit for their Implementation – English Nature Research Report No 526

² Accessible Greenspace Guidance Source – 'Nature Nearby' – Pengelly Consulting, February 2010

³ An analysis of accessible natural greenspace provision in the South East – Patrick McKernan, Forestry Commission and Matthew Grose, High Weald AONB Unit, February 2007

Annex C Notes from data proofing discussions with local authorities

Introduction

These notes set out the key points made during meetings with local authorities during February/March 2011. The meetings followed a standard agenda which had been agreed in advance with Natural England and the South Downs National Park Authority. Key issues discussed were:

- Overall introduction to the project methodology, outputs and briefing (with ref to the North Kent ANG study)
- Data proofing of the 2007 ANG data-set to check whether ANG sites are fully accessible to the public or whether they are only accessible via prow. Add any sites that are missing, amend those that are shown incorrectly and add new sites which are associated with new development.
- Data sharing agreement discuss data sharing. Agree that key contacts will receive a formal note (email from NE) requesting agreement to data sharing. Request GIS data on PPG 17 types and public transport routes/hubs.
- 'Strategic fit' with relevant LDF policies and wider opportunities.

Annex A lists local authority contacts in the 13 local authorities which have boundaries which fall within or adjacent to the National Park.

Notes from local authority meetings

Local authority	Contact	Notes	Documents
Eastbourne BC	Valerie Tupling – planning policy Simon Hurt – parks & Gardens	No up to date PPG 17 Assessment, although 2007 study is available Added Sovereign Park – full public access although sensitive habitats and boardwalk encourages people to follow route off the shingle. Gildridge Park considered, but not added to ANG dataset as too formal in character (although some semi-natural habitats) Data on public transport routes from East Sussex CC Major new public open space is in concept design stage – Eastbourne Park will cover the whole of the low-lying 'levels' area in the centre of urban Eastbourne. Aiming for public consultation this summer, but cannot pursue in a formal way until the Core Strategy is adopted (2012). Data sharing agreement is fine	 Open space assessment (2007) Volumes 1 and 2 Consultation feedback on Eastbourne Park Strategic ecological connections study (will be updated once Eastbourne Park proposals are agreed).

Local Authority	Contact	Notes	Documents
Lewes DC	Robert King – Planning policy Daniel Ross – Community Ranger	A list of LDC owned Community Ranger managed sites (HLS agreements mapped by NE) was available and was cross checked with the ANG dataset. These will be added to the ANG database. There are 7 additions to the ANG database and 4 deletions. No PPG 17 data held on GIS. The district's open space study is outdated (2004) and an informal recreational space study (2005) also does not have an associated GIS. At a larger scale, a strategic open space study by East Sussex County Council has just been completed and there is an Open Space Study for Newhaven (Development Vision). There is no GI Strategy at present. LDC has had to restart its LDF process and the Core Strategy is not expected to be adopted until 2013.	Lewes District Outdoor Playing Space Review, 2004 Lewes District Council Informal Recreational Space Study, Oct 2005 Physical Development Vision for Newhaven, 2008
Worthing BC	Ken Costello – Planning Policy	Evidence base for ANG dataset agreed. One deletion (due to site being formal park rather than ANG). Checking precise ownership of a large greenspace to the NW of Worthing, which was not included. Left out until confirmed Core Strategy is in final stages of approval – adoption expected at end of February 2011. GI Strategy is just getting underway and due to be completed by end of 2011, although clarification needed in relation to strategic studies – seminar on GI on 2 March planned by West Sussex County Council. Data sharing agreement OK, although GIS team is strict on copyright issues in relation to data released from Worthing BC. Worthing has a successful 15 year cycling strategy. Any GIS data on public transport would be held at county level and there is a major strategic transport model by Parsons Brinkerhoff (commissioned via county) which looks at strategic traffic issues. Has PPG 17 Assessment 2007.	PPG 17 Assessment, 2007 Submission Core Strategy, April 2010

Local Authority	Contact	Notes	Documents
Adur DC	Ben Daines – Planning policy	ANG data set agreed, with two minor additions and one major deletion. The deletion is a site at Mash Barn Lane which is privately owned and allocated as a development site. However, if development does take place there would be a significant amount of public open space associated with it so this site is likely to change. Data sharing agreement OK Adur is a long way back on preparation of its Core Strategy – focus will be on housing demand and consultation is planned for summer 2011, with Adoption in 2013. No GI Strategy at this stage, but will follow-on and work with Worthing on it. PPG 17 completed in 2005 and updated in 2009 (incl Shoreham Harbour regen work). This later update (and also another study undertaken by Halcrow) includes an analysis of strategic green links. Some of the GIS data associated with the PPG 17 assessment is corrupted (and consultancy that did it no longer exists) so it's not easily fixable.	PPG 17 Audit, 2005 PPG 17 audit update, 2009
Mid Sussex DC	Alma Howell – GI (planning policy) Louise Gibbons – Planning policy Elaine Clark – leisure and recreation (PPG 17) Simon Hardy – head of leisure Rupert Browning – head of landscape	Mid Sussex is keen to be a case study, perhaps as a rural component of a tandem rural-urban case study (with Brighton & Hove). MSDC has completed preliminary GI work but no confirmation, as yet on how it will be incorporated in the Core Strategy as the latter has been delayed. Will be attending the West Sussex GI Strategy meeting on 2 March. The 2007 ANG data-set was immediately seen to be missing some key sites, including the 'Green Crescent' around Burgess Hill, where there is an impressive town-wide 'access to the countryside' strategy. A new GIS data-set provided by the Council includes land owned by the Council and land managed for conservation purposes by the landscape team. This data-set was subsequently proofed with the landscape team and via further OS mapping/Google research. It has been combined with the amended 2007 ANG data-set to create a new accurate ANG data-set for MSDC. Data sharing agreement OK	PPG 17 Assessment, 2007 Submission Core Strategy, April 2010

Local Authority	Contact	Notes	Documents
Arun DC	Karl Roberts – Planning policy (no meeting)	Arun DC currently lacks resources and is recruiting. The district cannot progress its Core Strategy until resources are in place and does not have resources available to support this study So ANG dataset has been checked via a desktop exercise for Arun district. Data sharing agreement – email sent, but not confirmed	
Chichester DC	Tracey Flitcroft – Planning Policy Sue Payne – Planning Policy Sarah Peyman – Sports & Leisure	7 deletions of areas which are not fully accessible. Queries over estate land at Petworth, Cowdray and Stansted – Google research and phone calls to check levels of accessibility and adjustments made to database. Petworth is included. Cowdray and Stansted are not. Query over eligibility of Pagham Harbour LNR, which is managed by WSCC with an emphasis on managed access to balance access objectives with those of nature conservation. This approach is backed by 2008 Byelaws. Agreed that Pagham Harbour is included in the ANG data-set, but the relevant GIS polygons for this site and the other Chichester Harbour sites to be amended to omit the extensive harbor/estuary areas. Key issue is relationship between ANG and promoting public access and the Solent Disturbance and Mitigation Project. Chichester DC is keen to be a case study and would provide an excellent eg for exploring issues of managed access. PPG 17 study is not compliant (2002 and then updated 2007). Will be done as part of Core Strategy, which is due to be adopted in 2013. There is a strategic policy for GI in the Core strategy, with a more specific policy in the Infrastructure Delivery Plan Data sharing agreement OK	Solent Disturbance and Mitigation Project (series of studies 2009 - ongoing)

Local Authority	Contact	Notes	Documents
Winchester City Council	Damian Offer – Landscape Strategy	2007 ANG data-set proofed and amended with relatively few changes. Staunton Park CP and a small site at Winchester added. Winchester CC Core Strategy is due to be finalized later this year (Nov 2011). There are GI policies within the Core Strategy. GI Study was completed last year – it is at a strategic level. Next stage will be a GI implementation strategy which builds on existing proposals and initiatives and provides a needs-based assessment so that resources can be targeted effectively. PPG 17 study was undertaken jointly with East Hants and was found to be inaccurate so some data was reviewed during the course of the GI Study. Data sharing agreement OK	Winchester CC – Green Infrastructure Study, 2010 PPG 17 Assessment, 2008
East Hampshire DC	Amanda Dunn – Planning Policy Valerie Dobson – Planning Policy	2007 ANG data-set proofed and amended with many deletions (small woodland sites). The draft amended data-set was then cross checked against the NG layer on the PPG 17 data-set. Whitehill-Borden EcoTown – if this goes ahead, a substantial area of MoD land to the south of the town will become ANG (at present it is excluded as it is either a danger area or MOD managed access, which is not actually perceived as accessible). Subsequently agreed with MoD that these miltitary sites should be excluded from the ANG data. Core Strategy will be developed jointly with the National Park – Publication version Sept 2011. Draft GI policy is in the LDF – stakeholder consultation now and will be included in Core Strategy. It includes basic principles for each settlement but is high level – not detailed mapping. Data sharing agreement OK	PPG 17 Assessment, 2008 Local Plan 2nd Review, 2006
Waverley BC	Paul Falconer - Planning policy/GI	Waverley BC was part of the Blackwater Valley ANG Study undertaken by NE/Surrey Wildlife Trust in 2009 so it was agreed that the updated ANG data-base agreed as part of this 2009 ANG Study should also be used for the current assessment. The data sharing agreement confirms Waverley's agreement to the use of the ANG data in the current 2011 study.	Blackwater Valley ANG Study (Draft), 2009

Local Authority	Contact	Notes	Documents
Brighton & Hove City Council	Rebecca Fry, Planning Policy/GI Mike Holford, Planning policy Jan Jonker, Greenspace Matthew Thomas, Biodiversity	Brighton and Hove has recently compiled a detailed GIS data-set showing accessible natural greenspace within the boundary of the urban area. This work has been undertaken as part of the evidence base for the Core Strategy and in particular in response to specific detailed scrutiny of all potential housing development sites within and immediately surrounding the urban area. The new Brighton and Hove ANG data-set has been developed in response to this situation and fulfils tighter criteria than have been applied elsewhere: the sites included as ANG sites are those that are natural and accessible, but do not include areas of arable farmland or amenity grass (which are not strictly 'natural') but which are mapped as open access (on OS maps). A couple of sites on the Brighton and Hove ANG data-set are within golf courses, but are considered to meet the criteria because they are visually and ecologically important and are used (unofficially) as open access land. It was agreed that the Brighton and Hove ANG data-set should be used for this study so that there was consistency with the LDF process, but the differences in the application of the ANG criteria are noted. Brighton and Hove has a PPG 17 study which demonstrates that there is a shortage of all types of open space. A new more detailed open space study is considering the overall offer/value of open space sites in terms of their quality, location/population catchment, capacity, accessibility, visual/aesthetic importance etc. A Green Network study has been undertaken – it is biodiversity-led. The Council's 'Downland Initiative' considers the management of Council-owned land. Data sharing agreement OK	A Green Network for Brighton & Hove, June 2009 Open Space, Sport and Recreation Study, 2008/9
Horsham DC	Patrick Griffin Matthew Bright Catherine Howe	Horsham DC is in the process of reviewing its Core Strategy and is developing the relevant evidence base. One of the key components of this evidence will be the GI Strategy. Work on this is underway and, as a first step, HDC is preparing a visioning document which will be sent to key stakeholders and members in June/July. This document will be used to help identify priorities and opportunities. HDC intends to complete an ANGSt study as part of the process. HDC has relatively few ANG sites and the proofing process reduced this further. Two new sites were added at Horsham Data sharing agreement OK	Horsham District PPG 17 Assessment, 2005

Local Authority	Contact	Notes	Documents
Eastleigh BC	Gemma Christain -	Eastleigh BC is completing a detailed PPG 17 assessment (2011) and has developed mapping of greenspaces and green routes which will form the basis of a GI strategy. All as part of the evidence base for the Core Strategy (Consultation on Issues, Options and Preferred Approach is Oct 2011, with adoption planned for 2013. Green infrastructure work will link to the Site Options components of the LDF and will respond to deficiencies. Eastleigh is working in partnership with PUSH on the wider GI issues. It was agreed that the Amenity Sites and Country Parks (over 2ha) GIS datasets prepared by Eastleigh BC should be in conjunction with an amended version of the 2007 ANG data-set. The two data-sets were compared and discussed in detail; sites which were not considered to meet ANG criteria were deleted. Data sharing agreement OK	PPG 17 Assessment - in progress
Wealden DC	Kelly Sharp Marina Brigginshaw	The data proofing process revealed that Wealden DC has numerous changes to the 2007 data-set. A large number of sites were deleted, but the data-set has also been updated with WDC's PPG 17 ANG data-set, which was also proofed to check for (and delete) sites which are not fully publicly accessible. WDC's Core Strategy is at proposed submissions stage. Aim is for submission in June and EiP in September. The updated PPG 17 Audit is part of the evidence base for the Core Strategy and WDC is planning to prepare a GI Strategy as part of its forthcoming Strategic Sites DPD. Ashdown Forest is an important eg of visitor management in relation to sensitive biodiversity site. A great deal of work has been undertaken but WDC has found it difficult to obtain hard evidence on levels of bird disturbance.	PPG 17 Assessment, 2008, but since updated

