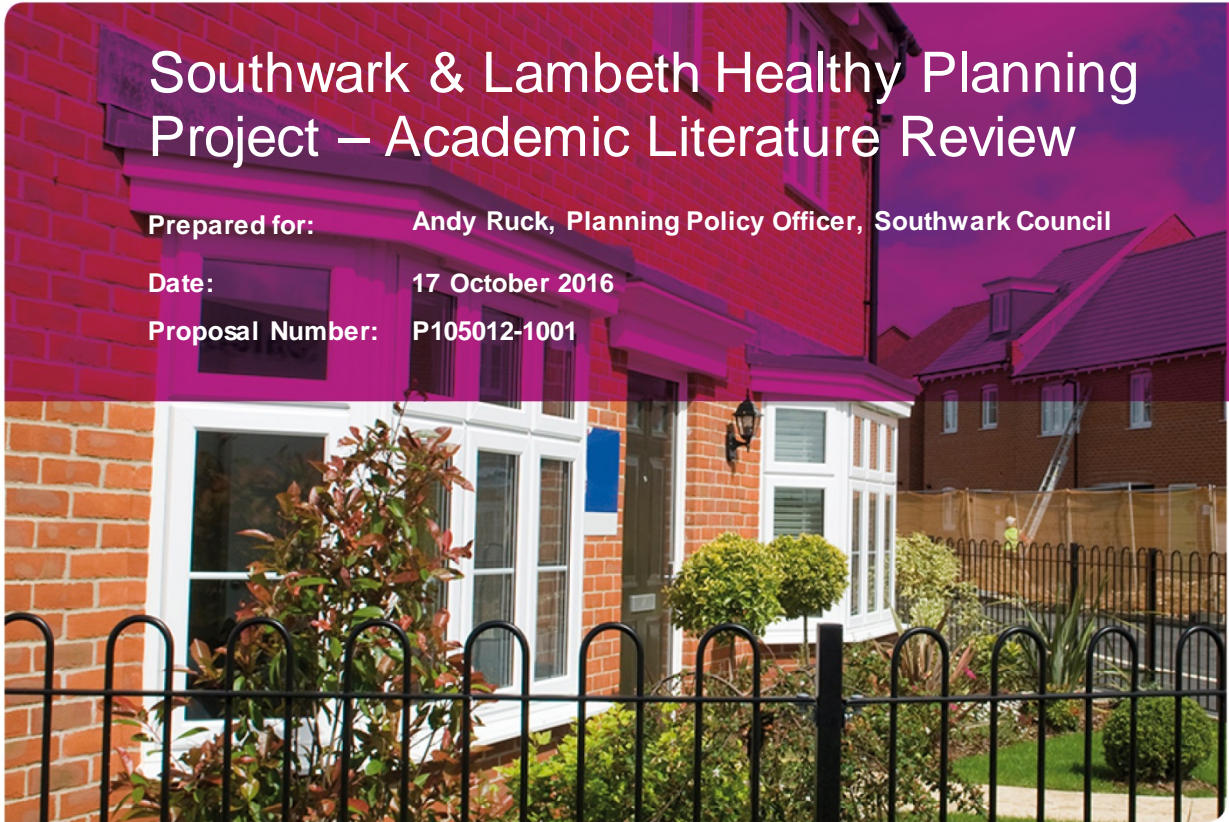# Southwark & Lambeth Healthy Planning Project – Academic Literature Review

Prepared for: **Andy Ruck, Planning Policy Officer, Southwark Council**

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BRE
Watford, Herts
WD25 9XX

Customer Services 0333 321 8811

From outside the UK:
T + 44 (0) 1923 664000
F + 44 (0) 1923 664010
E enquiries@bre.co.uk
www.bre.co.uk

bre

Prepared by

Name   Helen Pineo, MRTPI

Position   Associate Director - Cities

Date   17 October 2016

Signature   *[signature]*

Authorised by

Name   Deborah Pullen

Position   BRE Group Research Director

Date   17 October 2016

Signature   *[signature]*

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Executive Summary

There is a growing interest by policy-makers and design teams in the relationship between the built environment and health and wellbeing. International and local organisations across design, planning and health fields have developed numerous guidance documents to inform planning policy-makers of the importance of the physical and natural environment in health, yet there remains uncertainty about exactly 'what works' with regard to specific built environment interventions. In part, this is due to the nature of epidemiological research in this field which has been unable to find causal relationships in many cases. There are also differing cultures of practice and evidence use between planning and health practitioners. Despite these challenges, there are a number of well-researched built environment characteristics which are known to support health and are being integrated into planning and regeneration initiatives.

This review was commissioned by the Planning Department at Southwark Council as part of a healthy planning project jointly run by Lambeth Council. Both councils are currently preparing planning policy documents for large-scale regeneration projects and seek to inform this process through research on built environment health impacts and the implications for local development. This literature review will inform quantitative and qualitative research into residents' perceptions. The brief for this review was to investigate the built environment interventions and associated policy and regeneration examples that have been shown to impact health in three topic areas: social isolation, obesity (specifically inactivity, walking and food access) and integrated health services. The planners also wanted to know about social research methods that have been used to investigate these topics in other regeneration projects. This work demonstrates that local authority planning officers are interested in delivering policy and development management solutions which can support health and wellbeing.

Although this project seeks to pull out three specific focus areas, health and place is a complex system. Academic research and local consultation activities often do not result in neatly separated findings because there is significant overlap between different aspects of the built environment and associated health impacts. 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. Similarly, policy responses are often designed to meet multiple goals. Planning policies alone will not address these complex issues. As is often the case in urban planning, 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.

Key findings

The following key findings emerged from this literature review. Each topic is described in more detail in sections 1 and 2 of this document with references for the findings summarised below. There are also case study examples of evaluating these built environment features and local lessons learned.

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 religious facilities). 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 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 for children and leads to greater injuries and fatalities.

Healthy food – Local food habits are influenced by a complex system of social 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. However, this was not only looking at co-location of services. A Big Lottery Fund evaluation of its Healthy Living Centres project found that these facilities had a range of positive benefits in the community including improved health outcomes and attracting target communities.

Building trust – Multiple research and community projects described in this document highlight the importance of building trust when working with local communities. 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 research exercise.

Going beyond business as usual – This review demonstrated the range of research activities being carried out by health and built environment professionals and academics. There was evidence of very practical local research by urban planners and related professionals (housing and transport) and public health colleagues. These examples often related to specific major developments or projects and appear to be 'best practice examples' that have not yet become part of normal planning processes. The healthy planning project led by Southwark and Lambeth involves in-depth quantitative and qualitative research into the location-specific health issues for residents of these boroughs. The project seeks to build on the existing evidence base (summarised in this document and elsewhere) regarding the built environment impact on health in three key areas identified by public health colleagues in these local authorities. This local research into residents' needs will inform planning and regeneration policies and will be regularly monitored and evaluated to assess impact. This project represents an innovative approach to planning healthy communities that seeks to combine extensive local knowledge with scientific evidence. A key difference from many projects is the commitment to monitor impact and seek continual improvements through planning policy and development management.

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Introduction

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)

The urban environment and health is a complex system. Modern investigation into health and the built environment spans a huge range of topics including air quality, noise, mobility infrastructure, and greenspace among others. Particular built environment features, such as greenspace, often have multiple physical and mental health benefits, but can also have negative impacts. Furthermore, parts of this system can interact in unexpected ways, resulting in unintended consequences for health. A very interconnected urban system emerges of interacting variables which change over time, making complexity a defining characteristic of the built environment and health.

Health inequalities is a key issue for built environment and health research and practice. 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)

Regeneration initiatives, such as those identified in Southwark and Lambeth, create an opportunity to address health inequalities. However, they are often criticised for increasing local property values and displacing deprived families. Research into the health impact of centralised regeneration and area based initiatives (ABIs) 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. The lesson for policy-makers is to use evidence from other systematic reviews and studies of built environment interventions and health to prioritise investment and policy decision.

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. 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)

Healthy food environments are a good example of the current limitations in study design and resulting challenges for policy-making. There is significant interest by policy-makers in neighbourhood food environments such as the effect of hot-food takeaways on obesity and the concern that 'healthy food

deserts' prevent people from eating healthy foods. However, systematic reviews of numerous international studies describe a conflicting picture with limited (but growing) evidence that the neighbourhood food environment influences dietary health.(11–14) Each review points to methodological limitations or inconsistencies in study design which make comparisons difficult. As this field of research develops, a more conclusive picture may emerge about food environments and health.

The healthy food access example also helps to illustrate a point about translating evidence from epidemiological studies into policy. It is important to make use of systematic reviews of studies when considering evidence for policy-making because individual studies always have limitations. Furthermore, there is a bias toward publishing studies which find associations, obscuring the true relationship between the built environment and health. Hundreds of studies have been published about local food environments and health with many of these finding no association or limited associations. The role of systematic reviews and meta-analyses is to compare findings across studies, limit biases and uncover a more accurate understanding of the relationship than any individual study could find. However, inconsistent study designs, flawed methods and publication bias limit the strength of systematic reviews in many built environment and health areas. Identifying the impact of built environment attributes and health outcomes is not always straightforward.

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 (see section 2.5). Integrated planning including engagement with local public health, housing, transport and social services teams will also strengthen local initiatives and support healthy policy development.

This review provides a general picture of built environment 'interventions' and health outcomes related to the three health topics identified by Southwark and Lambeth. It is not a systematic review but seeks to make use of findings from systematic reviews, evidence reviews and guidance documents wherever possible (see Appendix A for a description of the methodology). Information relevant to London and the UK was prioritised during the literature search. This review will provide up-to-date evidence about the built environment and health which can be used to inform local policy and regeneration initiatives.

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1.   Built environment interventions and lessons learned

This section evaluates published research about interventions in the built environment linked to health which planning policies and regeneration projects might support. The review looks at the health outcomes from specific interventions linked to social isolation, obesity (specifically physical inactivity, walking and healthy eating) and integrated health services. There is reference to examples where accepted knowledge of healthy planning has changed over time. The term 'intervention' in this context refers to specific built environment design or policy approaches aimed at improving health, for example by supporting greater physical activity.

A limited number of studies have evaluated the health impact of regeneration programmes. 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 specific changes to the built environment, rather they look at the cumulative impact of regeneration efforts which often include other social and economic activities. For example, 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. A mixture of quantitative and qualitative methods were used to understand the impact of regeneration on health and wellbeing. The research also sought to better understand the processes which brought about health improvements to unpick what works for regeneration policy and practice.(15) 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) Other research from regeneration projects of varying scales is described in section 2.

This section focuses on built environment interventions that should be applicable to new development and regeneration projects alike. Sub-sections 1.1 to 1.4 introduce each of the three key health topics for this review and the built environment characteristics which have been shown to influence these areas. Sub-section 1.5 then describes each of the relevant built environment characteristics in more detail and explains where there are overlapping impacts across the three main health topics.

1.1   Social isolation

In her chapter in *The Routledge Handbook of Planning for Health and Well-Being*, Libby Burton explained that 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.(16) Burton described similar caveats to the research evidence as those described in the introduction to this review, stating that weak study designs, use of subjective measures and poor understanding of the built environment make study findings difficult to apply to practice. Nevertheless, there are a number of well-researched relationships worth describing here. These 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. Each of these themes is described in section 1.5.

The role of churches and other faith-based organisations was flagged as particularly relevant to Southwark and Lambeth. A recent peer-reviewed report by FaithAction highlights that over 6 million people attend places of worship every week in England.(17) The report cites studies which have demonstrated that faith-based organisations have multiple roles in relation to mental and physical health. They are used by health practitioners as a means to access and support diverse, poor, marginalised and

'hard to reach' groups. There is also evidence that regular engagement in religious activities promotes wellbeing and social capital (see section 1.5.7).(17)

1.2   Physical inactivity

A significant focus of health and built environment research has been about physical activity because of its important role in protecting against disease. Physical activity reduces the risk of premature death, helps to prevent weight gain, and improves mental health and wellbeing.(18–21) 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.'(22)

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. The report also states that sport and recreational activities which are included alongside these everyday activities help provide social benefits which can sustain participation.(23) A mix of facilities and pedestrian/cycling infrastructure is therefore required to meet these aims.

Findings from the International Physical activity and Environment Network (IPEN) adult study across 14 cities in 10 countries showed that physical activity is positively associated with: net residential density, intersection density, public transport density, and number of parks.(22) An international systematic review examining the physical environment and obesity in adults found a positive association between weight status and two built environment factors: urban sprawl and land use mix.(24) However this was only consistent with the North American studies and there was significant inconsistency among results in other countries and among other physical environment factors. Again, a number of methodological limitations are highlighted which inhibit the identification of causal relationships. A number of studies have looked at more detailed aspects of the neighbourhood environment and physical activity such as street design, street lighting, green infrastructure and environmental cues of crime. These are discussed below and have all been linked to physical activity in some studies.

Researchers have also examined the relationship between the built environment and physical activity specifically in children. A systematic review found that physical activity in children was positively associated with: 'publicly provided recreational infrastructure (access to recreational facilities and schools) and transport infrastructure (presence of sidewalks and controlled intersections, access to destinations and public transportation).'(25) Attributes that negatively affect physical activity in children include: 'transport infrastructure (number of roads to cross and traffic density/speed) and local conditions (crime, area deprivation).'(25)

1.3   Healthy eating

As discussed in the introduction to this report, neighbourhood nutrition environment is an area of research with inconsistent findings due to various methodological limitations. There is evidence that socio-economically disadvantaged groups have less access to healthy food and greater access to unhealthy foods (findings vary by country).(26) In the UK 'there was more consistent evidence for disparities in access to fast food outlets… with greater access in more deprived neighbourhoods.'(26) The relationship between neighbourhood deprivation, the consumer nutrition environment and diet is complex and context dependent.(26) Section 2 shows several examples of research in the UK and US where experts' assumptions about neighbourhood food environment and actual dietary preferences by local residents were not aligned.

In 2002, Cummins and Macintyre critiqued the policy focus on healthy food deserts and demonstrated that the evidence did not support the resulting policy measures.(27) The systematic reviews conducted

since then (as referenced above, Cobb et al. 2015, Black et al. 2014, Caspi et al. 2012) still show conflicting results. The key results of these systematic reviews are as follows:

- There is moderate evidence that neighbourhood food environments influence diet.(11)
- Perceived availability[1] of food is related to healthy diet, whilst GIS-based measures of accessibility are not as consistent.(11)
- Grocery store access studies from the UK have not consistently shown differences in access in neighbourhoods of different socioeconomic status. However, there is evidence that deprived communities have higher access to fast food outlets.(26)
- There is some evidence that supermarket and fast food availability affect obesity in adults but not in children (except for children from low income households).(12) 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.(12) These results are from a review of 71 studies conducted in the US and Canada.

In summary, the evidence for healthy food deserts and other neighbourhood food environment factors is not straightforward. Local perceptions about food and purchasing food would be valuable to complement this international evidence and inform local policy measures.

1.4   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.(28) 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.(29) A large funding programme supported a number of so-called Healthy Living Centres in the UK which often provided integrated health and social care services. This programme was independently evaluated and is discussed in more detail in sections 1.5.10 and 2.4. The highlighted benefits of these facilities includes: improved short and long-term health of regular users; successfully attracting target communities; and promoting learning and relationship building in the community.

1.5   Health impact of built environment features

This section will look briefly at each of the built environment features or 'interventions' identified above and describe 'what works' from relevant studies. Section 2 of this document identifies relevant planning policy and regeneration examples for these features. Table 1 shows how the built environment features affect the key health themes for Southwark and Lambeth in multiple connected ways.

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[1] See section 1.5.8 for more information 'perceived availability' of healthy foods.

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

Table 1- Built environment interventions relevant to each health theme

1.5.1   Density and mix of development

High density and mixed use developments can support greater social engagement where access to services encourages more walking and chances for encountering neighbours.(30) Urban form is linked to walking through two main characteristics: proximity and connectivity.(31) Proximity is defined by neighbourhood density and mix of uses. Connectivity refers to the ease of moving from origin to destination. These characteristics make up the concept of *walkability* and when objectively assessed this trait has been shown to influence actual steps taken.(32) The Chief Medical Officers' report recommends that older adults should live 'within 5–10 minutes' walking distance of local shops and amenities' with an 'effective local public transport system' to provide access to other destinations.(23)

Higher forms of residential density which are poorly designed can compromise privacy which negatively impacts social interaction as people become withdrawn.(16) A 2010 study by Wood et al. found that sense of community can be negatively impacted by high land use mix, particularly where there are many commercial uses. Although the authors noted that in such cases sense of community can be achieved if 'urban design is used to create convivial pedestrian-friendly commercial areas, e.g., providing street frontage, rather than flat surface parking.'(33) Furthermore, the study was conducted in Atlanta in the USA and does not necessarily translate well to London. However, an appropriate mix and concentration of land uses is important to consider as this can affect perceptions of safety across a 24 hour period.(16)

1.5.2   Green infrastructure

Many studies have identified parks and greenspaces as important places for social interaction, gatherings, and communal leisure activities.(34,35) They are also identified as important locations for physical activity through walking, jogging, playgrounds, and organised sports. Other reported health benefits include: better mental health, living longer for elderly people, lower body mass index (BMI) levels and better self-rated health.(36) Disadvantaged communities have lower access to greenspace.(36)

The barriers to accessing greenspace 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.'(36) Local authorities can help to overcome these barriers. A report by Public Health England and the Institute for Health Equity gives examples including restoration of Clissold Park, Glasgow Health Walks, and the Dudley Healthy Towns project. Each of these case studies included numerous health benefits but no 'lessons learned'.

A mixed methods study of three inner-city neighbourhoods in Manchester found that local parks may be beneficial for social ties in these areas.(37) The findings for one neighbourhood, Ordsall, showed that recent urban regeneration in the area may have resulted in a reduction of social ties. The author noted that this could be explained by new residents not mixing with existing residents. The author stated that urban regeneration initiatives need to 'deliver public facilities that can enable established and new residents to mix, including open spaces of good quality'.(37) Ordsall Park was the smallest of the study areas, had the least facilities for children and was seen as barren and the least aesthetically pleasing. Perhaps unsurprisingly, it had the lowest number of visitors. The favoured parks were larger, aesthetically pleasing and had numerous varied landscape features, facilities and optional social activities. The author recommended that regeneration initiatives 'need to deliver public facilities that can enable established and new residents to mix, including open spaces of good quality…'(37)

A similar finding was reported by a study of an urban park regeneration project in Glasgow which critiqued the stated aims of community benefit and the resulting public space.(38) This study focused on the design and intended use of the park and how this was discordant with the community engagement processes leading up to the park's regeneration. In summary, the park was created on a site which previously had a large tenement house which collapsed. The site was vacant for years and the local community council regularly lobbied the City Council to clean up the site and make it a park. The regeneration finally happened when external funding became available through Glasgow's status as the European City of Culture in 1989. The City Council put the regeneration of this park in the wider context of Glasgow as a hub of multiculturalism and design (benefiting from the location of the site near the School of Art). This was at odds with the local community's desire for a simple neighbourhood park rather than a local 'attraction'. The park was designed and then 'explained' to the community rather than designed *with* the community. Some key tensions emerged following the park's regeneration and maintenance became a problem. For example, teenagers who had previously used the space for football continued to do so even though there was not a designated pitch and this disrupted other park users.

Hunter et al. evaluated a number studies of interventions in urban green spaces with regard to the impact on physical activity with positive findings.(39) Overall, programmes which provide physical activity sessions alongside built environment interventions are more successful. However the following interventions were evaluated as improving physical activity:

- renovations to park facilities (also improved safety perceptions)
- major park improvements such as 'fenced leash-free area for dogs, playground, walking track, BBQ area, landscaping, fencing'
- urban greenway trail connecting to local retail establishments and schools

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- greening of vacant urban lots (which involved: 'removing trash and debris, grading the land, planting grass and trees, installing low wooden fences around perimeter, and maintenance activities performed multiple times/year')
- outdoor gyms or 'Family Fitness Zones'
- creation of pocket parks in disused lots (including 'installation of playground equipment and benches, development of walking paths, and all areas were fenced and enclosed by lockable gates').(39)

Overall the findings across the reviewed studies were positive following these interventions. However some major park refurbishments did not result in increased physical activity.(39) One potential reason given was a simultaneous cut to local parks and recreation budgets resulting in reduced activities organised in the park.

1.5.3   Street layout and design

As mentioned above, walkability is partly determined by proximity and 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.'(31) Studies have found that alongside proximity and connectivity, a better pedestrian environment with sidewalks, street-lighting, and safe crossings (pedestrian signals and mid-street islands) increases walking.(31) Children's physical activity levels are partly determined by whether their parents feel that the street environment is safe (from traffic and crime).(25)

Sarkar et al. examined the role of land use and connectivity in social interaction among older men in Caerphilly by using data about psychological distress and metrics of the built environment. They found that terraced housing was associated with positive mental health and attributed this to social capital in walkable neighbourhoods.(30)

There are some tensions with safety and connectivity as some studies have found that people living in cul-de-sacs feel safer from crime and traffic.(16) Yet cul-de-sacs are associated with low connectivity. Burton states that it may be possible to resolve this tension with low-depth cul-de-sacs, or crescents, and points out that curved streets and distorted grids may also be useful for people with dementia.(16)

Street design that calms traffic and reduces speed has a positive impact on perceived safety and levels of physical activity (it also reduces injuries and deaths).(40) Cairns et al. define traffic calming as 'measures to reduce speed and hence improve safety, especially for vulnerable road users, including reduced speed limits or reduced speed zones (where road humps, miniroundabouts, cushions etc. are used to reduce traffic speed.'(40) Traffic calming can also include Home Zones (or the Dutch 'Woonerf' model[2]) and road narrowing. This is important to increase walking and cycling but also to promote social interaction and avoid community severance.

The term community severance refers to 'reduced access to goods, services, and people' and is caused by physical (and psychological) barriers in communities such as busy roads, rail lines or other infrastructure.(41) Severance reduces social interaction and access to important services and can have multiple related health effects.(41) Built environment features of community severance include: 'crossability', walkability, accessibility to destinations and quality of the pedestrian environment.(42)

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[2] Often referred to as the first shared street spaces, 'Woonerf' streets restrict all transport modes to the speed of walking. The term translates as 'living street'.

1.5.4   Housing design

The transition between the private space of a home and the public space of a street, pavement, hallway or deck is important to social interaction. Burton reviews the concept of 'soft edges' and transition zones as described by Christopher Alexander and Jan Gehl decades ago.(43,44) These spaces appear to promote social interaction, as found by Burton in a study looking at neighbour interaction and homes with front gardens.(45) She describes front gardens as an example of these spaces but they can be any area, usually between public and private space, where people 'linger, gather, engage with others and are generally active.'(16)

1.5.5   Passive surveillance and safety

Safety, as measured through actual crime rates and perceptions of safety, impacts on social interaction and physical activity.(46–48) The Chief Medical Officers' report states that to encourage physical activity in older adults, neighbourhoods need to 'feel secure and safe from traffic and other threats, and should have access to well maintained walkways and pleasant green spaces.'(23) The report highlights the types of barriers which may impede other demographics within the population from achieving recommended physical activity. These include fear of traffic, violence and strangers.

A study by Ellaway et al. found that survey respondents from residential areas with high levels of litter, graffiti and dog mess were 50% less likely to be physically active, and 50% more likely to be overweight or obese.(49) The theory is that problems like litter, graffiti, poorly maintained buildings and parks and other incivilities are environmental cues of crime and anti-social behaviour. These issues should be considered alongside built environment policies and incorporated into design approaches. The built environment attributes that are shown to positively impact perceptions of safety (and actual crime in some cases) include: mixed land use, passive surveillance, maintenance, street lighting and greenspace.(46,50,51) Traffic safety is discussed in section 1.5.3.

1.5.6   Facilities for recreation and leisure

People living in areas with recreation facilities are more likely to get higher levels of physical activity than those who live in areas with no such facilities (52). There is evidence that people living in neighbourhoods with parks have higher levels of physical activity (53) and for adults, living in areas with a 'high density of recreational resources for team or dual sports, conditioning activities, and other individual activities was positively associated with participation in these activities.'(54) As described above, recreation facilities are also important for social interaction.(23) Playground equipment is also important. Systematic reviews have found that pre-school playgrounds with markings, equipment and physical structures were associated with increased physical activity in children and young people'.(55)

The Royal Society for Public Health's report *Health on the High Street* examined the health and wellbeing impact of a number of typical British high street shops including bookmakers, payday lenders, pubs, libraries and other facilities. Several of these facilities had potential for good and bad impacts. Overall payday lenders and bookmakers were classified as 'hazards on the high street'. Although there may be some positive wellbeing impacts for responsible gamblers, for example from social interaction, the risks of significant health consequences are severe.(28,56,57) One evidence review found that new gambling facilities result in increased gambling problems and suicide.(58) In contrast, pubs and bars were reported as having 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.(28)

1.5.7   Religious facilities

The FaithAction report *The Impact of Faith-Based Organisations on Public Health and Social Capital* states that such organisations are 'at the front line in tackling some of the wider determinants of ill-health

and disadvantage' and should be recognised as a key resource for local agencies and government.(17) Faith-based organisations provide settings for access to individuals in communities and can be used to facilitate local health promotion activities. A number of reviews of studies have been undertaken in the US exploring the impact of health interventions in faith-based organisations. These reviews found that:

- health programmes in faith-based organisations can improve health outcomes (59);
- health promotion activities based in communities (including churches) can significantly impact health behaviours (such as diet and physical activity) (60);
- diabetes education with Black Americans was supported by church organisations and leaders resulting in better diet and health outcomes.(61)

The FaithAction report notes that these US-based systematic reviews benefit from the larger number of studies that have taken place in the US, whereas there is a relative lack of similar studies in the UK. However, individual studies in the UK have shown that faith-based organisations may be an effective place to reach ethnic minority groups who also have higher likelihood of obesity associated behaviours than their White British peers.(62,63) A number of UK-based studies reported success with using faith-based organisations to access particular members of the population for health promotion programmes.

Other benefits of faith-based organisations include positive associations with religion or attending church and wellbeing, mental and physical health and social capital.(64,65) Lim and Putnam argue that the wellbeing and social capital benefits of faith are derived from regularly attending services and engaging in social interaction with others in the congregation.(66)

1.5.8   Access to healthy food

Studies examining access to healthy food and diet or obesity outcomes have mixed findings, as described above in section 1.3. A systematic review by Caspi et al. found that studies that measured the availability of healthy foods using GIS-based measures have 'fairly consistent positive associations with a healthy diet.'(11) Interestingly, Caspi et al. also found that studies of perceived availability of healthy foods were 'particularly consistent in showing a relationship with dietary outcomes.'(11) Studies used a variety of measures for perceived availability such as agreement with statements like the following: 'a large selection of low-fat foods is available in my neighbourhood.'(11)

1.5.9   Access to unhealthy food

There is evidence that deprived neighbourhoods have greater access to fast food outlets.(26) A review by Fraser et al. found some evidence that a higher exposure to fast food outlets is associated with lower intake of fruit and vegetables.(67) 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.(12)

1.5.10   Co-location of health services

There are few published studies on the health impact of co-locating health and other services. The British Medical Association and the King's Fund have produced reports on the benefits of integrated care but this does not always relate to co-location of services.(68,69) Government's 2007 report on Adult Social Care, *Putting People First*, recommended co-location of services to achieve these benefits – 'bringing together social care; primary care and other relevant professionals.'(70) 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.(71) However, this was not only looking at co-location of services. A Big Lottery Fund evaluation of its Healthy Living Centres project found that these facilities had a range of positive benefits in the community including improved health outcomes and attracting target communities (see section 2.4).(72)

2.   Exploring healthy planning policy and regeneration programmes

This section of the report summarises planning policies and regeneration programmes which have sought to address the three key themes identified by Southwark and Lambeth for this review. In addition, this section describes social research examples which have been used to inform and/or evaluate local regeneration and health programmes. The section is organised by the three health themes (splitting up obesity into inactivity and healthy eating), although the regeneration research examples and policies discussed often cross multiple health issues and built environment interventions.

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. 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% cite health as a justification for the policy.(73)

Undertaking social research 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.'(74) In relation to health and place, there may be conflicting views between community members and experts about what is important.(75) Multi-method approaches to investigating residents' views are described as the most appropriate way to unpick these experiences and reach diverse members of the population.(74–76)

There are many techniques used by academics and planning practitioners to gather residents' perceptions about their local area. These include: surveys (such as community profiles or audits), focus groups, community mapping, and participatory design approaches.(77) There are also many methods used in Health Impact Assessment (HIA) for gathering local opinions about health issues and the environment. The World Health Organization (WHO) lists a range of potential research methods for HIA (see Appendix C).(78) These include questionnaires, interviews, workshops, focus groups and image-based evidence. This section describes some of these methods, particularly through examples where they have been used to inform and/or evaluate local policy and regeneration projects.

2.1   Social isolation

This topic specifically focuses on which places or spaces are most important for different groups of residents for social interaction (and related health benefits) and how planned regeneration can deliver improvements. A commonly recommended approach to understanding places which are important for social networks and interactions 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[3] and supporting volunteering.(79) Various techniques for mapping community assets are described below.

In addition to provision of facilities, planning and transportation policies also need to pay close attention to the impact that design and infrastructure can have on the ability of older people and other sub-population groups to leave their homes.(80) This includes provision of places to sit and toilets, which is not only

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[3] See article from the Joseph Rowntree Foundation for more information https://www.jrf.org.uk/report/role-and-impact-befriending

important for older people but also the whole population, particularly women and children.(81) 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.'(73)

2.1.1   Asset mapping in Seattle, USA

Planners in Seattle, Washington, USA used asset mapping to undertake a Healthy Living Assessment (HLA) 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.(82)

2.1.2   New Deal for Communities in the West Midlands

Dalton et al. undertook a series of interviews with health professionals in the West Midlands New Deal for Communities areas to evaluate the impact of these regeneration efforts.(83) This research was not focused specifically on the outcome of built environment interventions, but looked more broadly at the impact of regeneration. They used semi-structured interviews with community professionals, including: District Nurses, Health Visitors and Social Workers. These professionals were able to provide first-hand information about the circumstances of the families and individuals they work with and reported their perceptions of how the local community impacts health.

Social isolation was a significant issue in the communities identified, particularly among single mothers and older people, and it was frequently mentioned by the interviewees. Many lower income families were seen to have significant social and community networks. One interviewee described the regeneration area as '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.'(83)

Those who were isolated were less likely to attend health facilities (such as nurse practitioner units or walk-in centres) because they 'viewed it as their entitlement to have the nurse visit at home'.(83) Health workers described this group as requiring a lot of support from the health service such as multiple home visits required to persuade a mother to take her child to the clinic.

2.1.3   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 (there were 70). In the small groups, participants used stickers 'to link their ideas to improvements in social wellbeing/inclusion; physical wellbeing; emotional wellbeing; financial wellbeing or environmental wellbeing.'(84)

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.(85) Data from the table discussions are available online. People described a number of barriers to getting around on foot, for example: 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, and litter.(86) The types of solutions developed during the session included: railings on pavements to prevent car parking, better maintenance of paving, improved lighting, restricting height of plants, inspection of city pedestrian crossings with Disability Forum, better winter maintenance, resolving issues with drainage channels and accessible buses, and addressing hazardous metal studs in city centre.(86)

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 professionals connect with different stakeholders and residents. The event also helped support a bid to a Local Sustainable Transport Fund.(84)

2.1.4   Understanding urban living through images

There have been a number of research projects using photography alongside other quantitative or qualitative research methods to understand people's perceptions of place. Researchers have argued that using photos is superior to traditional research methods when trying to engage young people.(87) 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. There are also issues with trust when engaging young people, particularly in low income neighbourhoods.(87) Trust was raised by other researchers as an issue for engagement in urban regeneration projects generally.(88) Photo research can inform a number of topic areas including social isolation, physical activity and healthy eating (see a detailed example in section 2.3.2).

Researchers in the UK developed a novel method for investigating residents' experiences of urban living in a grant-funded project called *Vivacity2020: Urban Sustainability for the 24-hour city*. Moore et al. combined qualitative research techniques (log-sheets and semi-structured interviews) with the visual technique of self-directed photography in a method called 'photo-survey'.(74) Self-selecting participants (a total of 84) in 3 cities (Manchester, London, and Sheffield) took photos on a disposable camera and filled in a log-sheet with information on the location, date, time, content of photo, and some comments. These were then developed and used in one-to-one semi-structured interviews in a photo-elicitation process. The researchers also analysed the 1894 photos using a content analysis approach.

The team noted that there are many benefits to a photo-survey approach with participants directing when and where they take photos. Benefits included:

- 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.(74)

The team strongly recommend that photo-surveys are 'triangulated' with other methods 'to avoid any presumptions being made about the contents and meanings of images.'(74) There are some potential limitations as researchers (also in other similar projects) have noted that participants may not be able to photograph sensitive, personal, dangerous or invisible parts of urban life. The research team should take care to safeguard participants' safety. 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.

Moore and colleagues conclude that this method could be used as 'a tool for residents to highlight and communicate concerns, wishes and positive aspects of their local area to fellow residents or decision makers' and this could be done individually and in groups, about general or specific topics.(74)

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.(75) It has foundations in other participatory methodologies including: participatory photography, public participation GIS (PPGIS) and community-based participatory research (CBPR).

2.1.5   Older peoples' perceptions of place

Maps are often used by planners to describe information about communities and inform planning policy development. Although communicating through maps is seen as an important skill for spatial planning professionals and policy documents, some scholars argue that this reinforces a 'top down' approach by local government.(77) Various community mapping and participatory mapping approaches have emerged through research and practice partnerships to rebalance the data used in policy and decision-making. Talen emphasises the benefits of mapping in expressing complex relationships and perceptions of neighbourhoods which contribute to social capital.(77) Corbett's guide to participatory mapping explains that it is an empowering research method for participants which can stimulate interest in engagement processes about land-use.(89) Mapping can be done in a variety of ways using one-to-one or small group sessions working directly with maps, or by gathering data (through walks, focus groups or photos) and later applying it to maps for analysis.

A Participatory Community Mapping Workshop (PCMW) was used by Fang et al. for learning about older peoples' perceptions of aging in place. This project included 'experiential group walks' to extend the visual research methods 'to include other senses such as hearing, smell and touch'.(90) In this project, researchers worked with a diverse group of older people (60+) and local decision-makers and service providers for an affordable senior housing development in Western Canada. 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. These were part of several other workshops which 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 be organised as opportunities to socialise with their peers.

2.1.6   Social Capital and the Single Regeneration Budget in South Manchester

Mental health has been the focus of several regeneration and health studies. Rogers et al. undertook a multi-level multi-method longitudinal study of a Single Regeneration Budget area with a matched control area in South Manchester.(88) The study involved a postal questionnaire (1,344 responses) and focused interviews with 200 people. The interviews looked at mental health and quality of life perceptions in relation to the experience of living in the community (including any changes to the community from regeneration). The researchers wanted to understand the 'influences of neighbourhood character on individuals'(88) and thus covered a number of topics with residents including:

- 'Awareness of and attitude toward involvement in the regeneration initiative and other policy changes
- Lay epidemiology, knowledge and conceptions of the main causes of mental health problems and determinants of mental health (an examination of the peoples' perceptions of the relationship between employment and mental health and other local environmental determinants of mental health).'(88)

The results from the quantitative analysis showed that 'restricted opportunities' (difficulty achieving desired improvements across multiple parts of life) had the strongest association with mental health. Through the qualitative analysis they unpicked how the local area affected mental health. Anti-social behaviour, lack of facilities, sense of decline in the neighbourhood and employment were key factors. Excerpts from some interview responses summarise the views:

> 'I feel like it is becoming a war zone. These kids and what they are doing and these druggies are all nasty people, they are ruining what could be a nice area.'

> 'You go over to the *Forum* and the library and that but that's about all that you've got … it's not the gym it's leisure facilities you need like a picture house.'

> 'They've got the Forum for swimming and recreation but they could with, all the clubs are down Manchester, you know … they should have a club up here. And some of the local pubs you can't really go in to.'(88)

The authors conclude that low social capital and trust create a vicious circle. Local partnership organisations also struggle 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 recommend 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.(88) Specifically this includes: secure play areas, safety at night, and cheap or free transport.

2.1.7   Health and wellbeing hubs in Cumbria

Six health and wellbeing hubs were set up in Cumbria to create opportunities for social interaction alongside a Centre for the Third Age in Cockermouth. The hubs provide 'access to low-level interventions including befriending schemes, interest groups and local outings and more targeted activity such as Singing for the Brain, or chair-based exercise classes.'(79) These programmes were developed following a community asset mapping exercise and they aim to promote independence and reduce isolation. Also see similar examples in Healthy Living Centres, section 2.4.

2.1.8   Policy examples

The following planning policy and regeneration examples were found:

- 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.'(91)
- Newham's Core Strategy (adopted 2012) SP2 Healthy Neighbourhoods states that development proposals which respond to a number of health issues will be supported. These issues include 'the need to improve housing quality and reduce crime, insecurity and stress and improve inclusion through better urban design.'(92)
- 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.'(93)

2.2   Physical inactivity

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,

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with design professionals and planners not always agreeing with community members on what is important. For example, a scheme to increase visitors to Derbyshire's forests resulted in thousands more visitors, but mainly from high-income groups. The lesson learned was that 'detailed knowledge of local needs, cultural contexts and attitudes, with clear objectives and strong targeting' is required to design interventions that will increase access for disadvantaged groups.(79)

2.2.1   Walkability in Calton through a Community Street Audit

One method of surveying a local area with residents is through a Community Street Audit. This is a method 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 to way to evaluate the quality of streets and spaces from the viewpoint of the people who use them, rather than those who manage them.'(94)

As part of Glasgow's Equally Well Test Site (see section 2.2.3), 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) that the community would use as a local social destination.

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.' (95)

2.2.2   Community views on transport infrastructure in Waltham Forest

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, 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 Commonplace app has been used by developers and local authorities including the Northstowe new town near Cambridge, an NHS Healthy New Town.

The app allows users to comment on issues 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.(96) 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. [4]

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 shops and were surprised to find that most people walk.(97) 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 response to certain questions. The council continue to use Commonplace for other regeneration and highways engagement activities.

2.2.3   HSN Placemaker Tool

Glasgow City Council and partners created a placemaking tool during their Test Site project for the Scottish Government's *Equally Well* strategy. The Council worked with the Glasgow Centre for Population Health and the Greater Glasgow and Clyde NHS. The two key areas of focus for the Test Site project were to address obesity (through walking and cycling) and mental health (through greater involvement in neighbourhood design and decision-making) through placemaking. This effort was led by the Council's Development & Regeneration Services.

The project developed a Healthy Sustainable Neighbourhoods (HSN) model which encourages people to think about the 'jigsaw' of issues that affect health in a neighbourhood (such as transport, housing and leisure).(98) They then developed this model into a computer application called the HSN Placemaker Tool. The tool was described as:

> 'an interactive toolkit designed to stimulate thinking and generate debate around how planning services (and potentially other services) can work with communities to create better places. Community members can view slides of existing streetscapes across Scotland and select from a series of change options to alter the physical appearance or use of a space. Before making decisions, users are encouraged to consider the impact of their decisions on community health and wellbeing and the natural environment.'(99)

A presentation about this project at a World Health Organization (WHO) conference lists the following key benefits of the placemaking engagement tool:

- 'Build up trust with communities through the establishment of positive working relations.

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- Highlight the links between the physical environment and our quality of life

- Pursue an 'asset based' approach to community development.

- Raise community confidence and capacity.'(95)

The presentation also references the need to 'attempt untested and innovative ways of engaging with the community' in order to achieve these benefits.(95) One way that the Glasgow Equally Well Test Site project achieved this was through a Community Street Audit. This example is discussed in section 2.2.1. The HSN Placemaker tool is no longer funded, however it was used to inform the development of Scotland's Place Standard tool.[5] This assessment tool has a strong emphasis on health and wellbeing.

2.2.4   Olympic Regeneration in East London (ORiEL)

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. To gather baseline data for the study, the research team undertook a cross-sectional study prior to the start of the London 2012 Olympic and Paralympic Games covering 3,105 adolescents in year 7 of secondary school from across the East London boroughs near the site.(100) Environmental factors affecting physical activity were assessed using a questionnaire developed and validated by another research group.(101) The ALPHA questionnaire (Assessing Levels of Physical Activity and Fitness) gathers perceptions about the neighbourhood environment which are rated on a four-point scale. 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.'(100)

2.2.5   Bristol's 20mph Project

Evidence suggests that 20mph speed limits can reduce traffic related injuries and deaths, with a 42% reduction in casualties found in London 20mph zones compared with other areas.(79) Traffic speeds are listed throughout this report as a key problem identified by local residents in feeling safe when walking and cycling. Bristol City Council introduced a 20mph Project to introduce this speed limit across the majority of the city's public roads. The team plan to use the WHO Health Economic Assessment Tool (WHO HEAT) tool as standard practice when assessing new pedestrian and cycling schemes in the city.(102) 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.(103) The benefits in Bristol have been significant with a 40% increase in commuting on foot and a 94% increase of cycle commuting between 2001 and 2011.(102)

2.2.6   Cambridge Active Travel

In Cambridgeshire the County Council's Public Health Directorate and Economy, Transport and Environment Directorate or working together on active travel through needs assessment and policy. Plans for new housing and infrastructure developments in the county are reviewed by the public health team and relevant working groups. The major infrastructure and growth sites working group and public health team have made the following recommendations:

- 'ensuring health impact assessments are a mandatory requirement for all planning applications

- securing the facilitation of active travel as part of planning design and layout for each new development

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[5] See http://www.placestandard.scot/#/home for more information.

- ensuring access to services and that public transport is accessible and in place at new developments
- advocating provision of safe pedestrian paths and cycleways across the county, particularly near schools, care facilities and town centres (in response to local resident views).'(102)

2.2.7   King's Cross Central Regeneration Project

The King's Cross Central regeneration project is one of the largest in London and Europe at 67 acres.(104). People living around this formerly industrial urban site have significant levels of deprivation in relation to health, crime, unemployment, housing and environmental conditions.(105) 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.'(106)

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.'(106) The 'top 20' issues raised in public consultation included many health related issues, such as leisure and sports facilities and open space (see Appendix B for full list).(107)

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.(108)

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

- connectivity within and beyond the site
- streets designed for people
- mixed uses and active frontages
- integration of uses across the site (particularly in the area the Area and the Triangle)
- 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. It is too early to know whether the desired health benefits will be achieved.

2.2.8   Shared-space streets in Poynton

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.(109) A video of the town-centre regeneration, showing before and after footage, is available on YouTube.[6]

2.2.9   Policy examples

Relevant local planning policy examples include:

- 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.(110) This is incorporated into the Council's adopted Core Strategy.

- Greenwich's Local Plan (adopted 2014) Policy CH2 Healthy Communities has a number of points which relate to physical activity. The policy requires that all developments should incorporate 'measures that will help to build healthier communities and address health inequalities'.(91) The points related to physical activity specifically include:
    - promote healthy and active living for all age groups, including older people; …
    - ensure health facilities in Royal Greenwich are accessible to all by walking, cycling and public transport and that new development of health facilities is appropriate to local needs;
    - 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; …
    - promote active living, through creating places that are easily accessible, that connect to existing walking and cycling routes and extend/enhance these where possible; …
    - provide public toilets in publicly accessible major developments.'(91)

- Bexley's Core Strategy (adopted 2012) includes a green infrastructure policy related to health. Policy CS09 states '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.'(73)

2.3   Healthy eating

A number of organisations have argued that the proliferation of hot food takeaways near schools and in deprived communities in detrimental to health.(28,111) 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.(28) However, there is not strong academic evidence on the affect this would have on local obesity levels.(11,12,112) The participatory research described in this section explains that local residents have different cultural, social and economic reasons for choosing where to eat. It is likely that a combination of efforts to improve healthy diet are required, alongside the provision of

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[6] See https://www.youtube.com/watch?v=-vzDDMzq7d0

healthy food outlets. Planning policy-makers in London have access to local evidence from the NHS London Healthy Urban Development Unit (HUDU) about restricting hot-food takeaways.(111)

2.3.1   Exploring healthy food access in Sandwell

Researchers in Sandwell in the West Midlands initially 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.'(113) 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.'(113)

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. There were 93 FIGs (69 for adults and 24 for children) in a variety of settings holding informal conversation about any aspect of food and eating. FIGs were comprised of health professionals, community groups, food businesses and residents.

Findings from these discussion groups guided the work of the Eatwell project. It was clear that healthy eating is influenced by a complex range of factors and simply supplying healthy food would not solve the problem. FIG participants illustrated this point in quotes such as '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.'(113) 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:

- increased sales of fruit and vegetables in all participating shops;
- increased general sales in participating shops;
- changed shopping habits for some customers (to shopping locally);
- benefit to older people where retailers sold small quantities and cut vegetables (this group had reported difficultly carrying larger quantities home from larger supermarkets further from home);
- new provision of ethnic foods in response to local requirements;
- sense of community and security increased with better relationships between shopkeepers and residents – thus reducing isolation and supporting independence for some residents.

2.3.2   Youth perceptions of neighbourhood food environment in Madison, Wisconsin

The Youth Mapping for Safe and Healthy Neighbourhoods Initiative used Participatory Photo Mapping to 'identify built environment features of the south Madison neighbourhood that either promoted or put at risk the health of residents' and to 'present the findings to decision-makers'.(75) The researchers used photography with the participants in this project because it has been found to be particularly effective in engaging this age group.

The project involved three phases:

- Phase 1: 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.'(75) There were three age groups (10-11, 12-14, and 15-18).

- Phase 2: Participants documented their experiences through digital photos of their normal use of community and recreation environments as researchers walked with them through their neighbourhood. Researchers document their observations of the participants. The young people used GIS units to track the walk so that the images could be mapped. The images were then discussed in several iterative focus groups. In several cases there were multiple 'interpretations' of the same images by different groups.
- Phase 2: The young people and the researchers presented their findings via maps and narratives 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 taken photo for all of the 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 purchase fresh foods. Some of the participants were African-American teens and they found certain food vendors 'unwelcoming' and reported 'frequent harassment, discrimination and distrust'.(75) Despite the local farmer's market being set-up by an African American farmer and 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'.(75) This demonstrated the complexity of people's lived experience of place and health to the researchers.

Another telling example was about physical activity and open space. Similar to the nutrition environment, this neighbourhood has 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.'(75) 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.

2.3.3   Policy examples

Recent planning policies related to food access include:

- Haringey's Development Management Policies (submitted to the Secretary of State in May 2016) include policy DM56 Hot Food Takeaways: '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.'(73)
- Greenwich's Local Plan (adopted 2014) 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. [and]… safeguard existing allotments and, for major developments in deficiency areas, include appropriately sited allotments or community gardens.'(91)
- Newham's Core Strategy (adopted 2012) SP2 Healthy Neighbourhoods states that development proposals which respond to a number of health issues will be supported. These issues include:
  - 'The need to promote healthy eating through taking into consideration the cumulative impact of A5 uses (hot food takeaways)

- o The need for new or improved health facilities, and importance of protection and promotion of local access to health and other community facilities and employment, including sources of fresh, healthy food in line with Policies SP6 and INF5.'(92)
- Newham's local plan also refers to the role of green infrastructure in local food growing and the potential for meanwhile spaces to be used for food growing. In addition, there are references to multiple locations in which the Council is encouraging larger grocery stores.
- Central Lincolnshire's Joint Local Plan Policy LP9 Health and Wellbeing states that the 'authorities will expect development proposals to promote, support and enhance physical and mental health and wellbeing, and thus contribute to reducing health inequalities.'(114) This includes specific mention of healthy food outlets: '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.'(114)

2.4   Health services

This topic is about new models of integrated health and social care facilities which could help residents access health services and related advice in a more convenient and accessible manner. In 1999 the Big Lottery Fund launched a Healthy Living Centres programme across the UK. To receive grant funding, programmes needed to provide services to promote health and help reduce health inequalities. They were also asked to address key issues in health such as: the wider determinants of health, social exclusion, mental health, poor access to services and deprivation. This was done in a variety of ways but all centres involved the local community in delivering or shaping activities.

Healthy Living Centres provide a range of services, including: 'giving health advice and health care, teaching health skills, supporting self-help, providing emotional support, providing training, providing financial help and providing a social activity.'(72) Some of the centres which are still operating and thriving today include local GP surgeries alongside other activities which promote health and wellbeing. These include: the Bromley by Bow Centre, Robin Lane Health and Wellbeing Centre, College Surgery, Locality Health Centre. A new centre in Bristol is being planned called the Lawrence Weston Community Hub.

The Big Lottery Fund commissioned a consortium led by the Tavistock Institute to evaluate the impact of the Healthy Living Centres (HLCs) which found multiple benefits, including:

- o improved short and long-term health of regular users
- o provision of exercise, smoking cessation and other health-related activities
- o attracted target communities to attend the centre because of the range of services provided
- 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.(72)

The evaluation used a number of quantitative and qualitative approaches to inform these results. In relation to attracting target communities, HLCs were found to have successfully reached deprived communities with the greatest health needs. This was done through targeted programmes at different users and their needs and through targeting people who would be likely to pass on benefits in their community. Being physically located in the community where services were needed was identified by 24 HLCs as one of the methods used to access target populations. Individual HLCs also conducted evaluations on their own or commissioned others to do so on their behalf.

2.4.1   Bromley by Bow Centre

The Bromley by Bow Centre's mission is to "help create a cohesive, healthy, successful and vibrant community, and to remove the label 'deprived' from Bromley by Bow".(115) The Centre has been operating for other 30 years and focuses on supporting vulnerable young people, adults and families who may have difficulty accessing traditional support services.

As one of the country's very first healthy living centres, along with a GP surgery, they offer the community a wide range of health services that meet their needs, providing a bespoke health and holistic provision that exceeds local and national targets. The centre runs several employment and health and well-being initiatives, such as the Capital Talent programme which supports 16-35 year olds into work, training and apprenticeships and employment. The My Life programme is an Adult Health and Wellbeing programme delivering services to people with physical, mental, sensory, learning and complex disabilities and health conditions.(116)

One qualitative evaluation of the Centre conducted across three years looked specifically at the impact for older people. The researchers found that the Centre has successfully supported older people in the local community to access health services and social activities. These were primarily older White people from the East End who had been living in the area for generations. However the Centre was also successful at providing 'advisory and leisure activities for older Bangladeshi men as well as attracting high participation among younger Bangladeshi women particularly via its educational provision.'(117)

2.4.2   Policy examples

Policy examples include:

- 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.'(73)

- Greenwich's Local Plan (adopted 2014) Policy CH2 Healthy Communities states that developments are expected to: 'ensure health facilities in Royal Greenwich are accessible to all by walking, cycling and public transport and that new development of health facilities is appropriate to local needs.'(91)

- Central Lincolnshire's Joint Local Plan Policy LP9 Health and Wellbeing states: '[P]roposals 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.'(114)

2.5   Further guidance

Many guidance documents and planning policy examples stress the importance of health impact assessment (HIA) to inform new planning policy and development. Quantitative and qualitative approaches to HIA can better establish the 'size and scope of likely impacts' and 'challenge the perceived wisdom of planners.'(79) There are also a number of toolkits and checklists which can complement HIA and the design process. These healthy urban design tools are meant to be used by planners and design teams to ensure that new policies and proposals will benefit health and wellbeing. Examples include:

- The London Healthy Urban Development Unit's *Healthy Urban Planning Checklist*.(118) Available from: http://www.healthyurbandevelopment.nhs.uk/blog/hup/

- The Spatial Planning and Health Group's Checklist.(119) Available from: http://www.apho.org.uk/resource/item.aspx?RID=105724

- Urban Land Institute's *Building healthy places toolkit: strategies for enhancing health in the built environment.*(120) Available from: http://uli.org/research/centers-initiatives/building-healthy-places-initiative/building-healthy-places-toolkit/

- The U.S. Centers for Disease Control and Prevention's *The Built Environment: An Assessment Tool and Manual.*(121) Available from: http://www.cdc.gov/nccdphp/dch/built-environment-assessment/

There are many other similar examples created by individual cities and regional or national health organisations. In addition, there are a multiple standards (such as BREEAM Communities, Building 4 Life and Lifetime Homes) which seek to formalise the design of sustainable places, increasingly with a focus on health and wellbeing.(122) Many reports from charities, universities and other institutions seek to raise awareness amongst planners and design professionals of the links between place and health, with increasing attention to the cost benefits of healthy places.(5,28,123,124) And finally, there are a number of guidance documents which focus primarily on how to integrate health and planning in local authorities.(82,125–127) Many of these publications were reviewed for this report, with a focus on the three topic of social interaction, obesity and health services in the context of policy and regeneration.

Conclusion

This literature review 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 New Zealand 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 goes beyond 'business as usual' planning practice by carrying out in-depth quantitative and qualitative research into the location-specific health issues for residents of these boroughs. The project will build on the existing evidence base of built environment and health impacts (summarised in this document and elsewhere) in relation to the three key health focus areas which are based on local needs. This local research into residents' needs will inform planning and regeneration policies and will be regularly monitored and evaluated to assess impact.

Monitoring the impact of healthy planning policies and design measures was not covered by the literature review. The review looked at evaluations of regeneration projects however, this was largely separate to the normal monitoring and evaluation process of local authorities. A number of local authorities are using evaluation frameworks with indicators about health and health related outcomes (such as physical activity) to gauge whether policies are producing the intended effects. For example, planners in Philadelphia use annual progress reports to track the impact of their Greenworks policy programme (aimed at sustainability and public health objectives). The reports include targets and indicators that help city officials understand progress and make any required adjustments. (82) It is important to choose indicators that can be tracked over time through routine data collection and to use data at an appropriate spatial scale for the interventions being evaluated.

This project represents an innovative approach to planning healthy communities that seeks to combine extensive local knowledge with scientific evidence. A key difference from many projects is the commitment to monitor impact and seek continual improvements through planning policy and development management. By sharing the knowledge gained through this process, Southwark and Lambeth will also contribute to improving healthy planning practice in London and beyond.

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Appendix A – Methodology

This literature review followed best-practice principles to answer a number of specific questions for the Southwark and Lambeth healthy planning project. The principles are outlined here including: research questions, PICO criteria, information sources, search terms, eligibility criteria, stopping criteria and analysis.

Research questions:

The overarching questions posed by the Council included:

1. Which policies and design approaches can be implemented through planning and regeneration to support the 3 focus health issues? Include reference to policies which seek to support specific population groups.

2. Which methodologies have been used by similar social research studies or planning studies into these topics (e.g. participatory mapping) and what were the key findings/lessons learned?

The theme-specific questions posed by the Council included:

1. **Social interaction and isolation**: which places or spaces are most important for different groups of residents for social interaction (and related health benefits) and how can planned regeneration deliver improvements?

2. **Obesity and inactivity**: building on existing strategies and policy research, which pedestrian environment features and other interventions could increase residents' walking and what is the role of access to healthy food?

3. **Health service provision:** would new models of integrated health and social care facilities help residents access health services and related advice in a more convenient and accessible manner?

PICO criteria: The review used the following PICO (population, intervention, comparison, outcome) criteria:

- **P**opulation: Residents in urban areas, particularly regeneration areas. Sub-population groups including ethnic minorities, older people and children. Focus on studies in British cities where possible.

- **I**ntervention: Any urban environment features (and policies) that can be influenced by architecture, urban design or planning AND impact at least one of the three health topics. Focus on regeneration areas.

- **C**omparison: Multiple comparison groups depending on the topic and study design. (E.g. people living in regeneration areas compared with other neighbourhoods.)

- **O**utcome: Any physical and mental health outcomes, including quality of life, and wellbeing. Behaviours related to health and wellbeing including physical activity and social interaction. In relation to health services, indicators of better results for patients including access, convenience and health outcomes.

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Information sources: Searches were performed in two bibliographic databases (Scopus and Medline) and Google. Due to the rapid nature of the review, a pre-identified list of healthy planning guidance documents was presented during the proposal stage which were the main information sources about planning policy and regeneration examples. Systematic reviews and evidence reviews were identified as early as possible and relevant citations in these publications were analysed.

Search terms: The search criteria included multiple search terms to identify relevant studies across the research questions. Search terms included (but are not limited to): 'regeneration AND health', 'urban renewal AND health', 'social isolation AND regeneration', 'physical activity AND built environment', 'participatory mapping AND health', and 'photo mapping AND health'. Additional search terms related to reviews (e.g. 'AND systematic review' and 'AND evidence review') were added to the three health topics to identify reviews rather than individual studies.

Eligibility criteria: The following inclusion and exclusion criteria were applied to studies and other publications:

Inclusion criteria:

- Addresses PICO criteria.

- Addresses one of the 3 key themes (social interaction, obesity/inactivity, and integrated health services).

- Is a systematic review, evidence review or industry guidance document. Where these are not available or do not provide enough detail, individual studies are included which meet the PICO criteria.

- Was published recently, ideally in the last 5 years.

Exclusion criteria:

- Studies published in foreign languages.

- Individual studies of small sample sizes or other significant limitations. (Unless there is qualitative information about resident's views OR there is not better evidence from a systematic review or evidence review).

Stopping criteria: This review sought to answer multiple questions and therefore was not amenable to a large review of the results from bibliographic databases. Systematic reviews and other evidence reviews were used to identify the general state of evidence. Searching continued until such reviews were identified. If they were not available, searching continued until publications were identified which met the eligibility criteria.

Analysis: Publications were downloaded into a reference manager, Zotero, and organised by theme. Due to the rapid nature of this review, study findings were extracted directly into a key findings report which was then shared with the project lead at Southwark Council. The Council indicated which topics were of most relevance in the key findings document and where there were gaps. Further research on these specific issues was carried out using the principles outlined above. The key findings document was then developed into the literature review report.

Appendix B – Top 20 issues raised in Camden's consultation for King's Cross Central

1. "Safe, affordable leisure facilities catering for the needs of people of all ages, particularly the youth. For example go-karting, skate-boarding, a dance school, 10 pin bowling, a snooker club, arcade games and a theme park for all ages - primarily children.

2. Sports facilities for both adults and children (a swimming pool, more football pitches, more gyms and a badminton centre). Importance was placed on the provision of separate sports facilities for men and women.

3. Safe parks, open spaces and children's play areas.

4. A local multi use job training/community centre catering for various ethnic groups.

5. Safe/clean streets and routes through area - CCTV, Police Station, well maintained lighting.

6. Health Centre - Surgery /Pharmacy /Hospital/Dentist (with English, Chinese and Bengali staff).

7. Liveable/friendly spaces for residents and commuters - supermarkets/ shopping/ restaurants/ bars/ pubs.

8. A cinema/theatre

9. Affordable and accessible housing for families & key-workers as well as housing for the elderly & homeless (4-5 floors).

10. An ice rink.

11. Double glazing on houses/flats to block out the noise of the King's Cross redevelopment works.

12. Facilities for the elderly.

13. More schools / education facilities

14. Improved public and private transport links/bus interchange/shuttle buses connecting the site both north-south and east/west (Euston-Islington).

15. More pet shops/vets.

16. Safe pedestrian and cycle routes through site

17. A local mosque

18. More employment for local people.

19. A new train station on York Way or Maiden Lane.

20. A cultural community centre focussed on the canal."

Appendix C – HIA Research Methods

The World Health Organization lists the following commonly used research methods (78):

- 'Using current data collection systems. Relevant data may be routinely collected in surveys, monitoring of trends and needs assessments – check government departments, local healthcare providers, local and regional councils, universities, etc

- Workshops. This is a commonly used method in HIA to bring together a large number of stakeholders to discuss the proposal, discuss evidence of impact, and generate possible solutions.

- Focus groups. A qualitative method for gathering detailed information from a small group of people. A person to guide the group discussion is required. This approach provides large amounts of practical evidence about people's perceptions and experiences and is often used in HIA to gather community and/or expert views on a topic.

- In-depth individual interviews. A qualitative method for gathering detailed information from one or two people at a time. This approach provides large amounts of practical evidence about people's perceptions and experiences and is often used in HIA to gather community and/or expert views on a topic.

- Questionnaires/surveys. Using written, phone, web or computer based questionnaires can be useful to gather both quantitative and qualitative information. Question design and sampling are important issues to get right. This approach often allows a broader reach across the population.

- Textual/documentary analysis. Existing documents often contain considerable evidence. These can include non-traditional sources such as meeting minutes and emails.

- Diary/log books. Keep a diary or set up a log book to track events/ experiences as they happen.

- Physiological tests. In large studies, tests on people's physiological reaction can be undertaken. For example, in the Schipol Airport HIA in the Netherlands, researchers included field studies about the impact of plane noise on residents' sleep.

- Observation. A common method used to collect information about how areas are used and how people behave.

- Image-based evidence. Photography and video evidence can be used to collect evidence about how areas are used and how people behave.

- Case studies. Carrying out in-depth study of an individual, a situation, an organisation, or a place. This approach uses many of the above methods to gather detailed information about one topic.'