Public Health England

INSTITUTE of HEALTH EQUITY

Healthy High Streets

Good Place-Making in an Urban Setting

Practice Resource Summary

Contents

About Public Health England 3

Executive summary 4

1. Introduction 6

2. What is a healthy high street? 8

2.1 The high street as a determinant of health 8
2.2 Background: health inequalities 8

3. UK policy and practice 11

4. Built environment interventions 15

4.1 Developing a healthier retail offer – the benefits of diversity on high streets 17
4.2. Introducing green and blue infrastructure for environmental and community health 17
4.3. Pedestrian environments – inclusive for all 19

5. Recommendations 27

References 29

About Public Health England

Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. We do this through world-leading science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. We are an executive agency of the Department of Health, and a distinct delivery organisation with operational autonomy to advise and support government, local authorities and the NHS in a professionally independent manner.

Public Health England
Wellington House
133-155 Waterloo Road
London SE1 8UG
Tel: 020 7654 8000
www.gov.uk/phe
Twitter: @PHE_uk
Facebook: www.facebook.com/PublicHealthEngland

Prepared by: Sorcha Daly, Institute of Health Equity and Jessica Allen, Institute of Health Equity (jessica.allen@ucl.ac.uk)
For queries relating to this document, please contact: andre.pinto@phe.gov.uk

© Crown copyright 2018
You may re-use this information (excluding logos) free of charge in any format or medium, under the terms of the Open Government Licence v3.0. To view this licence, visit OGL or email psi@nationalarchives.gsi.gov.uk. Where we have identified any third party copyright information you will need to obtain permission from the copyright holders concerned.

Published January 2018
PHE publications gateway number: 2017729

PHE supports the UN Sustainable Development Goals

Executive summary

1. High streets occupy a distinctive position within communities and play an important role in influencing the health of local communities.

2. When designed and resourced well, high streets can help activate communities to build better social, environmental and economic capital: the building blocks to better health outcomes. Local decision makers, particularly built environment professionals, town managers and public health professionals, can support this.

3. High streets provide professionals with an existing community asset with which to impact positively on the health of local residents, improving health outcomes and contributing to reducing health inequalities.

4. The quality of the built environment and retail offer on the high street influences health through direct and indirect mechanisms. Inclusive, safe, clean, walkable and cycle-friendly environments encourage people to become more active and directly influence levels of pollution-related ill health, obesity and mental health. Improved local high street environments also directly influence mental health and wellbeing by increasing levels of social contact and integration, civic pride and community trust.

5. Flourishing high streets can improve local economies and increase employment opportunities, raising standards of living and access to health-promoting goods and services. These factors also act, indirectly, through psychosocial pathways, reducing stress and low levels of wellbeing associated with financial insecurity, fear of crime, and low levels of social, financial and environmental capital.

6. Not all high streets are health-promoting. There is a social gradient in access to high streets that have a healthy retail offer and are inclusive, safe, clean, walkable and cycle-friendly. These issues impact on health inequalities, influencing the social gradient in life expectancy and healthy life expectancy.

7. There are a range of interventions that can improve local high streets, particularly in areas of deprivation, and contribute to the health and wellbeing of local communities and their economies.

8. Introducing more green and blue infrastructure, for example through water features, street trees and wall and roof planting; reduces pollution, encourages active travel, and contributes to environmental and climate change initiatives.

9. Traffic calming, improved, inclusive and uncluttered street furniture, and Crime Prevention through Environmental Design (CPTED) will create safer, cleaner and more walkable and cycle-friendly high streets.

1. Introduction

Local high streets occupy a distinctive position within communities (1) and have the potential to become the locus for some of the highest levels of human activity. (2) High streets also provide local communities with access to health-promoting goods and services, opportunities for social interaction, thus promoting community cohesion, and local economic growth. High streets therefore play an important role in the health of local communities, (3) having both direct and indirect impacts on health. Safe and clean pedestrian environments can encourage people to become more active and physically fit and can enable people from different communities and backgrounds to become more socially engaged and integrated, reducing social isolation and providing an environment conducive to mental health and wellbeing.

The high street also has a significant influence on the local economy, which has an impact on health. Flourishing high streets can offer greater employment opportunities, for example, influencing health through material mechanisms such as improved standards of living. This in turn influences psychosocial pathways, which can reduce stress associated with financial insecurity with an increased likelihood of improved health behaviours. (4)

All of these factors can activate communities to build better social, environmental and economic capital, the building blocks to better health outcomes. For health professionals and other stakeholders, local high streets should be recognised as an important existing community asset that can be used to promote and improve the health of local residents. ‘Healthy’ high streets can support the reduction of health inequalities and promote other desirable outcomes including safety, prosperity and social interaction. In short, high streets can help make the healthy choice, the easiest choices.

Local high streets have changed dramatically over the past few years due to a combination of technological, economic, demographic and social changes in our local and wider communities. These changes are likely to continue. Some high streets have successfully adapted while others have struggled to do so and have experienced an ongoing and worsening decline.

This summary briefing considers the evidence as to what makes a ‘healthy high street’ and is aimed at local decision-makers, particularly built environment professionals (for example, planners, urban designers, landscape architects), town managers and public health professionals. This summary and the accompanying full report will also be of use to other professionals and disciplines involved in implementing street design principles with the aim of making high streets more inclusive, safe and healthy, promoting social integration particularly in areas of high deprivation. We also hope that stakeholders

such as community and faith groups, retailers and businesses using and/or delivering goods and services in the high street will be interested in this work.

2. What is a healthy high street?

Good quality design and furniture in local high streets that provide accessible, safe, communal spaces foster social interaction and strong local economies and can be used to create healthier, safer and more cohesive local communities. For optimum health promotion high streets should:

- be inclusive of people from all walks of life
- be easy to navigate, including crossings
- provide shade, shelter and places to stop and rest
- be walkable and provide options for cycling
- have low levels of noise and air pollution
- provide things to see and do
- have a health-promoting retail offer
- ensure people feel relaxed and safe
- consider the local context of the high street, its features and current use, and how all these factors interact with one another

Source: adapted from 10 Healthy Streets Indicators developed by Lucy Saunders and included in Healthy Streets for London. (5)

2.1 The high street as a determinant of health

High streets that have high levels of air and noise pollution, are unsafe in terms of levels of crime and degradation, and that have a non-inclusive design, will negatively impact on health. Conversely, high streets with more positive attributes can be considered an asset that can be used to promote and improve the health of local residents and the wider community. The unequal distribution of healthy and unhealthy high streets is likely to contribute to health inequalities.

2.2 Background: health inequalities

Health inequalities are unjust and avoidable and result in significant differences in the life expectancy and healthy life expectancy of the most and least well-off communities. (6) For example, the Marmot Indicators (2015) (7) demonstrate that men in Blackpool (classified as the most deprived ward in England) can expect to live 16.5 more years in poor health and 7.4 fewer years overall than men in Wokingham (classified as the least deprived ward in England). For women, the differences are 11.6 and 4.6 years respectively. The built environment, including high streets that are health-promoting, can have a significant impact on reducing health inequalities. Poor and disadvantaged communities are more likely to live in areas that have poor-quality built environments, including local high streets. (8) (9)

Before examining the interventions that are known to foster the aspects of a healthy high street described above, this summary looks at inequalities in access to healthy high streets, and how these can impact on health. Features of an unhealthy high street are summarised in Table 1, alongside their direct and indirect impacts on health outcomes. In column 1 of the table links can be found to the full report where more in depth evidence on the features of unhealthy high streets, and their unequal distribution, can be found.

Table 1. Features of an unhealthy high street [1]

High street feature	Inequalities	Direct impacts on health	Indirect impacts on health
Lack of diversity in retail offer (See also Section 1.2A of the Full Report)	Higher density of payday loan, alcohol, gambling and fast food outlets in areas of deprivation. Impacts on less mobile populations disproportionately.	Increased risk of obesity, diabetes, cardiovascular disease and certain cancers. Higher levels of alcohol addiction and alcohol-related harm and an increased risk of depression, trauma, heart disease and stroke.	Increased likelihood of poor mental health including depression, cognitive impairment, and dementia linked to social isolation. Increased levels of stress and poor mental health associated with financial insecurity. Poor mental health of family members, associated with alcohol addiction and gambling addiction.
Lack of green infrastructure (See also Section 1.2B of the Full Report)	Deprived inner-city areas have five times less good-quality green space and higher levels of pollution than other urban areas.	Increased vulnerability to heat island effects. Increased risk of cancer, childhood and adult asthma, heart disease and dementia. Lower levels of physical exercise leading to higher risk of obesity, diabetes and cardiovascular disease.	Poorer levels of social interaction, impacting on mental health.
Noise and air pollution[2] (See also Section 1.2C&D of the Full Report)	Areas of deprivation have a greater exposure to air pollution and noise than wealthier areas.	Noise pollution: increased stress hormones linked to cardiovascular disease, and increased blood pressure; impaired cognitive function in children; disrupted sleep. Air pollution: increased risk of cancer, childhood and adult asthma, heart disease and dementia; increased mortality and hospital admissions.	Noise pollution: impaired quality of life leading to poor mental health, physical stress, physical inactivity and behavioural and psychological effects. Air pollution: lower levels of physical exercise leading to higher risk of obesity, diabetes, cardiovascular disease and certain cancers.
Litter and area degradation (See also Section 1.2E of the Full Report)	Deprived areas experience poorer overall local environments including higher levels of graffiti, fly-tipped waste and litter, associated with low level crime and antisocial behaviour.	Poor mental health and stress-related illness from increased levels of antisocial behaviour, crime and fear of crime. Lower levels of physical activity linked to obesity, diabetes, cardiovascular disease and some cancers.	Poor mental health associated with increased risk of social isolation, including depression, cognitive impairment and dementia.
Road traffic collisions (See also Section 1.2F of the Full Report)	Rates of fatal and serious injuries for 5–9 year olds are nine times higher than average in the 20% most deprived areas. Cycling fatalities are higher in the 20% most deprived wards. Risk of injury varies depending on employment status and ethnicity of parents, creating inequalities.	Death and physical injury.	Poor mental health including post-traumatic stress disorder.
Crime and fear of crime (See also Section 1.2G of the Full Report)	Higher levels of crime are found in poorer areas and fear of crime in inner city areas. Greater fear of crime is found in black and minority ethnic communities, young people, older people and women. Disproportionate victimisation is experienced by young black men, people with disabilities, and LGBT people.	Substantial and long-lasting physical injury and psychological distress. Depression, anxiety and toxic stress associated with hypertension, cardiovascular disease, stroke, asthma, overweight and obesity. Increase in poor health behaviours linked to cancer, depressive disorders, heart disease, stroke and physical trauma.	All-cause mortality, coronary health disease, pre-term birth, low birth weight and poorer health behaviours such as lower levels of physical activity mediated through psychosocial pathways.
Cluttered pavements and non-inclusive design (See also Section 1.3 of the Full Report)	Older people, people with physical disabilities, people with reduced mobility and parents with young children are affected the most by cluttered pavements and non-inclusive design, reducing opportunities for physical exercise, social interaction and access to health promoting goods and services	Increased risk of obesity, and related diseases including diabetes, cardiovascular disease and some cancers. Poor mental health including loneliness, increasing the risk of depression, cognitive impairment and dementia, poor health behaviours, coronary heart disease and mortality. Increased risk of trips and falls, and road traffic injury or mortality.	Anxiety, depression and low self-esteem associated with childhood overweight and obesity linked to low levels of physical exercise.

[1] The Table summarises key messages and synthesises links and associations found in the evidence. For further details on each street feature , including references, please see relevant chapters in the **Healthy High Streets Full Report**
https://www.gov.uk/government/publications/healthy-high-streets-good-place-making-in-an-urban-setting

[2] Light pollution has also been highlighted by some planners as an issue, particularly in built-up urban areas, but this specific issue was not covered in the review.

3. UK policy and practice

There are clear disparities between high streets that have adapted to social and economic changes and high streets that have been unable to flourish in the face of these significant changes. (2) A lack of funding and a wide range of disparate professional disciplines, local authority departments and businesses have all contributed to poorly designed and managed high streets, many of which have become physically cluttered and difficult to navigate.

Key messages: UK policy and practice

Multiple social, economic and environmental factors have contributed to the demise of some local high streets. Therefore, interventions that focus solely on retail to address the issue of failing high streets will struggle to succeed.

Negative factors include: the rise of out-of-town shopping centres, internet shopping and car ownership has drawn people away from high streets; the price of retail floor space on the high street has risen significantly; perceptions of high streets have changed – they are no longer seen as places to visit and socialise in. [9]

Additionally, local motorised transport routes have been prioritised over pedestrians and place-making, increasing levels of traffic, noise and air pollution on high streets. [9] This can put off would-be visitors, reducing footfall.

A wide range of practitioners and users, as depicted in Figure 1, will need to work together to influence the design, development, use and ongoing maintenance of high streets, to ensure they are reimagined into vibrant community spaces.

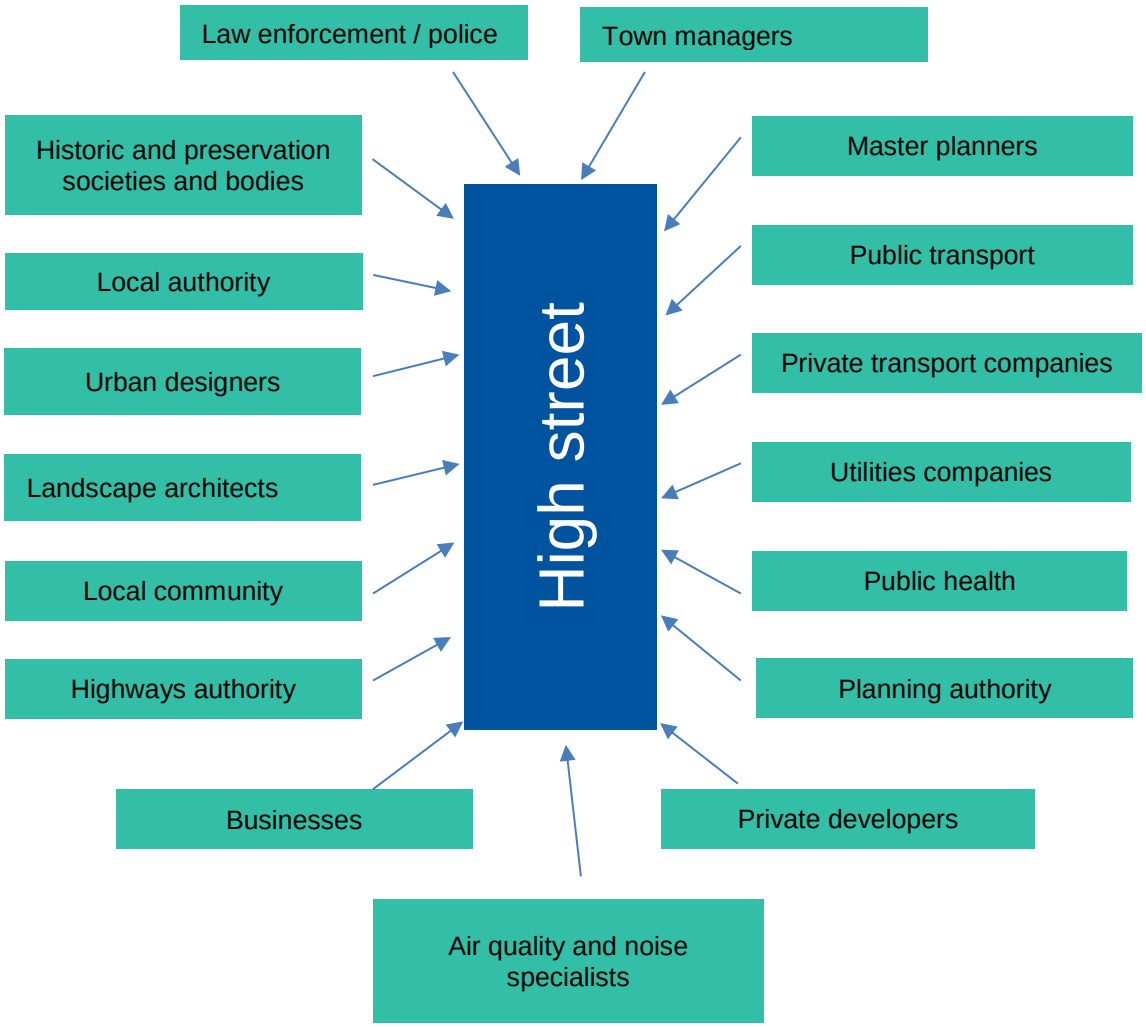
The National Planning Policy Framework (2012) will also help to provide leverage for collaborative action. [10] This is set out in more detail in Box 1 below.
However, there is a gap between planning and design theory of the built environment and its practical application. Developing better working relationships between the multiple disciplines, departments and practitioners that influence the design, maintenance and use of high streets will help to address this.

Involving a wide range of groups and individuals, especially those from more isolated and disadvantaged groups, in the planning and design process of the high street, will contribute to community ownership and cohesion as well as to ensuring a better overall outcome for high streets. (9)

Focusing on interventions that promote safety, social interaction and cohesion and develop a sense of identifiable community space will contribute to the health and wellbeing of local communities.

Many issues can be addressed through smaller changes rather than wholesale regeneration, helping to retain high streets' familiarity and influence on social interaction and cohesion.

Figure 1. Diversity in high street design, development, management and use



Source: Adapted from Carmona (2015) (10)*London's local high streets, the problems, potential and complexities of mixed street corridors*

Box 1. The National Planning Policy Framework

The National Planning Policy Framework (2012) sets out how the Government expects planning policy to be applied locally and includes specific reference to 'promoting healthy communities'.

The Framework, and its accompanying guidance, recognises the issue of disparate departments, professionals and businesses influencing the high street. It provides a useful lever and framework through which separate departments can be encouraged to work together to improve the built environment of the high street, and a useful 'hook' to secure much needed funding streams from a broader range of funders, including private developers. It also enables local authority representatives, or other stakeholders, to legitimately enquire about the health impacts of new developments or proposed built environment or retail changes on the high street.

Useful resources – Assessment and planning of healthy high streets

Spatial Planning for Health – A resource for planning and designing healthier places, published by Public Health England (PHE). An evidence tool based on the findings from an umbrella literature review of the impacts of the built environment on health, which includes a series of practical diagrams that illustrate the linkages, and strength of evidence, between spatial planning and health issues. Available at: https://www.gov.uk/government/publications/spatial-planning-for-health-evidence-review

Re-imagining Urban Spaces to Help Revitalise our High Streets – Focuses on high streets, their potential as urban spaces and how they can be developed to become a destination of choice. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/5987/2185491.pdf

Place Standard tool – Developed by the Scottish Government to facilitate place evaluation. Can be used to evaluate places that are well established, newly developed or undergoing change. It aims to enable conversations about place that focus on both the physical and social aspects of environments, identify community assets and provide a practical framework by which to structure conversations. Available at: http://www.placestandard.scot/#/home

The Healthy Streets Toolkit is a resource developed to help put the Healthy Streets Approach into practice. It covers the whole process from initial assessment, through implementation, to evaluation. Available at: https://tfl.gov.uk/corporate/about-tfl/how-we-work/planning-for-the-future/healthy-streets Also available are the Guide to Healthy Streets Indicators, available at http://content.tfl.gov.uk/guide-to-the-healthy-streets-

indicators.pdf and the Healthy Streets Check for Designers, available at: https://tfl.gov.uk/corporate/about-tfl/how-we-work/planning-for-the-future/healthy-streets
People Make Places – A publication from Demos designed to identify the shared spaces of interaction and exchange, the value that such spaces generate and how that value is created. Available at: https://www.demos.co.uk/files/Demos_PMP_Final_02.pdf

Public Health in Planning Good Practice Guide – Developed by the Town and Country Planning Association. A toolbox aimed at local government planning and health officers that provides guidance on how to use the Public Health Guidance Framework to link planning and health at an operational level. Provides a list of key national and London guidance and references. Available at: http://www.housinglin.org.uk/_library/Resources/Housing/OtherOrganisation/TCPA_Public_Health_in_Planning_Good_Practice_Guide.pdf

National Planning Practice Guidance – Provides guidance on how to implement the National Planning Policy Framework. Available at: http://planningguidance.communities.gov.uk/

Manual for Streets 2: Digested Read – Provides case studies and guidance for how the Manual for Streets 1 can be extended to most urban and rural contexts. Available at: http://www.sustrans.org.uk/sites/default/files/images/files/migrated-pdfs/TIN%2024%20-%20MfS2.pdf -

Community Street Audits – Describes how organisation Living Streets can help carry out community street audits. Available at: https://www.livingstreets.org.uk/what-we-do/projects/community-street-audits

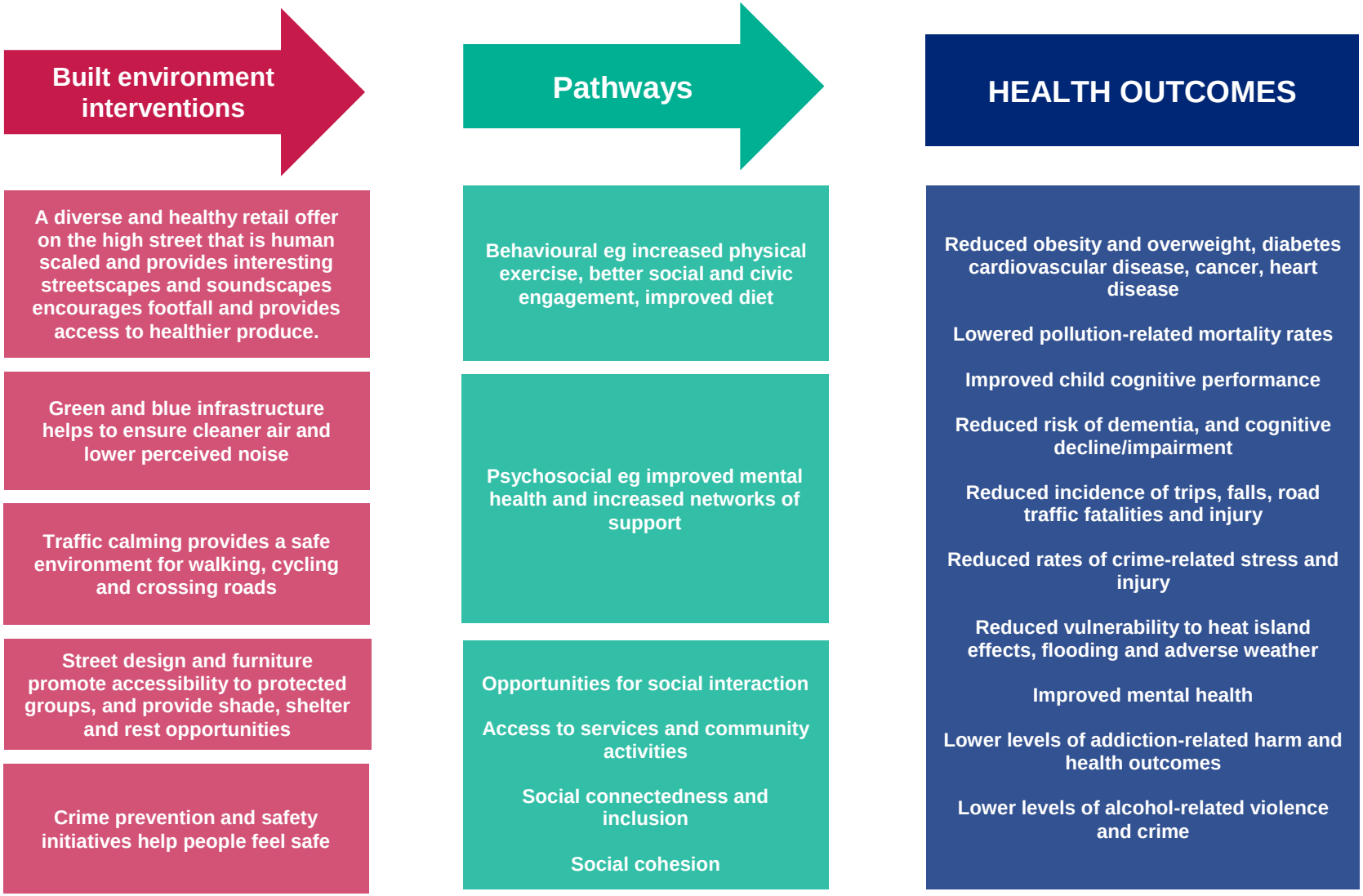
4. Built environment interventions

Flourishing high streets have the potential to deliver significant quality of life and health benefits to local populations, especially those who are vulnerable and marginalised. The planning and design of high streets can create welcoming places with a sense of belonging, civic pride and community cohesion.

This summary focuses on the following approaches that have been shown to have direct and indirect impacts on health:

1. Diversity in the retail offer
2. Green and blue infrastructure
3. Traffic calming
4. Street design and furniture
5. Crime prevention and safety

Figure 2. The positive health outcomes that can result from different built environment interventions



Street features adapted from indicators provided by the Royal Society of Public Health

4.1 Developing a healthier retail offer – the benefits of diversity on high streets

A diverse offer in the retail component of the high street can help to create a unique sense of place and, through that, positively influence the economy and health of local communities.

Key messages: Diversity on the high street
Mixed-use streets (with a combination of commercial, residential, cultural, leisure and service industries) have been shown to encourage active travel (walking and cycling) (11-13) and social interaction (14-17) by providing a diverse range of easy-to-access amenities clustered in one area. (2)

It is estimated that for every pound spent in a local independent shop sourcing local produce, twice as much money is generated for the local economy compared with money spent in a large national or international company. (18)

Mixed-use streets also have the potential to improve diet-related health inequalities by providing access to a range of convenient healthy food outlets and grocery stores. (19) (20)

Principles for implementing mixed-use developments include ensuring building height is on a human scale, as this enhances the streetscape and creates varied shop frontages that are aesthetically pleasing, providing visual stimulation and encouraging visitors. (21) (22)

High streets can diversify their existing mix of uses by providing temporary installations such as pop-up cafes, art galleries or parks to add visual interest, improve ambience and soundscapes (23, 24) and provide a more varied range of uses.

Useful resource – Diversity on the high street
Rediscovering mixed use streets: The contribution of local high streets to sustainable communities. Available at: https://www.jrf.org.uk/sites/default/files/jrf/migrated/files/2018-mixed-use-streets.pdf

4.2. Introducing green and blue infrastructure for environmental and community health

Green and blue infrastructure – such as street trees, parks, rivers and ponds – can positively influence a range of issues relating to the environmental quality of high streets. It is possible to build both green and blue space into existing and future developments. (25)

Key messages: Green and blue infrastructure

The introduction of green infrastructure has multiple economic, health and environmental benefits, including promoting biodiversity, addressing issues relating to climate change, enhancing the aesthetics of environments, and improving the economic value of local areas. (25, 26)

Coniferous trees, planted close to streets and spaced appropriately, have been found to be the most effective in absorbing particulate matter all year round, offering continuous protection throughout the winter months when particulate matter levels can rise. This reduces the risk of respiratory and cardiovascular disease, cancer, asthma and pollution-related mortality. (27) (28)

Urban street planting also provides shade and shelter and reduces the risk of heat island effects. (29-31) (32) (33) This reduces the risk of health issues related to these environmental conditions, including heat exhaustion. (28)

Access to green space encourages greater levels of physical activity as streets become more attractive and inviting to walk, run and cycle in. Access to green space can also stimulate positive psychological and physiological responses, positively impacting on mental health including better moderation of stress and reducing hospital admissions for mental health. (34) (35) (36)

Street planting community programmes can also contribute to developing a greater sense of community integration and civic pride. (37-39) (40) (38) (41) Planting can be used to visually represent different cultures and ethnicities and has the potential to promote social inclusion.(42)

Engaging local groups in the maintenance and protection of street trees is effective in increasing the survival rates of trees and plants. It can also strengthen neighbourhood bonds, and promote social cohesion and capital and a sense of ownership and pride in local neighbourhoods. (43) (44)

Careful planning and consultation is needed to ensure street planting complements the existing street character, is relevant to local groups, and has a high survival rate. (45)

Introducing blue space such as ponds is also beneficial to health. Blue space has a restorative effect on health and wellbeing and contributes to creating a sense of place, encouraging social interaction through focal points and points of visual interest. (46) (47) (48) (49)

Useful resources – green and blue infrastructure
Green Infrastructure Guidance – From Natural England. Available at: http://publications.naturalengland.org.uk/publication/35033

Green infrastructure: Design and place making – Produced for the Scottish government. Available at: http://www.gov.scot/resource/doc/362219/0122541.pdf

Trees in Hard Landscapes: A Guide for Delivery – Examines the practical challenges and solutions to integrating trees in streets, civic spaces and surface car parks. Available at: http://www.tdag.org.uk/trees-in-hard-landscapes.html

Trees in the Townscape: A Guide for Decision Makers – Provides 12 principles of best practice for local decision-makers to establish maximum economic, social and environmental returns. Available at: http://www.tdag.org.uk/trees-in-the-townscape.html

4.3. Pedestrian environments – inclusive for all

Streets need to be accessible, easy to cross and safe, for people of all ages and of all abilities. This includes older people, people who are partially sighted, hearing-impaired and those with learning disabilities, people with mobility restrictions and people with pushchairs and young children. Focusing on the needs of groups most vulnerable to exclusion within the design of high streets is likely to promote the inclusion of all groups. (50) (51)

4.3A Traffic calming

Prioritising pedestrians and cyclists rather than motorised transport in high street design will contribute to the health and economy of the local community. Utilising existing carriageways for the implementation of footpaths and cycle tracks has the added benefit of creating a clear message that sustainable transport is now prioritised on the road. (52)

Key messages: Traffic calming
Traffic calming is one way to contribute towards inclusion and local population health. (51) Traffic calming schemes can reduce the number of road traffic collisions by around 15%, (53, 54) increasing feelings of safety on the road, and reducing the number of casualties and deaths.

Traffic calming has been shown to provide a strong stimulus for economic growth through increased footfall, increased likelihood of shop visits, greater levels of physical activity, a reduction in noise and pollution levels, and an increase in social interaction. (51)

Reducing the noise impacts of motor traffic directly benefits health, improves the ambience of street environments and encourages active travel and human interaction. (55) (56)

Reducing the speed and amount of traffic on high streets is essential for ensuring safety. Evidence demonstrates that reducing speeds increases the proportion of drivers that give way to pedestrians. (52) 'Safe space' streetscapes incorporate elements of shared space, alongside interventions that aid the navigation of blind and partially sighted people. (57) (58)

Shared and 'safe space' initiatives are an effective means of creating a more flexible environment for multiple street uses, catering for through traffic, community events, street fairs, markets and cafes. Consultation with a wide range of street users over such initiatives is essential, including bus and emergency services, community groups, and local traders and businesses. (51)

A detailed assessment of the local street environment, its characteristics and its current uses is needed to ensure the most appropriate traffic calming measures are introduced. (52)

Traffic calming interventions make the road safer and more attractive to cyclists as the speed and volume of traffic reduce. However, cyclists are vulnerable to poor street design alterations that do not pay sufficient attention to their needs. (52)

Street design that incorporates and promotes the needs of cyclists will do much to encourage cycling to, from and through local high streets.

Useful resources – traffic calming

Local Transport Note 1/11 – Provides detailed guidance around introducing shared space schemes into local high streets. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/3873/ltn-1-11.pdf

A Review of Simplified Streetscape Schemes – From Transport for London. Available at: http://content.tfl.gov.uk/review-of-simplified-streetscape-schemes.pdf

Public Realm Information and Advice Network (PRIAN): A not for profit organisation that provides expert advice on the public realm, including street scapes. https://publicrealm.org/

Shared Space. Safe Space. Meeting the requirements of blind and partially sighted people in a shared space – Report prepared for the Guide Dogs for the Blind

Association. Available at: https://www.guidedogs.org.uk/media/1497826/Shared_space_-_safe_space_Ramboll_Nyvig_report.pdf

Inclusive Mobility – A Guide to Best Practice on Access to Pedestrian and Transport Infrastructure – From the Department for Transport. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/3695/inclusive-mobility.pdf

Manual for Streets – Chapter 2 provides guidance on issues of risk and liability. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/341513/pdfmanforstreets.pdf

Sustrans Design Manual Handbook for Cycle Friendly Design and Local Transport Note 1/12 Shared Use Routes for Pedestrians and Cyclists – Two reports that provide detailed design guidance and a range of tips and ideas for implementing cycle routes into urban and other areas. Available at: http://www.sustrans.org.uk/sites/default/files/file_content_type/sustrans_handbook_for_cycle-friendly_design_11_04_14.pdf and https://www.gov.uk/government/publications/shared-use

Emergency services traffic calming schemes: A code of practice (TAL 1/07) – Traffic advisory leaflet

Cyclists at Road Narrowings (TAL 01/97) – Traffic advisory leaflet

Planning Policy Guidance Note 15 (PPG15) – From the Department of the Environment, offering specific advice on reconciling transport and townscape issues.

Streets for All manuals and TAL 01/96 Traffic Management in Historic Areas – From English Heritage, giving general advice on the introduction of traffic engineering measures in historic areas.

Air pollution: outdoor air quality and health – NICE guidelines. Available at: https://www.nice.org.uk/guidance/ng70

Working Together to Promote Active Travel – A briefing from PHE for local authorities. Available at: https://www.gov.uk/government/publications/active-travel-a-briefing-for-local-authorities

The London Cycle Design Standards, sets out the requirements and guidance for planning of cycle networks and the design of cycle infrastructure, cycle-friendly streets

and cycle parking. Available at: https://tfl.gov.uk/corporate/publications-and-reports/streets-toolkit#on-this-page-2

Better Streets Delivered 2 provides best practice examples of changes to streets scapes, available at: http://content.tfl.gov.uk/better-streets-delivered-2.pdf

4.3B Street furniture

Urban design impacts on health. Streets that are more walkable positively affect levels of physical activity. In turn this can reduce levels of obesity and the overweight population, reduce the risk of cardiovascular and respiratory disease, strengthen bones, increase mental alertness and creativity and reduce the risk of cognitive decline. More walkable streets also provide greater opportunities for social interaction; pedestrians tend to congregate in areas that have positive walking environments. Conditions of pavements, lighting, trees and street furniture, including adequate signage and crossings, improve the walkability of streets, encourage footfall, and increase time spent on the high street, promoting economic growth and better health outcomes. More walkable streets therefore possess the ability to directly influence and create positive health outcomes.

Key messages: Street furniture

Street furniture can either aid or hinder safe and comfortable passage through high streets. Well-designed street furniture can promote increased length of stay and social interaction. However, accommodating the needs of all street users is challenging, as interventions to promote the safety of one user can increase the risks of another. (50)

Decluttering streets by reducing the amount of street furniture can improve the experience of many high street users, particularly those with small children and buggies, and wheelchair users. (50) (59) (44) (60)

Appropriate street furniture can serve as important navigational aids and create a unique sense of place. The provision of seating areas is important to many street users, particularly older people and those with health conditions. Distinctive landmarks promote mental-map-making, which is particularly important for older people and people with dementia. Conversely, mental-map-making can be confused by unnecessary, bright advertising that changes regularly. (44) (50) (59)

Pedestrian crossing signals are important for older street users and those with restricted mobility. Studies have shown that most older people are unable to cross pedestrian crossings in the time allocated, resulting in ‘limited independence, and reduced opportunities for physical activity and social interaction.’ (61)

Adequate and accessible toilets, seating and shelters, including bus shelters, are needed to promote the inclusion of older people, people with disabilities and young families. (50)

Pavement quality and design can have a significant impact on mobility. Older people, wheelchair and mobility scooter users, and those with other mobility disabilities, prefer well maintained, smooth pavements with dropped or no kerb. (59)

Blister pavements to aid the navigation of blind or partially sighted people pose a particular dilemma for urban designers and local authorities. They are considered problematic for some older people, wheelchair and scooter users. However, the risks to blind and partially sighted people associated with their removal are considered to outweigh the difficulties for other users. Ongoing research and development of guidance is underway to address these issues. (59) (62) (63)

Use of retail space, and relevant art and symbols, if introduced sensitively, can be used to encourage and acknowledge the presence of a variety of groups, including those from black and minority ethnic (BME) backgrounds and those who are lesbian, gay, bisexual or transgender (LGBT). This can promote social cohesion, trust and the health of protected groups. (42) (64) (65, 66) (67)

'Play on the way' interventions, which introduce play equipment and spaces specifically designed for children, have been shown to increase footfall and the length of stay on the high street, as well as time spent outside and physical exercise for families. (68)

Adolescents are often not catered for in public space. This can create conflict between adults and young people. However, young people need to occupy public space as this supports the transition from childhood to adulthood. Creating, in consultation with young people, spaces that provide opportunities in which to congregate and be active safely, will promote their health and wellbeing and aid social integration and community cohesion. (69)

Useful resources – Street furniture

Inclusive Mobility – Government best practice guidance to ensure more inclusive access to those with disabilities within transport and pedestrian environments. Available at: https://www.gov.uk/government/publications/inclusive-mobility

British Standard 8300 (BSI, 2009) and guidance from the Department for Transport on inclusive mobility (2002) – Specific design guidance on designing physical environments for disabled people. Disabled people's needs have been incorporated into mainstream guidance such as the Department for Transport's Manual for Streets (2007)

Sight Line: Designing better streets for people with low vision – Guidance developed by CABE from in-depth interviews and observational data regarding current uses of built environment interventions, with recommendations for improvements

Design for Play – Developed by Play England, providing guidance around the design and implementation of play areas in both urban and rural settings. Available at: http://www.playengland.org.uk/media/70684/design-for-play.pdf

4.3C Crime prevention and security

Crime and fear of crime can significantly affect footfall and contribute to high street degradation. Feelings of safety are crucial for community wellbeing and health and there are a number of built environment interventions that can foster positive perceptions and reduce the incidence of crime. (70) (71) (72)

Key messages: Crime prevention and security

Green infrastructure that does not block sightlines has been demonstrated to reduce levels of violent crime, and promote social cohesion and feelings of safety. (73, 74) (38, 75-78)

Crime Prevention through Environmental Design (CPTED) is an approach to designing out crime and advocates the following four approaches as effective ways of preventing crime: (79)

1) Territoriality, which encourages ownership, care and maintenance of local areas, while also discouraging illegitimate uses, through the use of symbolic and actual barriers. (79-83)

2) Surveillance, which is facilitated in a number of ways. A good mix of uses including commercial and residential properties, with glazed windows and doors and transparent shop fronts enable more ‘eyes on the street’ and people feel safer when overlooked by spaces that are active and well-lit at night. Linear integrated spaces, with some through movement and strong inter-visibility, with several entrances are needed to develop the safest places. (79) (84) (85, 86) (87)

3) Access control and target-hardening, which utilise barriers in the forms of high walls, locks and ‘anti-personnel’ features. These interventions need to be balanced with the need for promoting and encouraging activity on the high street as well as fostering a sense of public space ownership, or they can lead to an excluding mentality, contravening CPTED principles. (79) (9) The ‘permeability’ of high streets and their surrounding street networks (the ability to move freely to and from destinations) is important for encouraging more journeys by foot and increased footfall on the high street. (88, 89)

4) Maintenance and upkeep of local areas, which decreases crime and the fear of crime (the broken window theory). Even minor signs of deterioration can lead to further destruction and criminal behaviour that will accelerate the decline. Neglected spaces that have been repurposed have been shown to improve perceptions of safety and create economic and job opportunities. (79) (90) (91) (92)

Design alone will not prevent crime. It is essential that residents are encouraged to participate in, engage in and manage local public space. (93)

Useful resource – Crime prevention and security
Home Office toolkits – Available at: www.crimereduction.gov.uk/toolkits/index.htm

5. Recommendations

This summary briefing has provided clear and strong evidence that demonstrates the main design and built environment features needed to improve local high streets and the health of local populations. These improvements will make communities more resilient, improving public health indicators and the quality of life of local communities and marginalised groups. (18)

However, the value of high-quality built environment interventions, especially in terms of their impact on health and the local economy, is not always fully understood. (94) A greater understanding of how place and people interact is needed across a broader range of departments, investors and stakeholders, to ensure that the significant public health and economic gains afforded by good quality high street design are realised. (95) There is a need now to ensure that the evidence presented in this summary and accompanying full report is made widely available, so that a broad coalition of local and national stakeholders gain a better understanding of how people interact in designed spaces. This will ensure that the significant public health, environmental and economic gains are realised. (96)

Below we summarise our recommendations for two key audiences.

Directors of public health, and local authorities including planning authorities, should:

1. Work closely with local colleagues who fund and drive built environment interventions to ensure opportunities for improving population health are clearly understood and that appropriate action is taken to target areas most in need.

2. Consider how their teams can continue to develop persuasive, evidence-informed cases that highlight the impacts of the high street on health and how these can be applied locally to inform and assess future health-promoting interventions.

3. Ensure that the regeneration and development of high streets focus on inclusive design for all, and that opportunities to reduce health inequalities are maximised.

4. Use planning and licensing policies to influence the retail offer on the high street, protecting locally-owned retail stores and tackling over-concentration of certain shops, to conserve retail establishments that stock healthier, locally sourced products.

5. Ensure plans and strategies for businesses, transport infrastructure and social and community services maximise opportunities for health improvement, particularly for those most vulnerable to health inequalities.

6. Consider how they might encourage and support community groups to be more resilient to change, and individuals more involved in planning and implementing health-promoting high street interventions.

Landscape architects, planners and urban designers should:

1. Consider how they can work together, developing a shared understanding of how the evidence base can be translated and applied in design terms to promote healthier high streets.

2. Consider how the needs and preferences of excluded groups are taken into account, particularly prior to alterations or redesign of high streets, giving attention to diversity within, as well as between, groups.

3. Work with the local police force, local authorities, businesses and community groups to consider how the Crime Prevention through Environmental Design approach can inform local environmental and high street strategies, in such a way as to also promote health and facilitate walkability.

4. Work with professional and educational design organisations (for example, the Royal Town Planning Institute, Royal Institute of British Architects and the Landscape Institute) to ensure the health impacts of design and landscape architecture are fully integrated into the curriculum.

5. Work with environmental public health specialists to improve air quality and the sound environment.

References

1. Griffiths S, Vaughan L, Haklay MM, Emma Jones C. The sustainable suburban high street: a review of themes and approaches. Geography Compass. 2008;2(4):1155-88.
2. Ruiz-Apilanez B, Arnaiz M, De Urena J. Chapter 6, Beyond Lively Streets in Suburban Urbanities. Vaughn L, editor. london: University College London Press 2015.
3. Royal Society for Public Health. Health on the High Street 2015.
4. Josepth Rowntree Foundation. How does money influence health? 2014.
5. Saunders L, Transport for London. 10 Healthy Street Indicators in Healthy Streets for London London2017. Available from: https://healthystreetscom.files.wordpress.com/2017/01/healthy-streets-for-london.pdf.
6. The Marmot Review Team. Fair Society, Healthy Lives 2010.
7. Institute of Health Equity. Marmot Indicators 2015. A preliminary summary with graphs. 2015.
8. Marmot M, Friel S, Bell R, Houweling TAJ, Taylor S. Closing the gap in a generation: health equity through action on the social determinants of health. The Lancet.372(9650):1661-9.
9. Commission for Architecture and the Build Environment. Inclusion by design Equality, diversity and the built environment. 2008.
10. Carmona M. London's local high streets: The problems, potential and complexities of mixed street corridors. Progress in Planning. 2015;100:1-84.
11. Brownson RC, Haire-Joshu D, Luke DA. Shaping the context of health: a review of environmental and policy approaches in the prevention of chronic diseases. Annual review of public health. 2006;27:341-70.
12. Saelens B, Hardy S. Built Environment Correlates of Walking: A Review. Med Sci Sports Exerc 2008;40(7 Suppl):550 - 66.
13. Khan L, Sobush K, Keener D, Goodman K, Lowry A, Kakietek J, et al. Recommended Community Strategies and Measurements to Prevent Obesity in the United States 2009. Available from: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5807a1.htm.
14. Jones P, Roberts M, Morris L. Rediscovering mixed-use streets The contribution of local high streets to sustainable communities. 2007.
15. Josepth Rowntree Foundation. The social value of public spaces. Accessed on 25th September 2016.
16. Government DfCaL. Re-imagining urban spaces to help revitalise our high streets. 2012.
17. Nabil NA, Eldayem GEA. Influence of mixed land-use on realizing the social capital. HBRC Journal. 2015;11(2):285-98.
18. new economics foundation. Clone Town Britain 2005.
19. Dixon J, Ballantyne-Brodie E. The role of planning and design in advancing a bio-nutrition-sensitive food system in The Routledge Handbook of Planning for Health and Well-Being Barton H, Thompson S, Burgess S, Grant M, editors2015.
20. National Institute for Health and Care Excellence. NICE guidance and public health outcomes. In: Government L, editor. 2012.
21. Kochan B. Mixed use schemes should be on a human scale and create varied frontages onto the high street. 2016. Available from: http://www.placemakingresource.com/article/1396289/advice-fitting-mixed-use-high-street.
22. CABE. Design Reviewed. Town Centre Retail. Lessons learnt from projects reviewed by CABEs expert design panel. 2004. Available from:

http://webarchive.nationalarchives.gov.uk/20110118095356/http:/www.cabe.org.uk/publications/design-reviewed-town-centre-retail.
23. Aletta F, Lepore F, Kostara-Konstantinou E, Kang J, Astolfi A. An experimental study on the influence of soundscapes on people's behaviour in an open public space. Applied Sciences. 2016;6(10):276.
24. Transport for London. Healthy Streets for London. Prioritising walking, cycling and public transport to create a healthy city 2017. Available from: http://content.tfl.gov.uk/healthy-streets-for-london.pdf.
25. Foresight. Cities Alive. Rethinking Green Infrastructure. 2014.
26. Forest Research. Woodland Page accessed on 24 January 2017. Available from: http://www.forestry.gov.uk/fr/urgc-7edjqy.
27. Gray M. The Value of Planting Trees in the Urban Setting. 2016.
28. Gill SE, Handley JF, Ennos AR, Paulet S. Adapting Cities for Climate Change: The Role of the Green Infrastructure. Built Environment No date provided. ;33(1).
29. Beckett KP, Freer-Smith P, Taylor G. Particulate pollution capture by urban trees: effect of species and windspeed. Global change biology. 2000;6(8):995-1003.
30. Gómez-Baggethun E, Barton DN. Classifying and valuing ecosystem services for urban planning. Ecological Economics. 2013;86:235-45.
31. Dwyer JF, McPherson EG, Schroeder HW, Rowntree RA. Assessing the benefits and costs of the urban forest. Journal of Arboriculture. 1992;18:227-.
32. Shashua-Bar L, Hoffman ME. Vegetation as a climatic component in the design of an urban street: An empirical model for predicting the cooling effect of urban green areas with trees. Energy and Buildings. 2000;31(3):221-35.
33. Smith S, Elliot AJ, Hajat S, Bone A, Bates C, Smith GE, et al. The impact of heatwaves on community morbidity and healthcare usage: a retrospective observational study using real-time syndromic surveillance. International journal of environmental research and public health. 2016;13(1):132.
34. Ward Thompson C, Roe J, Aspinall P, Mitchell R, Clow A, Miller D. More green space is linked to less stress in deprived communities: Evidence from salivary cortisol patterns. Landscape and Urban Planning. 2012;105(3):221-9.
35. ClarePerkins CPEES, Bellis H. Returning urban parks to their public health roots.
36. Allen J, Allen M. Improving Access to Green Space 2014.
37. Kuo FE, Bacaicoa M, Sullivan WC. Transforming Inner-City Landscapes: Trees, Sense of Safety, and Preference. Environment and Behavior. 1998;30(1):28-59.
38. Kuo FE, Sullivan WC. Environment and Crime in the Inner City: Does Vegetation Reduce Crime? Environment and Behavior. 2001;33(3):343-67.
39. Taylor AF, Kuo FE, Sullivan WC. Coping with add: The Surprising Connection to Green Play Settings. Environment and Behavior. 2001;33(1):54-77.
40. Sullivan W, Kuo F, DePooter S. THE FRUIT OF URBAN NATURE
Vital Neighborhood Spaces. ENVIRONMENT AND BEHAVIOR. 2004;36(5):678 - 700.
41. Elmendorf W. The importance of trees and nature in community: A review of the relative literature. Arboriculture and Urban Forestry. 2008;34(3):152.
42. Rishbeth C. Ethnic Minority Groups and the Design of Public Open Space: an inclusive landscape? Landscape Research. 2001;26(4):351 - 66.
43. Kuo E, Sullivan C, Coley R, Brunson L. Fertile Ground for Community: Inner-City Neighborhood Common Spaces. American Journal of Community Psychology 1998;26(6).
44. Inerfeld RB, Blom BB. Community Development: A New Tool for Strengthening Urban Neighborhoods. Journal of Affordable Housing & Community Development Law. 2002:128-34.
45. National Institute for Health and Care Excellence. NICE guideline (2017) Air pollution: outdoor air quality and health 2017. Available from: https://www.nice.org.uk/guidance/ng70.

46. Burmil S, Daniel TC, Hetherington JD. Human values and perceptions of water in arid landscapes: Landscape and Urban Planning. Landscape and Urban Planning. May 1999;44(2-3):99-109.
47. Asakawa S, Yoshida K, Yabe K. Perceptions of urban stream corridors within the greenway system of Sapporo, Japan. Landscape and Urban Planning. 2004;68:167 - 82.
48. White M, Smith A, Humphryes K, Pahl S, Snelling D, Depledge M. Blue space: The importance of water for preference, affect, and restorativeness ratings of natural and built scenes. Journal of Environmental Psychology. 2010;30(4):482-93.
49. Volker S, Kistemann T. “I'm always entirely happy when I'm here!” Urban blue enhancing human health and well-being in Cologne and Düsseldorf, Germany. Social Science & Medicine. 2012;91:141- 52.
50. Hanson J. The inclusive city: delivering a more accessible urban environment through inclusive design. 2004.
51. Department for Transport. Local Transport Note 1/07. Traffic Calming. 2007.
52. Department for Transport. Local Transport Note 1/11. Shared Space 2011.
53. Bunn F, Collier T, Frost C, Ker K, Steinbach R, Roberts I, et al. Area-wide traffic calming for preventing traffic related injuries. The Cochrane Library. 2003.
54. Elvik R. Area-wide urban traffic calming schemes: a meta-analysis of safety effects. Accident Analysis & Prevention. 2001;33(3):327-36.
55. Nieuwenhuijsen MJ, Khreis H. Car free cities: pathway to healthy urban living. Environment international. 2016;94:251-62.
56. European Commission (2017). Future Brief: Noise Abatement Approaches. Science for Environment Policy, Issue 17, European Union. . 2017.
57. Nyvig R. Shared Space. Safe Space. Meeting the requirements of blind and partially sighted pedestrians in shared space No Date Provided Available from: https://www.guidedogs.org.uk/media/1497826/Shared_space_-_safe_space_Ramboll_Nyvig_report.pdf.
58. The Association of Guide Dogs for the Blind. Shared Surface Street Design Research Project. The Issues: Report of Focus Groups 2006. Available from: http://community.stroud.gov.uk/_documents/23_Shared_Surface_Street_Design_Research_Project.pdf.
59. Newton R, Ormerod M, Burton E, Mitchell L, Ward-Thompson C. Increasing independence for older people through good street design. Journal of Integrated Care. 2010;18(3):24-9.
60. Kaplan S, Kaplan R. Health, supportive environments, and the reasonable person model. American Journal of Public Health. 2003;93(9):1484-9.
61. Asher L, Aresu M, Falaschetti E, Mindell J. Most older pedestrians are unable to cross the road in time: a cross-sectional study. Age and ageing. 2012;41(5):690-4.
62. DETR, Environment Transport Regions. Guidance on the use of tactile paving surfaces. 1998.
63. RNIB. RNIB response to “Interim changes to the Guidance on the use of Tactile Paving Surfaces” Date not provided. Available from: https://www.rnib.org.uk/sites/default/files/CA_Response_on_tactile_paving_consultation_Nov2015.doc.
64. Hall S. High street adaptations: ethnicity, independent retail practices, and Localism in London’s urban margins. 2011.
65. Sonnenfeld J. Variable values in space and landscape: an inquiry into the nature of environmental necessity Journal of Social Issues 1996;22 (4):71-82.
66. Lyons E. Demographic correlates of landscape preference,. environment and Behavior 1983;15(4):487-511.

67. Devier G. Cultural and Ethnic Minority Use of Open Space. Available from: http://depts.washington.edu/open2100/Resources/5_New%20Research/Culture_OpenSpace.pdf.
68. Shackell A, Butler N, Doyle P, Ball D. Design for Play:A guide to creating successful play spaces. 2008.
69. Passon C, Levi D, Del Rio V. Implications of adolescents' perceptions and values for planning and design. Journal of planning education and research. 2008.
70. Baker EA, Brennan LK, Brownson R, Houseman RA. Measuring the determinants of physical activity in the community: current and future directions. Research quarterly for exercise and sport. 2000;71(2 Suppl):S146-58.
71. Department of Environment. Vital and Viable Town Centres. Meeting the Challenge 1994.
72. Prevention Institute for The California Endowment. Community Safety by Design. Preventing Violence trhough Land Use. . 2015.
73. Kuo FE, Sullivan WC. Environment and crime in the inner city does vegetation reduce crime? Environment and behavior. 2001;33(3):343-67.
74. Branas CC, Cheney RA, MacDonald JM, Tam VW, Jackson TD, Ten Have TR. A difference-in-differences analysis of health, safety, and greening vacant urban space. American Journal of Epidemiology. 2011:kwr273.
75. Donovan GH, Prestemon JP. The effect of trees on crime in Portland, Oregon. Environment and Behavior. 2012;44(1):3-30.
76. Stucky TD, Ottensmann JR. Land use and violent crime. Criminology. 2009;47(4):1223-64.
77. Kuo FE, Bacaicoa M, Sullivan WC. Transforming inner-city landscapes trees, sense of safety, and preference. Environment and behavior. 1998;30(1):28-59.
78. Garvin EC, Cannuscio CC, Branas CC. Greening vacant lots to reduce violent crime: a randomised controlled trial. Injury prevention. 2013;19(3):198-203.
79. Paul Michael C, Greg S, David H. Crime prevention through environmental design (CPTED): a review and modern bibliography. Property Management. 2005;23(5):328-56.
80. Stokols D, Altman I. Handbook of environmental psychology: Wiley; 1987.
81. Brown B, editor New Homes/Old Homes: Physical Environment and Residential Psychology Predicting Crime. Proceedings of the International CPTED Conference; 2001.
82. Brown BB, Perkins DD. Disruptions in place attachment. Place attachment: Springer; 1992. p. 279-304.
83. Perkins DD, Wandersman A, Rich RC, Taylor RB. The physical environment of street crime: Defensible space, territoriality and incivilities. Journal of Environmental Psychology. 1993;13(1):29-49.
84. Anderson JM, MacDonald JM, Bluthenthal R, Ashwood JS. Reducing crime by shaping the built environment with zoning: An empirical study of Los Angeles. U Pa L Rev. 2012;161:699.
85. Burton L. Mental well-being and the influence of place in The Routledge Handbook of Planning for Health and Well-Being Hugh Barton ST, Sarah Burgess and Marcus Grant editor2015.
86. Brown SC, Mason CA, Lombard JL, Martinez F, Plater-Zyberk E, Spokane AR, et al. The relationship of built environment to perceived social support and psychological distress in Hispanic elders: The role of “eyes on the street”. The Journals of Gerontology Series B: Psychological Sciences and Social Sciences. 2009:gbn011.
87. Southworth M. Designing the walkable city. Journal of urban planning and development. 2005;131(4):246-57.

88. Handy S, Cao X, Mokhtarian P. Correlation or causality between the built environment and travel behavior? Evidence from Northern California. Transportation Research Part D: Transport and Environment. 2005;10(6):427-44.
89. Department for Transport, Communities and Local Government. Manual for Streets 2007.
90. Wilson JQ, Kelling GL. Broken windows. Critical issues in policing: Contemporary readings. 1982:395-407.
91. Ceccato V. The Urban Fabric of Crime and Fear 2012.
92. Eating H, Living A. ADDRESSING THE INTERSECTION: Preventing Violence and Promoting. 2010.
93. Colquhoun I. Design out crime: Creating safe and sustainable communities. Crime Prevention & Community Safety. 2004;6(4):57-70.
94. Carmona M, editor Big Meet Opening Speech2016.
95. Wrigglesworth S, editor Big Meet Presentation2016.
96. Director of Public Health London Borough of Harringey. Public Health and Planning Good Practice Guide Town and Country Planning Association
2015.