



Healthy design principles for use in the Health Impact Assessment of mixed residential developments

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1 Foreword

The Health Impact Assessment (HIA) of large-scale mixed residential housing developments in the UK is still a relatively new subject. Standards and norms have yet to be established. Assessments may take place at various stages in the planning cycle; may be commissioned by the developer or the public sector, and may or may not be integrated with the Environmental Impact Assessment. They may happen at the project or strategic level.

This Guide is intended for use at the Masterplanning stage, when preparing documents in support of an outline planning permission.

We hope that this Guide will assist both developers and the public sector to take the next step towards healthy planning.

2 Executive summary

- There is an increasing demand for the Health Impact Assessment of large residential developments in the UK.
- Such assessments may be commissioned by private developers at the Masterplanning stage.
- At the Masterplanning stage there is insufficient detail for the health assessment of specific design features.
- The proposed solution is to specify general healthy design principles and a management plan for implementation.
- The principles are justified by reference to planning and similar guidance and informed by European, national and local health profiles and priorities, and academic research.
- 56 healthy design principles are included and these are divided into 7 categories and justified by 38 references to planning and similar guidance.
- These principles are appropriate for strategic use and can inform the HIA of similar developments.

3 About Health Impact Assessment

HIA may be defined as “a combination of procedures, methods and tools that systematically judges the potential, and sometimes unintended, effects of a policy, plan, programme or project on the health of a population; and the distribution of those effects within the population. HIA identifies appropriate actions to manage those effects”¹.

HIA typically takes place in parallel with Environmental Impact Assessment and, ideally, these are fully integrated. HIA is concerned with the determinants of health and these include both environmental and social determinants. It works with a social model of health. For example, it looks at the potential effects on health of changes to determinants such as housing, employment, transport and inequality. HIA does not focus solely on the provision of medical services, although these may be part of the planning design.

Examples of health determinants associated with transport

Obesity, social isolation, fear of crime, climate change, and air pollution

HIA takes account of the needs of different stakeholders. In the context of healthy housing, stakeholders with differing needs include: young and old, men and women, immigrants and nationals, disabled, non government organisations and businesses. HIA seeks to include these stakeholders in the assessment process by capturing and addressing their concerns ².

Although HIA is not yet compulsory in the UK, there have been a number of recommendations that it should become so. For example, the Royal Commission on Environmental Pollution reported on the urban environment ³ and suggested that the need for healthy sustainable development can partly be met through using HIA. The MKSM Strategic Health Authority seeks to build HIA into policy and planning processes at every level and at every stage ⁴.

The general objectives of an HIA are to provide justifiable recommendations to safeguard and enhance the community's health. The recommendations that are accepted are then used to construct a management plan; this indicates timing of implementation and which authority has responsibility. The objectives of this HIA are to provide justifiable healthy design principles and a management plan to inform the Masterplanning process.

4 Acronyms and glossary

4.1 Acronyms

BREEAM	Building Research Establishment Environmental Assessment Method
HIA	Health Impact Assessment
LPA	Local Planning Authority
LSP	Local strategic partnership
MKSM	Milton Keynes South Midlands
NICE	National Institute for Clinical Excellence
PCT	Primary Care Trust
PPG	Planning Policy Guidance
PPS	Planning Policy Statement
RSS	Regional Spatial Strategy
SA	Sustainability Appraisal
SAP	Standard Assessment Procedure
SEA	Strategic Environmental Assessment
SNC	South Northamptonshire District Council
SPG	Supplementary Planning Guidance

4.2 Glossary

Health	A state of complete physical, social, mental, and spiritual well-being and not merely the absence of disease and infirmity
Health determinants	The factors that cause health outcomes (eg air pollution is a determinant and asthma is an outcome).
Health Impact Assessment	A combination of procedures, methods and tools that systematically judges the potential, and sometimes unintended, effects of a policy, plan, programme or project on the health of a population; and the distribution of those effects within the population. HIA identifies appropriate actions to manage those effects. It is based on understanding the determinants of health.
Health outcomes	Medically defined rates of disease and infirmity; and community defined states of well-being.
Healthy living centres	Centres that mobilise community activity for improving health and reducing inequalities by bringing together health promotion across a broad range of interests which do not necessarily have a tradition of working together ⁵⁻⁷ .
Home Zones	Residential areas where street space is shared between pedestrians, cyclists and motorists. The traditional distinction between the carriageway and footways is removed and the street

	as a whole becomes an extension of the local community's living space.
Desire lines	The routes that pedestrians and cyclists adopt, which may differ from formal pathways. The shortest route between an origin and destination, showing where people want to travel.
Masterplan	A comprehensive plan that describes and maps the overall development concept.
Reserved matters stage	Planning stage when detailed plans are drawn, after submission of outline plan.
Standard Assessment Procedure	A procedure for calculating CO ₂ emissions from a property.
Strategic Environmental Assessment	Generic term used to describe environmental assessment as applied to policies, plans and programmes.
Section 106 agreement	Section 106 of the Town and Country Planning Act 1990 allows a local planning authority (LPA) to enter into a legally-binding agreement, or planning obligation, with a land developer over a related issue. It can act as a main instrument for placing restrictions on the developers, often requiring them to minimise the impact on the local community and to carry out tasks that will provide community benefits.
Sustainability Appraisal	Assessment of social and economic effects as well as environmental ones, appraised in relation to the aims of sustainable development. Incorporates the requirements of the SEA Directive.
Snagging	Identifying and correcting faults in new homes ⁸ .

5 Introduction

Health Impact Assessment (HIA) is a relatively new tool in the spatial planning armoury. It is not yet a legal requirement, but several Authorities are now requesting it as part of the outline planning submission for major new residential developments. It is a tool which should ensure that such developments are designed and implemented in such a way as to safeguard and enhance public health.

At the outline planning application stage of such a development there is very little design detail available to assess. Many of the details are only determined at subsequent stages of the planning process. This poses a challenge to the HIA. In this document we present one possible solution to that challenge. The solution is a set of Healthy Design Principles that can inform the Masterplanning and subsequent design stages. These Principles consist of recommendations and are linked to a management plan. The management plan indicates, in general, who is responsible for implementation and at which specific stages in the design and implementation process. The Healthy Design Principles are justified by reference to national and local guidance documents.

Example of national guidance: Manual for Streets

The Manual for Streets⁹ recommends applying a user hierarchy to the design process with pedestrians at the top. Additional recommendations are as follows.

- Emphasising a collaborative approach to the delivery of streets.
- Recognising the importance of the community function of streets as spaces for social interaction.
- Promoting an inclusive environment that recognises the needs of people of all ages and abilities.
- Reflecting and supporting pedestrian desire lines in networks and detailed designs.
- Developing Masterplans and preparing design codes that implement them for larger-scale developments.
- Design and access statements for all scales of development.
- Creating networks of streets that provide permeability and connectivity to main destinations and a choice of routes.
- Moving away from hierarchies of standard road types based on traffic flows and/or the number of buildings served.
- Developing street character types on a location-specific basis with reference to both the place and movement functions for each street.
- Encouraging innovation with a flexible approach to street layouts and the use of locally distinctive, durable and maintainable materials and street furniture.
- Using quality audit systems that demonstrate how designs will meet key objectives for the local environment.
- Designing to keep vehicle speeds at or below 20 mph on residential streets unless there are overriding reasons for accepting higher speeds.
- Using the minimum of highway design features necessary to make the streets work properly.

The need for these Principles became clear during the preparation on an HIA, for a private developer, of a mixed-residential project, consisting of about 3000 homes in Northamptonshire. This county is planning for a growth of some 100,000 homes. The growth will take place through mixed residential developments through both redevelopment and greenfield development. The assessment took place at the outline planning stage. Ideally, such Healthy Design Principles should be available at a

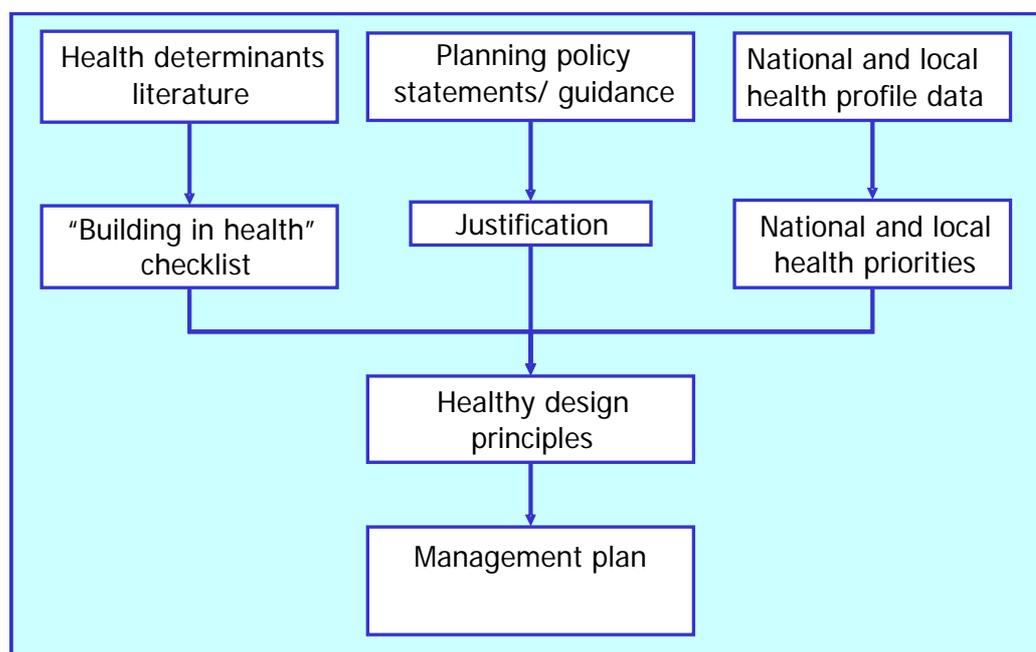
strategic level for use by all new projects in the region. At the time of preparation of the HIA, there was no such collection of guiding principles.

Very little project detail was available, so that specific project impacts could not be assessed. The recommendations identified the stages in the planning process at which each principle should be considered.

6 Conceptual overview

The following flowchart summaries the steps used to construct the Healthy Design Principles.

Figure 1 Conceptual overview



There are three main sources of information. The first is a valuable review of the health determinants of residential development by Cave *et al.*¹. These provide some of the health justifications and form the basis for a ground-breaking checklist prepared by Ballantyne¹⁰ titled “Building in Health”. The checklist provides a tool for Local Authorities to determine whether a development proposal is health promoting.

The second source of information is the complex of planning guidance at international, national, and local level. These documents provide the planning justification for the healthy design principles. Some are compulsory and some are advisory and the situation is changing constantly. Justification is needed because private developers can only be expected to implement what is required by planning authorities and what the market demands. The market for healthy sustainable communities appears to be under-developed: estate agents do not routinely extol their virtues. The guidance used in this Guide is listed and summarised in section 9, amplified in section 10, and referenced in section 12. We also refer to general guidance¹¹.

The third source of information is the set of national and local health priorities. These priorities are informed by health profiles. The health profiles consist of evidence gathered from routine and special surveys and catalogued on national and regional databases, such as the public health observatories¹². A health profile was constructed from a review of these sources as part of the HIA. Health priorities are documented in various sources and some are listed and summarised in section 9, amplified in section 10, and referenced in section 12. A typical example is the concern about the growing obesity epidemic¹³.

Obesity

National guidelines on the prevention and treatment of obesity contain wide-ranging recommendations, not just for the NHS, but also for schools and early years providers, local authorities, employers and town planners¹³.

These recommend that local authorities should work with local partners to create safe spaces for physical activity that also address any concerns about safety, crime and inclusion by:

- Providing cycling and walking routes, cycle parking, area maps and safe play areas;
- Making streets cleaner and safer with traffic calming, congestion charging, pedestrian crossings and lighting;
- Ensuring buildings and spaces are designed to encourage people to be more physically active, for example in the way stairs, entrances and walkways are positioned and sign-posted.
- Appropriate school policies.

There is already a broad consensus between masterplanners, local authorities, and the public health community about many of the Healthy Design Principles. This consensus reflects the underlying debate that has produced the existing guidance. Consequently, the Principles contain few surprises and should be acceptable to both the Private Developer and the Planning Authority. The Principles should then be accepted by the Planning Authority, and their consultees, at the outline planning stage together with a management plan to ensure implementation. The plan will indicate the development stage at which implementation should take place, the responsible authority, and any cross-reference to other submission documents. This is described in more detail in section 7.

7 About the Healthy Design Principles

The Principles can be implemented at different stages in the planning process and by different responsible parties. The responsible parties may include the primary developer, the Local Authority, and/or a subsequent developer. This is indicated in the tables of Section 8 using the following code.

Table 1 Code indicating development stage and responsible party

Code	Stage	Responsible party
1	Outline planning proposal submission	Masterplanners
2	Reserved matters stage	Primary developer
3	Implementation	Primary developer
4	Completion	Primary developer, secondary developer, or Local Authority

At the outline planning stage (Code 1 above), a set of submission documents are assembled and as these refer to some of the same Principles, they should be cross-referenced. We have done so using the following code.

Table 2 Code indicating cross-reference to other submission documents

Code	Other submission documents
A	Design and Access Statement
B	Statement of Community Involvement
C	Environmental Statement
D	Transport Assessment
E	Section 106 agreements associated with Town and Country Planning Act ¹⁴

The Principles were created for a specific project in the county of Northamptonshire. While the Principles are independent of county or region, some of the references are county specific.

8 The Healthy Design Principles

This section contains the Healthy Design Principles themselves. There are 7 sub-sections containing a total of 56 Principles. The guidance is explained in Section 9. The last two columns refer to Table 1 and Table 2. Each sub-section includes a summary introduction ¹⁰.

8.1 Governance

A high level of public engagement is associated with improved population health status and reduced demand for health care resources. Impact assessment provides an opportunity to avoid costly mistakes and maximise benefits.

Sub-category	Healthy Design Principles	Guidance	Development stage	Cross-reference
Considering the health impact	Include these Healthy Design Principles in the detailed project design.	SEA European Directive ^{15 16} Strategic Health Authority “Bridge to the future” ⁴	1,2,3,4	
Inclusiveness	Ensure that hard to reach and marginalized groups are involved in consultation.	PPS1: delivering sustainable development ¹⁷	1	B
Public involvement	Ensure plans are developed with the active involvement of all those likely to be affected.	PPS1: delivering sustainable development ¹⁷ PPS12: Local development frameworks (2004) ¹⁸	1	B

8.2 Social and cultural

A sense of community identity and belonging is important for health and well-being. Social support is an important determinant of longevity. People living in high trust communities have a lower probability of reporting poor health. Culture provides employment, encourages learning and inspires people to creative, active and healthy lifestyles. Crime related injury is a significant public health problem. Fear of crime reduces social solidarity and has an adverse psychological impact. Fear of leaving the home exposes vulnerable people to isolation.

Sub-category	Healthy Design Principles	Guidance	Development stage	Cross-reference
Community central place	Connect new development with town centre via paths and cycle routes. Establish secondary centre for new development.	PPS6 Planning for town centres ¹⁹	1	A,D
Crime and fear of crime	Design out crime, maximise opportunities for community control of the local area, and involve the community.	Supplementary Planning Guidance: Planning Out Crime ²⁰	1 2,3,4	A,B
Displacement	Provision must be made for community groups whose activities are displaced by the development.	<i>Author's observation</i>	1 3	A
Indoor sports facilities	Ensure sufficient capacity for expanded population	PPG17: sport and recreation ²¹	1 4	A,C,E
Integration	A range of housing types and tenures should be mixed together.	PPS3 Housing (2006) ²²	1	A
Social infrastructure	There should be well-designed places available where people and groups can gather such as places of worship, community centres, sports facilities, and community spaces. The community should be involved in the design and management of such places.	Local Area Agreement ²³	1	A,B
The arts	Ensure that there is a public arts provision in the development.	Supplementary Planning Guidance Public Art Commissioning SNC ²⁴	1 4	A,E

Sub-category	Healthy Design Principles	Guidance	Development stage	Cross-reference
Youth facilities	Ensure indoor and outdoor facilities for young adults that meet their needs for social interaction and physical activity.	Local Area Agreement ²³		

8.3 Environmental

Living in a way that enhances positive environmental impacts is health promoting. Waste disposal is a major generator of road transport. Road transport is the biggest single source of gas pollutants. Many chemicals are injurious to health. Non-point source water pollution is a threat to water supplies. The health effects of flooding are often quite marked. Mosquito breeding sites represent a future risk of vector borne diseases. Air pollution has short and long-term damaging effects on health and can worsen existing lung and heart diseases.. People spend about 90% of their time indoors and exposure to pollutants can be greater indoors than outdoors; good ventilation and non-polluting construction methods minimise these risks. Climate instability has huge long-term population health implications.

Sub-category	Healthy Design Principles	Government Guidance	Development stage	Cross-reference
Air	Minimise exposure to air pollution. Separate noisy and polluting industrial areas from residential and service areas. Restrict HGV movements. Promote energy-efficient technology.	PPS23 Pollution control ²⁵	1	A,C,D
Climate change	Minimise the use of non-renewable and maximise the use of renewable energy sources, materials and modes of transport. Reduce carbon emissions by location, siting and design of new developments. Use micro-generation technology. Provide energy efficiency certificate.	Building regulations, Part L, Conservation of fuel and power ²⁶ , Code for Sustainable Homes ²⁷ , PPS1 Delivering Sustainable Development ¹⁷ , Supplementary Planning Guidance to PPS1: Planning and Climate Change ²⁸ , Energy White Paper ²⁹ , Nottingham Declaration on Climate Change ³⁰ , PPS22 Renewable energy ³¹ , South Northamptonshire Council statements on climate change ³²	1 2,3,4	A,C,E

Sub-category	Healthy Design Principles	Government Guidance	Development stage	Cross-reference
Household waste management	Provide space for bins, such as segmented kitchen bins for recycling waste.	Code for Sustainable Homes ²⁷ PPS10 Sustainable Waste Management ³³	2,4	
Indoor air quality	Design and construction methods should minimise ingress of dust and fumes, and minimise the use of volatile organic compounds. Ensure radon protection is adequate and functioning.	Code for Sustainable Homes (2006) refers to low allergy materials ²⁷	1 2,3,4	A,C,E
In-car air quality	Minimise exposure to road emissions, by avoidance of traffic jams.	<i>Author's observation</i>	1	C,D
Land	Ensure waste management encourages reduction, recycling and reuse. Ensure that contaminated land exposure assessment has been carried out on any brownfield sites.	PPS10 Sustainable Waste Management ³³	1	C
Water	Minimise extensive hard surfaces and flood risks. Minimise mosquito breeding potential of pools, drains and ponds.	Code for Sustainable Homes ²⁷	1,2	A,C

8.4 Housing and the built environment

Poor quality housing damages the health of those who live in them. Cold damp homes are associated with cardiovascular and circulatory diseases. Inadequate ventilation is associated with asthma. Fuel poverty affects mental health and health inequalities. Energy inefficient homes contribute to carbon emissions and climate change. Environmental noise causes annoyance and sleep disturbance, hypertension and heart disease. Mixed communities, which avoid segregation, are most likely to reduce health inequalities. Physical activity in adults appears to be most related to accessibility of facilities, opportunity for activity and the aesthetic qualities of an area. Neighbourhoods that have mixed land use, street connectivity, pedestrian oriented design, and safety, encourage more physical activity and have lower obesity prevalence. Such areas are particularly helpful to older people and reduce the risk of social isolation. "Urban sprawl" is associated with more pedestrian accidents, lower exercise rates, higher rates of hypertension, more respiratory diseases and higher rates of chronic medical conditions. People who can see trees or green space from their homes report higher levels of health and well-being. Green spaces are associated with lower crime rates. Children with access to the natural environment show higher attention levels. Safe green public spaces encourage people to develop social contacts and take exercise.

Sub-category	Healthy Design Principles	Guidance	Development stage	Cross-reference
Affordability	Provide an adequate amount of affordable housing. This should include, but not be confined to, housing for key public sector workers.	SNC Affordable housing strategy ³⁴	1	A,E
Construction	Agree a code of construction practice with the local authority.	Code for Sustainable Homes ²⁷ PPS10 Sustainable Waste Management ³³	1 3,4	C,E
Daylight	Maximise the amount of natural lighting in kitchens and living rooms.	Code for Sustainable Homes ²⁷	2	
Flexibility	Design homes to be flexible enough to meet changing needs as people's lives change. Homes should be suitable for an ageing population or for people with disabilities.	Healthy Sustainable Communities: planning for access ³⁵ Disability Discrimination Act ³⁶	2	

Sub-category	Healthy Design Principles	Guidance	Development stage	Cross-reference
		Code for Sustainable homes ²⁷ Building regulations Part M ³⁷		
Green space	Provide a properly managed green infrastructure with good access to formal and informal areas. Homes should be within appropriate distance of natural green space, playgrounds, and toddlers' play area.	Barton <i>et al</i> ¹¹ National Playing Fields Association ³⁸	1	A,E
Housing for special needs groups	Ensure that housing provision for vulnerable people, such as learning disability, does not expose them to abuse.	Ballantyne ¹⁰	2,3	
Integration of land uses	Ensure that there are no rigid distinctions between homes, shops and employment. Provide local centres and a network of pathways with good access from place to place.	RSS8 Regional Spatial Strategy for the East Midlands ³⁹	1	A
Local markets	Provide opportunity for buying local produce	PPS6 Planning for town centres ¹⁹	4	
Noise	Housing layout should be designed to address noise issues. Houses and flats should be appropriately insulated from noise associated with traffic and neighbours.	PPG24 Planning and noise ⁴⁰ Code for Sustainable homes ²⁷	1 2	A,C
Private space	Provide outside space that is at least partially private and that is accessible to disabled people.	Code for Sustainable Homes ²⁷	2	

Sub-category	Healthy Design Principles	Guidance	Development stage	Cross-reference
Snagging	Provide efficient quality assurance and repair system to aid new home occupants.	<i>Author's observation</i>	3,4	
Walkability	Neighbourhoods should be designed to promote walking	Supplementary Planning Guidance: Planning Out Crime ²⁰	1 3	A
Warmth and ventilation	Design all homes to appropriate thermal and ventilation standards, agreed by Planning Authority	Building regulations, Code for Sustainable homes ²⁷	2	
Water efficiency	Minimise use of drinking quality water, promote grey-water recycling.	Code for Sustainable Homes ²⁷	2	
Usability	Design supportive and enabling living environments to compensate for physical and social changes associated with ageing. Make cities and neighborhoods more age-friendly to promote the well-being and contributions of older urban residents and keep cities thriving.	WHO ⁴¹	1,2,3,4	

8.5 Transport and connectivity

Lack of affordable transport is a significant factor in social exclusion. Traffic accidents are one of the main causes of death and injury in children. The risk increases with the density of curb parking, absence of play areas, and poorly protected play areas. Motorised environments restrict children's play and exercise. Increasing physical activity is one of the best ways to improve overall health. Obesity is the fastest-growing health risk factor in Britain today. Community severance can have a negative effect on health. Electronic connectivity has the potential to enhance care and support for those in need.

Sub-category	Healthy Design Principles	Guidance	Development stage	Cross-reference
Access and mobility	The transport system and the layout of developments should promote new communities' access to services such as shops, health care, work, education and social activities by non-car modes.	Local Transport Plan ⁴² PPG13 Transport ⁴³	1 3	A D E
Electronic connectivity	All dwellings should have access to broadband and telephone connections.	RSS8 Regional Spatial Strategy for the East Midlands ³⁹	3, 4	
Masterplanning	Public transport, pedestrian and cycle routes for residential areas should be planned at the same time as vehicle circulation. The key principles are: connected, convenient, comfortable, convivial, and conspicuous. The new hierarchy places pedestrians at the top.	Barton et al. ¹¹ Manual for Streets ⁹	1 2,3,4	A D
Open space	Provide cycling and walking routes, cycle parking, area maps and safe play areas.	National guidelines on the prevention and treatment of obesity ¹³	1 3	A
Permeability	Footpaths should have a specific purpose and be overlooked. Security and crime prevention needs should be planned.	Supplementary Planning Guidance: Planning Out Crime ²⁰	1	A

Sub-category	Healthy Design Principles	Guidance	Development stage	Cross-reference
Public buildings and office blocks	Ensure buildings and spaces are designed to encourage people to be more physically active, for example in the way stairs, entrances and walkways are positioned and sign-posted	National guidelines on the prevention and treatment of obesity ¹³	2	
Public transport	Remove barriers to healthier travel. Upgrade local public infrastructure and facilities such as bus shelters. Minimise commuting times.	Local Transport Plan ⁴² PPG13 Transport ⁴³	1 4	D E
Road traffic injuries	The layout, design and management of residential, shopping and other areas should give priority to pedestrians. Residential areas should be safe for children. Home Zones should be built into the overall design.	Home zones ¹⁴	1 2	A D
Severance	Transport links should be designed to ensure easy access to areas and services.	See transport assessment	1	A D
Streets	Make streets cleaner and safer with traffic calming, congestion charging, pedestrian crossings and lighting, or other appropriate local measures.	National guidelines on the prevention and treatment of obesity ¹³	2,3,4	
Walking and cycling	The development should be designed to encourage moderate physical activity, including walking and cycling, as part of everyday life. It should be pedestrian oriented. Remove barriers to healthier travel. Ensure bypass is not a barrier for footpaths users. Ensure safe routes to school from all points.	Local Transport Plan ⁴² PPG13 Transport ⁴³ Supplementary Planning Guidance: Planning Out Crime ²⁰ Department of Health ⁴⁴	1 2, 3, 4	A D

8.6 Economy

Unemployment and low grade jobs can be damaging to health. Local job opportunities enable healthy walking or cycling options and reduce harmful emissions from motorised transport. Closeness to local services such as childcare can open employment opportunities to more people. Employment opportunities should target those most at risk such as school leavers, middle-aged men, and women re-entering the labour market. Poor quality employment may be worse for health than unemployment.

Sub-category	Healthy Design Principles	Guidance	Development stage	Cross-reference
Home working	Provide space for home offices, local rentable office space, internet cafes, and incubator units.	Barton et al ¹¹ Code for Sustainable Homes ²⁷	1 2	A
Job creation	A range of development types should be incorporated which target and benefit the whole working population, including the unemployed, existing residents and the new community. Profiles of local communities should be studied and taken into account.	RSS8 Regional Spatial Strategy for the East Midlands ³⁹ Barton et al ¹¹	1 4	A C
Physical Access	Employment, housing, and social facilities should be easily accessible by walking, cycling and public transport. Differing needs of men and women and old and young should be considered, e.g. older women may be fearful of leaving the house alone.	PPS1 ¹⁷	1 4	A D
Skill access	Training routes must be developed to ensure that local people and marginal groups can compete for future employment opportunities.	RSS8 Regional Spatial Strategy for the East Midlands ³⁹	1 4	A

8.7 Services

Safe and permeable environments facilitate informal meeting and social cohesion, which is health promoting. A diet of fresh fruit and vegetables is health promoting. Low-income families are least able to eat well. Getting the population fully engaged in its health implies new models of care with more integration. Co-location and integration facilitates new models of care. Each additional 1800 people will need one GP plus nursing, therapy and administrative support. More services should be provided locally in the community rather than being centralised. Good educational attainment is associated with a range of positive adult health outcomes. Lack of facilities on new developments can lead to isolation and depression as well as generating more car traffic.

Sub-category	Healthy Design Principles	Guidance	Development stage	Cross-reference
Co-location and integration	Services should be co-located and integrated. This should include health, education, social services, arts and leisure.	Strategic Health Authority "Bridge to the future" ⁴ PPS6 Planning for town centres ¹⁹	1	A
Education	Educational facilities with strong neighbourhood connections should be planned into the development from the start. Primary schools should be within walking distance of residential dwellings (600-800m). Secondary schools should be accessible by safe cycling and walking routes.	Supplementary Planning Guidance Energy and Development ⁴⁵	1 4	A
Food access	Allow space for allotments or equivalents such as market gardens, permaculture, urban agriculture. Avoid "food deserts".	PPS1 ¹⁷ , PPS3 Housing ²² , Delivering Choosing Health ⁴⁶	1	A
Health and social care facilities	Primary medical care and dentistry should be built into developments from the start. A health facility should be within 1000 m of residential dwellings. Both treatment and prevention services should be included. The impact of the development on secondary care and ambulance	Department of Health ⁴⁷ Strategic Health Authority "Bridge to	1 2, 4	A

Sub-category	Healthy Design Principles	Guidance	Development stage	Cross-reference
	services should be explicitly addressed.	the future” ⁴		
Health and social care facilities	Should provide a broad range of services like a Healthy Living Centre.	Department of Health ⁷	1 4	A
Investment	Capital and revenue funding should be phased with developments so that service infrastructure is available as housing and other developments come on stream.	Ballantyne ¹⁰	1 3	E
Local facilities	Facilities should be clustered within the locality, and well located in relation to walking, cycling and public transport routes. These include shops, pubs, cafes, schools, health facilities and community hall or church.	Strategic Health Authority "Bridge to the future" ⁴ PPS6 Planning for town centres ¹⁹	1	A
Schools	Ensure optimal facilities for sport and exercise, such as playing fields, and creative playing areas. Take account of differing needs of boys and girls.	National Playing Fields Association ³⁸ PPG17: sport and recreation ²¹	4	
Staging	Ensure that services are functional before the community moves into their new homes.		2,3,4	

9 Guidance

A series of policies and guidance at national, regional and local level refer to the determinants of health and provide justification for the Healthy Design Principles. These are summarised below, with full reference to the source, and additional notes are located in Section 10 and in boxes throughout the text. They are ordered alphabetically according to the source of guidance.

Guidance	Summary
Building in health (2006) ¹⁰	A checklist of health questions for spatial planning.
Building regulations, Part L, Conservation of fuel and power ²⁶	Reasonable provision shall be made for the conservation of fuel and power in buildings by: limiting heat gains and losses; providing and commissioning energy efficient fixed building services; providing to the owner sufficient information. Refers to SAP.
Building regulations, Part M, Access to and use of buildings ³⁷	Reasonable provision shall be made for people to gain access to and use public/commercial building and facilities and new domestic dwellings. An access statement should be provided at the time plans are deposited.
Choosing health, White Paper (2004) ⁴⁴ <i>Details in section 10.1</i>	Emphasises engagement, responsibility, and priority areas for action: smoking, obesity, sexual health, mental health, and alcohol. Provide the social, economic and physical environment within which people have the opportunity to choose a healthy lifestyle. Collaboration between health stakeholders and a range of other partners.
Code for Sustainable Homes (2006) ²⁷	The Code signals a new direction for building standards and covers energy efficiency, water, site management, waste and use of materials. It contains a statement on health and well-being that covers daylight, sound insulation, private space and lifetime homes. Also refers to use of low allergy materials. It does not substitute for building regulations but its more comprehensive nature means that it sets more demanding building standards. Replaces Ecohomes ⁴⁸ .
Department of Health ⁴⁴ on need for physical activity	Compared with people who do not reach the recommended levels of physical activity, active people have: almost half the risk of dying from coronary heart disease; 27% lower risk of stroke; 33–50% lower risk of developing type 2 diabetes; 40–50% lower risk of colon cancer, and reduced risk of other cancers, e.g. breast cancer; benefits for musculoskeletal health and mental health.
Department of Health (2005) Delivering Choosing Health: making healthier choices easier ⁴⁶	List of health targets reproduced in detail in Section 10.2.

Guidance	Summary
Disability Discrimination Act (1995, amended 2005) ³⁶	This Act gives disabled people rights in the areas of: employment, education, access to goods, facilities and services, buying or renting land or property, using public transport easily. It is unlawful for operators of transport vehicles to discriminate against disabled people. It covers all the activities of the public sector and requires public bodies to promote equality of opportunity for disabled people.
Energy White Paper (2003) ²⁹	To put ourselves on a path to cut the UK's carbon dioxide emissions - the main contributor to global warming - by some 60% by about 2050 with real progress by 2020. To maintain the reliability of energy supplies. To promote competitive markets in the UK and beyond, helping to raise the rate of sustainable economic growth and to improve our productivity. To ensure that every home is adequately and affordably heated.
Healthy Sustainable Communities: planning for access (2004) ³⁵	Disadvantage for disabled is created by poor design. Developer should ensure accessibility. Access statement at outline planning stage. Work with consultative group. Include site wide access strategy. Lifetime homes standards.
Home Zones legislation (2006) ¹⁴	Enables a road to be designated a home zone.
Human Rights Act (1998) ⁴⁹	All public authorities must ensure that everything they do is compatible with Convention rights unless an Act of Parliament makes that impossible. Rights include: the enjoyment of the highest attainable standard of physical and mental health; an adequate standard of living for self and family, including adequate food, clothing and housing, and to the continuous improvement of living conditions; having opinions heard and the repercussions for them assessed.
Local Area Agreement (2006) ²³	To help people live longer, healthier and more vibrant lives by working together to deliver real and lasting improvements in their health and quality of life. Reducing health inequalities in communities; Increasing opportunities for citizens to lead a more productive and healthier life; Actively promoting independence and well-being for older people. List of health targets reproduced in detail in Section 10.3.
Local Transport Plan (2006) ⁴²	Highlights "healthier travel" and lists specific medical conditions that can be mitigated by active transport. Seeks to remove barriers to healthier travel. Refers to the need to improve inter-urban bus services and to construct high-quality bus stop infrastructure.
Manual for Streets (2007) ⁹	Recommends applying a user hierarchy to the design process with pedestrians at the top. See box in Section 5.
National guidelines on the prevention and treatment of obesity ¹³	Contains wide-ranging recommendations for the NHS, schools and early year providers, local authorities, employers and town planners. See box in Section 6.
National Playing Fields Association ³⁸	Recommends 6 acres of playing field per 1000 residents.
Nottingham Declaration on Climate Change ³⁰	Working with the community to develop an action plan to tackle climate change.

Guidance	Summary
PPG13 Transport (2001) ⁴³	Integrate planning and transport, promote more sustainable transport choices both for people and freight. Promote accessibility to jobs, shopping, leisure facilities and services by public transport, walking and cycling; and reduce the need to travel, especially by car. Local planning authorities should: actively manage the pattern of urban growth; locate facilities to improve accessibility on foot and cycle; accommodate housing principally within urban areas; and recognise that provision for movement by walking, cycling and public transport are important but may be less achievable in some rural areas. Local air quality is a key consideration.
PPG17 Sport and Recreation ²¹	Describes the role of the planning system in assessing opportunities and needs for sport and recreation provision and safeguarding open space which has recreational value. Part of the function of the planning system is to ensure that through the preparation of development plans adequate land and water resources are allocated for organised sport and informal recreation. Local planning authorities should take account of the community's need for recreational space, having regard to current levels of provision and deficiencies; and resisting pressures for development of open space which conflict with the wider public interest. It discusses the role of planning agreements, and the use of local authority land and compulsory purchase powers. It discusses provision in urban areas, urban fringe, Green Belts, and the countryside and particular sports including football stadia, water sports and golf.
PPG24 Planning and noise (1994) ⁴⁰	Sets acceptable noise limits.
PPS1 Delivering Sustainable Development (2004) ¹⁷	Environmental, economic and social objectives achieved together. Reduce energy use, reduce emissions, promote renewable energy resources, and take climate change impacts into account in the location and design of development. Plans should also contain clear, comprehensive and inclusive access policies. Community involvement.
PPS10 Sustainable Waste Management (2005) ³³	Divert as much waste as possible from landfill sites. Manage waste in a more environmentally sound way. Integrated action by councils.
PPS12 Local development frameworks (2004) ¹⁸	Streamline local planning process and promote a proactive, positive approach. See Section 10.7.
PPS22 Renewable energy (2004) ³¹	Put the UK on a path to cut its carbon dioxide emissions by some 60% by 2050, with real progress by 2020, and to maintain reliable and competitive energy supplies.
PPS23 Pollution control ²⁵	The precautionary principle should be invoked. Any consideration of the quality of land, air or water and potential impacts arising from development, possibly leading to an impact on health, is capable of being a material planning consideration.

Guidance	Summary
PPS3 Housing (2006) ²²	Ensure that everyone has the opportunity to live in a decent home, which they can afford in a community where they want to live. Create sustainable, inclusive, mixed communities in all areas. See Section 10.6.
PPS6 Planning for town centres ¹⁹	Can improve the health, vitality and economic potential of a town centre. Should be the focus for investment in more accessible local services, such as health centres and other small scale community facilities. Refers to market towns.
RSS8 Regional Spatial Strategy for the East Midlands (2005/6) ³⁹	Affordable housing, economy and regeneration: policies on employment land and town centres. Natural and Cultural Resources: new targets on biodiversity, waste reduction and management, and flood risk. Regional Transport Strategy: aims to reduce the need to travel, reduce traffic growth, improve public transport. Addresses issues concerning skills and the labour market.
SEA European Directive ¹⁵ ^{16 50}	Requires responsible authorities to carry out an assessment of environmental plans and programmes in relation to a number of factors including their impact on human health. Includes effects that are secondary, cumulative, synergistic: short, medium and long-term; permanent and temporary; positive and negative. Usually integrated with sustainability appraisal which seeks to reduce poverty, social exclusion and health inequalities, and to improve the health of the population overall.
SNC Affordable housing strategy ³⁴	Identifies need for affordable housing, but does not set target percentage.
SNC Local Strategic Partnership Community Strategy (2004) ⁵¹	The aims of the strategy cover: learning and skills, economy, health and housing, social and community well-being, community safety and the natural and built environment.
SNC statements on climate change (2006) ³²	Working with all seven Northamptonshire authorities and other partners to draw up an action plan to reduce greenhouses gas emissions. The Council is also looking at its own buildings to reduce emissions through better energy sourcing and use; at travel and transport issues, waste production and disposal, and purchasing environmentally friendly goods and services.
SNC Supplementary Planning Guidance Energy and Development (2007) ⁴⁵	Intention to set high, yet realistic energy targets, including: BREEAM standard at least "excellent"; at least a 10% renewable energy target; dwelling CO ₂ Emission Rate <10% Target CO ₂ Emission Rate for all new dwellings. Develop transport plan for schools and other institutions. Consider combined heat and power and ground source heat pumps. Use passive solar gain. Use renewable energy technology.
Strategic Health Authority "Bridge to the future" (2006) ⁴	Ensures that development of new communities maximises the opportunity for health improvement. Builds HIA into the policy and planning processes at every level and at every stage. Community-based facilities that will bring together a range of services at a local level.

Guidance	Summary
Supplementary Planning Guidance Public Art Commissioning SNC ²⁴	SNC has drafted a Public Art Policy which sets out how the Council will deal with public art commissioning. This SPG is intended to assist developers in complying with this policy and the Local Plan requirements when considering public art commissioning. Where new development changes or creates new public areas, the Council will expect the provision of public art to be included as part of the proposal. Recognises the important role that the arts play in contributing to the quality of life and health and well being of community.
Supplementary Planning Guidance to PPS1: Planning and Climate Change (2007, in draft) ²⁸	How spatial planning should contribute to reducing emissions and stabilising climate change (mitigation) and take into account the unavoidable consequences (adaptation). To help deliver the Government's ambition of achieving zero carbon development.
Supplementary Planning Guidance: Planning Out Crime (2004) ²⁰	Key considerations: Access and Movement; Structure; Surveillance; Ownership; Physical Protection; Activity; Management and Maintenance. Design in measures for pedestrian and cyclist needs as a fundamental element of designing street layouts. Provide for the needs of people of all abilities. Contains extensive guidance about private and public spaces and transport interchanges.
Sustainable Development ¹⁴	The Government's website providing guidance on how to pursue a more sustainable future. Applies to homes, businesses and local authorities. Lists policies by government department.
Town and Country Planning Act (1990) ¹⁴	Section 106 allows a Local Planning Authority to enter into a legally-binding agreement or planning obligation with a land developer over a related issue. It can act as a main instrument for placing restrictions on the developers, often requiring them to minimise the impact on the local community and to carry out tasks that will provide community benefits.
World Health Organisation (2007) ⁴¹ Age-friendly cities	Designing for an ageing population

10 Guidance elaborated

The following notes elaborate on some of the summaries provided in Section 9.

10.1 "Choosing Health" White Paper

The Wanless Review looked at priorities for public health. It noted that demands on the health services, and on the public purse, continue to spiral while public health shows little improvement ⁵². For public health to improve, and for demands on the health service to be contained, the public have to become fully engaged. They need to take responsibility for their own health so that:

"... levels of public engagement in relation to their health are high: life expectancy increases go beyond current forecasts, health status improves dramatically and people are confident in the health system and demand high quality care."

The White Paper "Choosing Health", develops this, stressing the importance of providing a positive context for health ⁴⁴, emphasising the role and responsibility that

individuals have in determining their own health. It focuses on tackling health inequalities and identifies six priority areas for action: smoking, obesity, sexual health, mental health, and alcohol.

The public and private sectors need to provide the social, economic and physical environment within which people have the opportunity to choose a healthy lifestyle ⁴⁴. The White Paper stresses that a step change is needed in the way health issues are addressed: improving health choices involves many players. Many of the required actions for implementing Choosing Health are only achievable through collaboration between health stakeholders and a range of other partners. These may be at local level, such as local authorities, or at a regional and sub-regional level. PCTs are given special responsibilities to make and deliver Local Delivery Plans.

10.2 National public health targets

The following targets are most relevant to this project ⁴⁶. The reference contains precise targets.

- | | |
|---|--|
| <ul style="list-style-type: none"> • Increase life expectancy at birth in England. • Reduce adult smoking rates. • Improve life chances for children, including conception rates. • Bring all social housing into decent condition. • Increase the proportion of parents who receive child maintenance. • Reduce the proportion of children in households with no one in work. • Reduce fuel poverty among vulnerable households by improving energy efficiency. • Reduce the number of children in low-income households. • Improve air quality. • Improve mental health and well-being. Improve life outcomes of adults and children with mental health problems. | <ul style="list-style-type: none"> • Reduce inequalities in health outcomes. • Halt the year-on-year rise in obesity among children. • Reduce the number of people killed or seriously injured in Great Britain in road accidents. • Reduce crime and the fear of crime. • Increase the employment rates of disadvantaged areas and groups. • Reduce the gap in productivity and improve the accessibility of services for rural people. • Make sustainable improvements in the economic performance of all English regions. • Promote sustainable development. • Ensure people have decent places to live. • Implement new healthy schools standard. • Promote healthy and active life amongst older people. |
|---|--|

10.3 Northamptonshire Local Area Agreement

The Northamptonshire Local Area Agreement ²³ is intended to strengthen communities, deliver significant improvements in quality of life for people and provide equal life chances, by working through purposeful partnerships that are grounded in a clear common performance framework. It identifies barriers to housing, transport and access to services. It recommends co-locating community services. It seeks to promote independent living and decrease social isolation for older people and to make significant reductions in health inequalities. It sets a series of targets.

The specific health performance targets follow.

- Halt year on year rise in obesity among children aged under 11 by 2010.
- Increase the numbers of mothers who breastfeed to about 72%.
- Increase the proportion of adults achieving 30 minutes of moderate intensity sport or recreational physical activity on at least 12 days in the last 4 weeks to 3%.
- Develop an Alcohol Harm Reduction Strategy on behalf of the Safer Stronger Communities Board.
- Reduce underage sales of alcohol and tobacco.
- Increase the number of people giving up smoking measured at 4 weeks.

10.4 SNC and climate change policy

The SNC has signed the "Nottingham Declaration on Climate Change" ³⁰ and committed to working with the community to develop an action plan to tackle climate change at a local level and work with others to reduce emissions country-wide. In June 2006 Yvette Cooper MP, Minister for Housing and Planning, announced that the Government would now "expect all authorities" to put in place on-site renewable energy policies.

10.5 Local Strategic Partnership

The purpose of the LSP is to drive sustainable improvements in the quality of life of everyone who lives, works and plays in South Northamptonshire ⁵¹. The work of the LSP is to develop a joined up approach to effective delivery of services, to encourage the involvement and engagement with local residents and communities and to represent the needs of the area. The LSP Community Strategy cover 6 themes, as follows.

- Learning and skills
- Economic
- Social and community well-being
- Health and housing
- Community safety
- The natural and built environment

The health and housing strategy includes the following.

- | | |
|---|--|
| <ul style="list-style-type: none">• Sustain and promote healthy communities and access to healthy lifestyles.• Promote and address mental health issues.• Reduce drug abuse, smoking, obesity, alcohol misuse and teenage pregnancies.• Provide comprehensive advice and information across the community about available support and services regarding health and housing issues.• Increase availability of affordable housing for key workers, young people and first-time buyers. | <ul style="list-style-type: none">• Ensure that housing provision meets the diverse needs of all parts of the community.• Promote walking and cycling as feasible alternatives to car use.• Improve access to primary care services.• Provide parenting support for all parents and, in particular, young mothers and fathers.• Address issues of fuel poverty and affordable warmth.• Maximise opportunities to secure land for the provision of sustainable communities which meet local needs, including affordable housing. |
|---|--|

10.6 PPS3 Housing

Policy planning guidance on housing is summarised as follows ²².

- Ensure that everyone has the opportunity to live in a decent home, which they can afford, in a community where they want to live.
- Provide a wide choice of high quality homes, both affordable and market housing. Widen opportunities for home ownership, particularly those who are vulnerable or in need.
- Create sustainable, inclusive, mixed communities in all areas.
- Neighbourhoods should be easily accessible and well-connected to public transport and community facilities and services, and well laid out so that all the space is used efficiently, is safe, accessible and user-friendly.
- Provide, or enable, good access to: community space and green space, open amenity and recreational space (including play space); as well as private outdoor space such as residential gardens, patios and balconies.
- Ensure that the design is well integrated with, and complements, the neighbouring buildings and the local area more generally in terms of scale, density, layout and access.
- Facilitate the efficient use of resources, during construction and in use, and seek to adapt to and reduce the impact of, and on, climate change.
- Take a design-led approach to the provision of car-parking space, that is well-integrated with a high quality public realm and streets that are pedestrian, cycle and vehicle friendly.
- Create, or enhance, a distinctive character that relates well to the surroundings and supports a sense of local pride and civic identity.
- Provide for the retention or re-establishment of the biodiversity within residential environments.

10.7 PPS12 Local development frameworks

The key aims ¹⁸ are:

- Flexibility: local planning authorities can respond to changing local circumstances and ensure that spatial plans are prepared and reviewed quickly.
- Strengthening community and stakeholder involvement.
- Local planning authorities should take key decisions early in the preparation of local development documents.
- Sustainability appraisal: to ensure that local development documents are prepared with the objective of contributing to the achievement of sustainable development.
- Soundness. Local development documents must be based upon a robust, credible evidence base.

10.8 Sustainability Appraisal

The Sustainability Appraisal Consultation Draft For Energy SPG⁵³ lists a series of objectives including the following.

- Minimise energy usage and to increase the proportion of energy generated from renewable sources whilst limiting risk to people and properties from the effects of climate change.
- Minimise waste, increase the reuse and recycling of waste materials.
- To promote and enhance human health & amenity through access to safe, clean, pleasant environments, facilities and education.
- To improve community safety; to reduce crime, anti-social behaviour and the fear of crime.
- To provide adequate educational facilities and opportunities for everyone to acquire appropriate skills and knowledge to support the business base of the area and to play a full part in society.

There are also objectives for enterprise, employment, social capital.

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12 References

1. Quigley, R., L. den Broeder, P. Furu, A. Bond, B. Cave, and R. Bos (2006). Health Impact Assessment International Best Practice Principles. Special Publication Series No. 5. Fargo, USA, International Association for Impact Assessment: 4.
2. Scott-Samuel, A., M.H. Birley, and K. Ardern (2001). The Merseyside guidelines for health impact assessment. Liverpool, International Health IMPACT Assessment Consortium, University of Liverpool: 20.
3. Royal Commission on Environmental Pollution. *Twenty sixth report: The Urban Environment*. 2007 6 March [cited 2007 March]; Available from: www.rcep.org.uk/urbanenvironment.htm
4. National Health Service. *Bridge to the future, A Strategic Overview of Milton Keynes and South Midlands Sub-region*. 2006 March [cited 2006 November]; Available from: <http://www.northamptonshireobservatory.org.uk/publications/document.asp?documentid=772>
5. Bailey, C., J. Deans, D. Pettigrew, and S. Milner (2003). Integrated Impact Assessment UK Mapping Project. Northumbria University, Health Impact Assessment Research & Development Programme: 68.
6. Renewal.net. *Case Study: East of England, St. Augustine's Healthy Living Centre*. undated [cited 2007 January]; Available from: <http://www.renewal.net/>.
7. Department of Health. *Our healthier nation*. 1999 1999 [cited; Available from: www.ohn.gov.uk.
8. Snagging.com. *Empowering new homeowners*. 2007 [cited 2007 September, 2007]; Available from: www.snagging.org.
9. Department of Transport. *Manual for Streets*. 2007 [cited 2007 June]; Available from: www.dft.gov.uk/pgr/sustainable/manforstreets/.
10. Ballantyne, R. *Building in health*. 2006 [cited 2006 December]; Available from: www.mksm.nhs.uk/buildinginhealthannouncement.aspx.
11. Barton, H., M. Grant, and R. Guise, *Shaping neighbourhoods: a guide for health, sustainability and vitality*. 2003: Spon Press. 244.
12. Public Health Analyst Northamptonshire Primary Care Trust, *Public Health Profile for Northamptonshire 2006/7 Version 1*, 2007.

13. National Institute for Clinical Excellence. *National guidelines on the prevention and treatment of obesity*. 2006 [cited 2007 January]; Available from: www.nice.org.uk.
14. UK government. *National neighbourhood statistics*. [cited 2006 November]; Available from: <http://neighbourhood.statistics.gov.uk>
15. Department of Communities and Local Government. *A practical guide to the strategic environmental assessment directive*. 2005 [cited 2007 January]; Available from: www.communities.gov.uk/index.asp?id=1501988.
16. Department of Health and Health Protection Agency (2006, unpublished). Draft advice on assessing population and human health within Strategic Environmental Assessment European Directive.
17. Communities and Local Government. *Planning Policy Statement 1: Delivering sustainable development*. 2004 [cited 2007 February]; Available from: www.planningportal.gov.uk/england/professionals/en/1020432881271.html
18. Communities and Local Government. *Public Planning Statement 12: Local Development Frameworks*. 2004 [cited 2007 February]; Available from: www.planningportal.gov.uk/england/professionals/en/1020432881271.html
19. Communities and Local Government. *Planning Policy Statement 6: Planning for Town Centres*. 2007 [cited 2007 February]; Available from: www.planningportal.gov.uk/england/professionals/en/1020432881271.html
20. Northamptonshire County Council. *Planning out crime in Northamptonshire: Supplementary Planning Guidance*. 2004 [cited 2007 January]; Available from: www.northamptonshire.gov.uk/NR/rdonlyres/B6A8E7D9-0522-4B36-80EE-6991D43E0650/0/SPGFinalFullyAdoptedFeb04.pdf.
21. Communities and Local Government. *Planning Policy Guidance 17: Planning for Open Space, Sport and Recreation*. 2007 [cited 2007 February]; Available from: www.planningportal.gov.uk/england/professionals/en/1020432881271.html
22. Communities and Local Government. *Public Planning Statement 3: Housing*. 2006 [cited 2007 February]; Available from: www.planningportal.gov.uk/england/professionals/en/1020432881271.html
23. Northamptonshire County Council. *Local Area Agreement*. 2006 [cited 2007 January]; Available from: www.northamptonshireobservatory.org.uk/projects/projectdetail.asp?projectid=53.
24. South Northamptonshire Council (2007, draft). Supplementary Planning Guidance on Public Art Commissioning. SNC: 8.
25. Communities and Local Government. *Planning Policy Statement 23: Planning and Pollution Control*. 2007 [cited 2007 February]; Available from: www.planningportal.gov.uk/england/professionals/en/1020432881271.html
26. UK Government Planning Portal. *Part L of the building regulations, Conservation of fuel and power*. 2006 [cited 2006 November]; Available from: www.planningportal.gov.uk/
27. Department of Communities and Local Government. *Code for Sustainable Homes*. 2006 [cited 2007 January]; Available from: www.communities.gov.uk.
28. Communities and Local Government. *Consultation - Planning Policy Statement: Planning and Climate Change - Supplement to Planning Policy Statement 1*. 2007 [cited 2007 February]; Available from: www.communities.gov.uk/index.asp?id=1505140.
29. Department of Trade and Industry. *Energy White Paper: Our Energy Future - Creating a Low Carbon Economy*. 2003 [cited 2007 January]; Available from: www.dti.gov.uk/energy/policy-strategy/energy-white-paper-2003/page21223.html.
30. Energy Saving Trust. *The Nottingham declaration on climate change*. 2000 [cited 2007 January]; Available from: www.est.org.uk/housingbuildings/localauthorities/NottinghamDeclaration/.
31. Communities and Local Government. *Planning Policy Statement 22: Renewable Energy*. 2004 [cited 2007 February]; Available from: www.planningportal.gov.uk/england/professionals/en/1020432881271.html
32. South Northamptonshire Council. *Not just a fair weather friend! Signing the Nottingham Declaration on combating climate change*. 2006 [cited 2007 February]; Available from: www.southnorthants.gov.uk/2883.htm
33. Communities and Local Government. *Public Planning Statement 10: Planning for Sustainable Waste Management*. 2005 [cited 2007 February]; Available from: www.planningportal.gov.uk/england/professionals/en/1020432881271.html

34. South Northamptonshire Council. *Housing Strategy 2005-2010 Action plan*. 2005 [cited 2007 February]; Available from: 82.109.175.34/CMISWebPublic/Binary.ashx?Document=5121.
35. Milton Keynes and South Midlands. *Healthy sustainable communities Planning for access*. 2004 [cited 2006 November]; Available from: www.mksm.nhs.uk/abouttheproject_1.aspx.
36. DirectGov. *The Disability Discrimination Act*. 1995, amended 2005 [cited 2007 February]; Available from: www.direct.gov.uk/en/DisabledPeople/RightsAndObligations/DisabilityRights/DG_4001068.
37. UK Government Planning Portal. *Part M of the building regulations, Access to and use of buildings*. 2006 [cited 2006 November]; Available from: www.planningportal.gov.uk/
38. National Playing Fields Association. *The Six Acre Standard*. ? [cited 2007 June]; Available from: www.npfa.co.uk/what_we_do/our_work_programmes/publications.php.
39. Government Office for the East Midlands. *Regional Spatial Strategy RSS8*. 2005 [cited 2007 January]; Available from: www.goem.gov.uk/goem/psc/suscom/rss/.
40. Communities and Local Government. *Planning Policy Guidance 24: Planning and Noise*. 1994 [cited 2007 February]; Available from: www.planningportal.gov.uk/england/professionals/en/1020432881271.html
41. World Health Organisation. *Age-friendly cities*. 2007 [cited 2007 November]; Available from: www.who.int/ageing/age_friendly_cities/en/index.html.
42. Northamptonshire County Council. *Local transport plan*. 2006 [cited 2006 December]; Available from: www.northamptonshire.gov.uk/Transport/TP/tp_home.htm.
43. Communities and Local Government. *PPG13 Transport*. 2001 [cited 2007 February]; Available from: www.planningportal.gov.uk/england/professionals/en/1020432881271.html
44. Department of Health. *At least five a week: Evidence on the impact of physical activity and its relationship to health*. 2004 [cited 2007 November]; Available from: www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4080994.
45. South Northamptonshire Council. *Supplementary Planning Guidance Energy and Development*. 2007 [cited 2007 September]; Available from: www.southnorthants.gov.uk/1584.htm.
46. Department of Health. *Delivering Choosing Health: making healthier choices easier*. 2005 [cited 2007 January]; Available from: www.dh.gov.uk/PublicationsAndStatistics/Publications/PublicationsPolicyAndGuidance/PublicationsPolicyAndGuidanceArticle/fs/en?CONTENT_ID=4105355&chk=gFTjxL.
47. Department of health. *Our health, our care our say, Cm 6737*. 2006 [cited 2007 September 2007]; Available from: www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4127453.
48. BREEAM. *Ecohomes*. 2006 [cited 2006 November]; Available from: www.breeam.org/index.jsp.
49. Department for Constitutional Affairs. *A Guide to the Human Rights Act 1998: Third Edition*. 2006 [cited 2007 November]; Available from: www.dca.gov.uk/peoples-rights/human-rights/index.htm.
50. Department of Communities and Local Government. *Sustainability appraisal*. 2005 [cited 2007 January]; Available from: www.communities.gov.uk/index.asp?id=1164579.
51. South Northamptonshire Council. *South Northamptonshire Local Strategic Partnership Community Strategy*. 2004 [cited 2007 January]; Available from: www.southnorthants.gov.uk/community_living/1256.htm.
52. Wanless, D., M. Beck, J. Black, I. Blue, S. Brindle, C. Bucht, S. Dunn, M. Fairweather, Y. Ghazi-Tabatabai, D. Innes, L. Lewis, V. Patel, and N. York. *Securing our future health: taking a long-term view. Final Report 2002* [cited 2007 September 2007]; Available from: www.hm-treasury.gov.uk/Consultations_and_Legislation/wanless/consult_wanless_final.cfm.
53. South Northamptonshire Council. *Sustainability Appraisal (SA) Consultation Draft For Energy Supplementary Planning Document*. draft 2006 [cited 2007 January]; Available from: www.southnorthants.gov.uk/1584.htm.