

Healthy Planning and Regeneration: innovations in community engagement, policy and monitoring



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Funding

The full literature review was funded by Guy's and St Thomas's Charity. This summary version was funded by the BRE Trust.

Front cover image kindly provided by Southwark Council.

August 2017

Forewords



Promoting the health and well-being of populations has nearly always been uppermost in the minds of those involved in planning the growth and development of cities. The origins of British town planning are in public health legislation to deal with the failures of the pure market approach in the industrial revolution. The Abercrombie plan for London produced in 1943 was all about a vision of healthy, prosperous communities. It

may seem sometimes as if planning and regeneration were mainly about economic efficiency or about protecting the environment as an end in itself without focusing closely on the people. But now the emphasis is on sustainable development, balancing the needs of economy, the environment and society.

The quality of life in inner London districts such as Southwark and Lambeth has improved out of all recognition in recent decades but there are still many people struggling with hardship that harms their health. Obesity, especially among children, is a growing concern rather than a diminishing one. Poor mental health among an unusually high number of people is also a problem that won't go away and it is understood that social isolation is a major factor contributing to this.

We know that people's health is affected by community networks, the local economy (access to work and opportunity), the physical environment and many other factors that it is within our power to change or, at least, influence. There are some obvious changes we can make such as reducing traffic to improve air quality and providing better open spaces for people to exercise. We would like to understand in much more detail what would be possible and what would be appropriate for our particular environment at the heart of the world city that is London. We are, therefore, extremely grateful to the Guy's and St. Thomas's Charity for supporting us in carrying out a detailed study to gather evidence about people's lives in our areas which we can use to fine tune our policies and regeneration programmes. This work has also been shaped by this literature review of the subject which has helped us understand where we fit in to the general body of knowledge on this subject and what we can contribute to it.

Simon Bevan,
Director of Planning, Southwark Council



It is well established that the places in which we live have a significant impact on our health.

In acknowledgement of this, the Planning and Public Health teams of Southwark and Lambeth have joined forces to reach our aim of creating safe, sustainable and health-promoting places in which strong and resilient communities can live fulfilling lives. To achieve this, we need to understand

'what works' from the existing research on the planning system, the built environment and health.

This timely literature review investigates the relationship between place, planning policy and three locally identified health themes of interest: social isolation, obesity and access to health services.

This review provides an international overview of the various methodologies used in the literature to date to understand this interplay, acknowledging that these are complex and multifactorial issues often interconnected.

The review also includes a number of case studies to help illustrate the importance of choosing the right community engagement tools to involve local residents in healthy planning, and a useful overview of local urban health indicator tools. This addresses a pressing need to inform local policy development and to support impact monitoring through relevant and meaningful local data.

Social regeneration is a process that ensures the places where people live positively shape life opportunities and wellbeing, reduce inequalities and create engaged communities. The evidence indicates that social regeneration is a process that begins right at the planning stage and continues during the mobilisation and delivery phase. Therefore, while the overarching aim of regeneration is to address inequalities and exclusion by enhancing the built environment and local economy, social regeneration is an integral part of the overall success of regeneration.

This resource will be of great interest to planning and public health professionals alike, and I look forward to seeing this work expanded and built on.

Professor Kevin Fenton,
Director of Health and Wellbeing, Southwark Council

Executive Summary

Built environment professionals are increasingly interested in the relationship between places and health. Many guidance documents are available to inform planning policy-makers of the importance of planning and health, yet there remains uncertainty about exactly 'what works' with regard to specific design and policy measures. In part, this has been explained by a lack of clear causal evidence to inform practice. However competing policy priorities and differing cultures of practice and evidence use across health and planning also play a role. Despite these challenges, there is a growing desire to integrate design and planning measures which are known to support health and wellbeing into policies and projects. Planners want to know what has worked elsewhere and what evidence can be used to support local policies.

This report is a summarised version of a larger review commissioned by the Planning Department at Southwark Council for a healthy planning project run jointly with Lambeth Council. The Councils received funding from Guy's and St. Thomas's Charity to carry out intensive social research in two regeneration areas. The project was driven by a desire to build on current planning knowledge and best practice in social research to gather local perceptions about health and place and use this to inform local policies. The first step was a literature review of academic studies and leading planning practice examples, performed by BRE. The findings from the review informed the social research which has produced a far more representative and thorough analysis of health and place than is usually achieved through community engagement activities. This local research into residents' needs will inform planning and regeneration policies in the boroughs and will be regularly monitored and evaluated to assess impact. Although resource constraints may hinder such an extensive study on many planning and regeneration projects, planners and design-teams can take lessons from the innovative approaches explored in this project.

The research focused on three key health themes in Southwark and Lambeth which are widely relevant in the UK and internationally: social isolation, obesity (physical activity/healthy eating) and access to health services. Like many aspects of the urban environment impact on health, there are many interconnections across these topic areas. The findings from academic research, consultation activities and policy examples often do not correspond to separate policy domains because of these overlaps. This is particularly notable with two of the focus areas for this review, social isolation and physical activity, which are both influenced by similar characteristics of the urban environment. In some ways this is an advantage because policies can have multiple co-benefits. For example, increasing walkability through urban design may improve physical activity, increase social engagement and reduce local carbon emissions.

Planning policies alone will not address complex health issues like social isolation and obesity. As is often the case in urban planning and public health, officers will need to work across departments in the council and with other public and private stakeholders to integrate built environment solutions with other health promotion measures. Furthermore, solutions from one neighbourhood or research study may not be applicable more widely, depending on local context. There is great value in engaging local communities to explore their views of local

problems and assets. This can ensure that policies and design measures respond to local needs, resulting in better outcomes.

Key findings about healthy built environments

Social interaction – The built environment features which affect social isolation and engagement include: residential density; mixed land use; street layout and design; transition between public/private space; environmental cues for crime and safety; greenspace; public transport; and local facilities for leisure and recreation (including cafés, pubs, religious facilities, etc.). Older residents and young mothers may be more socially isolated than other groups. Special efforts may be required to include these groups in consultation activities. Community asset mapping is a useful method for understanding the places and spaces that are important for social engagement.

Physical inactivity – The factors influencing physical inactivity are very similar to those which impact social isolation. There is a positive association between physical activity and net residential density, intersection density, public transport density, and number of parks for adults. Increased urban sprawl and decreased land use mix are positively associated with obesity in some environments. Street design, street lighting, green infrastructure and environmental cues of crime/safety impact physical activity in adults and children. Access to recreational facilities and schools is important for physical activity in children. Traffic density and speed negatively impacts physical activity (especially for children) and leads to greater injuries and fatalities.

Healthy food – Local food habits are influenced by a complex system of social, economic and environmental factors. Children's diets may be more affected by local convenience stores and fast food outlets than adults' diets. People living in deprived communities may have a greater number of fast food outlets than more affluent neighbours. Simply providing healthy foods (through grocery stores, farmers' markets or green grocers) may not change behaviours. Strong engagement with the local community to understand current attitudes and requirements can help make any investments in healthy food access more successful.

Health services – Combining health services and social care services is referred to as 'integrated care' but does not always result in the co-location of multiple services. A systematic review found multiple benefits to integrated care including reductions in: non-emergency cases using A&E, average hospital stays, and costs per patient per site visit. A Big Lottery Fund evaluation of Healthy Living Centres found that these facilities had a range of positive benefits in the community including improved health outcomes and attracting target communities.

Key findings about healthy planning practice

Building trust – Multiple research and community projects highlighted the importance of building trust when working with local communities, especially on regeneration projects. The methods chosen for gathering local perceptions can impact trust. Particularly in relation to sensitive issues about

social isolation and health, consideration should be taken to ensure communities feel comfortable providing their time and knowledge and that they are happy with the way the information will be used. If there is a lack of trust, the appropriate information may not be uncovered in the engagement activity.

Monitoring impact – Evaluating the impact of local policies is a key part of planning practice. Understanding where policies have succeeded or failed allows for continual improvements through planning policy and development management. A number of indicators and assessment tools have been created to support ongoing review of policies. These tools can also inform the creation of new policies, help uncover health/spatial inequalities and demonstrate performance to local communities.

Going beyond business as usual – This review found a range of innovative community engagement and planning practice activities being carried out by health and built environment professionals and academics. However these examples often related to specific major developments or funded projects and do not yet appear to be part of normal planning processes. The healthy planning project led by Southwark and Lambeth represents an innovative approach to planning healthy communities that seeks to combine extensive local knowledge with scientific evidence. Sharing the findings from this review can help other planning authorities access up-to-date research evidence and pick and choose from community engagement and policy examples which may work in their area.



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Introduction

This report provides a general picture of built environment design and policy measures and health outcomes related to topics identified by Southwark and Lambeth. This report does not seek to provide a full analysis of all planning-related health issues. The literature review made use of findings from systematic reviews and other evidence reviews wherever possible. Information relevant to London and the UK was prioritised during the literature search, although examples are provided from planning research and practice internationally. This review provides up-to-date evidence about the built environment and health which can be used to inform local policy and regeneration initiatives.

Key concepts in healthy planning

The research fields investigating the links between the environment and health have grown and changed significantly over the last century. Historically there were strong links between urban planning and public health, united by the need to solve the unhealthy living environments created by industrialised cities.¹ The focus of these early efforts was related to the poor sanitation infrastructure and overcrowding in cities of that era. In the early twentieth century, Utopian and Modernist design principles resulted in a segregation of functions within cities which continues to shape contemporary planning and design practice in many countries.² Planners thought that this rational design would lead to healthier environments but in fact it created huge travel distances between land uses and had the opposite effect.³ Modern planning and design principles which emphasise sustainable development are well-aligned to health and wellbeing objectives.

The urban environment and health is a complex system.

Investigation into health and the built environment spans a huge range of topics including air quality, noise, mobility infrastructure, and greenspace. Particular built environment features, such as greenspace, often have multiple physical and mental health benefits, but can also have negative impacts if not properly managed. A very interconnected system of interacting variables which change over time emerges, making complexity a defining characteristic of the built environment and health. Integrated planning policies, collaboration across policy boundaries (such as housing, transport and parks) and effective community participation throughout the planning and design process can help address this complexity.

Health inequalities are a key issue for the built environment and health. There is a social gradient in health, with poorer people dying earlier (and suffering from more long-term illness) than wealthier people.⁴ In urban areas, deprived communities are often located in neighbourhoods with disproportionate exposure to unhealthy environments such as air and noise pollution, industrial uses, contaminated land, poorly maintained public spaces and concentrations of unhealthy food outlets.^{5,6} Local data on deprivation and health can expose these inequalities and help shape planning policy responses to address this important issue.

Regeneration initiatives create an opportunity to address health inequalities. However, regeneration is often criticised for increasing local property values and displacing deprived families. Research into the health impact of centralised regeneration and area based initiatives in the UK, such as Single Regeneration Budgets and the New Deal for Communities, have shown modest improvements to local physical and mental health outcomes.⁷⁻⁹ Some studies found no evidence of impact or even adverse impacts.⁷ However, there were significant limitations in many of the studies evaluated. Lessons from previous regeneration efforts highlight the importance of community participation, building trust and provision of appropriate facilities alongside housing.

There are limitations with the currently available evidence about health and the built environment.

Epidemiology is the field within medical science which focuses on population health, investigating the incidence, distribution and control of diseases. Epidemiological studies inform the policies and practices of public health professionals. Traditional epidemiology methods are not well-suited to evaluating the impact of complex environments on health outcomes. This means that it is difficult to identify a causal relationship between many attributes in the built environment and specific health outcomes. Methodological shortcomings also mean that important relationships may be obscured by study findings which cannot fully account for potential confounding factors (alternative explanations for the identified health outcomes) among other limitations. Together, these challenges result in difficulty translating scientific evidence into urban planning policy and design measures.¹⁰

Challenges with the current state of evidence are not a reason to postpone healthy urban planning policy interventions.

There is a significant body of literature which consistently identifies important relationships between the built environment and health. Planners can make use of the best available evidence and guidance from public health and planning organisations highlighted in this document and the Further Guidance section. Integrated planning including engagement with local public health, housing, transport and social services teams will also strengthen local initiatives and support healthy policy development.

How is this document organised?

This document allows readers to access sections of interest without reviewing each section in order.

Section 1: Overview of urban environment health impacts, focused on the health issues outlined in Southwark and Lambeth.

Section 2: Quick reference guide of health impacts and policy/design responses.

Section 3: Summary of the health impact of regeneration projects with some lessons learned from previous large-scale regeneration programmes and a case study example.

Section 4: Innovative ways to engage local communities on place and health. This is organised by types of engagement activities, but there are many examples which mix methods (such as participatory mapping and photography). Readers can pick and choose methods which may work in their area, devising new combinations and hybrid approaches.

Section 5: Overview of local urban health indicator tools which can be used to inform policy development and monitor impact (among other uses).

Section 6: Further guidance to complement the information reported here.



1. Overview of urban environment health impacts

Researchers have estimated that 23% of global deaths can be attributed to the environment.¹¹ Urban planning and regeneration policies impact more than just the environment – determining the provision, location and design of housing, education and employment among other factors. New York’s Regional Plan Association estimated that urban planning policies and programmes shape 80% of a community’s health.¹² This section briefly summarises the built environment features which impact the three health concerns identified by Southwark and Lambeth: social isolation, obesity (physical inactivity and healthy eating) and health services. It also describes policy and design examples which have been used to promote healthy environments.

The principles of integrated planning and design mean that policies and design measures are not always singled out for specific health topics (e.g. about social isolation) but are often cross-cutting in nature. For example, some policies promoting walking and cycling may be aimed at tackling air pollution and climate change with the added benefit of increasing physical activity. For example, a recent review of planning policies in London Boroughs showed that all Local Plans had policies related to sustainable transport or active travel, but only 60% cited health as a justification for the policy.¹³ These policy examples are advantageous because they help achieve multiple objectives; however they are not always recognised as healthy planning policies.

The research evidence about health concerns like social isolation and physical inactivity demonstrate multiple connections across built environment features and health outcomes. Table 1 shows how the built environment affects the review’s key health themes in multiple connected ways. This demonstrates that single policy areas can support multiple health and wellbeing objectives.

Social isolation

Globally, the older population is growing faster than the total population.¹⁴ One challenge associated with ageing is social isolation, although this is not a necessary condition of getting older. Social engagement (and similar concepts like social capital, interaction and networks) is usually indirectly influenced by the built environment and protects against social isolation, unhappiness and mental illness.¹⁵



The general principle for built environment policy is to support people to leave their homes to interact with neighbours and the wider community. This is done through urban design measures which support walking and facilities (e.g. toilets and benches) for different groups within the population. Alongside the walking environment, people need attractive and affordable destinations to encourage outings such as parks, cafés and leisure facilities.

Physical inactivity

A significant focus of health and built environment research has been about physical activity because of its important role in maintaining a healthy weight and protecting against disease

Table 1 – Connection between built environment features and health themes.

	Social interaction & isolation	Physical inactivity	Healthy eating	Health services
Density and mix of development	Strong link	Strong link	Less certainty	
Green infrastructure	Strong link	Strong link		
Street layout and design	Strong link	Strong link	Less certainty	
Housing design	Strong link	Strong link	Less certainty	
Passive surveillance & safety	Strong link	Strong link		
Public transport	Strong link	Strong link	Less certainty	
Facilities for recreation & leisure	Strong link	Strong link		
Access to healthy food			Less certainty	
Access to unhealthy food			Strong link	
Access to health services	Less certainty			Less certainty
Co-location of health services				Less certainty

 Demonstrates a strong evidence-based link.
 Indicates less certainty in the evidence.

and mental health issues.^{16–19} Physical inactivity has been described as a global pandemic which is ‘responsible for over 5 million deaths annually through its effects on multiple non-communicable diseases.’¹⁹ In the UK, Public Health England reports that physical inactivity ‘contributes to 1 in 6 deaths and costs £7.4 billion a year to business and wider society’.²⁰

A report from the four home countries’ Chief Medical Officers advises that achieving the aim of 30 minutes of at least moderate physical activity on 5 or more days per week is most easily met through everyday activities like walking and cycling. Sport and recreational activities help provide social benefits which can sustain participation.²¹ Many of the same design measures to support social engagement will also support physical activity.

Healthy eating

Obesity is a significant challenge in the UK with predictions that over half of the population could be obese by 2050. Healthy eating is an important part of maintaining a healthy weight and is also a key factor in protecting against non-communicable diseases.^{16,22} Built environment policies can influence the provision and location of places to buy, grow and cook food.

A number of organisations have argued that the proliferation of hot food takeaways near schools and in deprived communities is detrimental to health.^{23,24} The Royal Society for Public Health has stated that planning authorities should be able to limit the proportion of particular types of businesses on high streets, especially fast food outlets.²⁴ The relationship between neighbourhood deprivation, the consumer food environment

and diet is complex and context dependent.²⁵ Local perceptions about food and purchasing food can help complement research evidence and inform policy measures. It is likely that a combination of efforts to improve healthy diet are required alongside the provision of healthy food outlets.

Health services

A report from the Royal Society for Public Health explained the importance of access to and visibility of health services. GP surgeries and health centres are a location for direct medical care but also for access to a range of health-related services such as smoking cessation support and social care services.²⁴ Similarly, opticians and dentists surgeries are important for signposting other health-related services.

Combining health and social care services in one organisation is referred to as ‘integrated care’. This term encompasses a variety of joint care delivery arrangements and has not been well-researched with regard to patient outcomes.²⁶ A large funding programme supported creation of a number of Healthy Living Centres in the UK which provided integrated health and social care services. This programme was independently evaluated and had multiple health benefits, including: improved short and long-term health of regular users; successfully attracting target communities; and promoting learning and relationship building in the community.²⁷



2. Quick reference: built environment health impacts and related planning policy responses

Please note this table only describes summary health impacts related to social engagement, physical activity, healthy eating and health services. For information about additional health impacts please see the Further Guidance section.

Built environment feature	Summary health impacts	Example planning policy & design responses
High density and mix of uses	<ul style="list-style-type: none"> • supports greater social engagement (access to services encourages more walking and chances for encountering neighbours).²⁸ Terraced housing has been associated with positive mental health which was attributed to social capital in walkable neighbourhoods.²⁸ • supports walkability through proximity.²⁹ Proximity is defined by neighbourhood density and mix of uses. Walkability has been shown to influence actual steps taken.³⁰ • can compromise privacy (if poorly designed) which negatively impacts social interaction as people become withdrawn.¹⁵ • can affect perceptions of safety across a 24 hour period.¹⁵ • can promote physical activity through net residential density, intersection density, and public transport density.¹⁹ • may impact obesity. In studies from North America, urban sprawl is positively associated with obesity and land use mix is negatively associated with obesity.³¹ 	<p>Density requirements vary significantly in urban and suburban communities.</p> <ul style="list-style-type: none"> • The Black Country Core Strategy policy HOU2 requires 'All developments will aim to achieve a minimum net density of 35 dwellings per hectare, except where higher densities would prejudice historic character and local distinctiveness as defined in Policy ENV2.' The justification includes recognition of active transport: 'The accessibility of all housing developments to a range of residential services by walking, cycling or public transport is key to achieving sustainable communities.'³² The density policy is referenced again in Dudley's Planning for Health Supplementary Planning Document as a key objective to achieving a healthy community.³³ • Manchester's Core Strategy City Centre policies require development that is high density (at least 100 units/hectare or 10,000m²/hectare) and may mix residential and employment uses with ground floor retail. They also require this development to be accessible for all. Policy CC 10 A Place for Everyone states that developments will be supported if they have 'uses which increase the diversity of activity in the City Centre, with an emphasis on family-oriented activity; and, high standards of accessibility to buildings and across spaces in the City Centre.'³⁴
Street layout and design	<ul style="list-style-type: none"> • supports walkability through connectivity. Connectivity is about the ease of movement between destinations and is 'high when streets are laid out in a grid pattern and there are few barriers (e.g., walls, freeways) to direct travel between origins and destinations.'²⁹ • supports walkability with sidewalks, street-lighting, and safe crossings (pedestrian signals and mid-street islands).²⁹ • impacts children's physical activity levels depending on parents perceptions that the street environment is safe (from traffic and crime).³⁵ • supports perceived safety and levels of physical activity and reduces injuries and deaths when street designs calm traffic and reduce speed.³⁶ <ul style="list-style-type: none"> o traffic calming measures include: reduced speed limits/zones, road humps/cushions, Home Zones, and road narrowing.³⁶ o 20mph speed limits can reduce traffic related injuries and deaths. In London there was a 42% reduction in casualties found in 20mph zones compared with other areas.³⁷ 	<ul style="list-style-type: none"> • Greenwich's Local Plan (adopted 2014) Policy CH2 Healthy Communities includes a requirement for all development to 'provide public toilets in publicly accessible major developments.'¹³ • Stockport's Development Management Policy T-1 states 'new residential development should be designed taking into account the principle of Home Zones, whereby the layout of new developments should favour more "people friendly" streets and reduced vehicle speeds.'⁴² • Bristol City Council introduced a 20mph speed limit across the majority of the city's public roads. The team plan to use the World Health Organization Health Economic Assessment Tool (WHO HEAT) tool as standard practice when assessing new pedestrian and cycling schemes in the city.²⁰ The WHO HEAT for Walking and Cycling tool allows planners to measure the economic value of health benefits achieved from reduced mortality from walking and cycling.⁴³

Built environment feature	Summary health impacts	Example planning policy & design responses
Street layout and design	<ul style="list-style-type: none"> • certain designs can create tensions between safety and connectivity. Some studies have found that people living in cul-de-sacs feel safer from crime and traffic.¹⁵ Yet cul-de-sacs are associated with low connectivity. It may be possible to resolve this tension with low-depth cul-de-sacs, or crescents. Curved streets and distorted grids may also be useful for people with dementia.¹⁵ • can limit or contribute to community severance (depending on design) which reduces social interaction and access to important services and can have multiple related health effects.³⁸ Built environment features of community severance include: 'crossability', walkability, accessibility to destinations and quality of the pedestrian environment.³⁹ These features are influenced by a number of specific design measures (such as pedestrian crossings) and include vehicle traffic. • can impact the ability of older people and other population groups to leave their homes.⁴⁰ This includes the street design elements discussed above (sidewalks, crossings, lighting, etc.) and provision of places to sit and toilets, which are not only important for older people but also the whole population, particularly women and children.⁴¹ 	<p>The benefits of the 20mph project in Bristol have been significant with a 40% increase in commuting on foot and a 94% increase of cycle commuting between 2001 and 2011.²⁰</p> <ul style="list-style-type: none"> • Cambridge County Council's Public Health Directorate and Economy, Transport and Environment Directorate are working together on active travel through needs assessment and policy. Recommendations include: ensuring use of health impact assessment (HIA) for all planning applications; securing active travel design on new development; ensuring access to services and public transport; and championing safe pedestrian paths and cycleways (particularly near schools, care facilities and town centres).²⁰ • A village in Cheshire completely transformed its town centre through a large shared-space road re-design to calm traffic and promote walking and cycling. The council used a shared-space design team to look at where people wanted to cross in the former road configuration. They developed a design which put new informal crossings in these locations with a central reservation to assist crossing and slow drivers' speeds. Other improvements were made to the pavement and space around local shops to encourage walking.⁴⁴ A video of the town-centre regeneration, showing before and after footage, is available on YouTube.
Green infrastructure	<ul style="list-style-type: none"> • important for social interaction, gatherings, and communal leisure activities.⁴⁵⁻⁴⁷ • can promote physical activity through the number of parks.¹⁹ Parks can provide space for walking, jogging, playgrounds, and organised sports. • supports better mental health, living longer for elderly people, lower body mass index (BMI) levels and better self-rated health.⁴⁸ • access can be reduced in disadvantaged communities. Barriers include: 'fear for personal safety; antisocial behaviour; poor maintenance of green spaces; being too busy at work; poor weather; being too busy at home; poor health; old age; and lack of transport.'⁴⁸ • can support greater levels of physical activity when improved parks are combined with organised exercise activities.⁴⁹ The following interventions were evaluated as improving physical activity: <ul style="list-style-type: none"> o renovations to park facilities and major park improvements o urban greenway trail connecting to local retail establishments and schools o greening of vacant urban lots o outdoor gyms or 'Family Fitness Zones' o creation of pocket parks in disused lots.⁴⁹ 	<ul style="list-style-type: none"> • A local survey in Bristol found that residents were willing to walk between 400m and 700m to access different types of green infrastructure. Related research by the Council resulted in a Bristol Green Space Standard which sets requirements for quantity, quality and distance.⁵⁰ This is incorporated into the Council's adopted Core Strategy. • Greenwich's Local Plan (adopted 2014) Policy CH2 Healthy Communities states all developments are expected to 'ensure that Royal Greenwich's parks, play areas, open spaces and leisure facilities are accessible to all and encourage increased provision where appropriate to meet the needs of the local community (see also policy H5, E1 and OS (c)), particularly in areas of deficiency.'⁵¹ • Bexley's Core Strategy (adopted 2012) Policy CS09 encourages developments are 'protecting, enhancing and promoting green infrastructure, including making the borough's parks, open spaces, waterways and recreational facilities an integral part of encouraging healthy lifestyles.'¹³ • See standards from Manchester's Core Strategy Open Space policies under 'Facilities for recreation and leisure'.

Built environment feature	Summary health impacts	Example planning policy & design responses
Housing design	<ul style="list-style-type: none"> • supports social interaction through the transition between the private space of a home and the public space of a street, pavement, hallway or deck. Similar to the 'soft edges' and transition zones described by Christopher Alexander and Jan Gehl^{52,53}, these spaces appear to promote social interaction.⁵⁴ Front gardens are an example of these spaces but they can be any area where people gather or linger.¹⁵ 	<ul style="list-style-type: none"> • London's Housing Supplementary Planning Guidance section on Communal and Public Open Space states: 'Open space, whether for public or private communal use should be designed to be safe, accessible, inviting and well used, without the fear of crime. It should encourage an appropriate sense of ownership and should be managed to ensure that it remains useful and welcoming to all users. The space should be designed at the outset to minimise ongoing management and maintenance costs (but this should not compromise design quality and amenity) and should incorporate appropriate boundary treatments between private gardens and communal spaces.'⁵⁵
Passive surveillance and safety	<ul style="list-style-type: none"> • supports physical activity when neighbourhoods 'feel secure and safe from traffic and other threats ... with well maintained walkways and pleasant green spaces.'²¹ Built environment attributes which positively impact perceptions of safety (and actual crime in some cases) include: mixed land use, passive surveillance, maintenance, street lighting and greenspace.⁵⁶⁻⁵⁸ • may impact physical activity where environmental cues such as high levels of litter, graffiti and dog mess are present.⁵⁹ 	<ul style="list-style-type: none"> • See above excerpt from London's Housing Supplementary Planning Guidance section on Communal and Public Open Space • Newham's Core Strategy SP2 Healthy Neighbourhoods states that development proposals which respond to a number of health issues will be supported, including 'the need to improve housing quality and reduce crime, insecurity and stress and improve inclusion through better urban design.'⁶⁰
Facilities for recreation and leisure	<ul style="list-style-type: none"> • supports higher levels of physical activity (compared to areas without facilities)⁶¹. Specifically: <ul style="list-style-type: none"> o people living in neighbourhoods with parks have higher levels of physical activity⁶² o living in areas with a high density of leisure infrastructure such as 'team or dual sports, conditioning activities, and other individual activities' is associated with participation in these activities.⁶³ o pre-school playgrounds with markings, equipment and physical structures are associated with increased physical activity in children and young people.⁶⁴ • supports social interaction through various facilities.²¹ Specifically: <ul style="list-style-type: none"> o Pubs and bars can have a positive overall influence on health because of the social engagement opportunities they create. Pubs can host local events such as quizzes and music, which bring people together and help combat social isolation.²⁴ • can provide settings to facilitate local health promotion activities (e.g. in faith-based organisations⁶⁵) • can be hazardous for health through certain high street facilities. Although payday lenders and bookmakers may have some positive wellbeing impacts for responsible gamblers (e.g. from social interaction) the risks of significant health consequences are severe.^{24,66,67} One evidence review found that new gambling facilities result in increased gambling problems and suicide.⁶⁸ 	<ul style="list-style-type: none"> • Greenwich's Local Plan Policy CH2 Healthy Communities states 'ensure that Royal Greenwich's parks, play areas, open spaces and leisure facilities are accessible to all and encourage increased provision where appropriate to meet the needs of the local community, particularly in areas of deficiency.'⁵¹ • Dudley's Planning for Health Supplementary Planning Document states: 'The retention and provision of community facilities, including places of worship, recreational centres, social centres, community halls and cultural facilities should be supported and encouraged. ... Proposals involving the loss of a health care or any community facility should only be permitted where adequate alternative provision is available to meet the demands of the community served by the facility.'³³ • Manchester's Core Strategy Open Space policies set out standards for the ratio of hectares per population for multiple uses and the travel distance standards. For example, 0.98 hectares of outdoor recreation space is required per 1000 population within a 15 minute walk time for grass pitches, tennis courts and bowling greens. While 0.0265 hectares per 1000 population is required for children's open space provision within a ten minute walk time (or 480 meters).³⁴

Built environment feature	Summary health impacts	Example planning policy & design responses
Food environment	<ul style="list-style-type: none"> • can support healthy diet through perceived availability of healthy foods.⁶⁹ An example measure of perceived availability is agreement with statements like: 'a large selection of low-fat foods is available in my neighbourhood.'⁶⁹ • can detract from healthy diet, particularly in deprived neighbourhoods.²⁵ Higher exposure to fast food outlets is associated with lower intake of fruit and vegetables.⁷⁰ There is some evidence for increased obesity in children with increased convenience store availability and, for low income children, a relationship with fast food availability.⁷¹ 	<ul style="list-style-type: none"> • Many councils are implementing hot food takeaway exclusion zones around schools, usually of 400 meters. For example, Haringey's Development Management Policy DM56 Hot Food Takeaways states: 'The council will not grant planning permission for hot food takeaway shops that fall within an exclusion zone of 400 meters of the boundaries of a primary or secondary school as shown on Map 5.1.'¹³ Lambeth's Local Plan Policy ED7 Evening Economy and Food and Drink Uses states: 'Proposals for hot food takeaways (A5 uses) will not be supported if proposed within 400 metres of the boundary of a primary or secondary school.'⁷² The New Southwark Plan Preferred Option document also contains a similar policy.⁷³ • Greenwich's Local Plan Policy CH2 Healthy Communities states all developments are expected to 'ensure access to local healthy food, including the protection of street and farmers' markets and encourage new markets where appropriate. ... safeguard existing allotments and, for major developments in deficiency areas, include appropriately sited allotments or community gardens.'⁵¹ • Newham's Core Strategy SP2 Healthy Neighbourhoods requires consideration of the cumulative impact of A5 uses (hot food takeaways) and protection and promotion of sources of fresh healthy food. The plan also refers to the role of green infrastructure and meanwhile space in local food growing. There are references to multiple locations in which the Council is encouraging larger supermarkets.⁶⁰ • Central Lincolnshire's Joint Local Plan Policy LP9 Health and Wellbeing states 'Development schemes safeguarding and, where appropriate, creating or enhancing the role of allotments, orchards, gardens and food markets in providing access to healthy, fresh and locally produced food.'⁷⁴
Co-location of health services	<ul style="list-style-type: none"> • can support health system savings through reductions in: non-emergency cases using A&E, average hospital stays, and costs per patient per site visit.⁷⁵ • can improve health outcomes and attract target communities for particular interventions/services.²⁷ Evaluations of Healthy Living Centres (HLCs) in particular have found: <ul style="list-style-type: none"> o improved short and long-term health of regular users o provision of exercise, smoking cessation and other health-related activities o involved local people in project planning and delivery o promoted learning and relationship building in the community o developed and improved local partnerships across sectors.²⁷ 	<ul style="list-style-type: none"> • Haringey's Local Plan Strategic Policy 14 states: 'support the integration of community facilities and services, i.e. health, education, cultural and leisure in multi-purpose buildings.'¹³ • Central Lincolnshire's Joint Local Plan Policy LP9 Health and Wellbeing states: 'Proposals for new health care facilities should relate well to public transport services, walking and cycling routes and be easily accessible to all sectors of the community. Proposals which utilise opportunities for the multi-use and co-location of health facilities with other services and facilities, and thus co-ordinate local care and provide convenience for the community, will be particularly supported.'⁷⁴

3. Health impact of regeneration programmes

Regeneration programmes span a wide range of initiatives from housing estate refurbishment to whole-scale rebuilding of neighbourhoods. A limited number of studies have evaluated the health impact of regeneration programmes from a built environment perspective. This research field seeks to measure the health impact of improvements to the physical environment and investment to local services. However these projects often do not examine the effect of specific changes to the built environment, rather they look at the cumulative impact of regeneration efforts which often include social and economic activities.

This section describes evaluations of several regeneration projects in the UK with potential lessons for future projects. There is also a detailed case study of the health and wellbeing approach of an ongoing regeneration project, King's Cross Central, one of the largest in Europe.

Glasgow

The GoWell research programme in Glasgow began in 2005 as a 10-year evaluation of 15 regeneration projects across the city including housing improvements, neighbourhood redesign and demolition. The researchers sought to better understand the processes which brought about health improvements to unpick 'what works' for regeneration policy and practice.⁷⁶ One of the many studies (over 50 articles have been published to date) demonstrated that people living in the regeneration areas which received the highest investment had better mental health and less deterioration in physical health.⁹ They also found that investment based on population needs led to some reductions in social inequalities in health.⁹

New Deal for Communities

The New Deal for Communities (NDC) regeneration programmes were a government initiative targeting 39 deprived communities in England from 1998 to 2011.⁸ An overarching goal of the programme was to reduce health inequalities through three areas: crime, community, and housing and environment.⁸ A recent evaluation of the impact of these programmes found no significant improvement or worsening of health and wellbeing (specifically, mental health, self-rated health and life satisfaction) in NDC residents. (Health trajectories in regeneration areas in England: the impact of the New Deal for Communities intervention)

Researchers in the West Midlands NDC areas looked at the impact of regeneration on local communities.⁷⁷ They used semi-structured interviews with community health and social care professionals. Social isolation was a significant issue, particularly among single mothers and older people. One interviewee described the regeneration area as a 'black hole in the city' in terms of services. Another neighbourhood had good local bus services but was lacking: large supermarkets, leisure facilities, parks, playgrounds and good pubs. In essence, there was 'not a lot there for socializing.'⁷⁷ As this was not a built environment study, there was no description of why these facilities were lacking after the regeneration programme. But this does provide

lessons learned for future projects.

Single Regeneration Budget in South Manchester

Mental health has been the focus of several regeneration and health studies. One study of the Single Regeneration Budget programme compared a regeneration area with a matched control area in South Manchester.⁷⁸ The researchers wanted to understand the impact of various neighbourhood characteristics on residents' mental health and quality of life. Through the interviews they explored how the local area affected mental health. Anti-social behaviour, lack of facilities, sense of decline in the neighbourhood and employment were key factors.

The authors concluded that low social capital and trust created a vicious circle in the area. Local partnership organisations also struggled to develop the necessary relationships with residents to make regeneration programmes successful. For example, the regeneration team outnumbered local residents at one regeneration open meeting. The authors recommended that regeneration agencies 'develop practices which promote a sense of security, increase leisure opportunities, and where necessary improve the image of the locality' to improve engagement and participation.⁷⁸ Specifically this included: secure play areas, safety at night, and cheap or free transport.

East London

The Olympic Regeneration in East London (ORIEL) study is a prospective cohort study evaluating the health impact of regeneration on young people and families in East London. This ongoing project gathered baseline data prior to the start of the London 2012 Olympic and Paralympic Games.⁷⁹ Environmental factors affecting physical activity were assessed using a questionnaire developed and validated by another research group.⁸⁰ Participants who described their neighbourhood as more 'amenable to walking and cycling were significantly more likely to be physically active and less likely to be sedentary than those who described the neighbourhood as more difficult to walk or cycle.'⁷⁹ Future research from this project should provide useful insights about the impact of regeneration on health and wellbeing.

King's Cross Central Regeneration Project

The King's Cross Central regeneration project is one of the largest in London and Europe covering 67 acres.⁸¹ People living around this formerly industrial urban site have significant levels of deprivation in relation to health, crime, unemployment, housing and environmental conditions.⁸² Working in partnership with Islington, Camden Council's vision for the site is to be 'stronger, healthier, safer, more economically successful and very sustainable, with excellent services.'⁸³

Elements of healthy communities came across strongly in the consultation with the local community asking for 'cleaner, safer streets, jobs, homes including those that are affordable, green spaces, shopping, community, leisure and better healthcare

and leisure facilities again including those that are affordable.⁸³ The 'top 20' issues raised in public consultation included many health related issues, such as leisure and sports facilities and open space.⁸⁴

The King's Cross Opportunity Area Planning and Development Brief sets out a clear vision for tackling health inequalities and regenerating the area to provide health and wellbeing benefits for new residents and visitors. The Brief explains how the council expects the project to address health and minimise impacts throughout the design and construction process. For example, this aim has resulted in the £2m purpose-built Construction Skills Centre which provides training, apprenticeships and employment advice for jobs in the construction sector.⁸⁵

The design vision is for a high-density mixed-use sustainable development with access to amenities and high quality open space. This vision has been realised in the phases which have been completed to date. The Brief emphasises the following requirements:

- connectivity within and beyond the site
- streets designed for people
- mixed uses and active frontages
- integration of uses across the site
- cultural and leisure activities which promote and respond to local culture, youth, sports, media and art
- open space and public realm (in various forms) which integrates multiple activities and ages
- environmental sustainability
- affordable housing
- high quality design throughout
- integrated transport
- appropriate provision of facilities and services (crèche, schools, play areas, community meeting spaces, and healthcare facilities)

The King's Cross Central site construction continues, but early phases demonstrate that these principles have been carried through the design and construction.



4. Innovative ways to involve communities in healthy planning

Trying to understand residents' perceptions about health and place can be a challenging undertaking. Urban planning scholars draw on predecessors such as Kevin Lynch in recognising that the relationship between people and their environment is complex and observations 'are filtered through personal values, beliefs and attitudes.'⁸⁶ In relation to health and place, there may be conflicting views between community members and experts about what is important.⁸⁷ Multi-method approaches to investigating residents' views are a good way to unpick these experiences and reach diverse members of the population.⁸⁶⁻⁸⁸

There are many techniques used to gather residents' perceptions about their local area including: surveys, focus groups, community mapping, and participatory design approaches.⁸⁹ There are also many methods used in Health Impact Assessment (HIA) for gathering local opinions about health issues and the environment.⁹⁰ This section describes some of these methods, particularly through examples where they have been used to inform local policy and regeneration projects considering health and wellbeing objectives.

Asset mapping

A commonly recommended approach to understanding places which are important for social networks and interaction is community asset mapping. The King's Fund recommends using existing community assets to build social capital through a variety of programmes such as befriending schemes and supporting volunteering.³⁷ Various techniques for mapping community assets are described in the sections below.

Asset mapping in Seattle, USA

Planners in Seattle, Washington, USA used asset mapping to undertake a Healthy Living Assessment as part of the planning process for a small area plan in the Rainier Beach neighbourhood. The assessment combined public health data with data collected at the local level by asking residents to map neighbourhood assets and how they commuted to these. The planners then produced maps which showed the community gathering places and how they were connected. The Healthy Living Assessment included a framework, indicators, a questionnaire and asset mapping.⁹¹



Community workshop/event

Large-scale events can accommodate many people and provide an opportunity for the council to both communicate messages and hear from the community. Community groups may also be able to help with organisation and facilitation of large events.

Community perceptions of 'Getting out and about in Newcastle'

Newcastle City Council began developing a city-wide Movement and Access Plan in 2010. The Council recognised the importance of mobility for health equity and wellbeing alongside sustainability and economic development issues. A team of transport planners, representatives of vulnerable people and healthy policy staff spent five months preparing for an engagement event with local residents to gather views about mobility issues in the city. The group gathered existing data and asked a range of community groups to prepare posters about travel in the local area.

Participants at the event included over 90 people from transport and community groups. The day began with a performance by a local older people's drama group called 'Old Spice'. This show used humour to highlight the difficulties older people face when leaving the house, depicting the required equipment as: a portable seat, a potty, trainers, a magnifying glass and binoculars. The ice-breaker was followed by small group discussions in nine 'Travel Zones' using the prepared posters. In the small groups, participants used stickers to connect their ideas to improvements across the wellbeing topic areas: social wellbeing/inclusion, physical wellbeing, emotional wellbeing, financial wellbeing or environmental wellbeing.⁹²

Voting pads were used to gather data during the event. Respondents reported having the greatest difficulty getting to leisure and learning opportunities, followed by family and friends, work and shopping.⁹³ People described a number of barriers to getting around on foot and they developed solutions to address these issues (see Table 2)⁹⁴:

Table 2 - Barriers and solutions identified in Newcastle mobility event

Barriers	Solutions
<ul style="list-style-type: none"> • parked cars on pavement • pot holes • loose pavements • road safety • facilities • slippery pavement surfaces • width of roads and pavements • wheelie bins obstructing pavements • poorly lit subways • off putting shrubbery • litter 	<ul style="list-style-type: none"> • railings on pavements to prevent car parking • better maintenance of paving • improved lighting • restricting height of plants • inspection of city pedestrian crossings with the Disability Forum • better winter maintenance • resolving issues with drainage channels and accessible buses • addressing hazardous metal studs in the city centre

The case study report states that the event helped to build a sense of common understanding of the mobility issues facing people in the city. It also helped the transport and planning officers connect with different stakeholders and residents. The event supported a bid to a Local Sustainable Transport Fund.⁹²

Understanding urban living through images

Photographs have been used by a number of research projects (alongside other quantitative or qualitative methods) to understand perceptions of place. This method is particularly promoted for engaging with young people or those with varying verbal/writing abilities.^{86,95} Traditional methods, such as questionnaires, are problematic because the assumptions of their producers are built-in to the questions and they may not elicit the desired responses. An engagement approach using photography may also help with building trust between activity leaders and the community, particularly when engaging young residents of low income neighbourhoods.⁹⁵

One approach using photography is called ‘photo-survey’ which combines participants’ photos (taken independently) with discussion of the photos in one-to-one interviews. This method was seen to have multiple benefits, including:

- gives power and control to the participant
- uncovers parts of the city and residents’ lives that are not often seen by ‘outsiders’
- effective with young people and adults, as well as those with varying verbal/writing abilities
- elicited views that researchers felt would not have been accessed through interview questions alone.⁸⁶

There are some potential limitations as participants may not be able to photograph sensitive, personal, dangerous or invisible parts of urban life. A photo is also a ‘slice’ of a place in time and does not fully represent the activities (and perceptions of these) that may occur throughout the day/night and year.

Another social research method using photos is called Participatory Photo Mapping (PPM). This method is similar to a photo-survey with two additional steps of mapping the images and developing actions to present to policy and decision-makers.⁸⁷ Many combinations of these approaches are possible and need not follow any prescribed formula.

Belfast’s Shaping Healthier Neighbourhoods for Children

Belfast is a WHO Healthy City and this designation spurs a range of activities across the council to improve health. Their Healthy Urban Environments core theme was partly informed by a series of workshops with school children to understand their views about the health impact of their local environment.⁹⁶ The children were given single use cameras and allowed to photograph their school environment and its surroundings. The aim was to give children a voice and a role in the policy and decision-making process. Participants expressed strong preferences for green spaces (even small lots), clean public spaces and calmer traffic.⁹⁷



Credit Belfast Healthy Cities.

Participatory mapping

Although communicating through maps is an important part of spatial planning, some researchers have argued that this reinforces a 'top down' approach by local government.⁸⁹ Various community mapping and participatory mapping approaches have emerged through research and practice partnerships to rebalance the data used in policy and decision-making. The benefits of mapping include: expressing complex relationships and perceptions of neighbourhoods which contribute to social capital⁸⁹ and stimulating interest in and engagement with land-use planning.⁹⁸ Mapping can be done in a variety of ways using one-to-one or small group sessions. Participants can work directly with maps or data can be gathered (e.g. through walks, focus groups or photos) and later applied to maps for analysis.

Mapping older peoples' perceptions of aging in place

A project in Western Canada involved 'experiential group walks' with older people in an affordable senior housing development.⁹⁹ Researchers worked with a diverse group of older people (60+) and local decision-makers and service providers. The project used the group walks and a separate mapping workshop to gather residents' views about place, including active participation in the community and social networks. Additional workshops developed the results into solutions and an implementation plan. The results showed that older people wanted more accessibility and availability of age-appropriate community activities to support socialising with peers.

Exploring healthy food access in Sandwell

Researchers in Sandwell in the West Midlands sought to understand local healthy food availability to increase its supply and demand. The project was partly spurred on by high levels of obesity, diabetes and other chronic disease. The team used food mapping alongside qualitative interviews. The mapping showed there were 'large networks of streets and estates within Sandwell with no shops selling fruit and/or vegetables, or if such food did exist it was unaffordable.'¹⁰⁰ Small retail shops were struggling to survive in the area, particularly if they attempted to sell perishable foods. Additional interviews with local school children and parents looked at food choices and attitudes to food. These showed that local people understood the 'precepts of healthy eating, [but] this is not reflected in food choice.'¹⁰⁰

This research led to winning a Neighbourhood Renewal Fund grant for an 'Eatwell in Sandwell' project. The project sought to link regeneration and health through food in three neighbourhoods. Food retail experts worked with local shops to display and introduce fresh produce, even advising on 'whole shop' improvements. The team created Food Interest Groups (FIGs) to address the issue of demand, or lack of demand, for healthy foods. In discussion groups with the FIGs, the researchers found that healthy eating was influenced by a complex range of factors and simply supplying healthy food would not necessarily solve local issues. One participant said 'Most people shop in supermarkets now where fruit and vegetables are available – but they still buy junk and kids want it. Fruit and vegetables in supermarkets is expensive.'¹⁰⁰

Using information from the FIGs, the retail shops modified their

produce offer and displays. The project resulted in a number of benefits for local shops and residents, such as:

- increased sales of fruit and vegetables
- general increased sales
- increased local shopping
- older people accessing smaller quantities and cut vegetables
- increased sense of community and security
- better relationships between shopkeepers and residents
- reduced isolation
- more independence for some residents.¹⁰⁰

Youth perceptions of neighbourhood food environment in Madison, Wisconsin

The Youth Mapping for Safe and Healthy Neighbourhoods Initiative identified health promoting and health detracting built environment features with young residents in a Madison neighbourhood and shared results with local decision-makers.⁸⁷ The researchers used photography because of the previously stated benefits of this engagement method for young people.

The project involved three phases. First, groups of children looked at aerial photographs of the neighbourhood and discussed 'places they knew, where they spent time, and where they lived and played.'⁸⁷ Second, participants documented their experiences through digital photos of their normal use of community and recreation environments as researchers walked with them through their neighbourhood. The young people used GIS units to track the walk so that the images could be mapped. The images were then discussed in focus groups. In several cases there were multiple interpretations of the same images by different groups. Finally, the young people and the researchers presented their findings (with maps) to decision-makers including: local community leaders, residents, journalists, police and healthcare staff.

This project resulted in some surprising findings. The team were not aware that young people were behaving counter to expectations with regard to diet and exercise (exhibiting unhealthy behaviour in an environment that promoted healthy behaviour).

The project mapped images about food in the neighbourhood and the youths' perceptions of specific food and vendors. Fried chicken was the most frequently photographed topic for all age groups. Despite this neighbourhood having access to fresh fruit and vegetables via convenience stores, restaurants, grocers, a weekly farmer's market and a community allotment, participants rarely purchased fresh foods. Some of the participants were African-American teens and they found certain food vendors 'unwelcoming' and reported 'frequent harassment, discrimination and distrust'.⁸⁷ Despite the local farmer's market being set-up by an African American farmer who was an established resident involved in teaching youths about growing, cooking and eating organic produce, the research participants described images of the produce at the market as 'nasty'.⁸⁷

Another telling example was about physical activity and open space. Similar to the nutrition environment, this neighbourhood had the hallmarks of a walkable community where 'shaded

tree-lined sidewalks connect the many formal and informal recreation settings in the neighborhood ... [and] mixed land-uses and multi-use greenway trails... are present, well-designed and well-maintained.¹⁸⁷ Participants linked these areas with specific crime events (such as shootings) and fear of crime. Events such as shootings are marked by informal memorials creating a lingering presence in the local landscape. The research team noted that there were few photos of adults in the public space areas. Both of these examples demonstrated the complexity of people's experience of place and health to the researchers.

Group street audits

Understanding local context is emphasised as a key lesson learned from previous efforts to increase physical activity. Engagement between communities and planning professionals can uncover surprises, such as the example from Madison above. Organising a walkabout or community street audit (which can be done with specific groups such as children or older people) can expose local issues and opportunities.

The Community Street Audit method was designed by Living Streets and is comparable to other survey methods where planners or researchers walk through a neighbourhood with residents to discuss and record perceptions. Living Streets define their audit tool as 'a way to evaluate the quality of streets and spaces from the viewpoint of the people who use them, rather than those who manage them.'¹⁰¹

Walkability in Calton through a Community Street Audit

As part of Glasgow's Equally Well Test Site, a Community Street Audit was undertaken in Calton by Living Streets. This audit was part of a larger healthy urban planning project and focused specifically on walking. The audit report states that there were high levels of walking in the area, although residents were concerned about safety issues, a poor built environment and the poor quality of the neighbourhood generally. Although walking was the main form of transport for residents, the area had the lowest levels of physical activity in Glasgow's Smarter Choices Smarter Places Programme.

The street audit report contains images of the local area with corresponding quotations from the participants of the walk. The findings demonstrated how the community viewed walkability and showed that although they were not far from Glasgow city centre, residents did not want to go into the centre to access most activities and services. More detailed findings uncovered issues with pedestrian facilities such as crossings, pedestrian priority (length of crossing time), legibility, local traffic speeds, accessibility, maintenance, crime and safety. More positively, the report also explored assets that could be further developed or improved (such as a disused church that could be a café or community centre) for use as local social destinations.

The findings from the audit were intended to inform the council's local development framework. A senior planner from the council was quoted as saying:

'The response to the Street Audit has been positive and we have obtained funding to deliver 'quick wins' in the area. The

final report is proving a very useful document for attracting funding and justifying spend in the area.'¹⁰²



Digital engagement

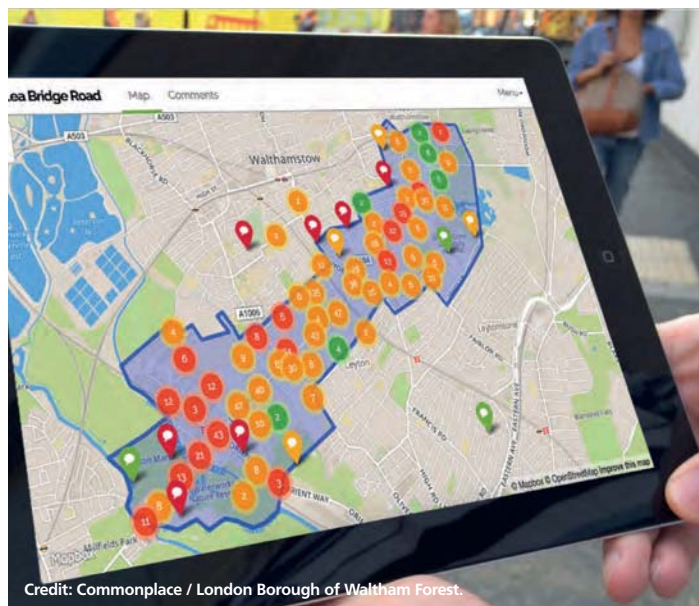
A number of councils have started using websites and apps to engage with the public for policy development and specific proposals. Public engagement apps, like Commonplace and City Swipe, can be used on smartphones, tablets and computers and provide a way to reach a different demographic (usually younger) than is typical found at engagement events.

The Future Cities Catapult has an ongoing research project about modernising planning practice through digital applications. Their Future of Planning: State of the Art Innovations in Digital Planning report showcases additional examples to those listed below.¹⁰³

Community views on transport infrastructure in Waltham Forest

The Commonplace app allows users to comment on issues in a local area and the comments are then pinned on to a map. The Commonplace brochure states that the public map of comments 'builds trust and interest in the engagement' activities.¹⁰⁴ The tool can also be used to collect data from one-to-one interviews or in focus groups (e.g. where tablets are passed around to participants). Data is analysed immediately and accessible in reports and infographics via a client dashboard. Case studies and further information are available on the company's website.

The London Borough of Waltham Forest used the Commonplace app to engage the local community on a £30m investment program in local cycling facilities and public space. Over 15,000 comments were received from the public about their needs and feedback on design. The findings were unexpected for some members of the community. For example, local shop owners thought that most people drove to their



Population Health and the Greater Glasgow and Clyde NHS to create a placemaking tool for a Test Site project. The two key areas of focus for the project were to use placemaking to address obesity (through walking and cycling) and mental health (through greater involvement in neighbourhood design and decision-making). This effort was led by the Council's Development & Regeneration Services.

The project developed a Healthy Sustainable Neighbourhoods (HSN) model which encouraged people to think about the 'jigsaw' of issues that affect health in a neighbourhood (such as transport, housing and leisure).¹⁰⁶ They then developed this model into a computer application called the HSN Placemaker Tool. The interactive tool sought to 'stimulate thinking and generate debate' about how local services (including planning) can create healthier places by working with communities.¹⁰⁷ Users accessed images of existing streetscapes across Scotland and chose from a selection of options to change the look or use of a place. During the process of using the tool, users were prompted to think about the impact of their choices on community health and wellbeing and the natural environment.¹⁰⁷

shops and were surprised to find that most people walk.¹⁰⁵ Questions can be loaded on to the app in a survey format. Some of the questions used on this project (in tandem with the map) included:

- How do you feel about the places you have marked on the map?
- Why do you feel like this? (responses included: 'difficult to get around', 'it feels safe', and 'it feels like a community')
- What would you like to see more of in the place selected, particularly to make it better for walking and cycling? (responses included: 'more bus stops', 'more local shops', 'less traffic', 'slower traffic', 'places to sit', 'better lighting', 'better pavements', 'public transport information', 'safer crossing points', and 'more plants and trees')
- Is there anything else that would encourage you to walk or cycle more in the area?

The responses were collected and displayed in infographics explaining how the majority of people felt about certain issues or listing the 'top five' responses to certain questions. The Commonplace app has been used by developers and local authorities including the Northstowe new town near Cambridge, an NHS Healthy New Town.

HSN Placemaker Tool

Glasgow City Council worked with the Glasgow Centre for

The partners felt that the tool was helpful in: building trust with the local community; communicating links between place and quality of life; using an 'asset based' approach; and raising community confidence and capacity.¹⁰² The HSN Placemaker tool is no longer funded, however it was used to inform the Place Standard tool which has a strong emphasis on health and wellbeing.

5. Urban health indicators

Planners can use indicators about health and the urban environment to inform policy development and monitor impact over time.

The WHO Healthy Cities project is one of the early examples of the use of urban health indicators to inform policy across local government.¹⁰⁸ Indicators are 'succinct measures that aim to describe as much about a system as possible in as few points as possible.'¹⁰⁹ A set of urban health indicators generally includes measures of the urban environment impact on health (e.g. particles of air pollution or kilometres of cycle paths) and population health data (e.g. life expectancy or prevalence of certain diseases). It is helpful to choose indicators that can be tracked over time through routine data collection and to use data at an appropriate spatial scale to inform and monitor policy.

Public health teams and planning colleagues use indicators to achieve the following:

- inform policies and decisions
- monitor policy impact over time

- compare performance with local, regional, national or international levels
- determine targets for improvement
- demonstrate performance to residents or government (accountability/performance management)
- support applications for funding
- involve the public in prioritisation and definition of policy goals
- understand local strengths and weaknesses.¹¹⁰⁻¹¹⁷

Mapping indicator data can be a useful visual tool to communicate with locally elected members about health and planning issues, particularly in relation to inequalities.¹¹⁸ A recent review of urban health indicator tools found 145 different tools globally, comprising 8006 indicators.^{119,120} Rather than develop a new indicator set, it may be possible to pick and choose from existing tools. The following examples of indicator projects (Table 3) are a helpful starting point for selecting local indicators to aid with policy development and monitoring.

Table 3 – Example sets of urban health indicators

Indicator project	Description
Community Indicators Victoria ¹²¹	Over 80 community wellbeing indicators measuring multiple aspects of community impact on health and wellbeing in Victoria (Australia). Data is available through reports and maps. http://www.communityindicators.net.au/
Glasgow Indicators Project ¹²²	Set of indicators monitoring health and the wider determinants of health in Glasgow. http://www.understandingglasgow.com/
Local Health ¹²³	An interactive tool with mapped data about health and health determinants going down to ward level in England. http://www.localhealth.org.uk/#! =en,v=map4
London Ward Well-Being Scores ¹²⁴	Set of 12 wellbeing indicators in an interactive tool allowing comparison and mapping of ward level scores across London. http://data.london.gov.uk/dataset/london-ward-well-being-scores
San Francisco Indicator Project ¹²⁵	Set of indicators displayed on maps showing how San Francisco's (USA) neighbourhoods perform in 8 domains of a healthy equitable community. Includes a Healthy Development Measurement Tool and case studies. http://www.sfindicatorproject.org/

6. Further guidance

Topic	Guidance
Healthy development checklist or assessment	London Healthy Urban Development Unit's <i>Healthy Urban Planning Checklist</i> ¹²⁶
	The Spatial Planning and Health Group's <i>Steps to Healthy Planning: Proposals for Action</i> . ¹²⁷
	U.S. Centers for Disease Control and Prevention's <i>The Built Environment: An Assessment Tool and Manual</i> ¹²⁸
General guidance	Urban Land Institute's <i>Building healthy places toolkit: strategies for enhancing health in the built environment</i> ¹²⁹
	Town and Country Planning Association's <i>Reuniting Health with Planning Healthier Homes, Healthier Communities</i> ¹³⁰ , <i>Planning healthier places: report from the reuniting health with planning project</i> ¹³¹ , <i>Plugging health into planning: evidence and practice</i> ¹³²
	Geddes et al.'s <i>The Marmot Review: Implications for Spatial Planning</i> ⁵
	American Planning Association's <i>Healthy Plan Making - Integrating Health Into the Comprehensive Planning Process: An analysis of seven case studies and recommendations for change</i> ⁹¹
	Public Health England's <i>Spatial Planning for Health: An evidence resource for planning and designing healthier places</i> . ¹³⁹
Housing/Building Design	BRE's <i>Health and wellbeing in BREEAM</i> ¹³³
	World Green Building Council's <i>Building the Business Case: Health, Wellbeing and Productivity in Green Offices</i> ¹³⁴
	UK Green Building Council's <i>Health and Wellbeing in Homes</i> ¹³⁵
Hot-food takeaway (and high streets)	London Healthy Urban Development Unit's <i>Using the planning system to control hot food takeaways: A good practice guide</i> ¹³⁶
	Royal Society for Public Health's <i>Health on the High Street</i> ²⁴
Development economics for health	Urban Land Institute's <i>Building for Wellness: The Business Case</i> ¹³⁷
	Town and Country Planning Journal's <i>The Value of Healthy Places - for Developers, Occupants and Society</i> ¹³⁸



Conclusion

This report demonstrates that there is a growing interest from planning organisations and professionals in using the planning system to improve health and wellbeing. The research found examples of planning and health projects in the UK, USA, Australia and Canada of varying scales and objectives. However these projects are not always seen as a core priority for planning. There is a need for more training and dissemination of best practice across planning policy and development management processes to ensure health is better integrated into standard planning practice.

The healthy planning project led by Southwark and Lambeth went beyond 'business as usual' by carrying out in-depth quantitative and qualitative research into location-specific health issues for residents of these boroughs. The project built on the existing evidence base of built environment and health impacts (summarised in this document and elsewhere) in relation to their key health priorities. This local research into residents' needs will inform local planning and regeneration policies and will be regularly monitored and evaluated to assess impact.

The projects mentioned in this report emphasised the importance of collaborating across local authority policy teams and building trust with the local community. Although it may not always be possible to invest in a large-scale social research project, there may be local community groups, schools or colleagues within a local authority (such as the public health team) who can help with engaging the community about health and place. This report provided a range of methods to engage communities to build local evidence about peoples' needs for a healthy environment. There are also new digital tools that could reduce engagement costs.

Although there are still some uncertainties about the health impact of built environment policies, there are many existing tools and guidance documents that planners can build on to inform local healthy planning policies. Planners can make use of this support and work collaboratively with local partners and the community to develop, monitor and adjust policies which create health-promoting environments.



References

- 1 Barton H. Healthy urban planning: setting the scene. *Built environment* 2005; 31: 281–287.
- 2 Verbeek T, Boelens L. Environmental health in the complex city: a co-evolutionary approach. *Journal of Environmental Planning and Management* 2016; 59: 1–20.
- 3 Frumkin H. Urban Sprawl and Public Health. *Public Health Reports (1974-)* 2002; 117: 201–17.
- 4 Marmot MG. Fair society, healthy lives: the Marmot review ; strategic review of health inequalities in England post-2010. London: Marmot Review, 2010.
- 5 Geddes J, Allen J, Allen M, Morrissey L. The Marmot Review: Implications for Spatial Planning. London: University College London, 2011.
- 6 WHO Commission on Social Determinants of Health. Addressing the social determinants of health: the urban dimension and the role of local government. Copenhagen, Denmark: World Health Organization Regional Office for Europe, 2012.
- 7 Thomson H, Atkinson R, Petticrew M, Kearns A. Do urban regeneration programmes improve public health and reduce health inequalities? A synthesis of the evidence from UK policy and practice (1980–2004). *J Epidemiol Community Health* 2006; 60: 108–15.
- 8 Walthery P, Stafford M, Nazroo J, et al. Health trajectories in regeneration areas in England: the impact of the New Deal for Communities intervention. *J Epidemiol Community Health* 2015; 69: 762–8.
- 9 Egan M, Kearns A, Katikireddi SV, Curl A, Lawson K, Tannahill C. Proportionate universalism in practice? A quasi-experimental study (GoWell) of a UK neighbourhood renewal programme's impact on health inequalities. *Social Science & Medicine* 2016; 152: 41–9.
- 10 Sarkar C, Webster C, Gallacher J. UK Biobank Urban Morphometric Platform (UKBUMP) – a nationwide resource for evidence-based healthy city planning and public health interventions. *Annals of GIS* 2015; 21: 135–48.
- 11 Prüss-Üstün A, Wolf J, Corvalan C, Bos R, Neira M. Preventing disease through healthy environments: a global assessment of the burden of disease from environmental risks. World Health Organization, 2016 http://apps.who.int/iris/bitstream/10665/204585/1/9789241565196_eng.pdf?ua=1 (accessed April 18, 2016).
- 12 Regional Plan Association. State of the Region's Health: How the New York Metropolitan Region's Urban Systems Influence Health. Regional Plan Association, Robert Wood Johnson Foundation, 2016.
- 13 Town and Country Planning Association. Public Health in Planning: Good Practice Guide for London Boroughs. 2015; http://www.tcpa.org.uk/data/files/Health_and_planning/2015_health/Submit_-_TCPA_FINAL_Policy_Review.pdf (accessed Aug 24, 2016).
- 14 United Nations Department of Economic and Social Affairs. World population ageing, 1950–2050. New York: United Nations, 2002 <http://www.un.org/esa/population/publications/worldageing19502050/>.
- 15 Burton L. Mental Well-Being and the Influence of Place. In: Barton H, Thompson S, Grant M, Burgess S, eds. *The Routledge handbook of planning for health and well-being: shaping a sustainable and healthy future*. London; New York: Taylor and Francis, 2015: 150–77.
- 16 Butland B, Jebb S, Kopelman P, et al. Tackling Obesities: Future Choices: Project Report. London: UK Government Office for Science, 2007 <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.408.2759&rep=rep1&type=pdf> (accessed June 16, 2015).
- 17 Fontaine KR. Physical Activity Improves Mental Health. *The Physician and Sportsmedicine* 2000; 28: 83–4.
- 18 Lee I-M, Shiroma EJ, Lobelo F, Puska P, Blair SN, Katzmarzyk PT. Effect of physical inactivity on major non-communicable diseases worldwide: an analysis of burden of disease and life expectancy. *The Lancet* 2012; 380: 219–29.
- 19 Sallis JF, Cerin E, Conway TL, et al. Physical activity in relation to urban environments in 14 cities worldwide: a cross-sectional study. *The Lancet* 2016; 387: 2207–17.
- 20 Petrokofsky C, Davis A. Working Together to Promote Active Travel: A briefing for local authorities. 2016. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/523460/Working_Together_to_Promote_Active_Travel_A_briefing_for_local_authorities.pdf (accessed May 16, 2016).
- 21 Chief Medical Officers. Start Active Stay Active: A report on physical activity for health from the four home countries' Chief Medical Officers. London: Department of Health, 2011.
- 22 World Health Organization. Global status report on noncommunicable diseases 2014: attaining the nine global noncommunicable diseases targets; a shared responsibility. Geneva: World Health Organization, 2014.
- 23 HUDU Planning for Health: Using the planning system to control for hot food takeaways. 2013.
- 24 Royal Society for Public Health. Health on the High Street. RSPH, 2015 <https://www.rsph.org.uk/en/policy-and-projects/campaigns/health-on-the-high-street/index.cfm>.
- 25 Black C, Moon G, Baird J. Dietary inequalities: What is the evidence for the effect of the neighbourhood food environment? *Health & Place* 2014; 27: 229–42.
- 26 Robertson H. Integration of health and social care: A review of literature and models, Implications for Scotland. 2011; https://www2.rcn.org.uk/_data/assets/pdf_file/0008/455633/Hilarys_Paper.pdf (accessed Sept 23, 2016).
- 27 Bailey P. Learning from Healthy Living Centres: final evaluation summary. 2007; file:///C:/Users/PineoH/Downloads/er_eval_hlc_final_eval_summ.pdf.
- 28 Sarkar C, Gallacher J, Webster C. Urban built environment configuration and psychological distress in older men: Results from the Caerphilly study. *BMC Public Health* 2013; 13: 695.
- 29 Saelens BE, Sallis JF, Frank LD. Environmental correlates of walking and cycling: Findings from the transportation, urban design, and planning literatures. *ann behav med* 2016; 25: 80–91.
- 30 Hajna S, Ross NA, Brazeau A-S, Bélisle P, Joseph L, Dasgupta K. Associations between neighbourhood walkability and daily steps in adults: a systematic review and meta-analysis. *BMC Public Health* 2015; 15: 768.
- 31 Mackenbach JD, Rutter H, Compernelle S, et al. Obesogenic environments: a systematic review of the association between the physical environment and adult weight status, the SPOTLIGHT project. *BMC Public Health* 2014; 14: 1.
- 32 Dudley Metropolitan Borough Council, Sandwell Metropolitan Borough Council, Walsall Council, Wolverhampton City Council. Black Country Core Strategy. 2011; <http://blackcountrycorestrategy.dudley.gov.uk/>.
- 33 Planning for Health Supplementary Planning Document. 2013; <http://www.dudley.gov.uk/resident/planning/planning-policy/local-plan/health-spd/>.
- 34 Manchester's Local Development Framework: Core Strategy Development Plan Document. 2012; http://www.manchester.gov.uk/downloads/download/4964/core_strategy_development_plan.
- 35 Davison KK, Lawson CT. Do attributes in the physical environment influence children's physical activity? A review of the literature. *Int J Behav Nutr Phys Act* 2006; 3: 19.
- 36 Cairns J, Warren J, Garthwaite K, Greig G, Bamba C. Go slow: an umbrella review of the effects of 20 mph zones and limits on health and health inequalities. *J Public Health* 2015; 37: 515–20.
- 37 Buck D, Gregory S. Improving the public's health: a resource for local authorities. London: The King's Fund, 2013.
- 38 Mindell JS, Karlsen S. Community Severance and Health: What Do We

- Actually Know? *J Urban Health* 2012; 89: 232–46.
- 39 Anciaes PR, Jones P, Mindell JS. Community Severance: Where Is It Found and at What Cost? *Transport Reviews* 2016; 36: 293–317.
- 40 Combatting Lonliness: A guide for local authorities. 2016. <http://www.local.gov.uk/documents/10180/7632544/L15-431+Combating+loneliness+-+a+guide+for+local+authorities/b4b88757-2623-4696-ae04-565892a58909> (accessed Sept 9, 2016).
- 41 Greed C. The role of the public toilet: pathogen transmitter or health facilitator? *Building Services Engineering Research & Technology* 2006; 27: 127–39.
- 42 Stockport Metropolitan Borough Council Local Development Framework: Core Strategy DPD (adopted 17 March 2011). 2011. <http://www.stockport.gov.uk/services/environment/planningbuilding/planningpolicy/ldf/corestrategy/>.
- 43 Kahlmeier S, Kelly P, Foster C, et al. Health economic assessment tools (HEAT) for walking and for cycling: methodology and user guide: economic assessment of transport infrastructure and policies. Copenhagen: World Health Organisation, Regional Office for Europe, 2014.
- 44 Cavill N, Rutter H. Obesity and the environment: increasing physical activity and active travel. United Kingdom: Public Health England; Local Government Association, 2013 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/256796/Briefing_Obesity_and_active_travel_final.pdf.
- 45 Bowler DE, Buyung-Ali L, Knight TM, Pullin AS. The importance of nature for health: is there a specific benefit of contact with green space? (systematic review). *Environmental Evidence: Collaboration for Environmental Evidence*, 2010 <http://www.environmentalevidence.org/SR40.html> (accessed July 24, 2016).
- 46 Gascon M, Triguero-Mas M, Martínez D, et al. Mental Health Benefits of Long-Term Exposure to Residential Green and Blue Spaces: A Systematic Review. *International Journal of Environmental Research and Public Health* 2015; 12: 4354–79.
- 47 Ka mierczak A. The contribution of local parks to neighbourhood social ties. *Landscape and Urban Planning* 2013; 109: 31–44.
- 48 Institute of Health Equity. Local action on health inequalities: Improving access to green spaces. London: Public Health England, 2014.
- 49 Hunter RF, Christian H, Veitch J, Astell-Burt T, Hipp JA, Schipperijn J. The impact of interventions to promote physical activity in urban green space: A systematic review and recommendations for future research. *Social Science & Medicine* 2015; 124: 246–56.
- 50 Bristol's Parks and Green Space Strategy. 2008; https://www.bristol.gov.uk/documents/20182/34780/Parks%20and%20Green%20Space%20Strategy%20-%20adopted%20Feb%202008_0_0_0_0_0.pdf/6bb2635a-ac11-4f22-b6fd-5b708b329940 (accessed Sept 22, 2016).
- 51 Royal Greenwich Local Plan: Core Strategy with Detailed Policies (adopted 30 July 2014). 2014. file:///C:/Users/PineoH/Downloads/Royal_Greenwich_Local_Plan__Core_Strategy_with_Detailed_Policies_main.pdf.
- 52 Alexander C. The timeless way of building / [by] Christopher Alexander. New York: Oxford University Press, 1979.
- 53 Gehl J. 'Soft edges' in residential streets. *Scandinavian Housing and Planning Research* 1986; 3: 89–102.
- 54 IDGO (Inclusive Design for Older People). Why does the outdoor environment matter? 2012. <http://idgo.acuk/pdf/Intro-leaflet-2012-FINAL-MC.pdf> (accessed Sept 24, 2016).
- 55 Greater London Authority. Housing Supplementary Planning Guidance. 2016; published online March.
- 56 Alidoust S, Bosman C. Planning for an ageing population: links between social health, neighbourhood environment and the elderly. *Australian Planner* 2015; 52: 177–86.
- 57 Foster S, Giles-Corti B. The built environment, neighborhood crime and constrained physical activity: An exploration of inconsistent findings. *Preventive Medicine* 2008; 47: 241–51.
- 58 Bogar S, Beyer KM. Green Space, Violence, and Crime A Systematic Review. *Trauma Violence Abuse* 2016; 17: 160–71.
- 59 Ellaway A, Macintyre S, Bonnefoy X. Graffiti, greenery, and obesity in adults: secondary analysis of European cross sectional survey. *BMJ* 2005; 331: 611–2.
- 60 Newham 2027 Newham's Local Plan - The Core Strategy. 2012; <https://www.newham.gov.uk/Documents/Environment%20and%20planning/CoreStrategy2004-13.pdf> (accessed Sept 24, 2016).
- 61 Gordon-Larsen P, Nelson MC, Page P, Popkin BM. Inequality in the Built Environment Underlies Key Health Disparities in Physical Activity and Obesity. *Pediatrics* 2006; 117: 417–24.
- 62 Gomez LF, Sarmiento OL, Parra DC, et al. Characteristics of the Built Environment Associated With Leisure-Time Physical Activity Among Adults in Bogotá, Colombia: A Multilevel Study. *Journal of Physical Activity & Health* 2010; 7: S196–203.
- 63 Diez Roux AV, Evenson KR, McGinn AP, et al. Availability of recreational resources and physical activity in adults. *Am J Public Health* 2007; 97: 493–9.
- 64 Audrey S, Batista-Ferrer H. Healthy urban environments for children and young people: A systematic review of intervention studies. *Health and Place* 2015; 36: 97–117.
- 65 November L. The Impact of Faith-based Organisations on Public Health and Social Capital: A FaithAction review and policy paper. FaithAction, 2014 <http://www.faithaction.net/wp-content/uploads/2014/09/FaithAction-Public-Health-Report.pdf> (accessed April 26, 2016).
- 66 Forrest D. An economic and social review of gambling in Great Britain. *The Journal of Gambling Business and Economics* 2013; 7: 1–33.
- 67 Shaffer HJ, Korn DA. Gambling and Related Mental Disorders: A Public Health Analysis. *Annu Rev Public Health* 2002; 23: 171–212.
- 68 Williams RJ, Rehm J, Stevens RMG. The social and economic impacts of gambling. Final report prepared for the Canadian Consortium for Gambling Research. 2011. <http://www.umass.edu/seigma/sites/default/files/SEIG%20Report-Williams%20Rehm%20%20Stevens%202011.pdf> (accessed Oct 14, 2016).
- 69 Caspi CE, Sorensen G, Subramanian SV, Kawachi I. The local food environment and diet: A systematic review. *Health & Place* 2012; 18: 1172–87.
- 70 Fraser LK, Edwards KL, Cade J, Clarke GP. The Geography of Fast Food Outlets: A Review. *Int J Environ Res Public Health* 2010; 7: 2290–308.
- 71 Cobb LK, Appel LJ, Franco M, Jones-Smith JC, Nur A, Anderson CAM. The relationship of the local food environment with obesity: A systematic review of methods, study quality, and results. *Obesity* 2015; 23: 1331–44.
- 72 Lambeth Local Plan Adopted September 2015. 2015. <https://www.lambeth.gov.uk/sites/default/files/pl-lambeth-local-plan-2015-web.pdf> (accessed June 22, 2017).
- 73 New Southwark Plan Preferred Option. 2015; published online Oct.
- 74 Central Lincolnshire Local Plan Team. Central Lincolnshire Proposed Submission Local Plan. 2016; published online April.
- 75 Armitage GD, Suter E, Oelke ND, Adair CE. Health systems integration: state of the evidence. *International Journal of Integrated Care* 2009; 9. DOI:10.5334/ijic.316.
- 76 Bond L, Egan M, Kearns A, Tannahill C. GoWell: The challenges of evaluating regeneration as a population health intervention. *Preventive Medicine* 2013; 57: 941–7.
- 77 Dalton S, Orford J, Parry J, Laburn-Pearl K. Three Ways of Talking about Health in Communities Targeted for Regeneration: Interviews with

- Community Professionals. *Journal of Health Psychology* 2008; 13: 65–78.
- 78 Rogers A, Huxley P, Evans S, Gately C. More than jobs and houses: mental health, quality of life and the perceptions of locality in an area undergoing urban regeneration. *Soc Psychiat Epidemiol* 2008; 43: 364–72.
- 79 Smith NR, Lewis DJ, Fahy A, et al. Individual socio-demographic factors and perceptions of the environment as determinants of inequalities in adolescent physical and psychological health: The Olympic Regeneration in East London (ORIEL) study. *BMC Public Health* 2015; 15. DOI:10.1186/s12889-015-1459-1.
- 80 Spittaels H, Verloigne M, Gidlow C, et al. Measuring physical activity-related environmental factors: reliability and predictive validity of the European environmental questionnaire ALPHA. *International Journal of Behavioral Nutrition and Physical Activity* 2010; 7: 48.
- 81 King's Cross Central Limited Partnership. About the redevelopment of King's Cross. King's Cross. <https://www.kingscross.co.uk/development> (accessed Aug 24, 2016).
- 82 King's Cross Community Projects. 2010 Index of Deprivation: The area within half a mile of King's Cross Station. <http://www.kccp.org.uk/wp-content/uploads/2011/04/Index-of-deprivation-KX-analysis.pdf> (accessed Aug 24, 2016).
- 83 King's Cross Opportunity Area Planning and Development Brief. 2004; published online Jan.
- 84 Arup. King's Cross Central Regeneration Strategy. 2004.
- 85 Urban Land Institute. King's Cross Case Study. 2014; <http://casestudies.uli.org/kings-cross/>.
- 86 Moore G, Croxford B, Adams M, Refaee M, Cox T, Sharples S. The photo survey research method: capturing life in the city. *Visual Studies* 2008; 23: 50–62.
- 87 Dennis Jr. SF, Gaulocher S, Carpiano RM, Brown D. Participatory photo mapping (PPM): Exploring an integrated method for health and place research with young people. *Health & Place* 2009; 15: 466–73.
- 88 Kelley M. Collaborative Digital Techniques and Urban Neighborhood Revitalization. *Social Work* 2011; 56: 185–8.
- 89 Talen E. Bottom-Up GIS: A New Tool for Individual and Group Expression in Participatory Planning. *Journal of the American Planning Association* 2000; 66: 279–94.
- 90 WHO | Health Impact Assessment. WHO. <http://www.who.int/hia/en/> (accessed Dec 4, 2015).
- 91 Ricklin A, Kushner N. Healthy Plan Making - Integrating Health Into the Comprehensive Planning Process: An analysis of seven case studies and recommendations for change. n.d. https://planning-org-uploaded-media.s3.amazonaws.com/legacy_resources/research/publichealth/pdf/healthyplanningreport.pdf.
- 92 Getting out and about easily: Developing a movement and access plan for Newcastle. http://www.healthycities.org.uk/uploads/files/016_getting_out_and_about_easily_newcastle.pdf (accessed Sept 8, 2016).
- 93 Getting out and about easily. 2011; <https://www.wellbeingforlife.org.uk/sites/default/files/Getting%20out%20and%20about%20easily%2018th%20Feb%202011.pdf> (accessed Sept 24, 2016).
- 94 Getting out and about easily by Foot: Tablecloth Comments. 2011. <https://www.wellbeingforlife.org.uk/sites/default/files/GOAB%20Easily%20by%20Foot.pdf> (accessed Sept 24, 2016).
- 95 Rudkin JK, Davis A. Photography as a tool for understanding youth connections to their neighborhood. *Children Youth and Environments* 2007; 17: 107–123.
- 96 Shaping Healthier Neighbourhoods for Children. 2011. <http://www.belfasthealthycities.com/sites/default/files/HealthierNeighbourhoodsReport.pdf> (accessed May 10, 2017).
- 97 Boydell L. Shaping healthier neighbourhoods for children. 2012. http://www.healthycities.org.uk/uploads/files/045_belfast.pdf.
- 98 Corbett J. Good practices in participatory mapping: A review prepared for the International Fund for Agricultural Development (IFAD). 2009. <https://www.ifad.org/documents/10180/d1383979-4976-4c8e-ba5d-53419e37cbcc> (accessed Sept 8, 2016).
- 99 Fang ML, Woolrych R, Sixsmith J, Canham S, Battersby L, Sixsmith A. Place-making with older persons: Establishing sense-of-place through participatory community mapping workshops. *Social Science & Medicine* DOI:10.1016/j.socscimed.2016.07.007.
- 100 Rosemary Kyle, Angela Blair. Planning for health: generation, regeneration and food in Sandwell. *Intl J of Retail & Distrib Mgt* 2007; 35: 457–73.
- 101 Living Streets. Calton: Unlocking the potential - A report of a Community Street Audit for Glasgow City Council. 2011; published online March.
- 102 Glasgow Equally Well Test Site: Integrating Health and Urban Spatial Planning. 2012.
- 103 Future of Planning: State of the Art Innovations in Digital Planning. 2016; published online Dec. <http://futurecities.catapult.org.uk/2016/12/01/future-planning-state-art-innovations-digital-planning/>.
- 104 Commonplace. Commonplace Engagement Platform: A New Way to Engage Local People, and Understand Their Needs About Places & Mobility. .
- 105 Commonplace Case Study: Waltham Forest Mini Holland. <http://commonplace.is/resources/miniholland-casestudy.pdf> (accessed Sept 8, 2016).
- 106 Currie E. Equally Well Test Site: Integrating Health into Planning Process. Report to Glasgow City Council Health & Social Care PD Committee. Glasgow: Glasgow City Council, 2010 <http://www.glasgow.gov.uk/councillorsandcommittees/viewSelectedDocument.asp?c=P62AFQZL2UZ3Z3ZL> (accessed Sept 8, 2016).
- 107 Planning for Better Health: A story of the Equally Well Glasgow city test site's approach towards addressing health inequalities through integrated health and wellbeing into the planning system. 2012; http://www.gcph.co.uk/assets/0000/3443/PLANNING_FOR_BETTER_HEALTH_final.pdf (accessed Sept 26, 2016).
- 108 Doyle YG, Tsouros AD, Cryer PC, Hedley S, Russell-Hodgson C. Practical lessons in using indicators of determinants of health across 47 European cities. *Health Promot Int* 1999; 14: 289–99.
- 109 Pencheon D. The Good Indicators Guide: Understanding how to use and choose indicators. NHS Institute for Innovation and Improvement, 2008.
- 110 Christakopoulou S, Dawson J, Gari A. The Community Well-Being Questionnaire: Theoretical Context and Initial Assessment of its Reliability and Validity. *Social Indicators Research* 2001; 56: 319–49.
- 111 Corburn J, Cohen AK. Why We Need Urban Health Equity Indicators: Integrating Science, Policy, and Community. *PLOS Med* 2012; 9: e1001285.
- 112 Kingsley GT, Pettit KLS. Quality of Life at a Finer Grain: The National Neighborhood Indicators Partnership. In: Sirgy MJ, Phillips R, Rahtz D, eds. *Community Quality-of-Life Indicators: Best Cases V*. Dordrecht: Springer Netherlands, 2011: 67–96.
- 113 Lawrence RJ. Urban Environmental Health Indicators: Appraisal and Policy Directives. *Reviews on Environmental Health* 2008; 23: 299–325.
- 114 Rothenberg R, Stauber C, Weaver S, Dai D, Prasad A, Kano M. Urban health indicators and indices—current status. *BMC Public Health* 2015; 15: 494.
- 115 Songsore J, Nabila JS, Amuzu AT, et al. Proxy indicators for rapid assessment of environmental health status in residential areas: the case of the Greater Accra Metropolitan Area (GAMA), Ghana. *Environment and Urbanization* 1998; 10: 252–3.
- 116 The Pastille Consortium. Indicators into Action: Local Sustainability Indicator Sets in their Context. London: European Union FP5, 2005 http://www.communityindicators.net/system/publication_pdfs/14/original/Pastille_

- Commission_2005.pdf?1323963473 (accessed April 26, 2017).
- 117 Wong C. Indicators for urban and regional planning: the interplay of policy and methods. Abingdon: Routledge, 2006.
 - 118 Prasad A, Gray CB, Ross A, Kano M. Metrics in Urban Health: Current Developments and Future Prospects. *Annual Review of Public Health* 2016; 37. DOI:10.1146/annurev-publhealth-032315-021749.
 - 119 Pineo H, Glonti K, Rutter H, Zimmermann N, Wilkinson P, Davies M. Characteristics and use of urban health indicator tools by municipal built environment policy and decision-makers: a systematic review protocol. *Systematic Reviews* 2017; 6: 2.
 - 120 Pineo H, Glonti K, Rutter H, Zimmermann N, Wilkinson P, Davies M. Census, characteristics and taxonomy of urban health indicator tools: a systematic review. Unpublished manuscript 2017.
 - 121 McCaughey Centre, VicHealth Centre for the Promotion of Mental Health and Community Wellbeing, University of Melbourne. Community Indicators Victoria: Data Framework. Community Indicators Victoria. http://www.communityindicators.net.au/metadata_items (accessed Feb 17, 2016).
 - 122 Glasgow Centre for Population Health. About the Glasgow Indicators Project. Understanding Glasgow. http://www.understandingglasgow.com/about_the_project/about_the_project.
 - 123 Public Health England. Local Health. <http://www.localhealth.org.uk/#v=map4;l=en> (accessed March 31, 2017).
 - 124 Greater London Authority. London Ward Well-Being Scores. London Datastore. <https://data.london.gov.uk/dataset/london-ward-well-being-scores> (accessed March 31, 2017).
 - 125 The San Francisco Indicator Project. Program On Health, Equity And Sustainability, San Francisco Department Of Public Health. <http://www.sfhealthequity.org/elements/land-use/20-elements/land-use/67-sci> (accessed March 29, 2016).
 - 126 Healthy Urban Planning Checklist. 2014.
 - 127 Spatial Planning and Health Group. Steps to Healthy Planning: Proposals for Action. 2011; <http://www.spahg.org.uk/wp-content/uploads/2011/06/SPAHG-Steps-to-Healthy-Planning-Proposals-for-Action.pdf>.
 - 128 ICF International. The Built Environment: An Assessment Tool and Manual. U.S. Centers for Disease Control and Prevention, 2015.
 - 129 Urban Land Institute, Frank J, MacCleery R, et al. Building healthy places toolkit: strategies for enhancing health in the built environment. 2015.
 - 130 Ross A, Chang M. Reuniting Health with Planning – Healthier Homes, Healthier Communities. 2012.
 - 131 Ross A. Planning healthier places: report from the reuniting health with planning project. 2013.
 - 132 Ross A. Plugging health into planning: evidence and practice. 2011.
 - 133 Taylor T, Pineo H. Health and wellbeing in BREEAM. 2015.
 - 134 World Green Building Council. Building the Business Case: Health, Wellbeing and Productivity in Green Offices. 2016; http://www.worldgbc.org/files/1114/7735/3801/WGBC_BtBC_Oct2016_Digital_Low.pdf (accessed Nov 1, 2016).
 - 135 UK Green Building Council. Health and Wellbeing in Homes. 2016; <http://www.ukgbc.org/sites/default/files/08453%20UKGBC%20Healthy%20Homes%20Updated%2015%20Aug%20%28spreads%29.pdf> (accessed Aug 22, 2016).
 - 136 London Healthy Urban Development Unit. Using the planning system to control hot food takeaways: A good practice guide. London: NHS; London Healthy Urban Development Unit, 2013.
 - 137 Kramer A, Lassar TJ, Federman M, Hammerschmidt S. Building for Wellness: The Business Case. Washington DC: Urban Land Institute, 2014.
 - 138 Pineo H. The Value of Healthy Places - for Developers, Occupants and Society. *Town & Country Planning* 2016; 85: 477–80.
 - 139 Public Health England. Spatial Planning for Health: An evidence resource for planning and designing healthier places. 2017. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/625568/Spatial_planning_for_health_an_evidence_resource.pdf.

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