THEME 4: HEALTH AND WELL-BEING

INTRODUCTION

2.199 The connections between greenspace and health and opportunities for healthy living are widely documented, with broad agreement on the conclusion that the natural environment provides physical, mental and social well-being benefits. Some of these benefits help contribute to government targets in the reduction of obesity and ill health.

2.200 Further, there is evidence that the natural environment can provide physical health benefits through improvements in air quality, noise and temperature regulation; and reduce the impacts of extreme events such as flooding, which negatively impact on people's welfare.

2.201 The idea of creating greener environments in our towns and cities is not new; there are many examples of initiatives that have been planned and developed since Victorian times – eg Saltaire and Bournville are two examples. Providing adequate amounts of green space enables local communities to maximise the benefits of a healthy lifestyle.

2.202 However, development pressures and scarcity of land have resulted in the fragmentation of green infrastructure in some of our towns and villages; and plans for the creation of new greenspace in existing areas can be difficult to achieve.

'Green exercise', defined as any physical activity taking place in the presence of nature, is predicted to lead to positive health outcomes, as well as promoting ecological knowledge, fostering social bonds and influencing behavioural choices (UKNEA Technical Report Ch 16)

2.203 In order to benefit local communities green spaces have to be easily accessible and provide appropriate and well-maintained facilities.

2.204 However, the amounts of green space are often insufficient for local needs, or they can be inaccessible due to physical barriers, distance to travel or for cultural reasons. For people in poor health or with disabilities the difficulties of accessing open space can be even greater; and local greenspace within easy reach can be even more important.

A one percent decrease in the UK sedentary population is estimated to result in 848 fewer deaths per year and 30,363 fewer illnesses.

Mourato, S., G. Atkinson, et al. 2010. Economic Analysis of Cultural Services. The UK National Ecosystem Assessment: Technical Report. Cambridge, UNEP-WCMC

LEVELS OF ACTIVITY

2.205 Being physically active is strongly linked to improvements in health and wellbeing. There is an established causal link between physical activity and at least 20 different chronic health conditions, including coronary heart disease, stroke, cancer, type 2 diabetes and mental health problems[76].

2.206 It is clear from a large body of evidence that the natural environment plays a part in facilitating physical activity and can encourage communities to become more active.

2.207 Physical activity is influenced by a number of attributes of green space:

- Distance of residence from a green space;

76 Department of Health. 2011. Start Active, Stay Active: A report on physical activity from the four home countries' Chief Medical Officers. London, Physical Activity Team 63 Masterclass Briefing; Evidence Review; Spatial Determinants of Health in Urban Settings. Building Health; Planning and designing for health and happiness; One-day conference, 22 January 2010, Frenchay Campus, University of the West of England, Bristol.

- Ease of access in terms of routes and entry points;
- Size of the green space in terms of levels of population use;
- Connectivity to residential and commercial areas;
- Attractiveness, including biodiverse habitats and absence of graffiti and litter;
- Range of amenity, the wider the range of informal and formal facilities the more likely the space is to be used by different kinds of people.

In 2008, only 39 percent of men and 29 percent of women aged 16 and over met the UK Chief Medical Officer's minimum recommendations for physical activity.

*Aresu, M., L. Becares, et al. 2009. Volume 1: Physical activity and fitness. Health Survey for England 2008. R. Craig, J. Mindell and V. Hirani. London) (** At least 30 minutes of moderate or vigorous activity 5 times per week or more)*

2.208 These findings, whilst not surprising, are of particular interest in the planning and provision of green infrastructure, as they support the need for a well-connected and easily accessible network of footpaths, cycle routes and greenspaces.

For existing urban areas these green space attributes may be difficult to achieve as the areas may be constrained by built development and infrastructure. However, they should be considered as part of community intervention for health programmes; they could form part of an area's longer-term plan for green infrastructure and they should certainly be included in the requirements for green infrastructure in new developments.

It is estimated that by 2050, 60% of adult men, 50% of adult women and 25% of children under 16 could be obese and that this would cost the National Health Service (NHS) £10 billion a year and wider society £49.9 billion* a year. Any increase in the amount of physical activity undertaken could therefore lead to significant social and economic benefits.

*Foresight. 2007. Tackling Obesities: Future Choices DIUS. London (*at 2007 prices).*

MENTAL HEALTH

2.209 The benefits of physical activity on mental health are well- documented and include reducing stress and alleviating depression. Green exercise – physical activity such as walking in outdoor settings – has also been shown to be a good way to improve mental and physical health.[77]

2.210 It is therefore important to keep greenspaces in good condition, provide facilities that will attract a wide range of people and give 'life' to the site and to quickly tackle any social problems that may arise. This important link to social well-being may help support the case for enhancements to local greenspace.

People who visit non-countryside green spaces such as urban parks at least once a month, and those who spend time in their own gardens at least once a week, have higher life satisfaction than those who do not. Survey respondents who used domestic gardens and local green spaces at least once a month also showed better self-reported health, measured by physical functioning and emotional well-being, compared to those who do not.

UKNEA Technical Report Ch 16.

CHILDREN'S MENTAL HEALTH

2.211 Open green space and access to nature and natural play is important for children's mental and physical health. The quality of their environmental exposure is closely linked to their wellbeing. Children's relationship with nature is a fundamental part of their development, allowing opportunities for self-discovery and natural environmental experience.[78] SDNPA School

77 J. Pretty et al., 'A countryside for health and wellbeing: the physical and mental health benefits of green exercise' (Countryside Recreation Network, Sheffield, 2005): **docs.hss.ed.ac.uk/education/outdoored/health_wellbeing.pdf**

78 UKNEA Technical Report Ch 16.

Survey, 2017 found that 96% of school head teachers or outdoor learning coordinators in our sample of 213 schools felt that learning outside the classroom (LOtC) was good for children's physical and mental health and it improved their personal, social and emotional development.

2.212 In addition, The Natural Connections Demonstration project (Natural England and Plymouth University, 2016) documents evidence from 125 schools across the South West and includes a substantial review of the current research to date, finding a positive relationship between time outside and good physical and mental health.

SOCIAL WELL-BEING

2.213 Access to green spaces and nature also contributes to increased social interaction and cohesion and this in turn benefits health. In order for sites to be well-used by all sectors of society, the size of site and facilities provided must be appropriate to the populations they serve and the sites must also be well-maintained.

ENVIRONMENTAL FACTORS AFFECTING HEALTH

2.214 There is a long list of environmental factors that can have a damaging effect on human health and well-being. They include poor air quality, noise intrusion and extreme temperatures.

2.215 These environmental factors are usually reported in isolation, but their effects are often made in conjunction with other factors, as a result of which they need to be tackled in an approach that is holistic and cross-sectoral.

- Traffic: Road transport has direct impacts on health in terms of air quality and traffic accidents, but it also has indirect effects on wellbeing as a result of noise, reduced opportunities for exercise and infrastructure which discourages walking and cycling. Roads can also be barriers to the movement of pedestrians, cyclists and horse- riders and restrict alternative transport modes as a result leading to fewer people gaining exercise getting around as part of their normal routine.
- Air Quality: In urban areas in particular, road transport is a major source of air pollution. It emits pollutants that damage the natural and built environment and human health. Although levels of some pollutants have declined in recent years, the rising volume of traffic and increase in the use of diesel engines amongst other factors means that air quality continues to be a threat to human health. Particulate matter from exhaust gases is of great concern and should be avoided by people with respiratory or heart disease, the elderly and children.

Nitrogen Dioxide (NO^2) is a gas that is readily inhaled and can cause health effects, particularly in the lungs. There is good evidence for health effects at exposure to high concentrations. It is found in the air and derives from a number of sources, notably motor vehicle traffic. Data from **envhealthatlas.co.uk/eha/environmental/NO2/**

As far back as 2007 a report to Government was urging the need to address air pollution and to 'tackle the dominance of road transport in towns and cities in order to reduce air pollution and greenhouse gas emissions, provide more access for pedestrians and cyclists and improve the quality of urban living'.79 Refer to Plan 30 for EcoServe mapping for Air Purification Management Zones.

- Noise: Evidence indicates that exposure to road traffic noise is linked to an increased risk of hypertension, heart disease and heart attack in adults. However, vegetation – including lawns, dense vegetation and belts of trees – green roofs and green walls can reduce sound levels and this has known health benefits.80

79 Royal Commission on Environmental Pollution Twenty-sixth Report The Urban Environment March 2007

80 Natural England research report NERR057

Vegetation can filter gases and particulate matter and the addition of trees and greener areas can soften the visual impact of roads and help to reduce noise. An approach of greening of traffic routes together with actions to reduce the traffic flows through towns and villages could help to reduce the impact of roads on local communities and encourage more sustainable methods of transport such as cycling and walking. A network of routes and open spaces can provide an urban ecosystem, help filter-out pollution and noise, reduce the impact of road traffic and relate better to the human scale.

Green infrastructure can help to regulate temperatures by providing shade, shelter and evapo-transpiration. Water bodies can help to stabilise temperatures; and a single large tree can transpire 450 litres of water in one day.

Bolund, P. and S. Hunhammar (1999), Ecosystem Services in Urban Areas, Ecological Economics.

- Temperature Regulation: In the context of climate change, managing high temperatures is recognized as being a key concern. Respiratory and cardiovascular diseases are made worse at higher temperatures and this is partly due to interactions with air pollution, which also becomes worse at high temperatures. The natural environment can make an important contribution to regulating the local climate and reducing temperature-related health and environmental impacts, as well as reducing the heating and cooling costs of indoor spaces.

In England in summer 2006, there were an estimated 75 additional deaths per week for each degree of increased temperature.

(Armstrong et al. 2010, cited in Public Health England 2013)

- Deprivation: It is known that those at greatest risk of ill-health often live in the most deprived areas where a combination of environmental, social and economic factors leads to poor outcomes and low life expectancy.

2.216 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.

2.217 Overall, better health is related to access to green space regardless of socio-economic status, highlighting the importance of providing accessible green spaces to reduce socio-economic health inequalities.

2.218 There is also an economic case for tackling health inequalities. The Marmot Review estimated the annual cost of health inequalities at between £36 billion to £40 billion (ref at 2010 prices) through lost taxes, welfare payments and costs to the NHS.

The Marmot Review Report 'Fair Society, Healthy Lives' (2010)[81] looked at the differences in health and well- being between social groups in England. One conclusion was that the lower one's social and economic status, the poorer one's health is likely to be. The review proposed ways to reduce health inequalities, and proposed a list of policy objectives including a healthy standard of living for all and the creation of healthy and sustainable places and communities.

This places green infrastructure and the role of local authorities at the centre of the issues relating to the health of urban communities.

DESCRIPTION OF THE NETWORK AREA AND ANALYSIS

2.219 There are wide differences in population health across the Network area. This may in part be explained by the age profile of some of the areas – in particular the coastal towns such as Eastbourne are an attractive retirement destination

81 **nstituteofhealthequity.org/resources-reports/fair-society-healthy-lives-the-marmot-review/fair-society-healthy-lives-full-report-pdf**

– but there are also correlations between areas of poor health, deprivation and deficiency of open space although this is not quite as clear cut around Brighton for example.

2.220 The Local health data[82] for the districts in the Network area outlines the health priorities based on local needs. Across most of the areas the priorities which may be associated with improvements to green infrastructure include mental health and well-being, tackling health inequalities and promoting healthy lifestyles.

2.221 In terms of the links between green infrastructure and the health of the population, the mapped analyses in this study draw on the evidence created for the Accessible Natural Greenspace Study.[83] This evidence included health of the populations based on the range of conditions known to be improved by contact with greenspace and exercise (Composite Health Score);[84] general health (Census 2011)'[85] long-term, limiting health conditions (Census 2011)[86] and levels of deprivation. These health issues and socio- economic factors were analysed and the results compared with the provision of accessible natural greenspace. Plan 23 shows levels of participation in sport across the Network area.

2.222 The research tells us that access to local greenspace is very important in areas of poor health and deprivation and the spaces need to be:

- Close to where people live;
- Easy to access;
- Closely connected to residential and commercial areas;
- Attractive and well-maintained and must feel safe;
- Have a wide range of facilities to attract different people.

2.223 The ANG study showed that a number of urban areas across the Network area are deficient in accessible natural greenspace and in some areas this is compounded by levels of deprivation and poor health (Plans 24 and 25).

82 **apho.org.uk/resource/view.aspx?QN=HP_RESULTS&GEOGRAPHY=45**.

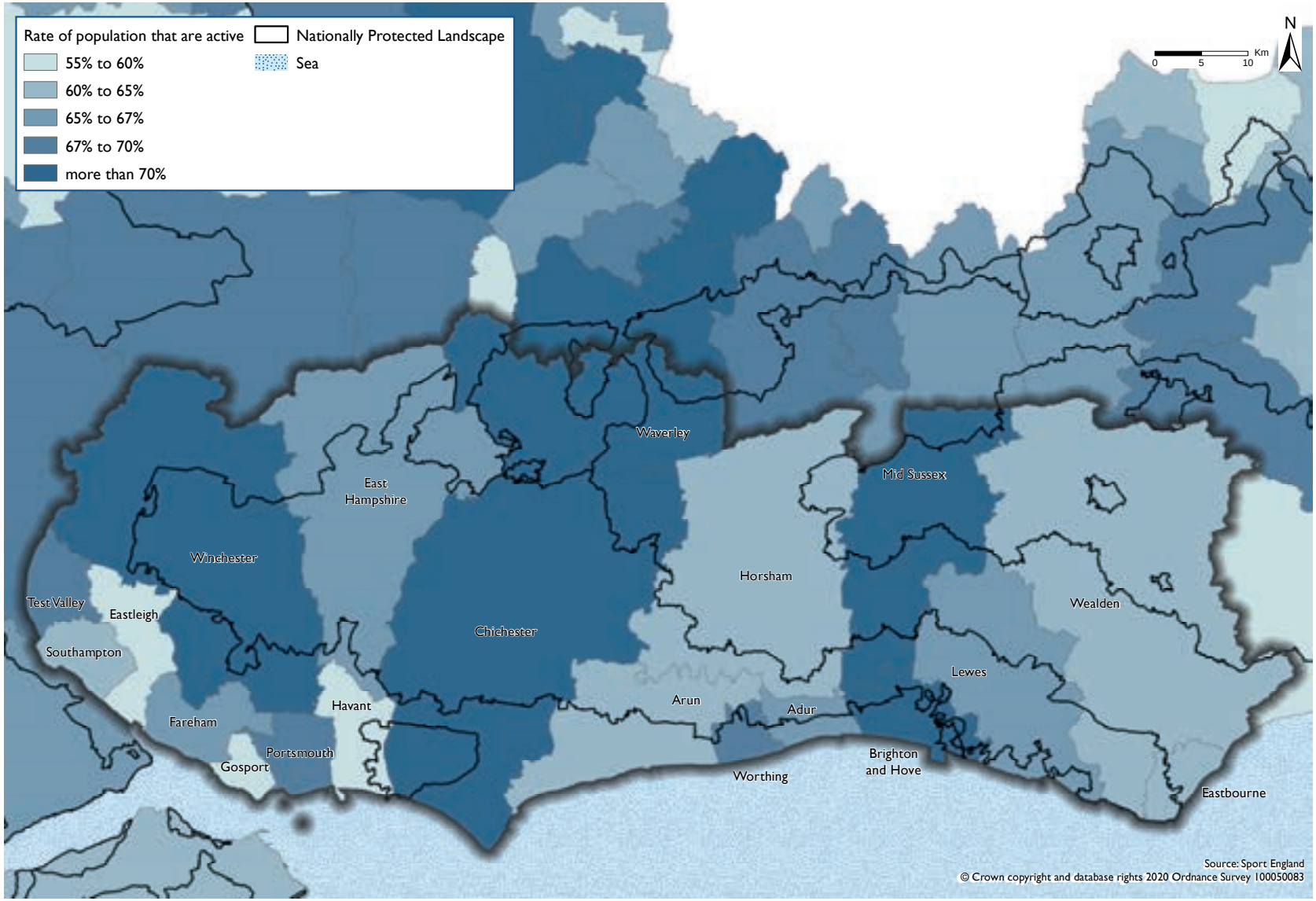
83 see **southdowns.gov.uk/planning-policy/south-downs-local-plan/south-downs-local-plan_2019/evidence-and-supporting-documents/access-network-and-accessible-natural-green-space-study**

84 Composite Health Data includes diabetes, obesity, cardiovascular conditions, hip fracture and mental health.

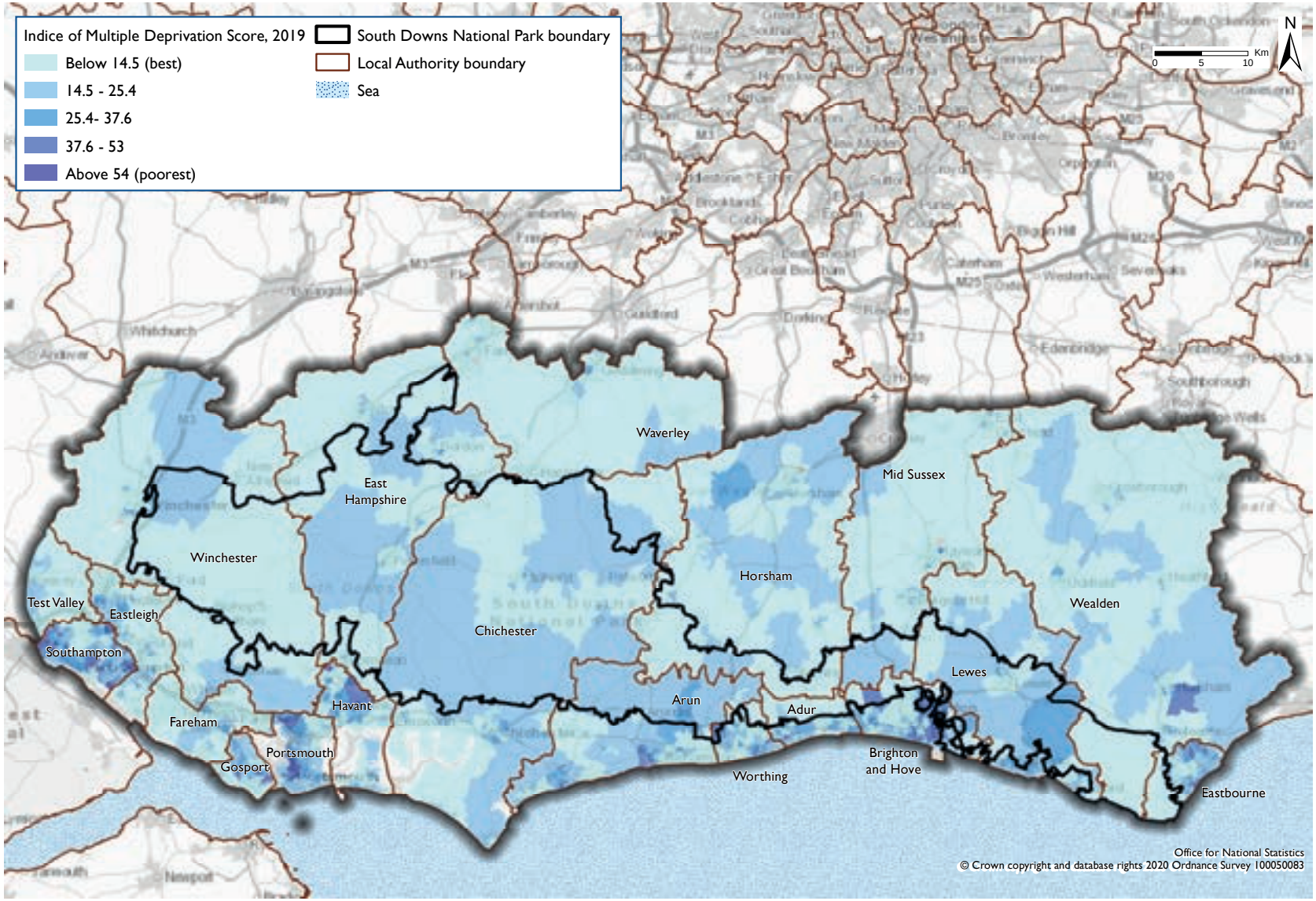
85 A self-assessment of a person's general state of health. People are asked whether their health was, good, fair, bad or very bad

86 A self-reported assessment of whether a person's daily activities are limited by a health condition

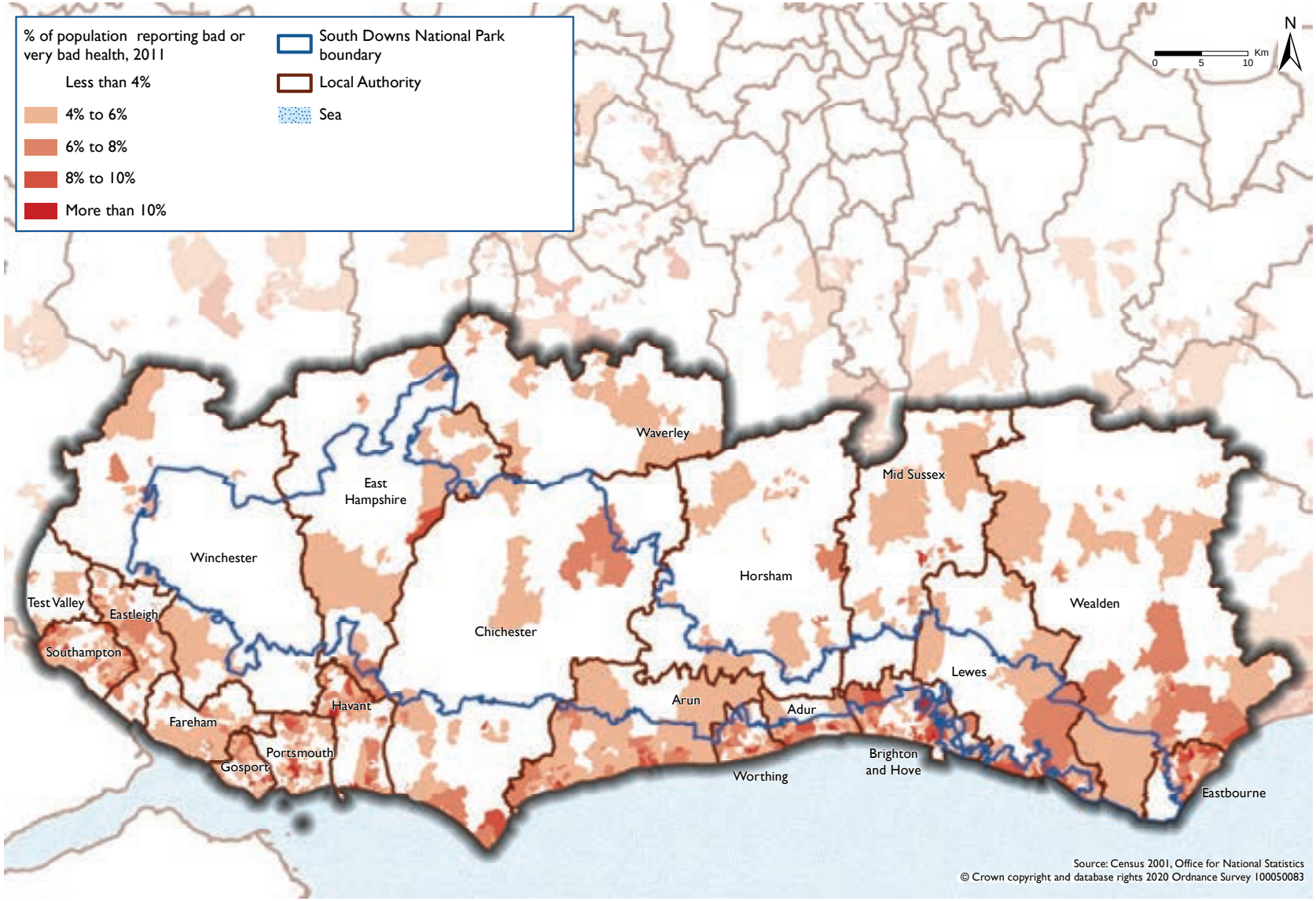
PLAN 23: PARTICIPATION IN SPORT AT LEAST ONCE A WEEK (SPORT ENGLAND)



PLAN 24: INDICES OF MULTIPLE DEPRIVATION 2019



PLAN 25: GENERAL HEALTH, BAD OR VERY BAD (CENSUS 2011)



2.224 Plan 25 shows that households with the poorest levels of health are mostly located in the coastal towns outside the National Park, with more limited areas in parts of Winchester, Alton, Whitehill & Bordon[87], Haslemere, Hailsham and Eastbourne.

2.225 There is a strong coincidence between areas with the poorest levels of health and lack of greenspace. In these areas it is important to consider improving the provision of greenspace and its accessibility. Where these areas are located close to planned major housing developments there is an opportunity to deliver new greenspace and access opportunities through the development – as is the case in the coastal towns, Winchester, Alton, Hailsham, parts of Crawley and Eastbourne. In Brighton this relationship is not so clear cut where the poorest levels of health are in some cases closest to the urban fringe and the National Park and this pattern needs further research to identify the issues.

2.226 In areas where poor health coincides with adequate levels of ANG it may be necessary to intervene to improve the use of this ANG through targeting of groups in the population, to support access and better use of existing areas of natural greenspace (see Table 4).

TABLE 4: 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. Connect People To Greenspace ■ Ensure green infrastructure is designed and managed to appeal to communities suffering health inequalities; ■ Promote measures to encourage use of green infrastructure by targeting communities (e.g. health walk provision, links to Health facilities, reducing social and cultural barriers). ■ Influence planning and green infrastructure development.
Scenario 2: Where there are areas of poor health and a lack of nearby natural greenspace.	Infrastructure Provision ■ Provide and accessible natural greenspace close to people's homes ■ Improve access to greenspace; ■ Ensure green infrastructure is identified as an integral part of 'health service' provision, along-side surgeries, hospitals etc.

87 The data from Whitehill & Bordon is not considered relevant as it is in the process of re-development into a major new town.

2.227 An analysis of the Public Rights of Way (PRoW) network shows that the coverage – or density – of rights of way varies across the Network area. This network of access routes is important in enabling people to walk, cycle or horse-ride to explore their local area; to access green spaces and the wider countryside. Some areas of low PRoW density coincide with poor levels of greenspace (ANG), as can be seen on Plan 27. Areas with the poorest provision include some of the areas previously identified as having poor health, including areas in the coastal towns and parts of Winchester, Crawley and Eastbourne. Improvements to access and open space should be priorities for these areas.

2.228 The Access and Recreation theme discusses the barriers to access in the Network area, including major roads, railway lines and rivers. For people in poor health these barriers are a serious obstacle.

2.229 Accordingly, programmes of access enhancement in areas of poor health must also address these barriers to access as part of a wider network. Examples are the coastal towns where the A roads and railway lines form east- west barriers to movement north towards open spaces and into the National Park.

A YouGov poll in 2016 found that 26% of the 2000 people who took part stated that 'Health issues prevent me' as a key reason for not visiting the National Park.

CURRENT ACTIVITIES

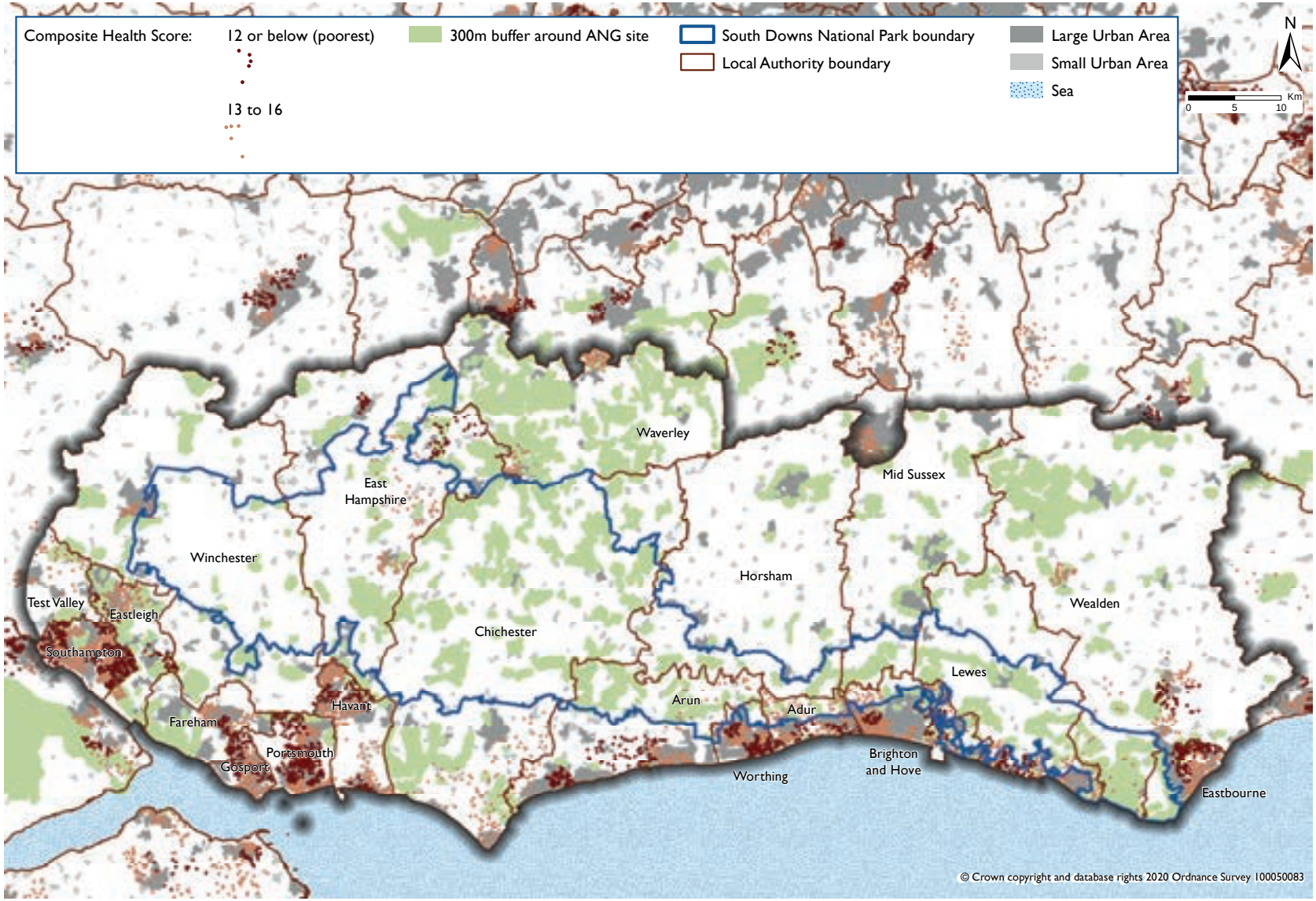
2.230 It would be beyond this Network report to estimate the amount and variety of activities currently taking place in support of public health across the study area. However, the SDNPA and other organisations are developing programmes that aim to support public health through contact and engagement with the natural environment. For example, The Sussex Community Development Association and Community 21 / AiRS are promoting access to outdoor activities and treatment pathways.[88]

2.231 While the specific issues for each area differ, some common themes emerge which have relevance to future green infrastructure projects:

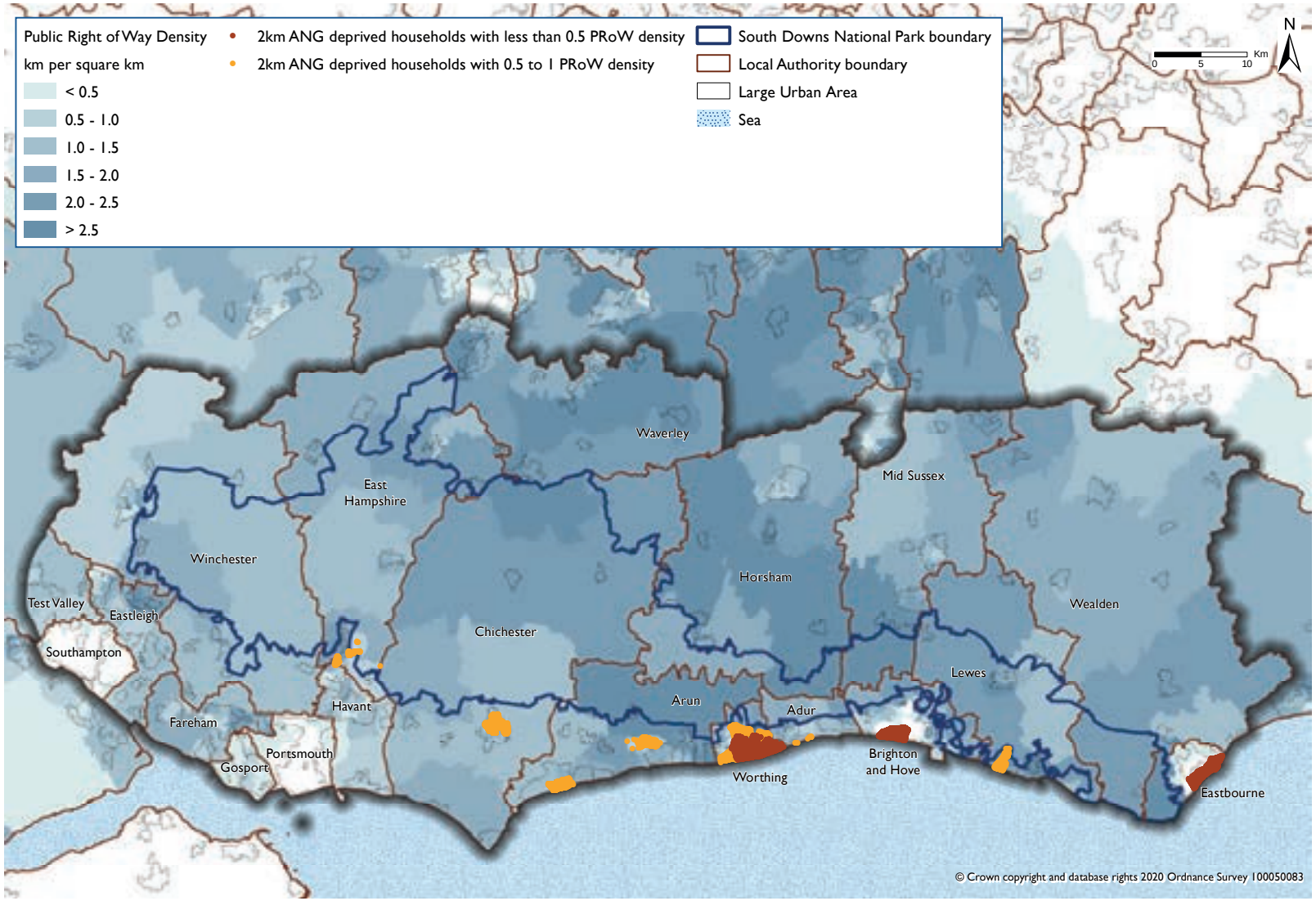
- The strong correlation between poor health, deprivation and lack of greenspace;
- The role of greenspace provision in helping to reduce socio-economic health inequalities;
- The need to improve access and greenspace provision in and around key conurbations including the coastal towns;
- The potential for delivering new greenspace and access opportunities through development;
- The potential for green infrastructure to improve 'liveability' in urban environments;

88 **http://community21.org/partners/eschwav/**

PLAN 26: TWO LOWEST COMPOSITE HEALTH SCORE CATEGORIES AND ACCESSIBLE NATURAL GREENSPACE WITH 300M BUFFER



PLAN 27: HOUSEHOLDS DEPRIVED OF ACCESSIBLE NATURAL GREENSPACE AND PUBLIC RIGHTS OF WAY DENSITY



LINKS TO ECOSYSTEM SERVICES

2.232 In ecosystem services terms, access to green spaces provides 'non- material benefits' that result from our interaction with the natural environment. These non-material benefits include opportunities for informal recreation and physical exercise, as well as places for spiritual enrichment and inspiration.

2.233 The Geographic Information Systems (GIS) EcoServ-GIS model has been used in the evidence base for health and well-being.

2.234 EcoServ-GIS uses spatial data, such as greenspaces, habitats, landscape character, along with socio-economic data to show where ecosystem services occur and to indicate levels of demand (need) for a given ecosystem service and the capacity of the ecosystem to deliver that service.

NOISE REGULATION

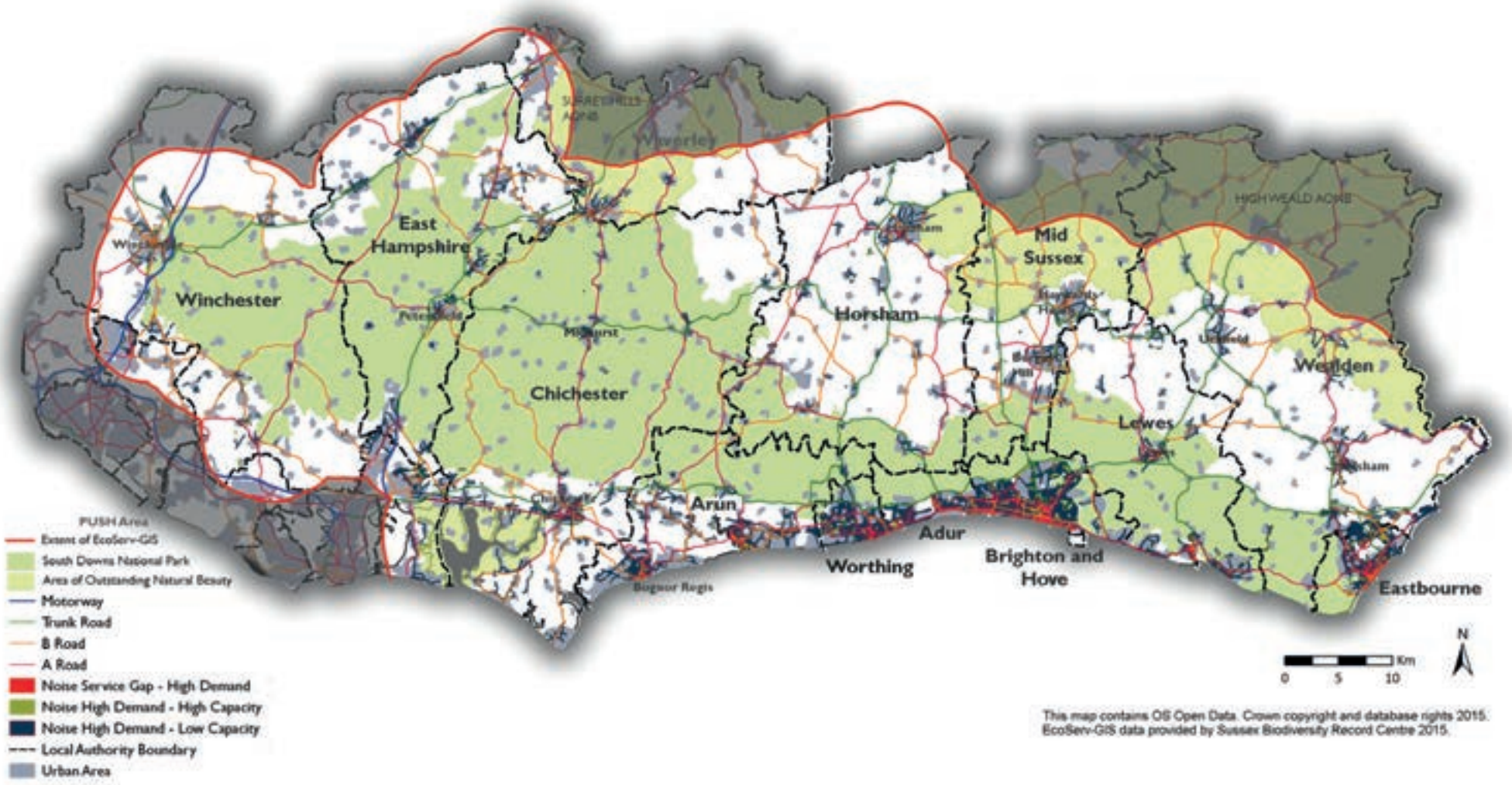
2.235 Noise pollution is a recognised public health issue and one which can be regulated by the presence of vegetation and greenspace. The structure of the buffering vegetation is important. Trees and shrubs are best at scattering noise, with coniferous trees carrying out this function all year round. Grassland, although not as effective as trees, is better than un-natural sealed surfaces and even low hedges and vegetated walls can help to reduce noise. The creation and management of greenspace buffers alongside roads can make a positive impact on noise levels.

2.236 EcoServ-GIS models the capacity of vegetation to absorb and reflect noise, ranking areas of vegetation in terms of composition (coniferous woodland awarded the highest absorption value, then other woodland, scrub, hedges and finally man-made surfaces, which score zero) and taking into account the size of the vegetation block. It also assesses the need for noise regulation (calling this 'demand') based on distance from roads, railways and airports, with each of these having a different expected impact range.[89] It also assesses the societal need based on the population density and the mean health scores of residents.

2.237 The modelling shows that there is potentially a need for noise regulation in all of the larger urban areas and in several places alongside busy roads. Although there are few areas where high demand is being met, there are a few areas where there is high demand and no mapped capacity for vegetation to absorb and reflect noise. There are extensive areas alongside roads and in town centres where vegetation is helping to address noise pollution and where there is some capacity to improve this. Plan 28 shows the output across the Network area. An inset of Brighton and Hove is shown in Plan 29 to highlight the detail which is possible using EcoServ (within the parameters identified above) at a more local level. The map illustrates that urban areas have broadly higher demand for noise reduction services. It highlights areas where the demand is highest and the capacity for vegetation to provide this service is not meeting this demand. Further analysis and ground investigation would be necessary to develop effective outcomes and interventions for this ecosystem service.

89 E.g. Motorways 800m, major roads 600m, airports 1500m.

PLAN 28: ECOSERV-GIS – NOISE POLLUTION



PLAN 29: ECOSERV-GIS – NOISE POLLUTION – BRIGHTON AND HOVE

2.238 Those areas shown are:

- **Noise Service Gap** – High Demand are areas where there is a high need for noise regulation but zero capacity for an ecosystem to provide at present – i.e. there is no functioning ecosystem present;
- **Noise High Demand** – High Capacity are areas where there is a high need for noise regulation and the existing vegetation is performing well in providing this. *These areas should be conserved and protected;*
- **Noise High Demand** – Low Capacity are those areas where there is a high need for noise regulation but vegetation is not performing well in providing this. *Noise regulating vegetation should be increased.*

REGULATING LOCAL CLIMATE

2.239 Land use has an impact on local climate because different surface types create absorb or reflect differing amounts of radiation. Urban areas can experience higher temperature climates compared to rural areas, particularly due to the larger amount of impervious surfaces. Global climate change is likely to increase these effects. Vegetation and greenspace in urban areas has been shown to have positive effects in cooling urban areas, as well as local benefits such as providing shade.

2.240 EcoServ-GIS models the proportion of the landscape that is covered by greenspace, with larger greenspaces assumed to provide greater cooling benefits. It also assesses the societal need, selecting larger urban areas and using data on population density and proportion of younger and older residents (Plan 30).

2.241 The modelling showed that there were no areas where demand (need) for climate regulation was high and where the ecosystem was also performing well in providing this. There were, however, extensive areas were ecosystems were providing some benefits (shown as low capacity) and where improvements could be made.

2.242 This included large areas of the coastal towns and some area of the larger towns in the Network area, e.g. Horsham, Chichester and Winchester.

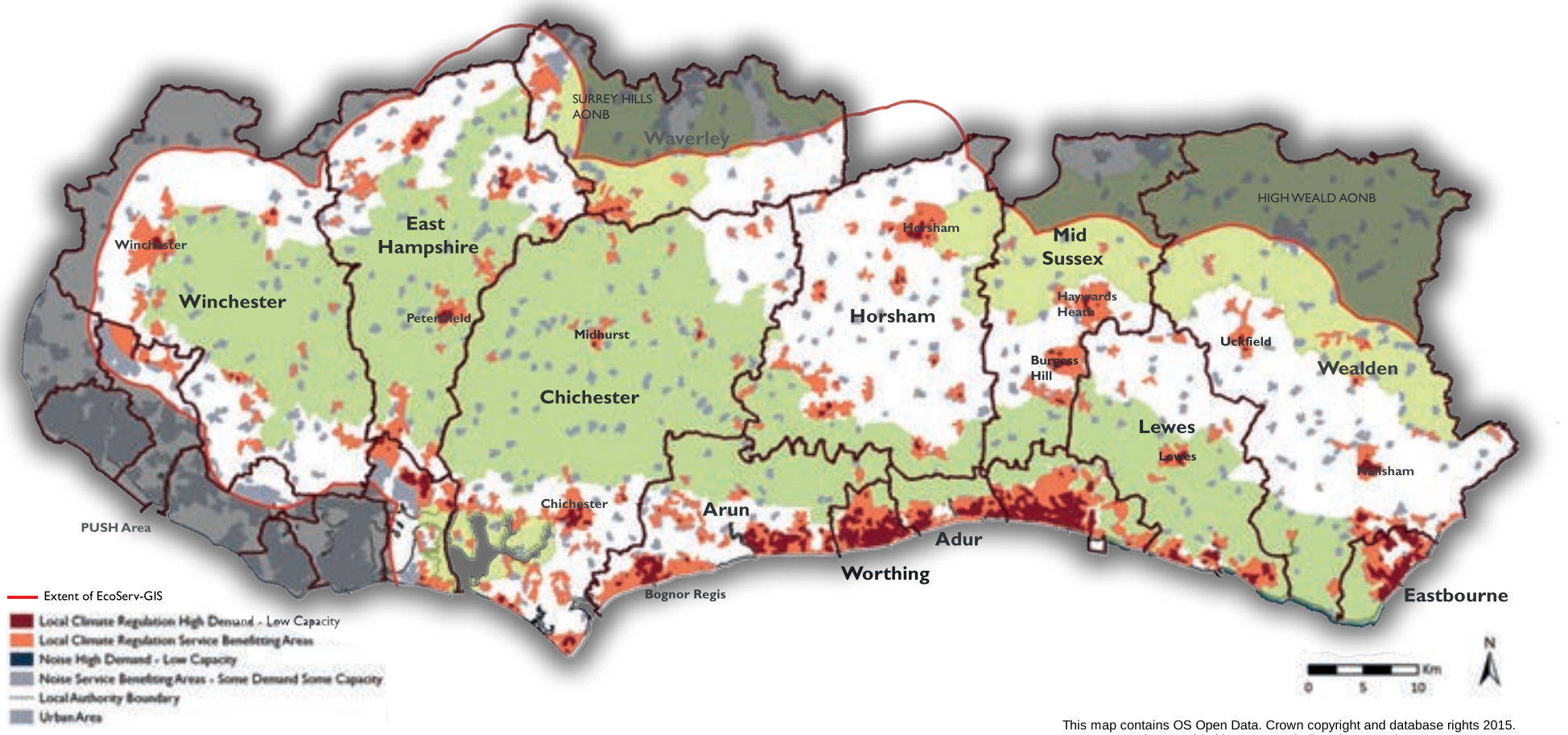
2.243 Those areas shown are:

- **Local Climate Regulation Service Benefitting Areas** – These are areas where there is some need for climate regulation along with some capacity in existing ecosystems to deliver this;
- **Local Climate Regulation High Demand** – Low Capacity are those areas where there is a high need for climate regulation but vegetation could perform better in providing this. Although the service is not being performed particularly well at present, there is scope for improvement. Climate regulating vegetation should be increased.

AIR PURIFICATION SERVICE MODEL

2.244 Plants and trees are central to the cycle of oxygen and carbon dioxide in the atmosphere, they have an important role to play in regulating levels of air pollution. Air purification occurs where habitats help to intercept and absorb airborne pollutants. In urban areas people benefit from green infrastructure and vegetation cover that helps to remove pollutants from vehicle emissions from the air. The capacity of the natural environment to provide this service is mapped by assigning scores to broad habitat types based on their ability to trap pollutants. The demand for air purification is mapped by calculating population density and an estimation of traffic levels by road type. This model works best at a more local scale so has not been included in this document.

PLAN 30: ECOSERV-GIS – LOCAL CLIMATE REGULATION



SOURCES

- Royal Commission Report: Department of Health (DH) (1999). Saving Lives: Our Healthier Nation. DH White Paper. HSC 1999/152. See paragraph 4.3. Royal Commission on Environmental Pollution Twenty-sixth Report, The Urban Environment March 2007.
- Review – The benefits of physical activity for health and well-being – 2nd edition – C3 Collaborating for Health October 2012.
- Foresight. 2007. Tackling Obesities: Future Choices DIUS. London.
- UKNEA (2011) Technical Report Ch 16.
- Aresu, M., L. Becares, et al. 2009. Volume 1: Physical Activity and Fitness. Health Survey for England 2008. R. Craig, J. Mindell and V. Hirani. London.
- Department of Health. 2011. Start Active, Stay Active: A report on physical activity from the four home countries' Chief Medical Officers. London, Physical Activity Team.
- *Masterclass Briefing; Evidence Review; Spatial Determinants of Health in Urban Settings.* Building Health; Planning and designing for health and happiness; One-day conference, 22 January 2010, Frenchay Campus, University of the West of England, Bristol.
- J. Pretty et al., *A Countryside for Health and Wellbeing: the Physical and Mental Health benefits of Green Exercise* (Countryside Recreation Network, Sheffield, 2005): **docs.hss.ed.ac.uk/education/outdoored/health_wellbeing.pdf**
- Mourato, S., G. Atkinson, et al. 2010. Economic Analysis of Cultural Services. The UK National Ecosystem Assessment: Technical Report. Cambridge, UNEP- WCMC).
- Lavin T, Higgins C, Metcalfe O, Jordan A (2006). Health Effects of the Built Environment: A Review. Dublin, Belfast, The Institute of Public Health in Ireland. Bolund, P. and S. Hunhammar. 1999, Ecosystem services in urban area, Ecological Economics WHO Regional Office for Europe 2011.
- Natural England research report NERR057.
- *Environmental Benefits of Greenspace* – Noise Abatement (Forest Research) **forestry.gov.uk/fr/infd-8aefl5**
- *The Marmot Review Report 'Fair Society, Healthy Lives'* (2010)[90]

90 **instituteofhealthequity.org/resources-reports/fair-society-healthy-lives-the-marmot-review/fair-society-healthy-lives-full-report-pdf**