Public Health and Landscape

Creating healthy places

Landscape Institute Position Statement

Landscape Institute
Inspiring great places

The state of our health services is rarely out of the news. Understandably, there is a huge concern about acute provision and the treatment of ill health. Much has been written about the increased incidence of obesity, the persistence of health inequalities and the best ways to care for an ageing population. We believe that much greater priority needs to be given to prevention of ill health in public health and social care.

In April 2013, responsibility for public health moved from the NHS in England to local authorities. The Landscape Institute was inspired by this change to look at the promotion of public health across the whole of the UK.

Our challenge was to answer the question: can landscape help create healthy places? We believe that the evidence in this publication and especially the projects that we describe, provide a clear and positive answer.

All those concerned in creating healthy places – public health professionals, planners and landscape architects – need to recognise landscape as an asset that has enormous potential to improve our health and wellbeing.

Sue Illman
President, Landscape Institute

St. Andrew Square, Edinburgh, Gillespies / John Cooper Photography

Our landscapes have an important role to play in improving public health – so let's invest in them

Much of the history of landscape architecture can be traced back to the need to create places that were beneficial for people's health and wellbeing.

Victorian parks were established as places to seek fresh air and respite for urban populations; the innovative tree-lined suburbs of Port Sunlight and Bourneville were planned so as to enhance residents' sense of wellbeing; while Frederick Law Olmsted's ambitious Emerald Necklace Park in Boston, USA, was designed to improve water quality and reduce the number of deaths from cholera. There is an honourable tradition that links landscape architecture and public health. This Position Statement continues that tradition.

How we plan, design and manage our landscapes should be guided as much by their importance for health as for all of their other functions. This Position Statement aims to give public health professionals, planners and landscape architects a better understanding of the contemporary role landscape plays in the creation of healthy places.

A growing evidence base, reflected in national policy, suggests that spending on health care could be reduced if greater investment was made in preventing ill health before it has a chance to occur. Based on an overview of the available evidence, the Landscape Institute sets out five principles that capture the positive links between landscape and health. Some 22 projects then show how these principles can be applied. Finally, our recommendations aim to inspire greater collaboration between public health, planning and landscape professionals, so that landscape is fully integrated with the delivery of public health outcomes.

Over the past 50 years, public spending on the NHS has risen from 3.4 per cent to 8.2 per cent of GDP[1]. If spending continues on the same trajectory for the next 50 years, then by 2062 the UK could be spending up to a fifth of its GDP on the NHS alone[2]. It is generally accepted that now is the time to think about how much we spend on health, where we spend it and how it should be paid for. Increasing concerns about the cost of treating conditions such as obesity, heart disease, diabetes and mental illness, coupled with the ever-present need to demonstrate value for money, make this debate more necessary than ever.

The potential impact that public health interventions can make on reducing these costs is huge. According to a 2012 study by the Canadian Public Health Association, it costs 27 times more to achieve a reduction in cardiovascular mortality through clinical interventions than it does to achieve the same result through local public health spending[3]. Interventions in the landscape can, and indeed should, play an important role in delivering these cost-effective improvements in health and wellbeing.

Landscapes have long been seen as places of delight and relaxation. Today, these associations are becoming more explicit: an increasingly strong evidence base demonstrates the positive effects that access to good-quality landscapes has on our health and wellbeing – and the negative effects when we don't. We also know that areas of social and economic deprivation, which are often linked with poorer health and reduced life expectancy, can also be associated with limited access to good-quality green space[4].

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Olympic Park, London,
LDA Design

Introducing the five principles of healthy places

It is not only people's physical environment that affects their health and wellbeing; there are many relevant personal and social factors too.

In order to plan, design and manage places so that they positively influence the health and wellbeing of communities, we need to identify and work with all these factors. They are called the 'determinants of health', and were first referred to by Dahlgren and Whitehead in 1991 in their landmark paper *What can be done about inequalities in health?*[5]. On pages 4–11, we identify how landscape is important to many of these determinants. We use them to underpin the following five principles that we believe are essential to the creation of healthy places:

1. Healthy places improve air, water and soil quality, incorporating measures that help us adapt to, and where possible mitigate, climate change
2. Healthy places help overcome health inequalities and can promote healthy lifestyles
3. Healthy places make people feel comfortable and at ease, increasing social interaction and reducing anti-social behaviour, isolation and stress
4. Healthy places optimise opportunities for working, learning and development
5. Healthy places are restorative, uplifting and healing for both physical and mental health conditions

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Leicester Square,
London,
BURNS + NICE

We are under no illusion that spending cuts in the UK are constraining public health budgets, as well as putting pressure on the NHS. But, if responded to imaginatively, this pressure has the potential to generate both positive results for the health and wellbeing of communities across all the UK's administrations and, as a result, reduce NHS spending.

In England, the Health and Social Care Act (2012) and the adoption of the National Planning Policy Framework[6], for example, have gone some way to refocusing the public health agenda. There are now potentially greater opportunities for planning departments and public health professionals to work together, and to embed health and wellbeing in local policy. In Scotland, health policy is increasingly focused on community-based care, and is coupled with an ambitious programme of preventative public health interventions[7]. Similar policy concerns exist in Wales and Northern Ireland[8].

Policy support needs to be followed by resources. We propose that, nationally, public health should be granted the same long-term budgetary support that other public services receive. This is a necessary step towards delivering primary prevention and a more sustainable way to manage the health of the nation and reduce the pressure on primary care services. At a local level, landscape should be recognised as an asset in promoting health and wellbeing and should be a central consideration in the preparation of: Joint Strategic Needs Assessments and Joint Health and Wellbeing Strategies (England), and Community Plans (Scotland); and through the function of Health and Wellbeing Boards and Public Health England, and their equivalent bodies in other administrations.

It is therefore prudent to ask those responsible for public health to give greater consideration to the ways in which health and wellbeing can be delivered through the planning, design and management of places. We believe that, through the provision of preventative solutions and by creating therapeutic landscapes for people with existing conditions, investing in landscapes will counteract the growing costs of health care.

The landscape architecture profession has expertise that can help deliver the public health agenda

The landscape architecture profession plans, designs and manages our land resource in order to secure the best possible outcomes for people, the environment and the economy.

Our landscapes are the result of a complex set of natural and manmade factors, which contribute towards both their aesthetic and functional qualities. The profession is rooted in an understanding of how these complex relationships work.

Today, the landscape profession is using its skills to achieve positive outcomes for people's health and wellbeing at all scales and all stages of development. By designing for the community, landscape architects understand how the aesthetic and functional qualities of a place can enhance quality of life:

— By working on strategies and policies with other professionals and agencies, aiming to protect the valuable natural resources that are the foundation of our health and wellbeing: air, water, and, soil. Landscape professionals understand the natural and cultural elements that define an area's special character and can integrate these into practical, resilient and deliverable design proposals.

— By incorporating an assessment of health into masterplans and designs for new developments, whether these are for housing, schools, public realm or commercial projects. Green infrastructure is also being designed to encourage physical activity, while sustainable policies for active travel – walking and cycling – are helping to create well-connected, accessible landscapes.

— By leading strong consultation processes that reconcile the competing demands of stakeholders, resulting in informed planning and design solutions. Landscape professionals engage with local communities and key partners to reveal their aspirations and concerns, and work to establish a shared vision for a place.

— By collaborating with other professionals in fields such as housing, to ensure that external environments are accessible, attractive and welcoming. This helps to foster a sense of community spirit by encouraging people of all ages and backgrounds to interact.

— By designing green spaces for the benefit of people suffering from physical and mental illness in order to support the healing process and provide an improved quality of life.

What do we mean by 'health' and 'landscape'?

Before we explore the links between landscape and health, it's important to establish exactly what we mean when we refer to 'health' and to 'landscape' in this document:

Health describes a state of complete physical, mental and social wellbeing, and not merely the absence of illness and infirmity[9].

Public Health describes the science and art of promoting and protecting the physical and mental health and wellbeing of populations in order to prevent illness, injury and disability[10].

Landscape doesn't just include the wider countryside and green spaces, but urban spaces, such as civic squares and public realm. It is an area, as perceived by people, whose character is the result of the action and interaction of cultural and natural factors. This definition comes from the European Landscape Convention. This is a valuable and inclusive definition, covering outside spaces everywhere and at every scale[11].

Some landscapes act as **green infrastructure**. The Landscape Institute defines green infrastructure as a network of natural and semi-natural features, green spaces, rivers and lakes that intersperse and connect villages, towns and cities[12]. It is a natural, service-providing infrastructure that is often more cost-effective, more resilient and more capable of meeting social, environmental and economic objectives than traditional 'grey' infrastructure.

Some landscapes are referred to as **green space** or **open space**. This term is not only applied to open spaces such as formal parks, but also to other predominantly green areas such as playgrounds and incidental open space.

A growing evidence base supports the role of landscape in delivering positive health outcomes

A good understanding of the evidence base is an essential first step in helping health, planning and landscape professionals ensure that the planning, design and management of all places promote public health.

The emphasis on evidence in public health decision-making has its origins in medical practice. It is important that health professionals have confidence in the treatments that they give to people who already have medical conditions. However, decision-making in public health, where prevention is as important as treatment, is not solely based on quantitative research and epidemiological study undertaken in laboratory conditions: it also includes studies of people in their communities, and is often qualitative in approach.

The existence of positive links between landscape, health and wellbeing has been assumed for centuries. Conventional wisdom has proved "…surprisingly accurate in the prediction of what more recent empirical research has demonstrated"[13]. In her 2011 report, Catherine Ward-Thompson traced evidence of the impact of landscape on people's health from ancient times to the present day, noting how access to nature and attractive green spaces has been a recurring theme in descriptions of therapeutic environments and associated healthy lifestyles. The report concluded: "The importance of access to the landscape appears to be as relevant as ever in the context of modern urban lifestyles".

Another study compared Dutch data on the self-reported health of over 10,000 people from a wide range of backgrounds, with land-use data on the amount of green space in their living environment. This showed that, in a greener environment, people report fewer symptoms and have better perceived general health. People's mental health also appeared to be better. The presence of a garden is shown to be a further benefit to people's health in terms of the number of symptoms they display[14]. Another large-scale study found that if people with relatively low incomes have easy access to green spaces, they have better health, including mortality from all causes. In this way, accessibility to green space helped address issues related to health inequalities in these communities[15].

The links between healthy urban areas and the longevity of older people were explored in a study of the five-year survival rates of 3,144 people in Japan. Two environmental factors increased the probability of surviving five years: having walkable green space near people's homes; and having a positive attitude to their own community. These factors increased people's longevity independent of other factors such as age, sex, marital status and socio-economic status[16].

While the complexity of the relationship between people's behaviours, socio-economic backgrounds, health and green space makes establishing causal relationships difficult[17], most studies support the view that green spaces have beneficial health effects.

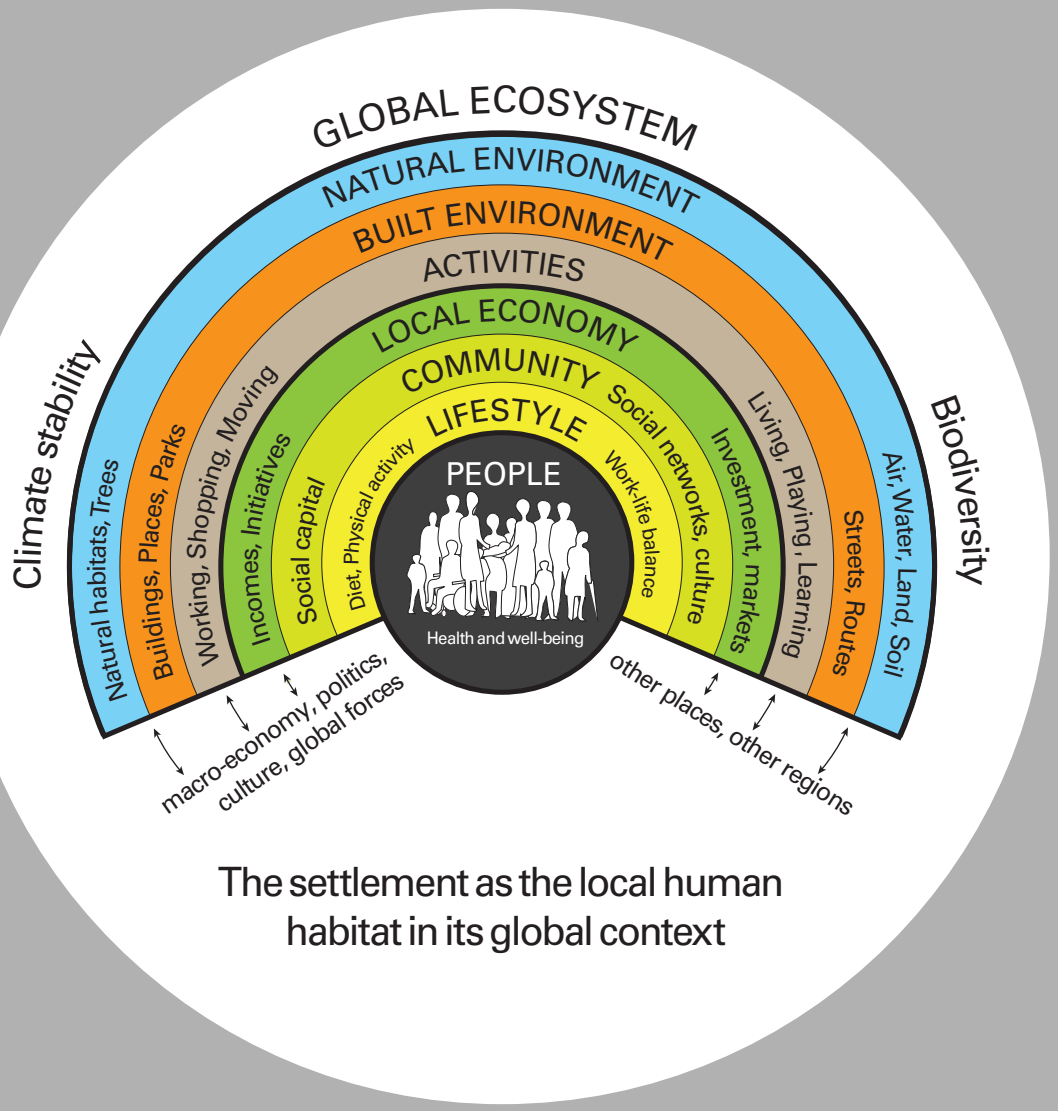
Sustainable communities are healthy communities

We have established that there are positive links between health, wellbeing and landscape. But if we are to plan, design and manage places in ways that influence people's health and wellbeing in positive ways, there are many personal and social factors that must also be understood. These factors, the so-called 'determinants of health'[18], are summarised in the Settlement Health Map[19] on the opposite page.

The Settlement Health Map illustrates how health and wellbeing are influenced not just by genetics, but also by the conditions in which people live. Local economic and community conditions influence the choices people make about where they work, shop and play. The way in which buildings are connected by networks of streets, footpaths and cycleways influences how people choose to move about and this can have an impact on how much physical exercise they get. Take a simple example: if a busy road does not have a pavement, walking will be seen as dangerous and fewer people will choose to walk. Another example is the urban heat island effect, where the tendency for built-up areas to be warmer than the countryside, exacerbated by the absence of trees and green space, can increase health problems for city dwellers in summer. In both cases, there are public health-related issues arising from the way places are planned and designed – something landscape professionals can influence. Simple green infrastructure interventions, for example, offer an effective way of buffering temperature levels in urban areas [20].

Building on the Settlement Health Map and accepting that the key determinants of a person's health are lifestyle, community, local economy, activities and the built and natural environment, it is clear that landscape is important to all of them. Places that encourage activity, as well as places that encourage passive pursuits such as reflection and relaxation, must be safe, attractive and easily accessible. These are components of an essential community infrastructure that is as important in making liveable places as planning for housing, employment and highways.

Civic squares and spaces in the public realm should be consciously planned and designed to promote social interaction. People living in urban areas also need easily accessible places where they can interact with nature, so community gardens, allotments and conservation projects are important. Green infrastructure provides a cost-effective way of meeting many of these objectives, while creating attractive green spaces that can also enhance property values and encourage tourism. All of these things benefit the socio-economic status of local populations and contribute to community cohesion and sustainable development, as well as benefitting wellbeing.



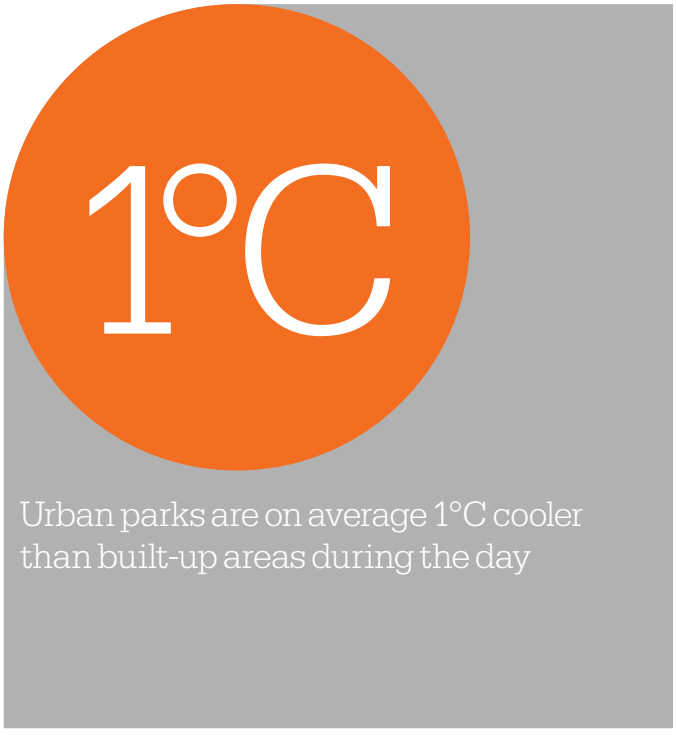
The settlement as the local human habitat in its global context

The Settlement Health Map (Barton and Grant 2006) is developed from a concept by Dahlgren and Whitehead first published in 1991

Five principles of healthy places

We believe that the available evidence is so compelling that it supports a change of practice. How we treat our landscapes should be guided as much by their importance for health and wellbeing as for other considerations.

This belief underpins what we call 'the five principles of healthy places'. These principles are derived from the health determinants in the Settlement Health Map on the previous page. We hope they will help public health, planning and landscape professionals link landscape with health and wellbeing, even in projects where health and wellbeing are not prime objectives. On pages 13–33, a series of projects shows how each principle can be delivered on the ground.



Principle 1

Healthy places improve air, water and soil quality, incorporating measures that help us adapt to, and where possible mitigate, climate change

Air, water and soil are the building blocks of our natural life support system. We need clean air and liveable temperatures. We need clean water, in sufficient quantities and in the right places. We need soils that are uncontaminated and support wildlife, food production and the full range of human activities. As the links between changes in our natural environment and health have become clearer in recent years, the need to address the effects of climate change has become more urgent. This is supported by a recent publication from the Health Protection Agency (now Public Health England) highlighting the importance of considering the impacts of climate change – including air pollution, ultraviolet radiation and increased flooding – on public health[21].

Improving air quality

A considerable body of evidence already links poor air quality with poor health. Defra's evidence plan for its 2013 Atmosphere and Local Environment Programme[22] focuses on filling some of the gaps. These include improving understanding of the links between the quality of our local environment and wellbeing. We already know that vegetation reduces air pollution, although the strength of the effect depends on the type of vegetation and the context[23]. Coniferous trees, for example, offer advantages due to the large surface area of needles and because they remain in leaf all year round, but broadleaved trees are better at absorbing gases. Equally, low-density planting may filter air more effectively than denser vegetation, which can act as a barrier.

Establishing the effects of urban heat islands

Urban heat islands are not a new phenomenon, but their impacts increase with climate change. Many cities are now focusing on this issue. Research conducted in Shanghai in 2010 revealed that the impact of heatwaves is increased by the urban heat island effect. By examining summer mortality rates in 11 urban, suburban and exurban areas in Shanghai, the report concluded that the urban heat island effect is directly responsible for heightened heat-related mortality in these areas[24]. An evidence summary for decision-makers in London has forecast the type of health impacts that the city can expect from urban heat islands under climate change[25]. Another study focused on how health assessment risk strategies in Birmingham could address the urban heat island effect[26].

Cooling the urban heat island effect

Urban heat islands can be tackled in a number of ways. Green infrastructure, for example, makes a number of important contributions to local climate regulation. An EU-funded project called Waterways Forward is demonstrating how rivers can help reduce the urban heat island effect[27]. Watery areas can help to reduce temperature extremes and a single large tree can transpire 450 litres of water in a day. Transpiration uses considerable amounts of heat energy, making urban trees an effective way of reducing urban temperature[28]. Urban parks are on average 1°C cooler than built-up areas during the day[29], but the type of park does matter: parks with hard paved surfaces and few trees or shrubs are not as effective[30].

Managing water

Sustainable Drainage Systems (SuDS) can remove pollutants from water[31]. There is also evidence that creating woodland can help achieve water management and water quality objectives. Woodland helps to tackle diffuse pollution by intercepting pollutants before they reach watercourses. It also helps to trap and retain nutrients and sediment from polluted runoff[32].

There is increasing evidence (and related guidance) about managing flooding and erosion and restoring rivers in ways that deliver a wide range of ecosystem services, including health and wellbeing benefits. Since the floods of 2007, the UK's Environment Agency has produced a number of publications that add to and summarise the evidence about dealing with water in the wrong place and its effect on other ecosystem services[33, 34, 35].

Restoring contaminated land

There is reliable evidence about ways of restoring land previously contaminated by activities such as mining. This includes exploring how to establish green space on brownfield, degraded and contaminated land. The Forestry Commission and others have shown that green space can successfully be established in these difficult situations, providing a wide range of socio-economic, health and environmental benefits[36, 37].

Principle 2

Healthy places help overcome health inequalities and can promote healthy lifestyles

The need to address health inequalities is a major pre-occupation for governments and public health professionals worldwide. The Strategic Review of Health Inequalities in England is clear that creating a physical environment in which people can live healthier lives with a greater sense of wellbeing is a hugely significant factor in reducing health inequalities[38]. While this is a complex area, the provision of green, accessible, safe places is widely accepted as an important part of any programme that tackles health inequalities.

Overcoming obesity

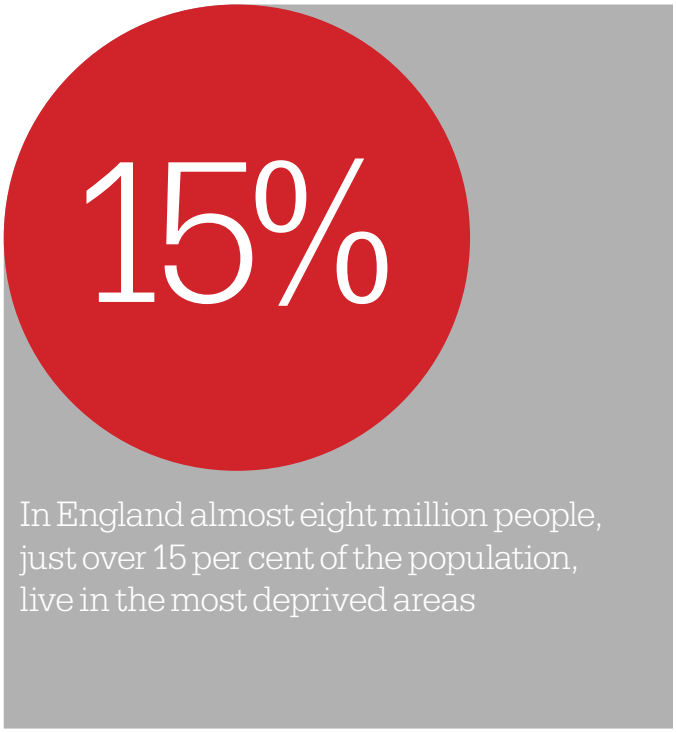
Obesity is singled out because it has significant implications for health and the economy. Obesity and being overweight increase the risk of developing a range of serious diseases, including heart disease, diabetes and cancers, which lead to increased demand on social care services[39]. There is also strong evidence that obesity is linked to socio-economic status in England, Wales and Scotland[40].

The Government Office for Science's 2007 report 'Tackling Obesities: Future Choices'[41] underpins government health policy in England. It is an evidence-based review of the prevalence of obesity, its causes and ways of tackling it. The report discusses the complex links between obesity and the environments in which people live. It accepts that improvements to the physical environment, alongside education and changes to diet, must happen if we are to tackle obesity successfully.

It may seem obvious that increasing people's opportunities to exercise should help to reduce obesity, but given the many other variables at work, there are no clear causal links. However, it is widely accepted that positive changes in diet and activity are likely to result in health benefits, both in relation to, and independent of, body weight[42].

Creating healthy neighbourhoods

The quality of the environment around the home is almost as important to health and wellbeing as the quality of the home itself[43]. In England almost eight million people, just over 15 per cent of the population, live in the most deprived areas. A cycle of decline operates in these neighbourhoods. Some 0.5 million households are affected by vandalism, graffiti and other forms of antisocial behaviour; 2.5 million dwellings are affected by heavy traffic and parking; and 1 million dwellings have poorly maintained or neglected buildings, private gardens and public spaces.



The Scottish Government's review of the literature linking housing and health confirmed the difficulty of defining simple causal links[44]. Poor housing conditions often coexist with other forms of deprivation. For example, unemployment, poor education, ill health, and social isolation coexist, making it difficult to separate, modify and assess the overall impact of housing conditions on health. However, it is accepted that improving the quality of local environments – including opportunities for active travel and access to open spaces – is an important step towards helping people build positive social networks and cope with poverty and other problems.

Promoting mental wellbeing

The quality of our landscapes can promote mental wellbeing[45]. Walkable local environments that promote physical activity in daily life can increase opportunities for social engagement, thus encouraging social wellbeing and increasing people's sense of security.

Natural England's information pack on Health and Natural Environments[46] cited several sources of evidence of a positive relationship between the presence of trees and vegetation, and residents' health, wellbeing and social safety at a neighbourhood level.

Mind's Ecotherapy report, which combined an evidence review with primary qualitative research, found that a greener, more active lifestyle aids positive changes to mental health. The report looked at the way in which people self-report their reactions to outdoor recreation and access to green space. It concluded that people experiencing mental distress frequently use physical activities such as walking, gardening and exercise to help lift their mood, reduce stress, provide purpose and meaning, and reduce their vulnerability to depression [47].

Increasing opportunities for physical activity

There is considerable evidence about the health and wellbeing benefits of increased physical activity, whether it is everyday activity such as walking or cycling to work, or increased active recreation. The benefits are preventative as well as therapeutic for people with existing conditions such as cardiovascular disease, type-2 diabetes and obesity[48]. There is also evidence linking the health benefits of activity with the benefits of being outdoors, in green space. Reviews such as those by Godbey [49] and Natural England[50] summarise the key findings.

An evidence review by the British Medical Association concluded that active travel is the most sustainable form of transport and has a number of recognised health benefits. These include: improved mental health, a reduced risk of premature death, and prevention of chronic diseases such as coronary heart disease, stroke, type-2 diabetes, osteoporosis, depression, dementia, and cancer. Walking and cycling are also effective ways of integrating, and increasing, levels of physical activity into everyday life for the majority of the population, at little personal or societal cost [51]. The importance of active travel is endorsed by all the UK's administrations [52].

Improving awareness of the benefits of food growing and healthy eating

There has been increasing participation in local food production in recent years. There is much discussion of the benefits, which are often assumed to be obvious. Although causal links between improvements in public health and growing food can be hard to establish, the benefits to wellbeing and community cohesion are accepted [53].

An evidence review for Community Food and Health (Scotland) found that involvement in growing food is linked to improved mental health and wellbeing in a number of ways. These include the development of new skills, increased physical activity and relaxation[54]. An ongoing research study into allotments in Newcastle upon Tyne has produced similar results [55].

The Food Growing in Schools Taskforce combined a literature review with an analysis of direct evidence from a survey of 1,300 schools, from pre-school to secondary. One of its six conclusions was that growing food promotes health and wellbeing, particularly in relation to diet and nutrition [56].

Principle 3

Healthy places make people feel comfortable and at ease, increasing social interaction and reducing antisocial behaviour, isolation and stress

The existence of a positive link between the provision of green space and people's ability to relax and interact is widely accepted. A recent systematic review by the International Federation of Parks and Recreation Administration concluded that there is moderate to strong evidence that using public parks can improve health[57]. But in many places, parks are infrequent and access can be difficult. There is increasing interest in making streets, shopping centres and indeed the whole urban realm more comfortable and easy to use for people of all ages and abilities, and in reducing the risks associated with antisocial behaviour and fear of crime [58].

Cutting crime

Providing social spaces within local neighbourhoods, which are safe for people to use and encourage different age groups to interact, can enhance wellbeing[59,60]. A study based in a deprived part of Chicago, found that both property crime and violent crime are reduced significantly by the presence of vegetation[61]. The authors thought that the vegetation increases positive social interaction, thereby increasing natural surveillance and promoting a calming effect. It is important to note that the vegetation in this case was high-canopy trees and grass, which did not restrict visibility.

Reducing noise pollution

The presence of vegetation, and soft rather than hard surfaces, can reduce perceived noise in urban areas[62]. Soft lawns and dense, tall vegetation reduce the extent to which sound carries, although sources differ in their quantification of this effect. Lawns reduce noise by reducing the reflection of sound waves, an effect that accounts for the quietness experienced after a snowfall, while tall vegetation helps to reduce noise by absorbing lateral, short-wavelength sound [63]. People exhibit strong preferences with regard to sound exposure, with mechanical sounds favoured least, followed by human sounds, and with the greatest preference for natural sounds such as bird song. Bird habitat, and thus the likelihood of bird song, is increased if green space has a significant shrub layer [64].

The use of earth mounds, such as bunds, to reduce noise is a well-established practice. Bunds are space demanding, and there are studies into ways of producing more effective designs, using novel shapes and systems [65].

Green walls can be incorporated as part of existing or new structures. They usually take up less space than blocks of vegetation or mounds, and can provide additional benefits such as noise and temperature reduction [66].

A better quality of life for older people

Evidence from the UK shows that older people who live in environments where it is easy and enjoyable to go outdoors, are more likely to be physically active and satisfied with life, and twice as likely to achieve recommended levels of healthy walking. Less user-friendly environments are often perceived by older people as posing an increased risk of falling, especially by those with vision, mobility or other impairments. Such environments can "heighten fears about crime, nuisance and traffic and make going outdoors less enticing; reinforcing feelings of loneliness or entrenching the challenges of socio-economic deprivation" [67].

Relieving stress

A number of studies have concluded that access to nature promotes recovery from stress and attention fatigue, and has positive effects on mood, concentration, self-discipline and physiological stress[68]. However, in terms of a beneficial effect on chronic stress, it is the impact over the long-term which matters most. A Swedish study found that the more often people visited green space, the less they reported stress-related illnesses, and that the distance to green spaces was crucial to the amount they were used [69].

Principle 4

Healthy places optimise opportunities for working, learning and development

Whether at school, college or work, people spend a large proportion of their waking lives in their places of education and employment. An increasing body of evidence shows that people at work are less sick, and stay in their jobs longer, if they take physical exercise. There is also evidence to support programmes that increase the opportunities for children to play outside and promote use of outdoor opportunities for learning.

Space to play

Play makes a vital contribution to child development[70]. Two reports published in 2007[71] emphasised that play spaces should be designed to allow children of different ages to play together. They should be 'non-prescriptive', so that children have a degree of choice about what they can do, and should allow for creative play so that children can manipulate their environments. The risk of bullying needs to be taken into account in designing for play: the NSPCC has produced a summary of relevant evidence [72].

A guide on designing for play produced for the Department for Culture, Media and Sport draws on evidence that contact with nature supports positive mental health and that child development and play are closely interlinked[73]. But play does not just happen in green space and local parks – it can also be encouraged in civic squares, streets and in the wider landscape.

Enhancing learning and development

Contact with nature can enhance personal development in both children and adults[74]. The charity Learning through Landscapes has generated a range of research about the ways in which children's education can be enhanced by direct contact with the landscape[75]. One example is the evaluation of 'Supergrounds', a six-year programme to improve school playgrounds[76]. This concluded that Supergrounds resulted in most children spending more time outside both learning and playing – 99 per cent of the participating schools said that the programme had a lasting impact on teaching practice and attitudes to learning.

Some projects that focus on learning in the landscape take children away from their schools and into less familiar environments. The Forest Schools programme is based on a Scandinavian model that promotes contact between children and nature. An evaluation of Forest Schools found that children developed greater confidence, social skills, communication skills, motivation and concentration, physical skills and knowledge and understanding [77].

A study of playgrounds found that 99 per cent of the participating schools said that the Supergrounds programme had a lasting impact on teaching practice and attitudes to learning

Connecting landscape, health and the workplace

A 2007 American study of employees working along a major business corridor reported clear preferences for naturalistic landscape settings, and for landscapes that encourage walking[78]. Recent evidence-based NICE guidance promotes physical activity both in the workplace and in journeys to work[79]. Although gaps in the evidence were cited, benefits such as reduced sick leave and increased employee loyalty were accepted. Similarly Scotland's 2003 Strategy for Physical Activity reported that physically inactive staff take 25 per cent more sick leave than active workers[80]. A more recent report for Business in the Community examined 20 case studies of businesses that increased opportunities for employees to take physical exercise. The results are reported individually, with no overall summary, but all saw reductions both in absence due to sickness and staff turnover [81].

Principle 5

Healthy places are restorative, uplifting and healing for both physical and mental health conditions

Providing access to plants, gardens and nature enhances healing when people are ill or recovering from medical interventions. But it isn't necessary to be ill to benefit from the restorative effects of being in a lovely place. Neither do such places have to be remote: gardens, the local park, riverbank, canal or woodland can be important to people's sense of tranquillity.

Valuing therapeutic landscapes

In 1984, a paper by Roger Ulrich reported that having a view from a window might influence the way people recover from surgery[82]. Since then Ulrich and many others have continued exploring the impact that access to landscape and nature has on the healing process[83]. It is now widely accepted that well-designed physical settings play an important role in making hospitals safer and speed up recovery times for patients[84].

A project for Mind studied the way 108 people with a range of mental conditions reacted to undertaking exercise in natural settings[85]. The authors commented that, although the positive links between exposure to nature and health and wellbeing were well known, there was a lack of direct evidence about the links with mental illness. Almost 90 per cent of the people who took part said that doing physical exercise outdoors in a natural environment was either important or very important in determining how they felt. More recently, another report demonstrated that interaction with nature can deliver cognitive and affective benefits for people suffering from depression[86].

These benefits are not restricted to people with diagnosed health conditions. There are strong arguments for emphasising the therapeutic benefits of landscape in all design and management projects. As mentioned under Principle 3, green spaces can assist in reducing chronic stress. A recent Natural England qualitative research project confirmed this. Experiencing Landscapes explored the cultural services delivered by landscape included in the Millennium Assessment (MA)[87]. As a result, the researchers extended the MA list of landscape-related cultural services. All of them can be regarded in some way as relevant to health or wellbeing, some explicitly so.

Almost 90 per cent of the people taking part in a study by Mind said that doing physical exercise outdoors in a natural environment was either important or very important in determining how they felt

The links between landscape and public health are reflected in national policy

There is increasing recognition in public policy of the potential for our landscapes to contribute towards better public health.

Given that both landscape and public health are the result of a complex interaction of human and natural factors, a wide range of policy areas affect them both. Detailed information about how these policy areas vary across England, Scotland, Northern Ireland and Wales can be found on the Landscape Institute website. For the purpose of this Position Statement, there are two areas of public policy that are especially important in setting the context for places that enhance health and wellbeing.

Planning policy

The planning system has a fundamental impact on the way our landscapes look and function. It establishes the framework around which decisions are made about the future of our cities, towns and countryside. The vast majority of these decisions have both direct and indirect consequences on the health and wellbeing of the population.

In broad terms, the objective of the planning systems in each UK administration is to achieve sustainable development, through an approach that integrates social, environment and economic goals. Planning policies across the UK also refer specifically to the ways in which positive outcomes for public health can be achieved through the planning system. Recent amendments show increasingly comprehensive coverage of the ways in which health outcomes can be integrated within different themes of planning policy such as housing, transport, the natural environment and climate change.

Local planning authorities in England are now required to take account of and support local strategies to improve health, social and cultural wellbeing for all, and must deliver sufficient community and cultural facilities to meet local needs[88]. In Scotland, the planning system also supports healthier living by improving the quality of the built environment, increasing access to amenities, services and active travel opportunities, and by addressing environmental problems affecting communities[89]. Scottish Planning Policy recognises that providing play space and other opportunities for children and young people can support personal development[90].

Planning policy in Wales highlights the importance of including measures for the improvement of people's health and wellbeing in responses to climate change[91]. Similar requirements are found in England's National Planning Policy Framework, which stresses the importance of giving due consideration to future environmental changes. This is significant, given the relationship between public health and issues such as air quality, flood risk and the urban heat island effect. Green infrastructure is identified as one of the key ways in which to address these challenges.

The Localism Act introduced neighbourhood planning as a new level of planmaking in the English system[92]. This enables communities to create Neighbourhood Development Plans that set priorities for their local area and the way in which land is used. These must be generally in line with local and national planning policies. This mix of community knowledge and aspiration, coupled with local and national objectives, has the potential to assist in delivering public health benefits at ground level.

Health policy

There is an increasing awareness of the impact of the built and natural environment on people's ability to lead physically active lives and maintain good mental wellbeing.

Public health priorities differ across England, Scotland, Wales and Northern Ireland, but there are areas of common concern that interventions in the landscape can help address. These include:

- Encouraging greater physical activity and utilising green space and the outdoors for recreation and exercise
- Addressing obesity and poor nutrition by encouraging healthier diets
- Reducing mental illness and improving mental wellbeing
- Reducing preventable illnesses and minimising accidental deaths
- Addressing the health-related quality of life for older people
- Increasing opportunities for learning, volunteering, employment and social support and connectedness
- Improving air quality and reducing the impacts of noise
- Limiting crime and anti-social behaviour

As with planning, health policy is increasingly determined at a local level, giving communities the opportunity to engage in decisions about the public services that affect them. For example, in England, the 2012 Health and Social Care Act transferred responsibility for public health to local authorities[93]. The introduction of Health and Wellbeing Boards under this Act creates opportunities for local leaders from the health and care system to work together to improve the health and wellbeing of their local population and reduce health inequalities[94]. This creates opportunities for starting to align objectives and programmes in both public health and planning.

At the strategic level, there are also signs of increasing awareness of the ways in which other areas of public policy can have an impact on public health. In Northern Ireland, the new strategic framework for public health, Fit and Well: Changing Lives – 2012–2020, acknowledges that health is affected by the cumulative effects of the conditions in which people are born, grow up, live, work and age. A key feature of the new framework is the theme 'Build Healthy Public Policy', which recognises that public policy on a wide range of issues – from the economy to transport and housing – has an impact on health and wellbeing[95].

Dalston Eastern Curve Garden, London, Sarah Blee

In the previous section we showed how an overview of the existing evidence base demonstrates how landscape interventions can contribute to improved health and wellbeing. The outcome was our five principles of healthy places. Over the following pages, we explore 22 projects that show how these principles can be applied on the ground.

Project profiles

Principle 1

Healthy places improve air, water and soil quality, incorporating measures that help us adapt to, and where possible mitigate, climate change

Improving air quality through urban greening

Clean Air Fund
London

Excessive levels of airborne particulate matter (PM10) are widely accepted as having a negative impact on human health and have been linked to cardiovascular disorders and respiratory tract infections. Across London in 2011, there were hotspots which were at risk of exceeding the PM10 limits set out by the EU Air Quality Directive, so in addition to the potential harm to human health, the UK government faced substantial fines for non-compliance.

Transport for London's (TfL) Clean Air Fund was a £5m package of innovative measures designed to tackle these pollution hotspots. A total of £1m was assigned to the green infrastructure work stream, following evidence published in the Mayor of London's Air Quality Strategy in 2010 that suggested that urban greening could achieve local reductions in particulates. In 2011–12, more than 600 large trees and a range of smaller trees and shrubs were planted at hotspots along the TfL road network. A 200m^2 green wall designed to provide living cover in all seasons was installed on the south-east facing walls at Edgware Road underground station in 2011 and a second 120m^2 green wall was installed at the Mermaid Theatre building the following year.

Research undertaken by the Centre for Environmental Policy at Imperial College London showed that the shrubs and plants in the green wall at Edgware Road had the ability to trap PM10, but that ability varied greatly across different plant species and their leaf characteristics. Results suggested that green infrastructure is best used as a supplementary measure to support emissions reduction, but should be viewed in the context of wider environmental benefits such as reducing the urban heat island effect, biodiversity gains and aesthetic values.

01
Edgware Road green wall, London, Transport for London

02
Avenue Coking Works, TEP Landscape Architects

02

Turning a contaminated site into a community and wildlife asset

Avenue Coking Works
Chesterfield, East Midlands

The Avenue is an ambitious project led by the Homes and Communities Agency to transform 98 hectares of heavily polluted industrial land into an asset for communities and wildlife. Today, it is already home to a nature reserve with kingfishers, newts, snakes, toads and rare wildflowers, and a learning centre for schools and keeping the local community up to date on progress.

Located at Wingerworth near Chesterfield, the Avenue is thought to be one of the most contaminated sites in Western Europe. Originally a coal mine, known as The Avenue Colliery, and later a lime and iron works, by 1952 it had become the Avenue Coking Works. All of this industrial use has left a contaminated site in need of cleaning – a process which began in 1999. Landscape architects TEP were commissioned to advise on the landscape, ecology and soil creation, which has informed the demolition of above ground structures, the remediation of the surface and underground contamination such as tar lagoons and waste tips, and the creation of new habitats.

Between 2005 and 2007, the southern part of the site – previously railway sidings and agricultural land – was converted to wetlands and meadows. The area, along with a management dowry, was given to The Land Trust, which works with Derbyshire Wildlife Trust to manage the site. Planning permission for the main site's full remediation was submitted in 2007. Eventually, the remediated landscape will form a multifunctional network of open spaces and new habitats, incorporating water bodies, washlands, 'soft' leisure facilities, sports and cultural events areas, footpaths, cycle routes and bridleways, all of which will encourage a strong sense of place.

The ecological restructuring of the landscape is based around a new landform, covered in part with new woodland planting and incorporating remediation and re-profiling of the River Rother. This is supported by the Environment Agency, which will use the opportunity to create an extensive wetland to the north of the site, including flood alleviation measures. TEP has introduced a soil strategy to ensure the creation and placement of good soils, which is underpinned by a contractual framework that ensures that professional soil scientists are employed during remediation.

The Avenue Coking Works is one of the largest brownfield remediation projects funded by the Homes and Communities Agency. The remainder of the former Coking Works will be restored over the next few years with a full handover to North East Derbyshire District Council expected in 2016.

Approaching flood alleviation sensitively

Morpeth Flood Alleviation Scheme
Northumberland

A new £21m scheme is underway in Morpeth to make the town more resilient to flooding, after heavy rainfall in September 2008 flooded nearly 1,000 homes and businesses as the River Wansbeck burst its banks and sewers struggled to cope. The scheme is being delivered by the Environment Agency in partnership with Northumberland County Council and is expected to be completed by the end of 2014.

A large-scale scheme such as this has to be delivered sensitively. Ryder Landscape Consultants was brought in to make sure that the civil engineering designs for the flood defence were successfully assimilated into the sensitive urban grain and character of this old market town.

The consultants also undertook a large programme of public engagement to allay the fears of the local population and communicate effectively the intentions of the Environment Agency. Having planned the consultation, the landscape consultants met with flood victims to understand the concerns and aspirations for the scheme. Through numerous conversations with residents, they were able to gain public approval for the routing of major engineering works through private gardens and a cherished riverside park – a point on which previous schemes had failed.

The scheme, which received final planning approval in February 2013, will create an area upstream of the town that will store water during heavy rainfall to reduce the amount of water coming down the river. New flood defences will be built in the town, and some existing defences will be improved. By working jointly with the local planning officers, Ryder Landscape Consultants used the flood scheme as a catalyst to bring forward development within Morpeth town centre itself and, in doing so, offset the costs of some the flood defence works by having developers build them within their schemes.

01
Morpeth Flood Alleviation, Ryder Landscape Consultants

Using trees to reduce the causes of respiratory diseases such as asthma

Natural Health Improvement Zones
Birmingham, West Midlands

In 2014, Birmingham will launch a programme to tackle extreme air pollution levels by introducing extensive greenery. The city's Natural Health Improvement Zones are endorsed in the Birmingham Health Protection Strategy 2011, the Air Quality Action Plan 2011, and the Green Living Spaces Plan 2013 – and will be implemented through a cross-disciplinary group part-funded by the Community Infrastructure Levy. Results will be closely monitored to determine the effect of vegetation in reducing airborne particles such as PM10s and PM2.5s, and nitrous oxides, and the subsequent benefits for public health.

The House of Commons Environmental Audit Committee 2010 identified that the largest cost associated with poor air quality is the adverse affect on human health. The societal cost of deaths as a result of poor air quality in Birmingham is in the region of £182m per year. In a report by Asthma UK in 2007, Birmingham was highlighted as having the highest hospital admissions for asthma anywhere in the UK, while the Joint Strategic Needs Assessment (Birmingham Health & Wellbeing Partnership 2010) cited air quality and respiratory disease as one of the city's key research topics.

As far back as 2003, Birmingham took a lead in this area of national research. In a joint study led by Lancaster University, it concluded that trees absorbed three times more airborne pollutants than grassland. It also demonstrated a direct correlation between a lack of urban tree density and excessive deaths from respiratory disease. A more recent study in east London in 2009, measured the effect of trees specifically within the East London Green Grid (now All London Green Grid). It showed that trees reduced hospital admissions each year.

Under the proposals, Natural Health Improvement Zones will see the introduction of street trees, green walls, green roofs and hedges into harsh urban environments. This will be combined with amendments to traffic flows and enhanced pedestrian access that will make it easier to walk or cycle in these neighbourhoods. The new greenery is intended to help absorb particulates, improve levels of shade and reduce the impact of flood risk by slowing and storing surface run-off. The physiological as well as any psychological benefits should be measurable through local GP consortia.

02
Paul Redshaw

Principle 2

Healthy places help overcome health inequalities and can promote healthy lifestyles

Changing lives with a cycleway

The Greenlink
Motherwell, Scotland

In Scotland's former capital of steel production, Motherwell, a 7km cycleway is changing lives. A recent study showed that the benefits of increased exercise, a safer, greener community, and the opportunity for people to learn new skills, is delivering a social return of £7 for every £1 invested. The Greenlink is an important project because it has created enormous improvements in an area where many of the neighbourhoods that it runs through are defined as being among the 15 per cent most deprived in Scotland.

Linking Strathclyde Country Park to Motherwell, the Greenlink and its adjacent 43 hectares of woodland and open space have been brought into management by Central Scotland Forest Trust (CSFT), with North Lanarkshire Council the main landowner. Established in 2005, 10,000 people live in the core area, more than half of whom are severely income deprived (29 per cent of those of working age are on benefits) with low life expectancy and poor mental health (17 per cent are on health benefits). The project has therefore focused on social regeneration of the area through activities that have sought to improve the health, mental wellbeing and skills of the local people.

Led by CSFT, the Greenlink team worked with the community from the beginning to clean up the site. The list of what was removed during this process is staggering: 27 burnt-out cars, 91 tonnes of rubbish, 87 shopping trolleys, and even five World War 2 shells. Once the physical infrastructure of the site was in place, including 7km of cycle path, 3km of footpath and a mountain bike skills area, as well as a five-year contract for the management of the woodland, a wider programme kicked in to encourage community use. There is a regular health walk programme, for example, while 40 allotment plots have been created – no small feat given that significant areas of the site were considered contaminated. Weekly conservation sessions are led by Greenlink staff and volunteers take part in tree planting, bulb and wildflower planting, litter removal and basic woodland management. More than 2,000 hours of volunteering take place every year.

The 'Seed to Greenlink' programme has established links with 14 local schools, from nursery to high schools, providing pupils with the opportunity to grow wildflower plants from seed and plant them on the Greenlink site. This not only encourages children to learn new skills, but also to establish a link with the outdoors and feel a sense of ownership of the area.

01
The Greenlink, Motherwell, Central Scotland Forest Trust

02
Royal Scottish National Hospital, Central Scotland Green Network

Turning a planning requirement into a green-space prescription service

Royal Scottish National Hospital
Falkirk, Scotland

A new hospital in Falkirk with spectacular views across the Forth Bridges, the Lomond Hills and the Ochils, has launched an award-winning green space prescription programme that shows how well-designed hospital grounds can play an important role in recovery. To date, this has included five programmes that offer green space and conservation on referral for adults using mental health services, as well as an outdoor tai chi pilot scheme and chronic disease management classes.

Selected as a pilot scheme for Greening the NHS Estate, the new Forth Valley Royal Hospital is set within mature woodlands, ponds, landscaped courtyards and a visitor garden on the residual estate grounds of the former Royal Scottish National Hospital. The hospital itself occupies the northern half of the estate, while the remaining grounds extend over 30 hectares of previously unmanaged land. The masterplan for the new hospital was required to consider the future management of these woodland habitats and ensure they continued to be valued for recreation by the local community.

This requirement also provided the opportunity to design the estate so as to provide local residents, hospital patients, staff and visitors alike with an accessible outdoor space that could be utilised as a therapeutic resource. At the same time, it could provide opportunities for wider community health programmes based in the woodlands. A partnership was established to capitalise on these opportunities comprising NHS Forth valley, Forestry Commission Scotland, CSFT and Falkirk Council, and activity was coordinated through a steering group that included community representatives, planners, landscape architects, land agents and health specialists.


02

Using green infrastructure as a catalyst for improving health and wellbeing in deprived areas

Liverpool Natural Choices Programme
The Mersey Forest, Liverpool

Liverpool's Natural Choices for Health and Wellbeing Programme has proved hugely popular. Based on the principles of the city's 2011 Green Infrastructure Strategy, which recognised that the sustainable management of the natural environment was a critical infrastructure for the health of the city's population, the programme provided £300,000 of funding for projects that use local green space to improve health and wellbeing.

A joint venture between The Mersey Forest and what was the Liverpool Primary Care Trust (PCT), Natural Choices called for projects promoting one or more of the New Economics Foundation's Five Ways to Wellbeing (Connect, Be Active, Take Notice, Keep Learning, Give). The city's green infrastructure strategy had identified that, while Liverpool had a wealth of green space, its distribution was unequal, with the most affluent areas having 18 per cent more green infrastructure than deprived areas.

Of the 38 projects that were funded, 51.4 per cent were located in areas within the 1 per cent most deprived in the UK and a further 21.6 per cent were in areas within the 5 per cent most deprived in the UK. Having the green infrastructure strategy in place helped to identify the areas of need and provide an evidence base for the PCT to ensure that projects were supported where they were needed most.

Small grants (up to £7,500) were made available by the PCT to community groups and covered all aspects of project delivery. In just 44 weeks, 38 projects were delivered employing 135 people, 867 volunteers and 100 partners to engage 3,274 participants. Some 43 per cent of the projects were primarily focused on gardening and food growing, with 29 per cent on creating or improving the environment. Data collected by University of Essex researchers found that there was an 18 per cent increase in wellbeing among participants and over 80 per cent of projects reported increased physical activity as a key part of their project's achievements.

Ensuring that planning applications are aligned with an area's health priorities

Oddington Road
Stow-on-the-Wold, Gloucestershire

The inclusion of a green infrastructure strategy to address health in conjunction with landscape and biodiversity has broadened the sustainable credentials of a 180-home development on land off Oddington Road in Stow-on-the-Wold. The landscape interventions will contribute to the health and wellbeing of residents, as well as going some way to addressing health inequalities in the wider community by making new open spaces available to the public.

The outline planning application submitted by Bovis Homes included a strong provision for health and wellbeing, alongside landscape and biodiversity. This was developed by landscape architects Tisdall Associates, who developed the landscape strategy for the masterplan, designed in conjunction with IDP Architects, which sought to identify opportunities for green spaces and health that could contribute to primary prevention. Through the application of the evidence base for health and green space, the proposals have the potential to respond to the aspirations of the Cotswold Sustainable Community Strategy 2008-2012, which was mindful of local health conditions identified in the Cotswold Health Profile 2012. These objectives are to encourage active and healthy ageing, to reduce obesity and to provide a context that improves emotional health and wellbeing.

The green infrastructure strategy encourages healthy lifestyles by ensuring ready access to good-quality green space for residents and the wider community. This space includes the creation of a network of walkways and cycleways providing recreational opportunities within the site and encouraging active travel by providing links to and from the wider urban area. In addition, the scheme proposes the introduction of a range of appropriate play equipment for all ages. Circular walks provide views of the natural environment and spaces for quiet reflection, and engagement with nature is encouraged

01
Friends of Everton Park, The Mersey Forest

02
Oddington Road, Tisdall Associates

Changing lifestyles with an outdoor gym

Dudley Healthy Towns Programme
Dudley, West Midlands

By improving the physical structure and connectivity of Dudley's parks, the town is ushering in a range of opportunities for people to adopt a healthier lifestyle. In November 2008, Dudley received £4.5m from the Department of Health's Healthy Community Challenge Fund to deliver a three-year programme aimed at transforming five local parks into 'family health hubs'. The overarching aim was to encourage families to make the most of these health hubs by participating in informal and structured physical activity, and through these activities to reduce levels of childhood obesity in the borough.

Dudley Metropolitan Borough Council's Landscape Design Group (LDG) led on the delivery of the project's capital programme, working closely with the Primary Prevention Services Manager to ensure that public health outcomes were achieved. The selection of outdoor gym equipment was based on its durability, safety and ease of access. The Council's head of parks spearheaded a review of the by-laws to permit greater use of the parks by cyclists, and LDG then developed the infrastructure for safe cycling, with suitable signage and bike storage.

LDG worked closely with traffic engineers in developing wayfinding and park improvements, so as to define active corridors that link the hub site with the rest of the borough. This work is continuing, with the network of active routes being expanded as funding becomes available. Through collaboration with local group Access in Dudley (AiD), wheelchair accessible routes around the parks were integrated, with regular seating and wheelchair resting points. LDG and AiD also worked with the manufacturer of the gym equipment to introduce minor modifications to make the facilities more inclusive.

These capital works have only recently been completed and a thorough evaluation of their impact needs to be viewed as part of a long-term investment. But so far, anecdotal evidence suggests that landscape is a valuable resource for delivering improved health and active lifestyles for the population of Dudley. This message is integral to the landscape evidence base that the LDG has produced for the Council's Development Plan Document, which is designed to raise developers' awareness of the links between people's health and well-designed and accessible landscapes.

03
Dudley Healthy Towns Programme, Dudley Metropolitan Borough Council

Principle 3

Healthy places make people feel comfortable and at ease, increasing social interaction and reducing anti-social behaviour, isolation and stress

Creating a valuable community hub from a temporary space

Eastern Curve Garden
Dalston, London

The success of the Eastern Curve Garden lies in the social benefits it has provided for the local community in Dalston – an area lacking in open space and prioritised for development by the Greater London Authority. It is a valuable example of how to revitalise public space without losing the existing qualities of the local neighbourhood, and has quickly established itself as a flexible and popular place for people of all ages and backgrounds, hosting a variety of events from gardening to cookery classes and live music performances.

Designed around a spacious wooden garden pavilion, the Eastern Curve includes space for wildlife-friendly planting, as well as raised beds in which local residents can grow vegetables and herbs. The site's restoration has even led to a design and construction apprenticeship scheme for young men in partnership with the local youth centre and Hackney Community College. Wider health benefits have been delivered through tree planting that offers shade during warm weather and goes some way towards improving air quality by offsetting the pollution from heavily trafficked roads nearby.

The Eastern Curve is one of ten phase-one projects under the Making Space in Dalston initiative to improve public space in the area, led by landscape architects J&L Gibbons with muf architecture/art and EXYZT. The site is a good example of temporary land use. With the local community's support, the practices negotiated a 'meantime' arrangement with the landowner to allow the garden to be developed for community enjoyment until long-term development solutions are finalised. Having secured funding from the now defunct London Development Agency, in just eight months the two practices led the consultation, planning, detailed design and delivery that turned this abandoned and little-known parcel of railway land into a vibrant community asset.


01

Using community gardening to overcome social inequalities

Royal Edinburgh Community Gardens
Edinburgh, Scotland

One of the key outcomes of the Royal Edinburgh Community Gardens (RECG) project is the way in which landscape has fostered inclusion. Started in January 2010, RECG is a project run by Scottish charity Edinburgh Cyrenians using six hectares of NHS-Lothian-owned land at the Royal Edinburgh Hospital. Four key goals guide the RECG: to promote community building and social inclusion; to promote environmental sustainability through education and volunteering; to tackle health inequalities by encouraging healthy eating and providing a place for physical activity; and to provide a green space to support the recovery of patients, and other vulnerable participants.

The project has focused on creating opportunities for those in the hospital and local community who are often excluded from activities due to mental health, disability or poverty. The RECG has supported patients from the Young People's Unit as well as a range of other hospital services and their participation in the work of the gardens is increasing. There are 19 community and health groups and more than 50 regular volunteers, who collectively give more than 10,000 hours each year to the project.

The physical structure of the site is made up of distinct areas to cater for different people's needs. This includes an urban orchard and a forest garden (both with seating for people to spend time together), a woodland walk that is well used by participants, a local 'nature play' parent and toddler group, and raised beds and a glasshouse for fruit, herb and vegetable growing.

The RECG is a vibrant and active space that supports the involvement of a wide variety of people with different interests. As all of the land is shared communally, the gardens are a much more social place than they would have otherwise been. Established with a view to being able to replicate its success across the NHS estate, Edinburgh Cyrenians launched the Midlothian Community Hospital Gardens in 2012, and intends to establish a new project at St. John's Hospital, Livingston by 2014.

01
Dalston Eastern Curve Garden, Sarah Blee

02
Royal Edinburgh Community Gardens, Edinburgh Cyrenians Trust

Guiding successful landscape change with Health Impact Assessments

Stepping Stones to Nature
Plymouth, Devon

Green space can be used to facilitate improvements in the most deprived areas of cities. Since October 2009, a four-year partnership programme hosted by Plymouth City Council has done exactly that. Building confidence in local, disadvantaged communities and targeting groups known to need greater support to get outdoors, Stepping Stones to Nature (SS2N) has broken down perceptual barriers as well as delivering better quality and more accessible open spaces.

At the outset, a multi-agency Health Impact Assessment (HIA) was undertaken to assess the potential health and wellbeing benefits of the SS2N programme and align it with local public health objectives. The HIA identified opportunities across proposed sites to make users feel more secure and reduce antisocial behaviour. It also highlighted potential conflict that could arise within communities by introducing changes. This validated the SS2N team's methodology, which provided opportunities for individuals to engage in a range of ways, and acted as a bridge between different generations and user groups within each community.

The focus on a community engagement approach has made the project possible. Funded by the Big Lottery as part of Natural England's Access to Nature Programme, between June 2011 and July 2012 SS2N held more than 75 events that were attended by more than 2,800 people. Across Plymouth, volunteers have been trained to lead 'Walking for Health Groups', while new paths and play facilities at 29-hectare Woodland Wood have increased local use and, subsequently, antisocial behaviour has decreased. At Ham Woods, west of Plymouth, SS2N formed a strong Friends of Ham Woods group, which is heavily involved in the ongoing maintenance of the 42-ha site.

SS2N research delivered by the University of Plymouth identified that improved access to natural spaces requires a multi-agency approach and that health and wellbeing emerged as a unifying concept. However, it also acknowledged the need for leadership and community engagement to ensure that any changes are sustainable. To that end, Plymouth City Council has already secured funding to embed the SS2N team and approach within its green infrastructure team.


01


02

01
Priory Green Estate, Farrer Huxley Associates

02
Stepping Stones to Nature, FotoNow

Designing landscapes to make people feel safer, at ease and proud of their neighbourhood

Priory Green Estate
Kings Cross, London

Priory Green Estate provided landscape architects Farrer Huxley Associates with a unique challenge: how to transform the culture of the estate to make it a safe and inviting place that residents could take pride in. The solution was an award-winning civic-scale project based on a masterplan that prioritised connectivity and beautiful green spaces.

Priory Green is the largest of ten estates in the Kings Cross area that were transferred into Peabody ownership from the London Borough of Islington in 2000. Before work started in 2002, residents reported that the estate's reputation had become so bad that the police had stopped responding to calls, leaving the community feeling isolated and forgotten. Priory Green has changed immeasurably since work was completed in 2009. The design improved visibility, legibility and pedestrian links across the estate and with the wider Kings Cross area, making residents feel safer and able to use and enjoy the spaces outside their homes with confidence.

Each space within the estate has its own unique identity, but a common design language in the lighting and metalwork makes them part of a single vision for all 10 estates. For the first six months of each scheme, all graffiti was removed within 12 hours of being found and each time a plant was removed, it was replaced within 12 hours of its disappearance. This strategy proved hugely successful in teaching residents how to care for the estate by example. This was the seed that allowed the residents to eventually take responsibility for their environment and to break the cycle of fear and abuse in the community.

Farrer Huxley Associates undertook full stakeholder consultation, the design of all on-estate space and the surrounding public realm, along with the administration of all works across the 10 estates. A number of specific activities were developed to involve the community from the start. The design team was visibly present on the estate every week during the design stages, providing informal opportunities to talk to the residents about their experiences and aspirations. This allowed the team to guide a process of change with the trust of the community.

"Today my biggest surprise is not the physical changes but how well Priory Green Estate is cared for after so many years of neglect. It is unrecognisable from the rundown estate it once was, and it is safe. I am proud to have been part of Priory Green Estate's history, but my admiration goes to all the residents who lived through the tough times and the regeneration works and came through to the other side."

Tony Molloy,
Head of Estate Services, Peabody

Reconnecting the community with its green spaces

Fordham Park and Walpole Road Underpass
Lewisham, London

Where there is a deficiency of open space, the quality of the space that is available is critical. The £1.8m regeneration of Fordham Park and underpass in New Cross has created a safe, attractive and walkable route that has encouraged the community to spend more time in the few green spaces that they have.

The London Borough of Lewisham asked The Landscape Partnership to prepare a design framework to enhance the strategic importance of Fordham Park, and the key east/west pedestrian and cycle route through the park and Walpole Road Underpass. The practice's response was to turn this once dull patch of green created following the demolition of Victorian terraces in 1970, into a vibrant urban park. Clear, wide circulation routes encourage greater use throughout the day and night. There is a natural approach to play for all ages, and the rejuvenated underpass – previously considered dark, damp and unsafe – is now a local landmark, reconnecting the park to the wider community.

Once a space that people feared at night, and that was used mainly for football and youths playing loud music during the day, the park has become a model of diversity, with parents and toddlers, children and young adults of all ages, community groups, families, cyclists, fitness enthusiasts, couples and individuals finding their place within the landscape.

The transformation has been brought about by providing opportunities for activity and sport for different users, combined with the open and inclusive character of the park. The sense of ownership, perceived safety and emotional wellbeing, together with the ability of the park to absorb and cater for different groups, has brought an atmosphere of sharing, compatibility and a pleasant community feel.

A particularly helpful part of the consultation process was the landscape practice's engagement with the local secondary school's citizenship programme, to improve their understanding of existing problems. This provided the basis for the design brief and subsequent design process whereby the students were involved in 'road testing' ideas with the wider public. Ideas, quotes and poetry were included in the final scheme. This level of consultation throughout the design process has resulted in an improved local amenity for schools and communities that engenders a strong sense of local ownership. It is low maintenance and relatively affordable, given the broader benefits it has delivered.

01, 02
Fordham Park and Walpole Road Underpass, The Landscape Partnership

" The transformation of Fordham Park is a joy to behold! It is good to see so many more people walking, cycling, jogging, strolling, sitting, playing and interacting so well."
Samaritans

Principle 4

Healthy places optimise opportunities for working, learning and development

Turning a degraded landscape into a thriving social business

Blarbuie Woodland Enterprise
Argyll, Scotland

After 10 years, Blarbuie Woodland Enterprise is now generating 35 per cent of its income through sales of firewood, timber, plants and arts, and off-site environmental contracts. Set up in 2003, the Enterprise manages Blarbuie Woodland in agreement with NHS Highland for the benefit of people who use health and social services in Mid Argyll, and its workforce includes patients from Argyll and Bute Hospital.

The restoration and ongoing maintenance of the woodland, which had fallen into a degraded state by the 1990s, provided the opportunity to engage with patients, people with learning difficulties and sensory impairment, and people experiencing the effects of drug and alcohol abuse. Very little of the work has been done by outside contractors. Right from the start, the project enabled people to develop new skills, whether in woodland management, timber construction, signage design or environmental education, and experience the health benefits of working in the natural environment.

The site was opened as a public park in 2007 and is widely used by local groups and families, and by both patients and staff at Argyll and Bute Hospital and the adjacent Mid Argyll Community Hospital. Evaluation and reporting to all funding and supporting bodies, and members of the Enterprise, reveal the breadth of health benefits experienced by the main participants. Caring for the woodland is a key activity for the participants and they contribute not only to maintenance, but also to new facilities and interpretation, creating new environments within a landscape that is both designed and wild.

Helping children learn, while they heal through a multisensory outdoor space

Dolphin House Courtyard
Cornwall

A carefully planned environment that encourages playful interaction between children, their families and the staff is fundamental to the learning and care programme delivered at Truro Child Development Centre at Dolphin House. The courtyard, by Westley Design Ltd, provides a flexible, therapeutic outdoor setting that staff can adapt to suit the needs of children with a range of learning difficulties, and a relaxing setting where parents and staff alike can enjoy some downtime.

To combine the two objectives of learning and healing play within a restricted space, the design process was a collaborative one. Westley Design Ltd facilitated a series of charettes or design workshops with all of the staff and user community at the centre to establish a set of priorities for the space. The designs were then refined through further consultation to produce an outdoor 'room' furnished to give staff the tools to combine kinetic, proprioceptive, creative and selective-sensory-stimulating experiences in their practice.


03


04

03
Blarbuie Woodland Enterprise

04
Dolphin House Courtyard, Westley Design Ltd

Enabling children to develop the skills they will need through natural play

Inwood Park Water Play Area
Hounslow, London

The restored water play area at Inwood Park has meant that local children and their families now spend longer at play, while the physical design modifications to make the site more inclusive have resulted in an increase in the number of disabled children using the site.

In 2009, landscape architects PLAYLINK were commissioned to redesign Inwood Park's paddling pool area, which had become derelict. The aim was to transform the site into an all-year-round water-play facility offering a wide range of opportunities for creative, non-prescriptive play. Located close to the new park cafe, the derelict paddling pool was regarded as a priority for improvement, in what was once Hounslow's flagship park.

By focusing on 'loose parts' – materials that children can collect, move and use in different ways – rather than purpose-made equipment, the play area helps children to develop a good range of problem-solving skills that can inform their decision-making in later life. Working alongside the London Borough of Hounslow to extend the boundaries of the site further into the park, PLAYLINK has also sought to enhance the restorative effects of the water play area by setting it within green space. The strong focus on natural elements such as planting, timber, natural stone boulders, sand and water, provides a complex natural play environment that evidence suggests encourages physical motor development, and leads to improved self confidence and alleviation of anxiety.

Cooperative play is encouraged by the inclusion of equipment that benefits from more than one person operating it, such as water jets and their controls, chutes, tables and pumps for manipulating sand and water. The play area has also been designed so that all children can play alongside each other. Some controls for the jets were included so that wheelchair users can join in with spraying each other, and ramps have been provided into and around the sand-pits and splash pool. Following completion of the scheme, the council invested further in refurbishing the nearby toilet block, so that the site is now complemented with fully accessible toilets.

02

03

01
Inwood Park Water
Play Area, Aileen
Shackell Associates

02, 03
Green Space Service,
Helena Partnerships

Creating new jobs and skills from traditional amenity spaces

Helena Partnerships Green Space Service
St. Helens

An innovative approach to the way in which Helena Partnerships manages green spaces across its 49 estates is putting training and skills development at the heart of a new in-house service, and creating a new educational community resource.

Until 2009, a single external contractor handled all grounds maintenance for St. Helens' largest housing provider. Following a review, an in-house Green Space Service was set up with a 30-year business plan and an operational service consisting of four area-based teams that maintain grass, planting areas and hedges, and one arboriculture team that manages the trees across all areas. Trainee positions are incorporated at various levels, and on-the-job and external training is provided to ensure team members have up-to-date knowledge and skills in horticultural practice.

A two-year apprenticeship programme is being developed to support local young people to develop landscape skills and move into paid employment. Landscape training is achieved through a mix of external and in-house programmes, including an NVQ that combines aspects of amenity horticulture and environmental conservation.

The Green Base, a 'PassiveHaus' eco-building, which is now home to the in-house service, also provides horticulture training for the community. Ten regular volunteers tend the community garden and adult social care services recently teamed up with Helena Partnerships to offer vulnerable people opportunities to work in horticulture and catering. This has already led to two participants finding paid work.

A recent survey showed that 82 per cent of tenants were satisfied with the landscape maintenance service, compared with 70 per cent in 2010, while 82 per cent of tenants felt the quality of their local environment was good (up from 75 per cent in 2010). Helena Partnership's Green Spaces Service is proving that there are cost-effective solutions to some of the problems that can make green spaces on housing estates a liability, rather than an asset.

Principle 5

Healthy places are restorative, uplifting and healing for both physical and mental health conditions

Ensuring that the health-giving benefits of landscape are even felt through hospital walls

South West Acute Hospital
Enniskillen, Northern Ireland

One of the key drivers in the £275m new South West Acute Hospital project in Enniskillen was to maximise the role of landscape as an organising component in the site's design and as an integral part of the healing process. Both of these objectives were set out in the early concept sketches that LUC (Land Use Consultants) produced for the scheme, and they were subsequently protected all the way through the seven-year private finance initiative procurement process, design development and construction.

Spatially, this concept involved bringing the landscape right up to the building on its west side, and the creation of a more urban landscape to the east. The Linear Gardens run for 450m through the centre of the building and immediately adjacent to the main pedestrian circulation route. This means that all corridors, wards, waiting rooms and consulting rooms have direct visual access to this landscape. In fact, all of the 312 single bedrooms have floor to ceiling windows with either immense open views onto the meadow, existing lough, hills and sky beyond, or more intimate views into the Linear Gardens. The effect on patients, staff and visitors is both calming and uplifting, and accentuated by the use of local materials, a simple palette of white and green, and the use of plants with strong seasonal change and movement.

LUC's concept is enhanced by other more specific provisions, many of which contribute to the wider health and wellbeing of the local community, including: 2.5km of walking routes through the site; a dedicated cycle path linking the hospital to Enniskillen town centre; extensive and varied seating to encourage people to take outdoor breaks; specialist outdoor play and assessment facilities to assess and monitor patients' abilities; fair-weather waiting rooms situated in sheltered outdoor space in the Linear Gardens and courtyards; and direct access to wildlife-rich landscapes such as open water, extensive wetlands, two hectares of wildflower meadows and retained woodland.

The strong contact between the buildings, its users and the surrounding landscape helps to reduce the anxiety often associated with hospital visits. It also facilitates and encourages healthy behaviour by users, whether patients, visitors or staff. LUC joined the developer team early in the procurement process, working closely with the architects Anshen + Allen (now Stantec) on the concept and masterplan, and later taking responsibility for the site plan, its coordination and the design of the extensive public realm and landscape.

01
South West Acute Hospital, Timothy Soar

02
South West Acute Hospital, Richard Carmen

03
Bossington Hill, Exmoor, Exmoor National Park

Providing robust evidence of the health and wellbeing benefits of scenic landscapes

Exmoor Landscape Perceptions Study
Exmoor National Park

People often don't realise how valuable landscape is to their everyday sense of wellbeing until they're asked about it. For the Exmoor Landscape Perceptions Study, undertaken by Fiona Fyfe Associates in 2011 on behalf of the Exmoor National Park Authority and Exmoor Society, volunteers gathered responses from 325 members of the public over the course of a year. Survey sites were identified to represent the park's nine distinctive landscape character types. Respondents were asked to describe each landscape and their emotional response to it, as well as their opinions on landscape changes, which have subsequently informed the Exmoor National Park Partnership Plan.

The emotional responses to Exmoor's landscape were overwhelmingly positive. A total of 144 different emotions were expressed, with 'relaxed', 'happy', 'peaceful' and 'calm' being the clear top four. Further down the list for each survey site, a greater variety of emotions starts to appear. For example, 'observant', 'close to the sky', 'elated' and 'expectant' were only associated with upland moorland sites, whereas 'protected', 'delighted', 'mesmerised' and 'reflective' were only associated with valley or woodland sites. When asked directly, 86.8 per cent of respondents felt relaxed, 79.1 per cent felt happy, 69.5 per cent felt uplifted, 0.3 per cent felt intimidated, 0.6 per cent felt uncomfortable and 2.8 per cent felt melancholic.

The study found that the highest cultural value associated with Exmoor was leisure and recreation, with 84.5 per cent of respondents attributing these values to the park, closely followed by relaxation, tranquillity, and peace and quiet (81.5 per cent). Other responses included: 'escapism and getting away from it all' (69.5 per cent), 'having quality time' (61.8 per cent), 'providing inspiration' (46.2 per cent) and 'a sense of place' (36 per cent).

The overwhelming conclusion of the study is that the public appreciates all types of landscape within Exmoor National Park. This is reflected in the words used to describe different landscapes, and in the positive emotional responses that those landscapes evoke. It also confirms the assumed emotional benefits that Exmoor (and presumably other National Parks) can provide for individuals and society as a whole.

Designing compassionately for acute mental health wards

Wandsworth Recovery Centre
Wandsworth, London

Landscape is actively contributing to the healing process at the new mixed-gender inpatient facility for adults with acute mental illness at Springfield University Hospital. The Wandsworth Recovery Centre provides an 18-bed acute ward and a 10-bed Psychiatric Intensive Care Unit, alongside community team bases and outpatient facilities.

But the centre is much more than just beds – the secure gardens designed by Tony Danford Landscape Consultancy also provide service users with a safe environment for respite and recreation. The practice says that the success of NHS garden spaces depends on the presence of staff that understand the therapeutic potential and harness it. The designs for the centre are influenced by the principles of therapeutic horticulture and evidence-based design, whereby access to nature has been shown, for instance, to allow lower dosages of certain drugs and to result in fewer aggressive episodes.

The landscape architects worked with Medical Architecture to group the wards at Wandsworth Recovery Centre around central gardens, giving views into and through gardens and courtyards from all parts of the building. The enclosure of gardens within the built form also avoids the need for high-security fencing and all the negative, penitentiary connotations that come with it. The Psychiatric Intensive Care Unit, which is a highly challenging environment, now has a large garden that provides space for active recreation, while being completely open for surveillance, with few hiding places.

01

03
Wandsworth Recovery Centre, Medical Architecture – Photography David Butler

01, 02
Boswyns
Rehabilitation Centre,
Lavigne Lonsdale

Creating a safe place to break drug dependency

Boswyns Rehabilitation Centre
Townshend, Cornwall

Right from the start of this project, the location and landscape surrounding Boswyns Rehabilitation Centre in Hayle was identified as having a key role to play in creating a therapeutic sanctuary where it would be possible to break drug dependency safely. To date, the centre has achieved a significant degree of success: since 2010, 80 per cent of those who have received treatment have met the requirements of their treatment plans.

Designed by Lavigne Lonsdale and Stride Treglown Architects, the rehabilitation centre provides much-needed accommodation for people undergoing treatment for long-term drug and alcohol abuse. Prior to the centre's completion, patients had to travel outside the county to receive help, and experienced waiting times above the national average. Therefore, the key driver for the project was to reduce this waiting time.

The scheme needed to support a range of non-medical interventions and promote future steps post rehabilitation. The design for the building and landscape incorporates areas for life-skills training, educational programmes, workshops, alternative therapy, treatment space and leisure pursuits. Central to its success is that it has created an 'environment for change', which is the founding pillar of the recovery agenda.

The centre is located within a rural area and its design is far removed from what might be considered 'institutional' settings. Outside space provides enough room for a lawn area, places to sit and relax, a prolific herb garden, flower beds and a kitchen garden with raised beds that give residents an opportunity to learn about food production and basic cooking skills. This is considered to be an important part of the treatment programme and helps provide some of the practical skills that can help to sustain people in recovery.

"You have helped to create a development that blends perfectly with its situation, that is visually pleasing, environmentally sympathetic and, most important of all, therapeutically effective in the delivery of our service."

Derek Mace, Chief Executive, Boswyns Rehabilitation Centre

Centenary Gardens,
Manchester,
Karen Wright Photography Ltd

Creating healthy places – 10 recommendations

The following 10 recommendations are a starting point for embedding the role of landscape in delivering public health and wellbeing benefits at all levels of government and at all spatial scales.

1 A bigger role for public health in placemaking
The public health sector needs to be more closely involved in guiding the planning, design and management of new and existing settlements to help ensure healthy, sustainable places everywhere. It needs to be involved at every stage of the development process, from policy and strategy, to engagement in the framing of specific proposals.

2 A resource commitment
Public health should be granted the same long-term budgetary commitment that primary care, transport and other public services receive. There is already a great deal of policy support for improving public health outcomes across the UK. What we need now is more resources and longer-term funding for programmes that deliver health and wellbeing benefits through landscape.

3 Realise national requirements at the local level
Local planning policy needs to adopt the requirements that have been set out in national planning policy across the UK, to include the promotion of public health and wellbeing as an essential part of creating sustainable communities.

4 Recognise landscape as an asset
The role of landscape in promoting public health and wellbeing should be a central consideration in the preparation of Joint Strategic Needs Assessments and Joint Health and Wellbeing Strategies (England), and Community Plans (Scotland); and through the function of Health and Wellbeing Boards and Public Health England (England) and their equivalent bodies in other administrations.

5 Use landscape in performance indicators for public health
Greater consideration should be given to ways in which better planned, designed and managed landscapes can contribute to achieving targets set out within performance management frameworks across the UK, such as the Public Health Outcomes Framework for England and the indicators in Scotland Performs.

6 Collaboration is key
Professionals responsible for public health, landscape and planning should work together on the creation and assessment of schemes in both the public and private sector. This collaboration, which will benefit all parties, should be encouraged and supported across all administrations and at all spatial scales.

7 Recognise the multifunctional benefits that landscape offers
Public health and planning professionals should recognise the multifunctional nature of landscape and its potential to offer positive public health outcomes.

8 Use Health Impact Assessments
Landscape professionals should make use of tools such as Health Impact Assessments to assess the ways in which their projects can contribute towards positive health outcomes.

9 Ensure community buy-in
Landscape professionals should use an inclusive, participatory design process, to ensure greatest possible buy-in from key stakeholders.

10 More evidence
Further funded research is needed to fill key evidence gaps, such as post-occupancy evaluations.

The Landscape Institute will act
The Landscape Institute recognises that improving health and wellbeing through greater consideration of the role of landscape is a two-way street. To this end, we will promote awareness and knowledge of public health, so that our members are well-equipped to integrate positive health outcomes into their work.

Glossary

Active travel
Active travel refers to forms of everyday (rather than recreational) travel that involve a degree of physical activity.

Chronic stress
This term describes a state of prolonged stress that may have a negative impact on health and wellbeing.

Determinants of health
Determinants of health describe the array of personal, social, environmental and economic factors, which have an impact on the health of individuals and communities.

Ecosystem and ecosystem services
Ecosystem was defined in the Millennium Assessment as, "a dynamic complex of plant, animal, and microorganism communities and the non-living environment, interacting as a functional unit. Humans are an integral part of ecosystems." Ecosystem services are the benefits provided by ecosystems, such as clean water and productive soils, as well as less tangible services such as tranquillity.

Green infrastructure
The Landscape Institute defines green infrastructure as a network of natural and semi-natural features, green spaces, rivers and lakes that intersperse and connect villages, towns and cities. It is a natural, service-providing infrastructure that is often more cost-effective, more resilient and more capable of meeting social, environmental and economic objectives than traditional 'grey' infrastructure.

Green space or open space
This term is not only applied to open spaces such as formal parks, but also to other predominantly green areas such as playgrounds and incidental open space.

Health
Describes a state of complete physical, mental and social wellbeing, and not merely the absence of illness and infirmity.

Health Impact assessments
Health Impact Assessments (HIAs) are used to judge the potential effects of a policy, programme or project on the health of a population. They also identify ways in which these effects can be managed.

Health inequalities
Health inequalities are preventable and unfair differences in health status between groups, populations or individuals. They exist because of unequal distributions of social, environmental and economic conditions within societies, which determine the risk of people getting ill, their ability to prevent sickness, or opportunities to have access to the right treatments.

Landscape
Landscape doesn't just include the wider countryside and green spaces, but urban spaces, such as civic squares and public realm. It is an area, as perceived by people, whose character is the result of the action and interaction of cultural and natural factors. This definition comes from the European Landscape Convention. This is a valuable and inclusive definition, covering outside spaces everywhere and at every scale.

Masterplan
In broad terms, a masterplan combines images and text that illustrate the ways in which a specific area will be developed and managed. A masterplan can range in scale from a large site to a whole town. It describes and maps development concepts and includes landscape, built form, infrastructure, circulation and services. It is based upon a thorough understanding of place and is intended to specify a structured and coherent approach to proposed physical changes.

Multifunctionality
Multifunctionality describes an approach to land use where a range of benefits are provided in one area, through careful planning, design and management. Multifunctionality is a key component of the green infrastructure concept, where landscape interventions are designed to deliver an array of benefits, such as recreational facilities, wildlife habitats and corridors and flood control simultaneously.

Nature or natural environment
Terms such as nature and natural environment are often used instead of landscape and refer to the more natural aspects of all environments.

Public health
Public health describes the science and art of promoting and protecting the physical and mental health and wellbeing of populations in order to prevent illness, injury and disability.

Sustainable Drainage Systems (SuDS)
Sustainable Drainage Systems (SuDS) mimic nature by managing rainwater close to where it falls, taking account of water quantity, water quality and amenity issues. SuDS can be designed to slow water down before it enters streams, rivers and other watercourses, provide areas to store water, allow water to soak into the ground or evaporate from surface water or transpire from vegetation.

Urban heat island effect
Urban areas tend to experience higher minimum temperatures compared to those recorded in rural areas, and maximum temperatures are also often higher. This urban heat island effect is generated by the combustion of fuels in factories, heating, and transport systems, and also the release at night of heat that has built up during the day in the fabric of the urban areas.

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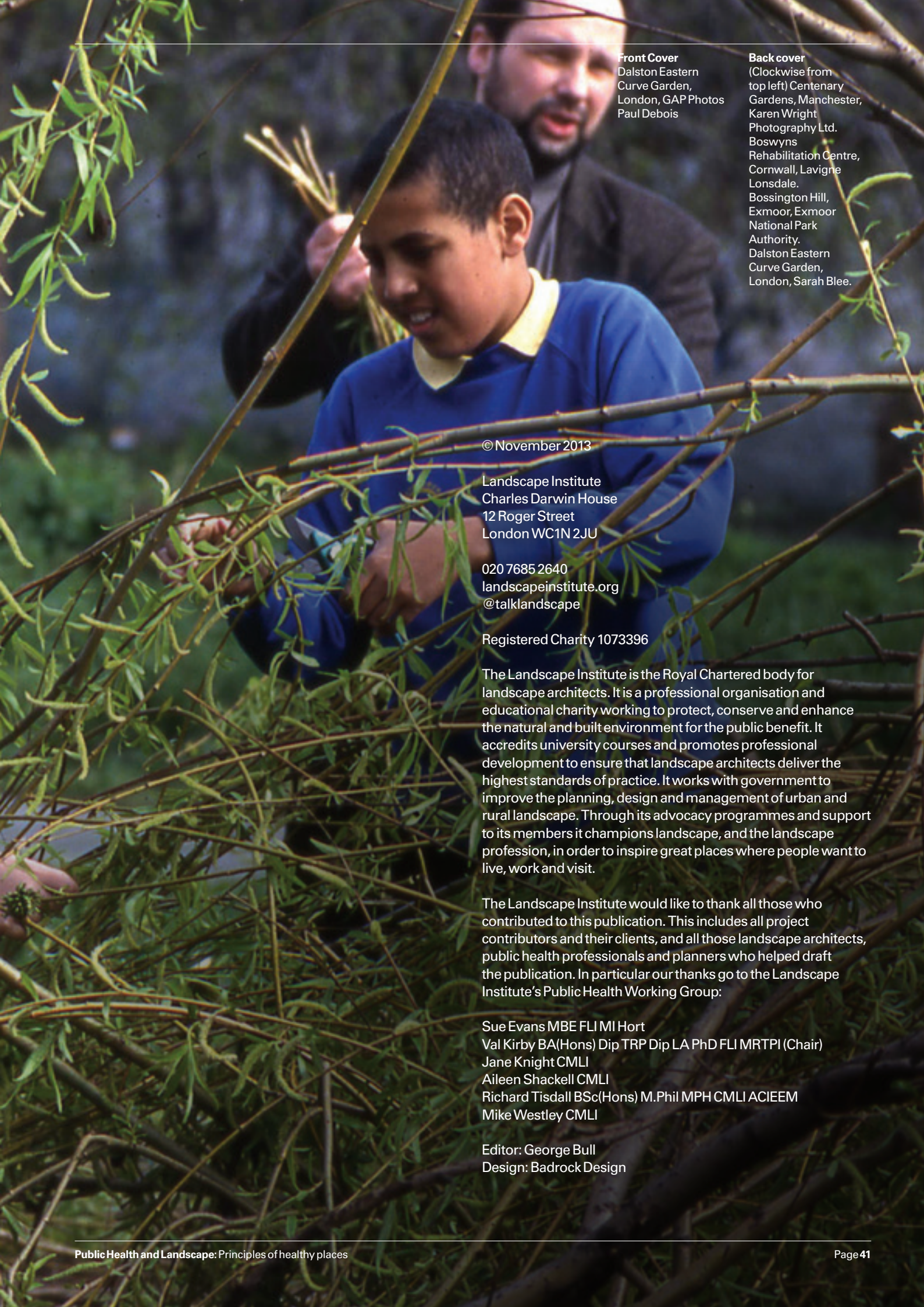
"Health and wellbeing are recognised as inextricably linked with the urban environment" – Royal Commission on Environmental Pollution (2007)

Edward Square, London, Sarah Blee/J&L Gibbons



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The Landscape Institute would like to thank all those who contributed to this publication. This includes all project contributors and their clients, and all those landscape architects, public health professionals and planners who helped draft the publication. In particular our thanks go to the Landscape Institute's Public Health Working Group:

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Design: Badrock Design

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