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Healthy Built Environment Indicators

Never Stand Still

Built Environment

City Futures Research Centre



ACKNOWLEDGEMENTS

The *Healthy Built Environment Indicators* were prepared by Healthy Built Environments Program (HBEP) research officer Dr Greg Paine assisted by Senior Research Officer Ms Emily Mitchell. The work was initiated by Dr Jennifer Kent in her role as HBEP Senior Research Officer. Dr Vivian Romero assisted with early research. The Indicators were prepared and edited under the supervision of HBEP Director Professor Susan Thompson. Feedback was received from the HBEP Advisory Board. Particular acknowledgement is made to the detailed review comments provided by the Chair of the Advisory Board, Professor Peter Sainsbury. Funding from the NSW Ministry of Health is gratefully acknowledged.

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Executive Summary

The built environments in which we live, work and play, have a critical role in shaping our health. The Healthy Built Environment Indicators presented here are based on this knowledge. The focus of the Indicators is on how the built environment supports *physical activity* (to reduce obesity, the risk of heart disease, some cancers and depression), *social interaction* (to reduce risk of mental illness, particularly depression), and the availability of *healthy food* (to reduce obesity and risk of heart disease and some cancers).

Specifically, the Indicators:

- Establish measures to understand the health implications of built environments for their communities, and identify opportunities for improvements.
- Consolidate a range of measures and advise on where to find data to assess specific built environment characteristics relating to the three healthy built environment domains.
- Provide evidence to undertake and advocate for improvements in the three healthy built environment domains.
- Can be used at a variety of local and regional scales.

The Indicators assist health and built environment practitioners, together with communities, to document what is happening in a locality at a point in time. The findings can then be used in different ways – to compare different areas with each other, to benchmark with known regional, state, national or international norms, and to assess how an area changes over time. The Indicators can support intervention action and enable longitudinal appraisal of effectiveness.

The Indicators comprise:

- The Indicators matrix consisting of easy-to-use questions with associated data sources related to the built environment factors that facilitate physical activity, social connection and access to healthy food.
- This accompanying Guide.



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Accompanying Guide



Introduction

Healthy built environments are about putting the needs of people and communities at the heart of the urban planning process and encouraging decision-making based on human health and well-being.

These Healthy Built Environment Indicators were prepared by the Healthy Built Environments Program (HBEP), now known as the City Wellbeing Program within the City Futures Research Centre, Faculty of the Built Environment, University of New South Wales.

The HBEP was established in 2010 with funding over five years from the NSW Ministry of Health to support the development of communities in which the built environment promotes good health for all.

The work of the Program, commencing with an extensive review of the research literature*, has continually shown that the built environments in which we live, work and play, have an important role in shaping our health. This knowledge is now used to establish a set of healthy built environment indicators.

Specifically, the Indicators:

- Establish measures to understand the health implications of built environments for their communities, and identify opportunities for improvements.
- Utilise the three key health and built environment domains identified in the Literature Review*:
Getting People Active (physical activity),
Connecting and Strengthening Communities (social inclusion), and
Providing Healthy Food Options (nutrition).
- Consolidate a range of measures and advise on where to find data to assess specific built environment characteristics relating to the three domains.
- Provide evidence to undertake and advocate for improvements in the three built environment domains.
- Can be used at a variety of local and regional scales.

* Kent J; Thompson SM and Jalaludin B (2011) *Healthy Built Environments: A review of the literature*, Sydney: Healthy Built Environments Program, City Futures Research Centre, UNSW ISBN: 978-0-7334-3046-6



The Healthy Built Environment Indicators

There are three parts to the Indicators.

1. **ACCOMPANYING GUIDE.** The Guide (which you are reading now) details the background, rationale and methodology for developing the Indicators, as well as how they can be used.
2. **THE INDICATORS MATRIX.** The Indicators are presented in a matrix, with the Guide to assist users.
3. **ADDITIONAL RESOURCES.** Advice about other documents and websites to assist practitioners.

Obesity, physical inactivity, increased stress, social isolation and poor nutrition have all been identified as key risk factors for chronic contemporary diseases such as diabetes, heart disease and depression. Data from NSW Health suggests that of adults aged 16 years and older in the State, 55% are overweight or obese. Only about:



Parallel with this is evidence that our built environments can be both detrimental and beneficial to our health and wellbeing. Car dominated transport systems, dispersed composition of land uses and increased densities of fast food retail outlets are all implicated in exacerbating the risk factors for chronic disease. Conversely, carefully planned built environments can mitigate these risk factors. Indeed, examples such as improvement of air quality through the establishment of smoke-free areas and the facilitation of active travel through the creation of walking paths and cycling lanes demonstrate that the design and planning of our environments is essential in creating and maintaining healthy populations.

2. The Basis for a Healthy Built Environment

There is now considerable research evidence demonstrating a direct relationship between the shape of our built environments and our health. A review by the Healthy Built Environments Program* identified three key domains and seven specific ways the built environment influences our health. They are summarised in Figure 1 and used to structure the Indicators.

These three domains relate to specific behaviours needed to achieve good health:

- **Getting People Active (physical activity)** - to reduce obesity and risk of heart disease and other chronic conditions.
- **Connecting and Strengthening Communities (social interaction)** - to reduce risk of mental illness, particularly depression.
- **Providing Healthy Food Options (nutrition)** - to reduce obesity and risk of heart disease and other chronic conditions.

* Kent J; Thompson SM and Jalaludin B (2011) *Healthy Built Environments: A review of the literature*, Sydney: Healthy Built Environments Program, City Futures Research Centre, UNSW ISBN: 978-0-7334-3046-6

Figure 1: The basis for a healthy built environment – key domains and actions



3. The Healthy Built Environment Indicators

The purpose of the Indicators

The Healthy Built Environment Indicators establish a series of common measures of the shape and form of the built environment and of associated individuals' behaviours in relation to human health. The Indicators can be used to measure what is happening at a point in time within a particular community. They can also be used to make comparisons with another community or with known regional, state, national or international norms. The Indicators can also be used for longitudinal assessment of intervention programs designed to improve a community's health.

Using the Indicators

- (1) The Indicators are structured around the three key domains and the related seven specific ways the built environment contributes to our health as identified in the HBEP Literature Review (see Figure 1). In turn, the seven specific ways the built environment can contribute to our health can be expressed as specific *actions* to address deficiencies.
- (2) The Indicators do not include specific measures in respect to illness or disease. These are already well established within the field of epidemiology.
- (3) Use of these Indicators commences when:
 - (i) Epidemiological studies indicate less than optimal health characteristics and outcomes within a community (see column 1 in the Indicators Matrix) – with the question then arising: to what extent is the built environment contributing?
 - (ii) In the absence of any epidemiological studies, a community still wishes to appraise the extent to which their built environment is likely to result in optimal or less than optimal health outcomes, based on the known links between health and built form.
- (4) A set of questions about the shape or form of the built environment in the community and associated patterns of behaviour is then established (column 2 of the Indicators Matrix). These questions tease out the matters key to the seven specific built environment actions identified in the HBEP Literature Review. Column 2 of the Matrix also includes a short statement of the desired built environment outcome.
- (5) A series of measures such as the nature, extent, frequency and propensity of that built form or behaviour are then listed in column 3. Potential sources of data for these measures are detailed in column 4.
- (6) Action can then be taken to rectify assessed deficiencies in the built environment by referring to the *Healthy Urban Development Checklist* (last column of the Matrix).
- (7) Testing the effectiveness of remedial action can then be made by undertaking follow-up epidemiological studies of the health status of the community and comparing the findings against the original measurements in a continual "cycle of action" (see Figure 2).



We know that relationships between our health and the built environments where we live, work, travel and play exist. Nevertheless, these relationships are complex and contextual, making it critical to approach their measurement as follows:

- In reference to the wider literature on healthy built environments – see Figure 1.
- On the basis of a specific readily-defined community or locality.
- Valuing both quantitative and qualitative measures.
- In a collaborative and interdisciplinary way, using the expertise of researchers and practitioners from both the built environment and health professions, plus the in-depth local knowledge of the community itself.

There is substantial interconnection, and hence overlap, between key aspects of our built environments and our subsequent behaviours. However, for simplicity, the Indicators Matrix minimises repetition by placing individual indicators within the key domain and specific action deemed most relevant.

For example, access to healthy foods requires sufficient shops selling affordable fresh food, as well as convenient, practical and safe access to those shops. These access measures are also relevant to the *Getting People Active* domain. In this example, relevant access measures have been placed within the *Getting People Active* domain and not repeated in the *Providing Healthy Food Options* domain.

Finally, the Indicator Matrix can be regarded as a “core” set of measurements. Additional indicators can be added, as appropriate to the specific needs and interests of each community and/or the existing availability of data.

Should I use these Indicators when designing new built environments?

The Healthy Built Environment Indicators relate to the ways in which an existing population uses and interacts with a particular built environment, and the ways in which the shape of that built environment influences that use and interaction.

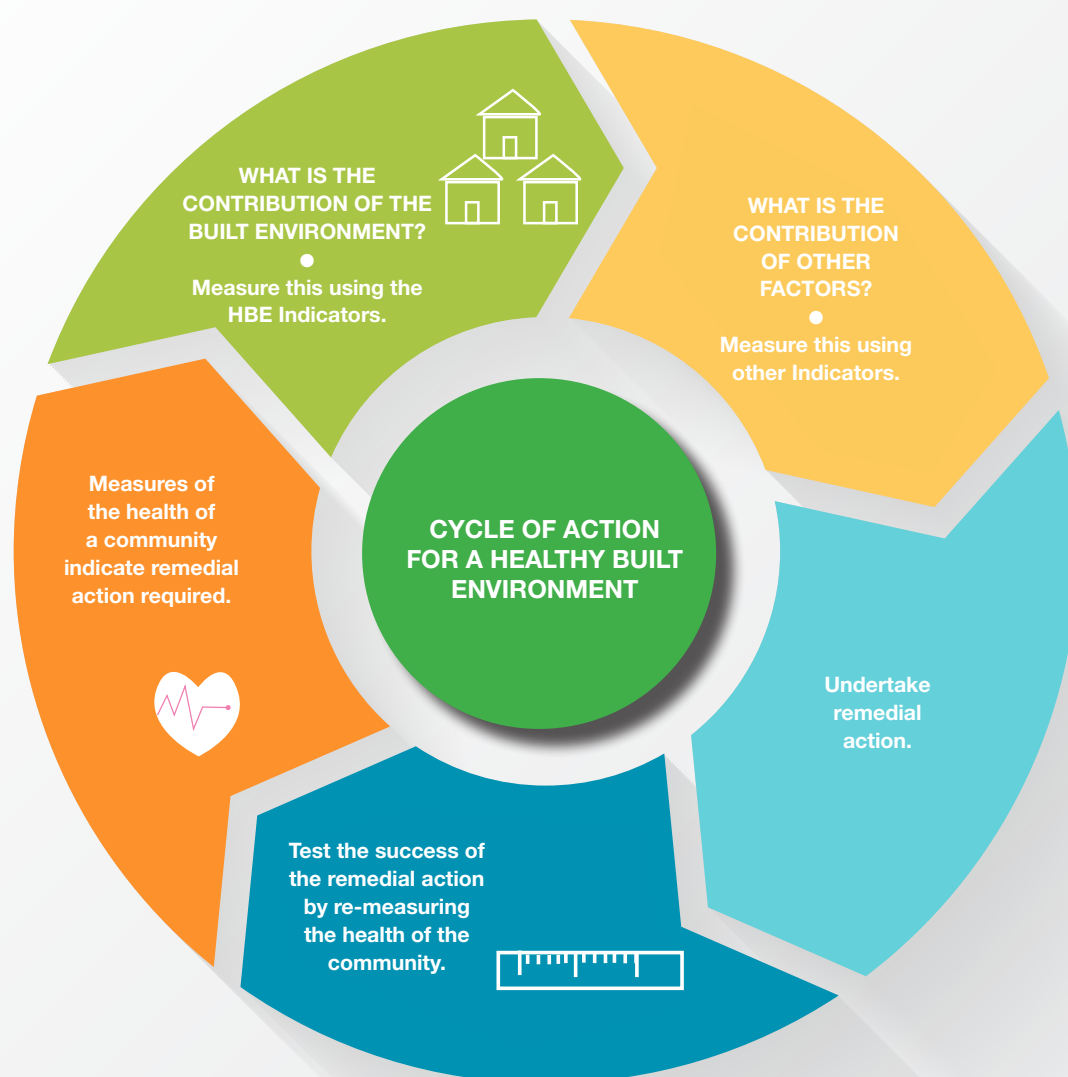
Therefore, they are not directly applicable as a guide for the design of new built environments – where there is no existing population or community. In these situations designers should use the NSW Health *Healthy Urban Development Checklist* for assistance.

These Indicators form part of a suite of documents relating to healthy built environments. See Additional Resources.

All documents provide useful information and will help to ensure that optimal healthy built environments are achieved in new designs.



Figure 2: Cycle of action – ensuring a community remains healthy



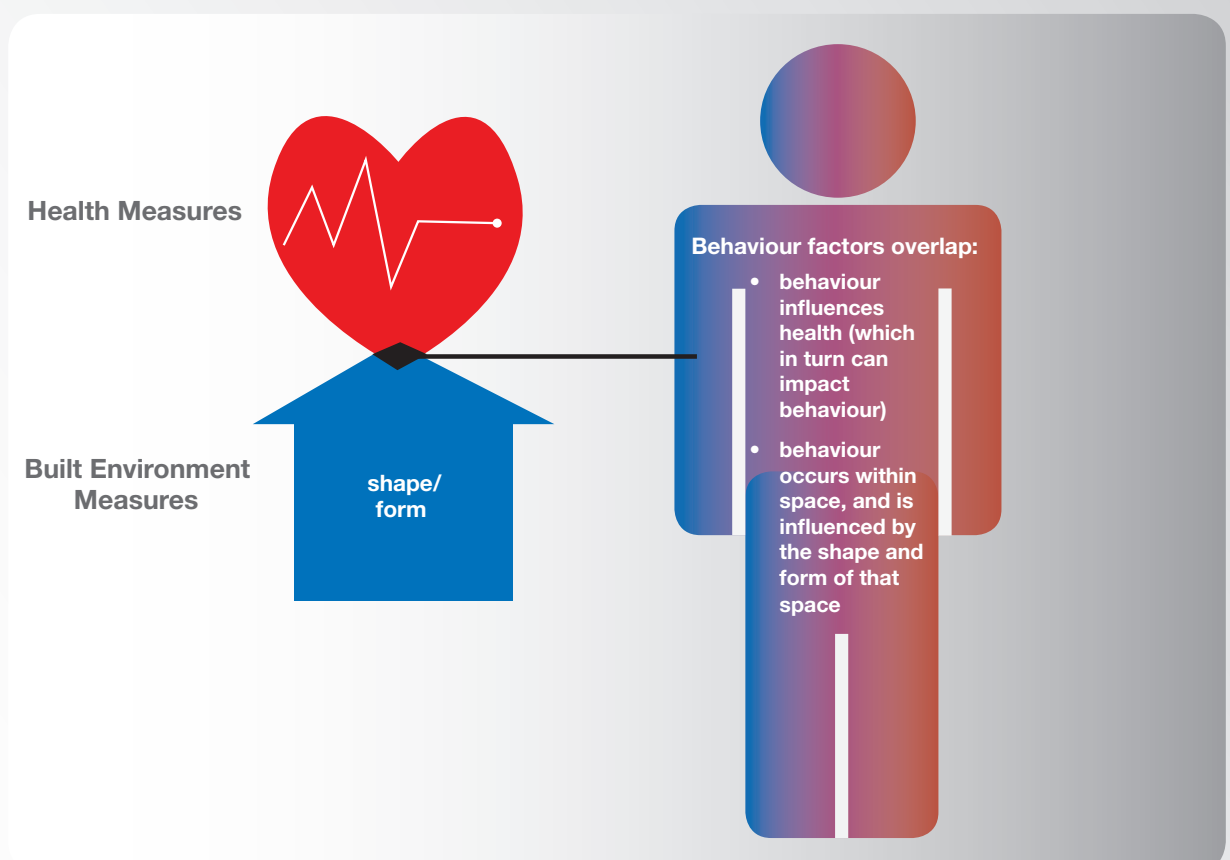
What do the Indicators measure?

The Indicators measure both the “shape” of the built environment and relevant behaviours of its inhabitants and users. The terminology “Healthy Built Environment Indicators” risks suggesting they are only about measures of the “shape” or “form” of the built environment, albeit resting on an assumption that such environments will support healthy behaviours. While our behaviour is significant in influencing our health, it is important to note that such behaviour occurs within a built environment context. Accordingly, the built environment is a key determinant of healthy and unhealthy behaviours as part of every-day living. Figure 3 illustrates this relationship by indicating that:

- Certain of our behaviours constitute a particular overlap between the health and built environment fields.
- Understanding what is occurring within these two fields will need to include measurement of relevant behaviours.

Therefore, the Indicators include measures relevant to the behaviour of the population when using different built environments. This is part of the overall objective of the Indicators to assess how the shape of the built environment under scrutiny is leading to behaviour/s that promote and/or support good health.

Figure 3: Overlap of behavioural factors when measuring health and built form



How the Indicators were determined

The Indicator measures were determined in reference to:

- (i) the research on the factors that can facilitate a healthy built environment, as undertaken through the HBEP Literature Review*;
- (ii) other work in both Australia and overseas to develop indicators for healthy built environments;
- (iii) associated earlier work by NSW Health to develop the *Healthy Urban Development Checklist*; and
- (iv) on-going work generally in respect to the broader notion of individual and community wellbeing.

The development of the measures themselves is based on the types of questions users of the Indicators might ask. Figure 4 details the rationale behind each measure.

Some Indicators use existing composite measures – to minimise the number of entries in the Indicators Matrix for ease of use, and to maintain a more holistic perspective. In practice, the data required to inform these composite measures include a wide number of criteria. Each needs to be measured prior to compiling the composite. Examples are:

- *Walkscore* (originally from the USA) www.walkscore.com
- *Walkability* index (Australian Heart Foundation) <http://www.heartfoundation.org.au/SiteCollectionDocuments/HFW-Walkability-Checklist.pdf>
- *Safer By Design Evaluation* (NSW Police Crime Prevention Through Environmental Design (CPTED)) http://www.police.nsw.gov.au/community_issues/crime_prevention/safer_by_design

* Kent J; Thompson SM and Jalaludin B (2011) *Healthy Built Environments: A review of the literature*, Sydney: Healthy Built Environments Program, City Futures Research Centre, UNSW ISBN: 978-0-7334-3046-6

Figure 4: The rationale behind the Indicator measures**Physical Activity: Facilitate utilitarian physical activity**

Built Environment
Contribution to
Healthy Behaviour

Rationale for the Built Environment Measure



Do people engage in
active transport modes?

Relative number of trips by active transport (defined as walking, cycling and public transport use) indicates levels of non-sedentary means of transport. It is also important to distinguish between types of active transport.

Do people use public
transport?

Relative number of public transport trips is an indicator of an aspect of active transport.

Is the public transport
viable (convenient,
comfortable, safe &
affordable)?

Satisfactory access to public transport can encourage active travel modes. Facilities, such as bus shelters and bicycle racks, can also be important in encouraging public transport use. Access to destinations further afield may be facilitated by public transport.

Do people walk or
cycle as a means of
transport?

Relative number of trips by walking or cycling indicates levels of two forms of active transport. Similar health benefits arise if people cycle for (otherwise walkable) trips.

Is walking viable
transport (convenient,
comfortable, safe)?

The grouping, layout and travel distance between land uses, particularly destinations accessed daily, influence the quantity and quality of walking, and therefore propensity to walk regularly for transport.

Do people cycle as a
means of transport?

Relative number of trips by cycling indicates levels of active, rather than sedentary, means of transport.

Is cycling viable
for active transport
(convenient,
comfortable, safe)?

The grouping, layout and travel distance between land uses, particularly destinations accessed daily influence the quantity and quality of cycling, and therefore the propensity to cycle.

Do people use stairs?

Using the stairs, rather than a lift or escalator, provides an opportunity for incidental physical activity.

Is use of stairs viable?

The visibility of, and ease of accessibility and convenience of stairs increases the propensity to use them.

Physical Activity: Facilitate recreational physical activity

Built Environment Contribution to Healthy Behaviour

Rationale for the Built Environment Measure



Do residents or workers in an area walk for recreational physical activity?

Recreation walking (from a leisurely to a vigorous pace) is a good way to achieve required minimum hours of physical activity to maintain good health.

Is walking viable for recreational physical activity (convenient, comfortable & safe)?

The provision of comfortable, safe, convenient and attractive routes can encourage the propensity to walk for recreational physical activity. Green spaces (e.g. parklands) and access to natural areas (e.g. waterways) are particularly important.

Do residents cycle for recreational physical activity?

Recreation cycling (from a leisurely to a vigorous pace) is a good way to achieve required minimum hours of physical activity to maintain good health.

Is cycling viable for recreational physical activity (convenient, comfortable & safe)?

The provision of comfortable, safe, convenient and attractive routes can encourage the propensity to cycle (either leisurely or actively) for recreational physical activity.

Does public open space provide for recreational physical activity?

An important function of public open space is to provide facilities for both vigorous and less-vigorous recreational physical activity, especially for those activity modes which require spatial area and/or dedication of particular facilities and/or groups or teams.

Are other facilities available (by either public or private providers) for recreational physical activity?

Some recreational physical activities will not be able to be provided within public spaces at the neighbourhood scale (e.g. sporting ovals, large parklands, extensive walking trails) – but still need to be accessible to invite use. Private spaces (e.g. indoor gymnasiums, yoga studios) if accessible (distance, transport options for access, operating hours, provision of child care etc.) allow additional opportunities for recreational physical activity.

Social Interaction: Facilitate incidental neighbourhood interaction

Built Environment Contribution to Healthy Behaviour

Rationale for the Built Environment Measure



Does the design of common areas in buildings foster incidental person-to-person contact?

Does the design of building frontages foster incidental person-to-person contact?

Does the design of public space foster incidental person-to-person contact?

Common areas can foster incidental person-to-person contact (amongst residents, shoppers, commuters, workers and tourists). This can be encouraged by including seating, a good ambience, and a certain level of activity to engage users' interest.

Building frontages can foster incidental person-to-person contact (amongst residents, shoppers, commuters, workers and tourists with passers-by). This can be encouraged by including seating, a good ambience, windows and verandahs looking to the public space, and a certain level of activity to engage users' interest.

Residents, shoppers, commuters, workers and tourists are more likely to sit and linger with others provided there is adequate seating, pleasant outlooks, and a certain level of activity to engage users' interest.

Social Interaction: Making community spaces



Is formal public and semi-public space accessible to the community at large?

Is the design of formal public and semi-public spaces inviting to, and appropriate for the community at large?

Are residents and others invited to participate in the broader design and governance of their community spaces?

Do new developments include a welcome program for residents to initiate on-going social interaction?

Does the design and governance of public and private space allow contact with nature?

Real and perceived accessibility of neighbourhood destinations will promote use for physical activity and social interactions as well as reduce vehicular trips and increase neighbourhood cohesion and safety.

The design of public spaces can support psychological health by encouraging use for active and incidental activity, as well as social contact, thereby fostering feelings of belonging and enjoyment.

Participation can facilitate orderly social interactions through removing ambiguity in expectations and creating behavioural norms in the broader governance of the community. Membership of, and participation in community groups and decisions are associated with improved health outcomes. Use of public space by all is facilitated by clear and well-resolved expectations as to acceptable behavioural norms.

Feelings of community connection can be encouraged by making residents aware of existing events, programs, community facilities and organisations. Awareness raising / information initiatives can be as simple as proper placement of signage, or a more developed "welcome program" for newcomers.

Providing opportunities for contact with nature (green features, water amenities, and opportunities to garden in common areas) can support psychological health by fostering feelings of restoration and relaxation.

Social Interaction: Building for crime prevention

Built Environment
Contribution to
Healthy Behaviour

Rationale for the Built Environment Measure



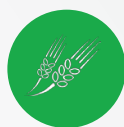
Is the use of public space for active transport, incidental and organised physical exercise, and social interactions, hindered by actual or perceived threats to personal security?

People will not interact within, or feel part of a community they perceive to be unsafe. Actual and perceived levels of security can inhibit or promote choices to actively travel, participate in recreational physical activity and/or engage in social interaction. Fostering a sense of belonging, caring and commitment to public space also requires a good level of perceived safety.

Nutrition: Facilitate access to healthy food

Built Environment Contribution to Healthy Behaviour

Rationale for the Built Environment Measure



Is fresh healthy food readily available?

The built environment can be shaped to support or hinder the sale of healthy eating options through zoning and land use regulation for retail and other food uses. A greater diversity of food related spaces will help to provide a variety of healthy food, fulfilling different needs in nutrition, affordability and cultural preference.

Are the shops selling fresh healthy food accessible?

Accessibility of supermarkets, green grocers, and farmers' markets can promote or hinder consumption of healthy foods.

Is there a relative over-abundance of fast food shops?

The placement and relative accessibility of fast food outlets, pubs and convenience stores may entice consumers away from or even prevent the purchase of healthier alternatives.

Can residents grow healthy food?

The provision of space and resources can encourage people to grow some of their own food. This helps people to access fresh, affordable and nutritious food. It also raises interest and awareness about healthy eating generally. Visibility of fresh food growing can also enhance interest and awareness.

Can farmed food be sourced close to residents so that it is fresh and healthy when eaten?

Healthy food is fresh. Ensuring agricultural areas are close to urban areas can help to keep food fresh. Food does not have to travel far from producer to consumer, and there is less need for extensive transport infrastructure or artificial treatments to maintain food freshness. Visibility of fresh food growing can also raise interest and awareness of healthy eating generally.

Are there different opportunities to sell and distribute healthy food (e.g. markets, co-ops, food trucks)?

Maintaining a diversity of food outlets – not just shops or supermarkets – increases the variety of food available in a community as well as catering for local cultural demands and needs. A variety of fresh food environments will also facilitate incidental social interactions.

Nutrition: Promote responsible food advertising

**Built Environment
Contribution to
Healthy Behaviour**

Rationale for the Built Environment Measure



Are eating habits being adversely affected by local advertising?

Is the presence of healthy food options visible?

Marketing and advertising of healthy and unhealthy foods influences consumption habits. Public exposure to signage advertising healthy food in, around and near public spaces, sporting grounds and schools in particular, can affect patterns of consumption.

Marketing and advertising of healthy and unhealthy foods influences consumption habits. If healthy food options are hidden away they are less likely to be consumed.

The Indicators and the Healthy Built Environment Context

While the Indicators were designed to fit with, and augment existing key NSW healthy built environment tools, guides and research documentation they have much broader applicability. The aim is to assist health and built environment practitioners to achieve built environments that support human health using available resources in a complementary way.

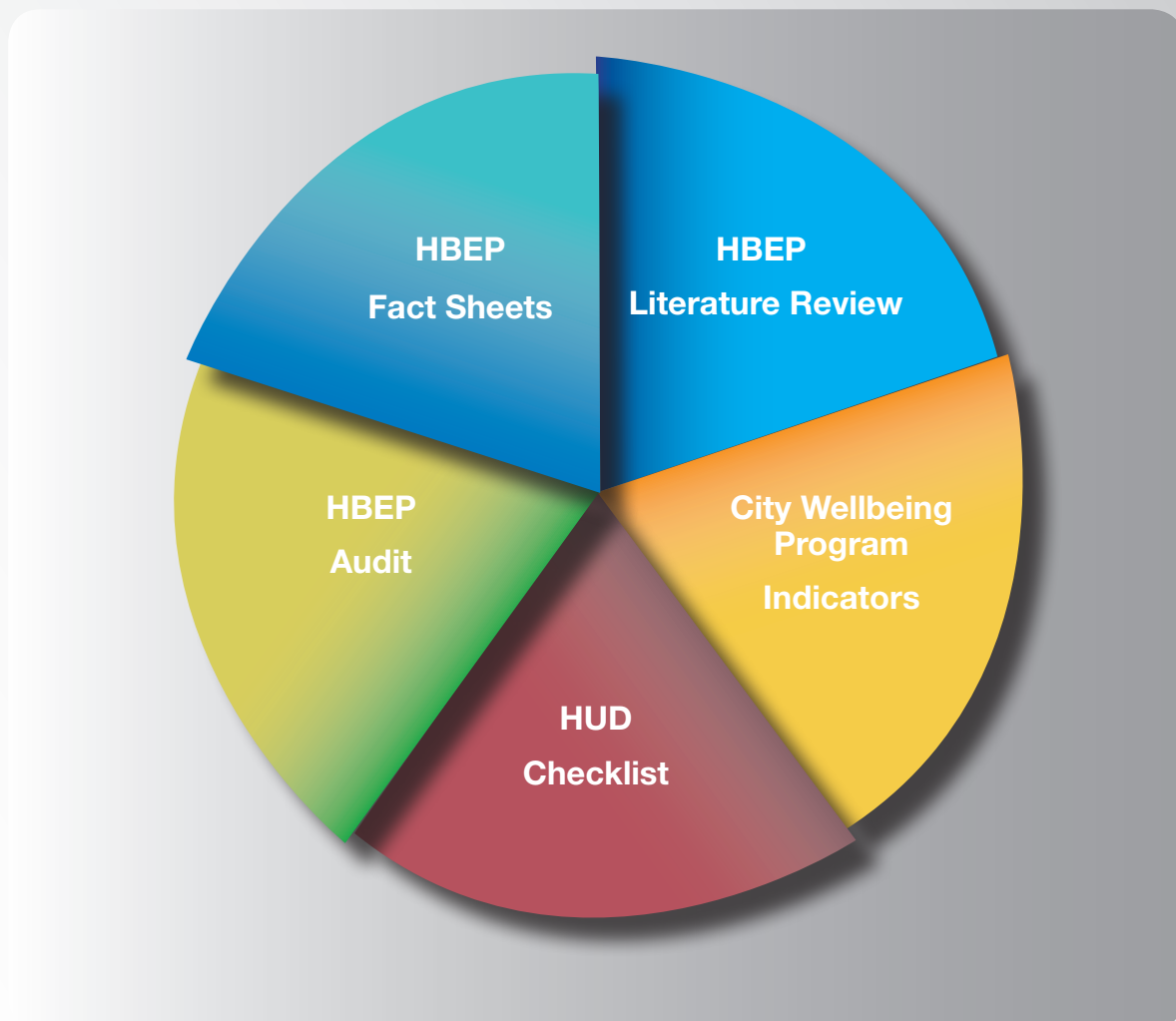
The Indicators sit alongside four other key NSW documents detailed in the Additional Resources section.

The Matrix of Indicators is structured to relate to the HBEP *Literature Review* and the *Healthy Urban Development Checklist*.

Where an appraisal of the built environment characteristics of a community using the Indicators reveals that the shape or form of that locality is contributing to poor health outcomes refer to the *Healthy Urban Development Checklist* for assistance in determining the best form for that built environment. Use of the *Healthy Neighbourhood Audit* may also be helpful in conducting a detailed appraisal of a locality. The *Healthy Neighbourhood Audit* may already have been used as a tool to gather data to inform the Indicator measures themselves.

There is a considerable body of other resources aimed at achieving healthy built environments. Some are listed in the Additional Resources section.

Figure 5: A suite of five NSW documents to assist health and built environment practitioners achieve healthy built environments



4. Placing the Indicators in Broader Context

The wider determinants of healthy, sustainable communities

The social, cultural and environmental determinants of health are wider than those included in these Indicators. All are important in preventative health action.

These wider determinants of health are presented in the *Healthy Urban Development Checklist* - for example “quality” employment, the presence of contaminants in the environment, equity and governance arrangements within a community, and broader environmental sustainability issues.

There is also a growing body of work exploring these wider determinants of health. Some of this work establishes related indicators – referred to variously as indicators of “liveability”, “wellbeing”, “sustainable communities”, “resilience”, or “reliable prosperity”. The Australian Bureau of Census and Statistics is developing a set of national “community” indicators. Generally these are collaborative projects, involving local government, regional and state health departments, and universities. Some examples are listed in Figure 6.

Figure 6: Wider determinants and indicators of a healthy, sustainable community

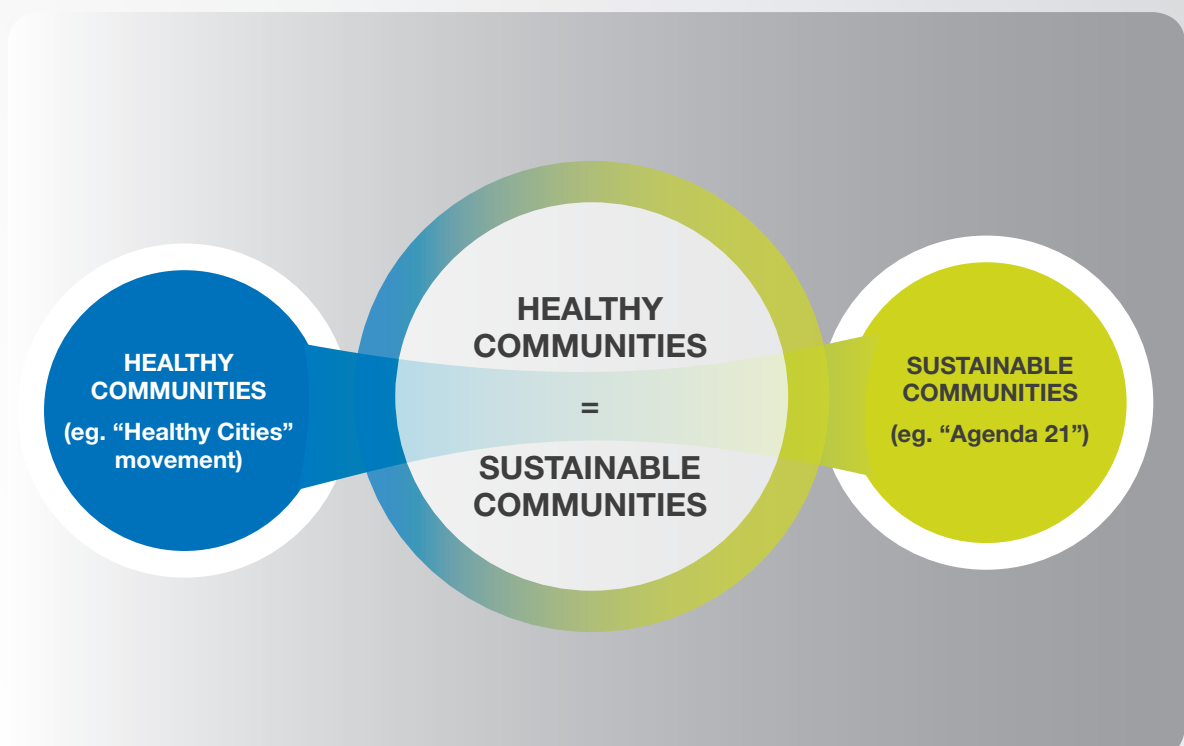


Healthy communities = sustainable communities

Parallel with action for healthy communities are actions for sustainable communities.

It is generally accepted there is little practical difference between the aims, objectives and actions developed within individual programs established under these two movements – notwithstanding their different starting points. Healthy natural environments and healthy built environments are *both* critical for a healthy community; and a community needs to be healthy to sustain itself into the future. This is illustrated in Figure 7.

Figure 7: Healthy communities = sustainable communities



Putting it all together

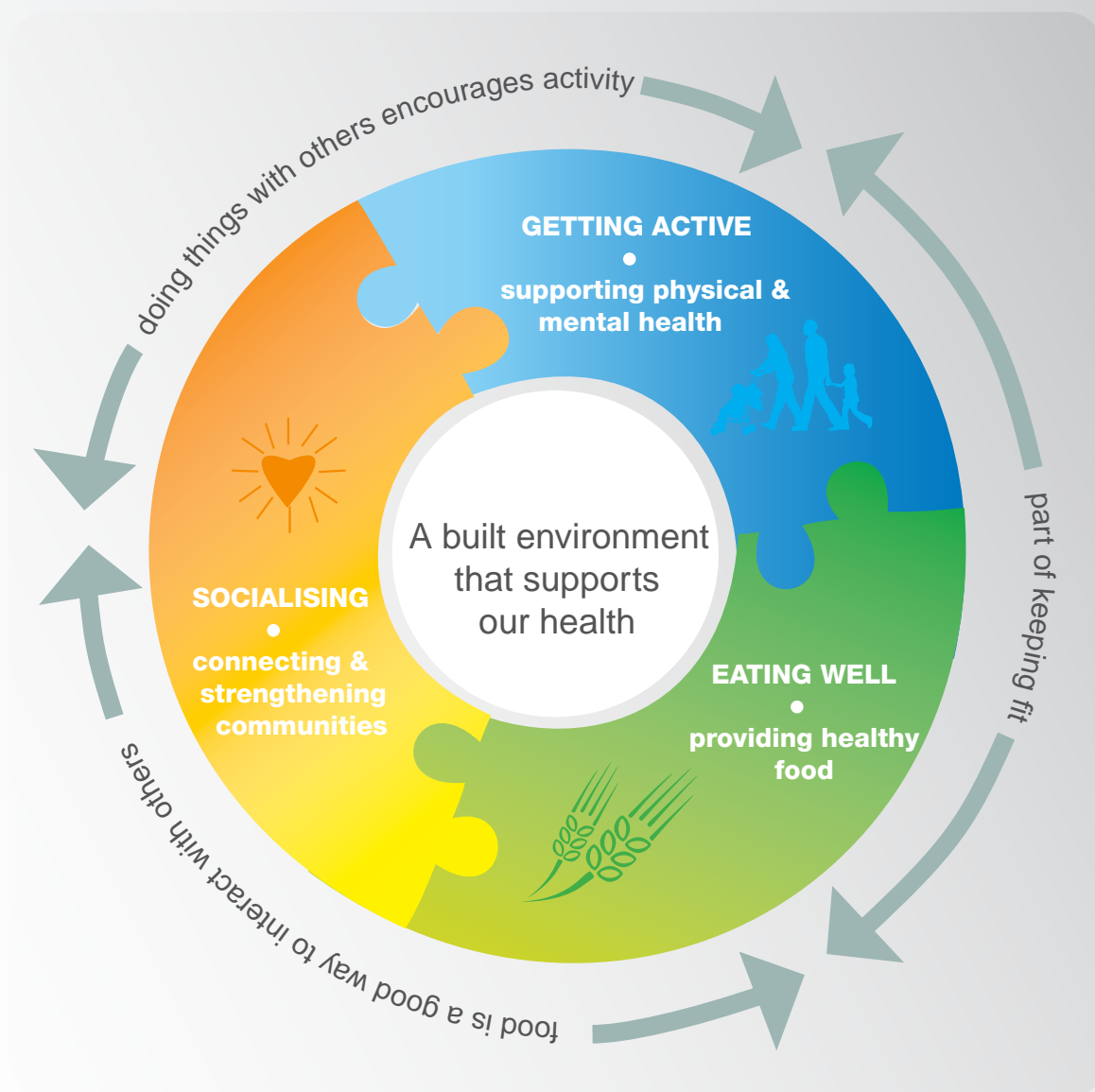
The three domains of healthy built environments identified in the *Literature Review* are closely connected and interlock with each other. These interlockings also comprise their own important, active entities of spatial (built environment) and behavioural interactions.

For instance:

- It is easier to be active when you are doing things with others.
- Nutrition is important in maximising the benefits from keeping active.
- Food is a good catalyst for maintaining social connections (eating together, community gardening, attending markets).

When these six entities (the three domains and the three connecting interactions) are combined, they create a “synergistic” whole that is more powerful in generating healthy outcomes than any of the individual components in isolation. This is illustrated in Figure 8.

Figure 8: Building healthy built environments – putting it all together



Envisaging a composite built environment response

Built environments that support human health need to be site and community-specific. There are nevertheless urban forms that, although not specifically developed to support health, result in environments that are generally conducive to good health across a range of sites and communities.

These forms or models include walkable communities, transit-orientated development (TOD), urban villages, liveable neighbourhoods, smart-growth and new urbanism. Various handbooks and checklists exist for these approaches, and have informed, for example, the *Healthy Urban Development Checklist*.

Features of such development forms include:

- A close connection between land use planning and transport planning.
- Population densities able to support effective public transport.
- Mixed residential, non-residential and community land uses clustered around or within walking distance of public transport stops.
- Public spaces and streets that are pleasant, inviting, and well-maintained.
- Streets designed with not just the motor car in mind, making it pleasant and safe for other users (“complete streets”).
- Daily neighbourhood activities clustered to make them convenient to access, and to promote a “bustle” that encourages socialisation.
- In new developments, up-front provision of retailing, parks and other community facilities to ensure patterns of behaviour conducive to good health are established when residents first arrive and settle.





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Indicators Matrix

Indicators Matrix



Physical Activity

Facilitating utilitarian physical activity

1. Health & behaviour being sought

HEALTH OUTCOME

Continued reductions in levels of:

- diabetes
- obesity (body mass index)
- heart disease
- depression.

ASSOCIATED BEHAVIOUR

- Recommended number of hours of physical activity per week achieved.
- Most trips under 500m. made by walking or cycling.
- Stairs given preference where viable.

Measure:

People 18-64 years achieve 2½ - 5 hrs moderate physical activity or 1¼ - 2½ hrs vigorous physical activity (or combination) each week.

[Australia's Physical Activity & Sedentary Behaviour Guidelines]

2. Built environment contribution

Do people engage in active transport modes?

Do people use public transport?

Is public transport viable (convenient, comfortable, safe & affordable*)?

Is public transport viable (convenient, comfortable, safe & affordable*)?

Is walking viable for "active transport" (convenient, comfortable, & safe*)?

Do people cycle as a means of transport?

Is cycling viable for "active transport" (convenient, comfortable, & safe*)?

Do people use stairs?

Is use of stairs viable (convenient, comfortable)?

Grouping, layout, travel distance, and travel time between activities, particularly daily destinations, is conducive to walking or cycling.

Access to other destinations is viable by public transport. Access to public transport stops is viable by walking or cycling and there are facilities such as shelters and bike racks.

Walking and cycling routes are comfortable, safe, convenient, and attractive with facilities such as seats, bike racks and shade.



3. Built environment measure

<ul style="list-style-type: none"> Number of all trips by the total population / number of trips using active transport modes by the total population (%) Population using active transport modes / total population (%) 	<ul style="list-style-type: none"> Number of all trips by an individual / number of trips by that individual made by active transport modes (%) 	<ul style="list-style-type: none"> Population satisfied with the viability of active transport modes as a way to make “utilitarian” trips in the neighbourhood / total population (%)
<ul style="list-style-type: none"> Number of all trips by the total population / number of trips using public transport by the total population (%) Population using public transport / total population (%) 	<ul style="list-style-type: none"> Number of all trips by an individual / number of trips by that individual made by public transport (%) 	
<ul style="list-style-type: none"> Population density is sufficient to support provision of public transport (Y/N) Number of dwellings within 800m of a railway station / all dwellings (%) Number of dwellings within 500m of a bus stop / all dwellings (%) 	<ul style="list-style-type: none"> Number of daily destinations grouped around a public transport stop / all daily destinations (%) Frequency of service to key destinations conducive to use (Y/N) Cost per trip to key destinations conducive to use (Y/N) 	<ul style="list-style-type: none"> Trip duration to key destinations conducive to use (Y/N) Satisfaction of population with amenity of public transport facilities / total population (%) Satisfaction of population with safety of public transport facilities / total population (%)
<ul style="list-style-type: none"> Number of all trips by the total population / number of trips made by walking by the total population (%) Population who walk to destinations / total population (%) 	<ul style="list-style-type: none"> Number of all trips by an individual / number of trips by that individual made by walking (%) Number of all trips by an individual / number of trips by that individual made by walking and cycling (%) 	<ul style="list-style-type: none"> Number of all trips by an individual under 500m / number of trips by that individual made by walking (%) Number of children who walk to school / number of children attending school (%)
<ul style="list-style-type: none"> Number of dwellings with 500m. of a daily destination / all dwellings (%) Number of daily destinations grouped / all daily destinations (%) 	<ul style="list-style-type: none"> Number of walking routes with a high Walkability score / number of all walking routes (%) The neighbourhood has a <i>WalkScore</i> rating of 70-80 (very walkable) or 90-100 (walker's paradise) 	<ul style="list-style-type: none"> Number of dwellings with 500m. of a primary school / all dwellings (%) Number of accidents involving pedestrians engaged in a “utilitarian” trip Population satisfied with the viability of walking as a way to make “utilitarian” trips in the neighbourhood / total population (%)
<ul style="list-style-type: none"> Number of all trips by the total population / number of trips made by cycling by the total population (%) Population who cycle to destinations / total population (%) 	<ul style="list-style-type: none"> Number of all trips by an individual / number of trips by that individual made by cycling (%) Number of all trips by an individual under 5 km / number of trips by that individual made by cycling (%) 	<ul style="list-style-type: none"> Number of children who cycle to school / number of children attending school (%)
<ul style="list-style-type: none"> Number of dwellings near to a designated cycle route / all dwellings (%) Number of streets that include measures to facilitate safe cycling / all streets (%) 	<ul style="list-style-type: none"> Number of accidents involving cyclists engaged in a “utilitarian” trip Population satisfied with the viability of cycling as a way to make “utilitarian” trips in the neighbourhood / total population (%) 	
<ul style="list-style-type: none"> Number of people using stairs or ramps to go up levels / number of people using a lift or escalator (%) Number of people using stairs or ramps to go down levels / number of people using a lift or escalator (%) 		
<ul style="list-style-type: none"> Stair or ramp access provided between levels in buildings and public spaces (Y/N) Stair or ramp access provided in direct, convenient and visible locations (Y/N) Number of people using the building satisfied with the viability of using stairs / all building users (%) 		

4. Source(s) of data

<ul style="list-style-type: none"> ABS data. Journey to work data. Population interviews.
<ul style="list-style-type: none"> ABS data. Journey to work data. Population interviews.
<ul style="list-style-type: none"> Transport/economic research data. On-ground survey. Desk-top mapping of distances + ABS housing data. Timetables. Population interviews.
<ul style="list-style-type: none"> ABS data. Journey to work data. Population interviews. School attendance data. Desk-top mapping of distances
<ul style="list-style-type: none"> On-ground survey, including <i>Walkability</i> survey (Heart Foundation). Desk-top mapping of distances + ABS housing data. Population interviews. Bureau Crime Statistics data. <i>Walkscore</i> assessment (walkscore.com).
<ul style="list-style-type: none"> ABS data. Journey to work data. Population interviews. School attendance data.
<ul style="list-style-type: none"> Desk-top mapping of distances + ABS housing data. On-ground survey. Bureau Crime Statistics data. Population interviews.
<ul style="list-style-type: none"> On-ground survey. Population interviews.
<ul style="list-style-type: none"> On-ground survey. Population interviews.

Associated reference in *Healthy Urban Development Checklist* (NSW Health, 2009)

PA 1 – PA 3	Physical activity.
TC 1 – TC 3	Transport and physical connectivity.
H 1	Encourage housing that supports human and environmental health.
SI 4	Promote an integrated approach to social infrastructure planning.
EM 1	Improve location of jobs to housing and commuting options.
EH 1	Contribute to enhancing air quality.
EM 2	Increase access to a range of quality employment opportunities (refer EM2.2).
EM 1	
EH 1	

Physical Activity

Facilitating recreational physical activity



1. Health & behaviour being sought

HEALTH OUTCOME

- Continued reductions in levels of:
- diabetes
 - obesity (body mass index)
 - heart disease
 - depression.

ASSOCIATED BEHAVIOUR

- Recommended number of hours of physical activity per week achieved.
- Public space recognised as a viable location for achieving recommended number of hours of physical activity per week.

Measure:

People 18-64 years achieve 2½ - 5 hrs moderate physical activity or 1¼ - 2½ hrs vigorous physical activity (or combination) each week.

[Australia's Physical Activity & Sedentary Behaviour Guidelines]

2. Built environment contribution

Walking and cycling routes invite use by:

- *being comfortable, safe, convenient and attractive*
- *having facilities such as seats, bike racks and shade*
- *leading to attractive destinations for recreational activity*
- *being designed to be attractive "destinations" in themselves.*

Public space invites use and provides space and facilities for both moderate and intense physical activity #.

A range of spaces for sale or rent with easy access to residential population, with zoning and landlord controls allowing diverse facilities for recreational physical activity at opening hours related to residents' needs.

Do residents achieve the recommended number of hours of physical activity per week?

Do residents walk for recreational physical activity?

Is walking viable for recreational physical activity (convenient, comfortable, & safe)*?

Do residents cycle for recreational physical activity?

Is cycling viable for recreational physical activity (convenient, comfortable, & safe)*?

Does public open space provide for recreational physical activity?

Are other facilities available (by either public or private providers) for recreational physical activity?

3. Built environment measure

- | | | |
|---|---|---|
| • Total number hours of physical activity (transport + recreational) per week for individuals / recommended number of hours (%) | • % people who achieve total number of recommended hours of physical activity (transport + recreational) per week | • Usual number hours of physical activity (transport + recreational) per week for individuals / recommended number of hours (%) |
| • Number of hours of recreational walking / number of hours of total physical activity (transport + recreational) per week (%) | • Number of hours of recreational walking / number of hours of recommended recreational physical activity (transport + recreational) per week (%) | • Proportion of the population who walk for recreation (%) |
| • Population satisfied with the viability of walking as recreational physical activity / total population (%) | • Number of accidents involving pedestrians engaged in a recreational walk | |
| • Number of hours of recreational cycling per week / number of hours of total physical activity (transport + recreational) per week (%) | • Number of hours of recreational cycling / number of hours of recommended recreational physical activity (transport + recreational) per week (%) | • Proportion of the population who cycle for recreation (%) |
| • Population satisfied with the viability of cycling as recreational physical activity / total population (%) | • Number of accidents involving cyclists engaged in a recreational cycle | |
| • Presence of recreational physical activity facilities in neighbourhood public open space, or within "active transport" access | • Population satisfied with the availability of recreational physical activity facilities in public open space areas / total population (%) | |
| • Presence of recreational physical activity facilities in the neighbourhood, or within "active transport" access | • Population satisfied with the availability of recreational physical activity facilities in the neighbourhood / total population (%) | |

4. Source(s) of data

- Population interviews.
- Population interviews.
- Population interviews.
- Bureau Crime Statistics data.
- Population interviews.
- Population interviews.
- Bureau Crime Statistics data.
- On-ground survey/desk-top reviews of facility locations.
- Population interviews.
- On-ground survey/desk-top reviews of location of facilities.
- Population interviews.

Associated reference in *Healthy Urban Development Checklist*

(NSW Health, 2009)

PA 1 – PA 3	Physical activity.
CS 1	Consider crime prevention and sense of security.
PS 1 – PS 5	Public open space.
EM 2	Increase access to a range of quality employment opportunities (refer EM2.2).
EM 2	Increase access to a range of quality employment opportunities (refer EM2.2).

* The security aspects of facilitating “recreational physical activity” are covered in section (3) of SOCIAL INTERACTION (Building for Crime Prevention), and not further included here.

See also additional functions and therefore design needs for public space under SOCIAL INTERACTION (Facilitating incidental neighbourhood interaction) and (Making community spaces).

Social Interaction

Facilitating incidental neighbourhood interaction

1. Health & behaviour being sought

HEALTH OUTCOME

Continued reductions in levels of depression and other mental health illness/problems.

ASSOCIATED BEHAVIOUR

- Individual satisfaction with:
 - potential to engage in incidental social interactions.
 - actual engagement in incidental social interactions.
- High level of actual incidental social interaction in the neighbourhood.
- High level of trust in the community.
- High levels of use of community facilities and public space.

Measure:

No concise numerical standard available.

Compare local data on propensity to talk with neighbours and meet people when shopping/out & about with wider state or national data.

2. Built environment contribution

Does the design of common areas in buildings foster incidental person-to-person contact?

Does the design of building frontages foster incidental person-to-person contact?

Does the design of public space foster incidental person-to-person contact?

Busy, well-used public spaces and facilities, designed to cater for all neighbourhood groups.

Frequent use of public spaces and facilities by all residents.

Streets designed and used as public space for all (not just for vehicular transport).

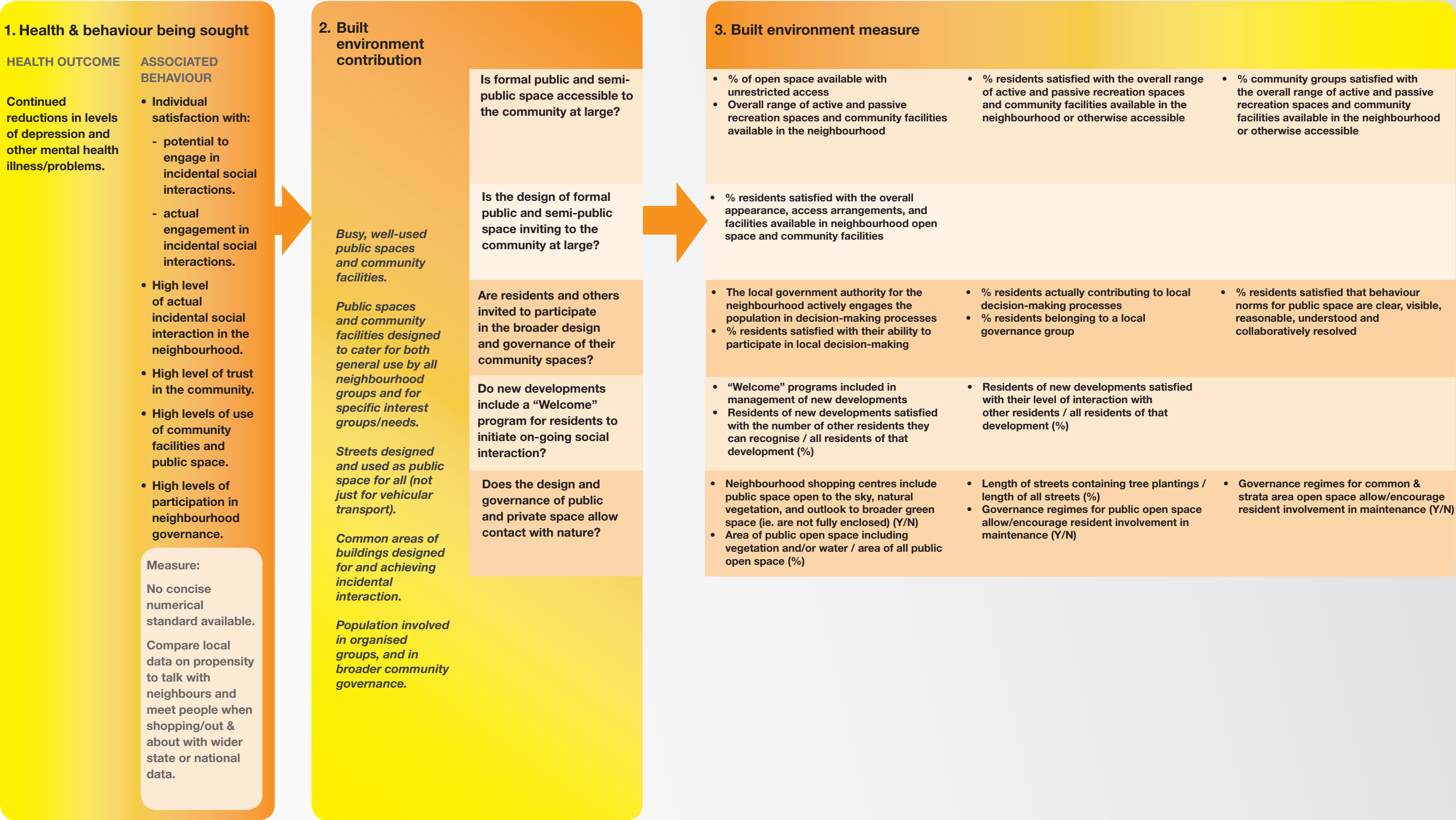
Common areas of buildings designed for, and achieving incidental interaction.





Social Interaction

Making community spaces



4. Source(s) of data

- On-ground survey.
 - Population interviews.
 - Specific interest group interviews.
-
- Population interviews.
-
- Review of policy.
 - Population interviews.
 - Attendance figures at local governance groups and other community meetings.
-
- Surveys of/ interviews with estate management.
 - Population interviews.
-
- On-ground survey.
 - Desk-top review of aerial photos.
 - Review of policy/strata/common area management documents.

Associated reference in *Healthy Urban Development Checklist*

(NSW Health, 2009)

S1 1 – SI 5	Social infrastructure provision.
SC 1 SC 5	Social cohesion and social connectivity.
PS 1 – PS 5	Public open space.
CS 1	Consider crime prevention and sense of security.

* Specific matters related to public roadways / streets are dealt with in preceding section.

Social Interaction

Building for crime prevention

1. Health & behaviour being sought

HEALTH OUTCOME

Continued reductions in levels of depression and other mental health illness/problems.

ASSOCIATED BEHAVIOUR

Frequency and nature of use of public space is sufficient to ensure an adequate level of incidental and organised inter-personal contact.

Measure:

No concise numerical standard available.

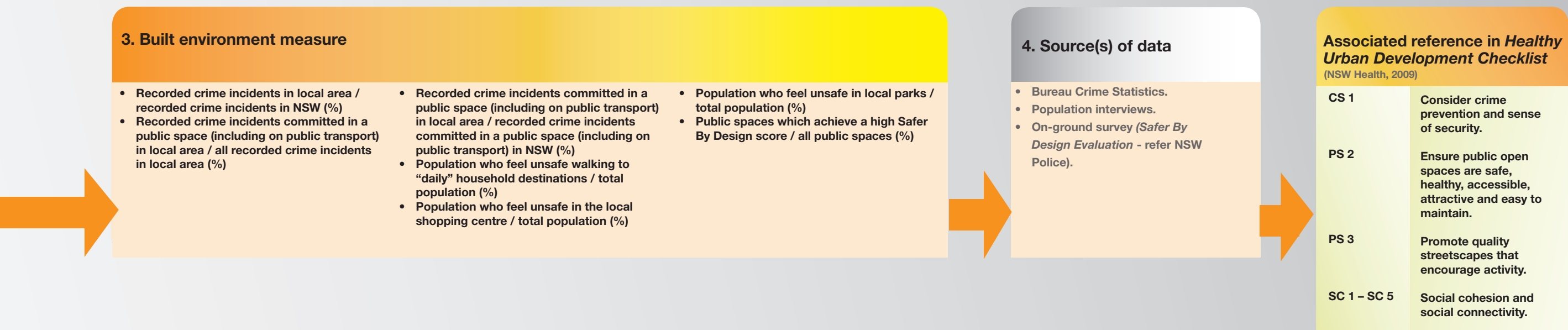
Compare local data on propensity to talk with neighbours and meet people when shopping/out & about with wider state or national data.

2. Built environment contribution

Is use of public space for active transport, for incidental and organised physical activity, and social interactions facilitated by actual or perceived threats to security?

Actual or perceived levels of security do not hinder use of public space for incidental and organised neighbourhood interaction (or physical activity generally).





Nutrition

Providing healthy food options



1. Health & behaviour being sought

HEALTH OUTCOME

- Continued reductions in levels of:
- diabetes
 - obesity (body mass index)
 - heart disease
 - depression.

ASSOCIATED BEHAVIOUR

- Consumption of 2 serves fresh fruit/day.
- Consumption of 5 serves fresh vegetables/day.
- Consumption of EDNP* food minimal/not the norm.

Measure:

People 18 years and over consume 2 serves of fruit (ie. 2 medium pieces) and 5 serves of cooked vegetables (ie. 5 half cups) daily

[National Health and Medical Research Council]

2. Built environment contribution

A range of spaces for sale or rent with easy access to residential population, with zoning and landlord controls allowing diverse food retailing at opening hours related to residents' needs.

Fresh food growing areas retained close to residential populations.

Is fresh healthy food available?

Are the shops selling fresh healthy food accessible?

Is there a relative over-abundance of EDNP food shops?

Do residents have an ability to grow healthy food?

Can (farmed) healthy food be sourced (fresh) close to residents?

Is there a diversity of sources available for the sale or other distribution of healthy food (eg. (markets, co-ops, food trucks)?

3. Built environment measure

- | | | |
|--|--|--|
| <ul style="list-style-type: none">• Availability of retail space able to sell food / all built space (%)• Presence of food shops / all shops (%)• Food shops selling healthy food / all food shops (%) | <ul style="list-style-type: none">• The healthy food available covers all food types (Y/N)• The healthy food available is affordable for the neighbourhood population (Y/N) | <ul style="list-style-type: none">• The healthy food available is culturally appropriate for the neighbourhood population (Y/N) |
| <ul style="list-style-type: none">• Dwellings within 500m walking distance of healthy food outlets / all dwellings (%) | <ul style="list-style-type: none">• Healthy food outlets in synergistic location with public transport or schools or other "daily" household destinations / all healthy food outlets (%) | <ul style="list-style-type: none">• Healthy food outlets open at hours related to residents' needs / all food shops (%) |
| <ul style="list-style-type: none">• EDNP food restaurants / other restaurants (%)• EDNP food restaurants / other restaurants + other healthy food outlets (%) | <ul style="list-style-type: none">• EDNP food restaurants within 500 m walking distance of schools / all EDNP food restaurants (%) | <ul style="list-style-type: none">• Food shops selling healthy food restaurants within 500m walking distance of schools / all food shops (%) |
| <ul style="list-style-type: none">• Dwellings with an opportunity to grow food / all dwellings (%)• Dwellings within 500m walking distance of a community garden space / all dwellings (%) | <ul style="list-style-type: none">• Schools with space for food gardens / all schools (%)• Local government policy allows private food plants on street nature strips (Y/N) | |
| <ul style="list-style-type: none">• Is agricultural land retained for that purpose (Y/N) | <ul style="list-style-type: none">• If agricultural land must be used for another purpose, are lands of marginal agricultural value targeted first? (Y/N) | <ul style="list-style-type: none">• Are potential conflicts between agricultural production and adjacent other uses addressed? (Y/N) |
| <ul style="list-style-type: none">• Availability of space within the neighbourhood for diverse sale or other distribution methods of healthy food (Y/N) | <ul style="list-style-type: none">• Local government policy allows diverse sale or other distribution methods of healthy food (Y/N) | |

4. Source(s) of data

- On-ground survey.
- (Possible) local council floor space data.
- ABS income data.
- Cultural group interviews.

- On-ground survey.
- Desk-top mapping of distances.
- Household interviews.

- On-ground survey.
- Nutrition data on food types.
- Desk-top mapping of distances.

- On-ground survey.
- Desk-top mapping of distances.
- Review of policy documents.

- Review of policy/ zoning documents.
- Review of development approvals.

- On-ground survey.
- Review of policy documents.

Associated reference in *Healthy Urban Development Checklist*

(NSW Health, 2009)

HF 1	Promote access to fresh, nutritious and affordable food.
EM 2	Increase access to a range of quality employment opportunities (refer EM2.2).
HF 3	Provide support for local food production.
HF 2	Preserve agricultural lands.
HF 1	Promote access to fresh, nutritious and affordable food.
EM 2	Increase access to a range of quality employment opportunities (refer EM2.2).

* EDNP= energy-dense, nutrient-poor

Nutrition

Promote responsible food advertising



1. Health & behaviour being sought

HEALTH OUTCOME	ASSOCIATED BEHAVIOUR
Continued reductions in levels of: <ul style="list-style-type: none">• diabetes• obesity (body mass index)• heart disease• depression.	<ul style="list-style-type: none">• Consumption of 2 serves fresh fruit/day.• Consumption of 5 serves fresh vegetables/day.• Consumption of EDNP food minimal/not the norm.

Measure:
People 18 years and over consume 2 serves of fruit (ie. 2 medium pieces) and 5 serves of cooked vegetables (ie. 5 half cups) daily.
[National Health and Medical Research Council]

2. Built environment contribution

- Are eating habits being adversely affected by local advertising?
- Is the presence of healthy food options visible?

The advertising of food and the visibility of food generally is balanced between healthy and other foods.

Advertising of EDNP food does not target children.





Additional Resources

1. NSW documents to assist health and built environment practitioners

Document

Description

Use when ...

Healthy Built Environments: A review of the literature

(HBEP, City Futures Research Centre, UNSW).



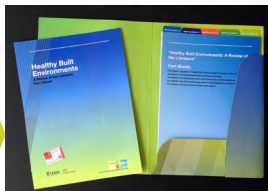
A detailed review of 1,080 documents dealing with the empirical evidence and best practices about the connection between the built environment and human health. Defines contributing built environment factors in relation to three risk factors associated with contemporary chronic diseases: physical inactivity, social isolation and obesity. Updated regularly – on the HBEP website.

... wanting knowledge and evidence on the connections between our health and the shape and form of our built environments, and guidance on research into the shape and form of the built environment most conducive to promoting good health.

<https://cityfutures.be.unsw.edu.au/research/programs/city-wellbeing/city-wellbeing-resources/literature-review/>

Healthy Built Environments Fact Sheets

(HBEP, City Futures Research Centre, UNSW).



Summarises the findings of the Literature Review. Separate Fact Sheets are available on each of the three key domains where the built environment can influence health as identified in the Literature Review, plus the importance of green open space.

... needing quick and easy reference to research-based evidence on key healthy built environments topics.

<https://cityfutures.be.unsw.edu.au/research/programs/city-wellbeing/city-wellbeing-resources/fact-sheets/>

Document

Description

Use when ...

Healthy Urban Development Checklist: a guide for health services when commenting on development policies, plans and proposals.

(NSW Health)



Provides a checklist of matters to consider when designing, assessing and developing healthy built environments, based on 10 separate topic areas. Equally useful for both health and built environment practitioners.

... designing or assessing the merits of existing and proposed development, and needing guidance on the built environment shape and form most conducive to promoting good health.

http://www0.health.nsw.gov.au/policies/gl/2010/pdf/GL2010_001.pdf

Healthy Neighbourhood Audit

(HBEP, City Futures Research Centre, UNSW).



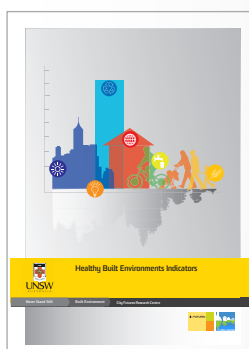
A systematic survey form for recording, mapping, and evaluating the health implications of built environments, mainly via direct observations.

... exploring and collecting data on the impact of a local built environment on physical activity levels, social interaction, and access to healthy food.

<https://cityfutures.be.unsw.edu.au/research/projects/planning-and-building-healthy-communities-a-multidisciplinary-study-of-the-relationship-between-the-built-environment-and-human-health/>

Healthy Built Environment Indicators

(City Wellbeing, City Futures Research Centre, UNSW).



Establishes a framework to measure the health implications of built environments, and identify opportunities for improvement.

... collecting evidence of the state of a built environment in affecting health, to allow for comparison, and to advocate for and measure the success of actions taken.

2. Other resources to assist practitioners undertaking built environment actions to improve health outcomes

Heart Foundation



Substantial reference material, guidelines and checklists for healthy urban design responses and promotion of active living, both nationally and State specific.

<http://www.heartfoundation.org.au/active-living/healthy-built-environments/Pages/default.aspx>

Healthy Places and Spaces



A national website sponsored by the Heart Foundation, Planning Institute Australia and the Australian Local Government Association. Comprises a guide to creating healthy spaces and places; links to research and other work including international and Australian State Government guides and checklists.

<http://www.healthyplaces.org.au>

University of NSW City Wellbeing (formerly Healthy Built Environments Program)



Literature review on the links between health and built environments, and best-practice responses. Fact sheets on key matters. Other reference material, research work and on-line lectures and talks.

<https://cityfutures.be.unsw.edu.au/research/programs/city-wellbeing/>

University of Melbourne Place, Health and Liveability Research Program



Lists key projects, research work and publications, including a major project on indicators of "community wellbeing" in Melbourne.

www.mccaugheycentre.unimelb.edu.au/research/health_and_liveability

Premier's Council for Active Living Indicators for Active-Friendly Local Environments



In consultation with stakeholders, PCAL developed a list of evidence based active living indicators. They are included in the Office for Local Government's (OLG) Integrated Planning and Reporting (IP&R) Support Manual (OLG, 2013). The indicators are listed under ten key areas for use by local councils to measure progress toward the achievement of broader active living goals.

<http://www.olg.nsw.gov.au/sites/default/files/Integrated-Planning-and-Reporting-Manual-March-2013.pdf> - pages 56 - 58

**University of
Western Australia
Centre for the Built
Environment and
Health**



Lists key projects, research work and contributions to healthy built environments guidelines and checklists.

www.sph.uwa.edu.au/research/cbeh

**Inquiry into
Environmental
Design and Public
Health in Victoria.**



Inquiry into
Environmental Design
and Public Health in
Victoria

Undertaken by the Victorian Parliament, but applicable generally. Comprehensive summary of issues, health data, desirable design responses and policy.

<http://www.parliament.vic.gov.au/images/stories/documents/council/SCEP/EDPH/EDPH.pdf>

**NSW Office of
Preventive
Health**



Health

Part of NSW Health, but applicable generally. Publications and other resources to reduce lifestyle related risk factors leading to chronic disease, including economic appraisals of the benefits of prevention.

<http://www.preventivehealth.net.au/>

**The Healthy Active
by Design Tool
(HAbD)**



**HEALTHY
ACTIVE
BY DESIGN**

Guides, checklists and case studies, prepared by the Heart Foundation (Western Australia) in conjunction with other relevant agencies and organisations.

<http://www.healthyactivebydesign.com.au/>



City Futures Research Centre
Faculty of Built Environment
The University of New South Wales
Sydney NSW 2052 Australia

w: <https://cityfutures.be.unsw.edu.au/research/programs/city-wellbeing/>

CRICOS Provider Code: 00098G