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# Healthy Built Environments

**A Review of the Literature  
Fact Sheets**



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THE HEALTHY BUILT ENVIRONMENTS PROGRAM

## **HEALTHY BUILT ENVIRONMENTS:**

**A Review of the Literature  
Fact Sheets**

### **Prepared by:**

**The Healthy Built Environments Program  
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**Copies of the Literature Review and these  
Fact Sheets are available on the Healthy Built  
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# “Healthy Built Environments: A Review of the Literature”

## Fact Sheets

**Fact Sheet 1: A guide to “Healthy Built Environments: A Review of the Literature”**

**Fact Sheet 2: The Built Environment and Physical Activity**

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# A guide to “Healthy Built Environments: A Review of the Literature”

The Healthy Built Environments Program (HBEP) has completed a major scholarly literature review examining the role of the built environment in supporting human health as part of everyday living. The literature review establishes an evidence base from an Australian perspective that supports the development, prioritisation and implementation of healthy built environment policies and practices.

Physical inactivity, social isolation and obesity are three of the major risk factors for many of the chronic diseases facing contemporary society. The HBEP Literature Review identifies three key built environment domains that support human health.

**1. The built environment can support physical activity.**

For example: integrating land use and transport to promote walking and cycling for transport; preserving a variety of open spaces for recreation; designing street networks and providing infrastructure for walking and cycling for both recreation and transport.

**2. The built environment can connect and strengthen communities.**

For example: providing streets and public spaces that are safe, clean and attractive; encouraging residential development that is integrated, yet private; enabling community empowerment through meaningful participation in land use decisions.

**3. The built environment can provide equitable access to healthy food.**

For example: reducing fast-food exposure in the vicinity of school environments; retaining peri-urban agricultural lands as a source of easily accessed healthy food; encouraging the establishment of farmers’ markets and community gardens.

The HBEP Literature Review is available for download from the HBEP website: <http://www.be.unsw.edu.au/programs/healthy-built-environments-program/literature-review>



**The Built Environment and Getting People Active**



**The Built Environment and Connecting and Strengthening Communities**



**The Built Environment and Providing Healthy Food Options**



## Structure of the Review

The Review is presented in five sections.

**Introduction and Review Structure (Sections 1 & 2)** – this presents the context and document structure.

**Aims and Parameters (Section 3)** – this details the rationale behind the Review and the main parameters employed to shape the authors’ treatment of this vast body of literature.

**Methodology (Section 4)** – this outlines the process used to break the literature down into ‘domains of health and the built environment’. This section also details the search methodology.

**The Evidence (Section 5)** – this contains the body of the Review. Literature is summarised and discussed under the three domains, with key studies, key themes, conclusions, policy implications and recommendations for future research articulated for each domain. Every theme is accompanied by sample quotes from the evidence considered relevant by the authors. Examples are also given to demonstrate the ways that the evidence can be translated into policy to underpin practical healthy built environment actions.



**There are three appendices in the Review.**

**Appendix 1** contains a diary of database searches undertaken to source the literature. This supports the methodology outlined in Section 4.

**Appendix 2** is a Glossary of commonly used terms in the health/built environment literature.

**Appendix 3** contains an Annotated Bibliography of the key studies identified in Section 5. Each reference is summarised with key words, study aims and methodology (in some cases this information is cited verbatim from the reference). We conclude each study in the annotated bibliography with our interpretation of the main policy implications. These will assist health and built environment professionals to apply the research evidence to policy development.



**The key message of the Healthy Built Environments Program Literature Review is that there is a strong relationship between the built environment and people's health and that this relationship is complex and contextual.**

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# The Built Environment and Physical Activity

Physical inactivity is a major risk factor for contemporary chronic disease. Supportive built environments can encourage physical activity, such as walking and cycling for transport, using green open spaces for recreation and even ensuring it is safe and easy for people to take the stairs instead of the lift.

## Distance and Density

**The Research Evidence:** Keeping necessary trip distances short through mixed use, high street connectivity and compact development makes active transport a viable option and provides destinations for people to walk and cycle to. Increasing the residential density of the built environment alone, however, will not necessarily encourage increased active transport. Density, mixed use and micro-design elements in some combination are most likely to influence levels of physical activity (LR pp. 48-51).<sup>1</sup>

### What are the implications for policy?

Policies to increase land use densities need to bring uses, and not just people, closer together. Higher densities should be pursued in the context of both the existing macro (regional) urban framework of services and infrastructure, together with the micro urban fabric of design features that make higher densities liveable.

### Sample Policy:

“Neighbourhood structure should have the following characteristics:

- size and shape generally defined by a five minute walk from the neighbourhood centre to its perimeter, typically 400m ...
- the centre acts as a community focus with a compatible mix of uses, including retail, ... community facilities and open spaces, such as a small square ...”

WA Planning Commission. *Liveable Neighbourhoods*, 2004, p. 7 E1.

## Street Networks

**The Research Evidence:** Grid street patterns decrease distances between origins and destinations and encourage active transport (LR p. 53).

### What are the implications for policy?

Design street layouts based on grids. This ensures direct and legible access to destinations such as shops, schools and public transport stops. Where cul-de-sacs are used, pedestrians and cyclists should be given through access.

### Sample Policy:

“The street network should provide a high level of internal connectivity ... The street network should have no more than 15 per cent of lots fronting culs-de-sac... Cul-de-sac should be laid out, so that pedestrians and cyclists can have through access”.

WA Planning Commission. *Liveable Neighbourhoods*, 2004, p. 8 E1 and p. 8 E2.



<sup>1</sup> LR refers to the page numbers in the HBEP Literature Review

### Infrastructure and Facilities

**The Research Evidence:** Well maintained footpaths and bike paths encourage cycling and walking for transport and recreation, as does the provision of bike parking and other end of trip facilities (LR pp. 54-55).

**What are the implications for policy?**  
 Provide footpaths on both sides of all streets. Provide off road bike paths on streets where the speed limit exceeds 50km/hour. Provide separated bike lanes on other streets. All footpaths and bike paths should be well maintained, well lit and shaded. End of trip facilities, such as showers, lockers and undercover bicycle parking, should be provided at destinations such as workplaces, shopping centres and educational institutions.

**Sample Policy:**  
 "Schools need full width concrete path paving around the main entrance....The full width concrete paved areas are ... linked directly to the adjacent path paving network".  
 Blacktown City Council, NSW, *Engineering Guide for Development*, 2005, p. C-7.

### Designing for Safety

**The Research Evidence:** Perceptions that cycling is unsafe because of traffic, and perceptions that walking is unsafe because of exposure to crime, are key infrastructure related deterrents to walking and cycling for transport and recreation (LR pp. 54-55).

**What are the implications for policy?**  
 Support the principles of Crime Prevention Through Environmental Design (CPTED). These principles encourage passive surveillance so that walkers and cyclists feel like they can see and be seen. Provide off road bike paths on streets where the speed limit exceeds 50km/hour. Provide separated bike lanes on other streets.

**Sample Policy:**  
 "Improve safety for cyclists on key cycle routes by investigating areas in towns where car parking can be relocated, reconfigured or removed to make room for bicycle lanes, recognising that on these routes the safe and efficient movement of vehicles including bicycles has a higher priority than parking".  
 Queensland Department of Transport and Main Roads, *Queensland Cycle Strategy 2011-2021*, 2011, p. 26.



### Rebuilding Physical Activity into Everyday Life

**The Research Evidence:** Stair climbing is physical activity which can easily be integrated into everyday life (LR p. 56).

#### What are the implications for policy?

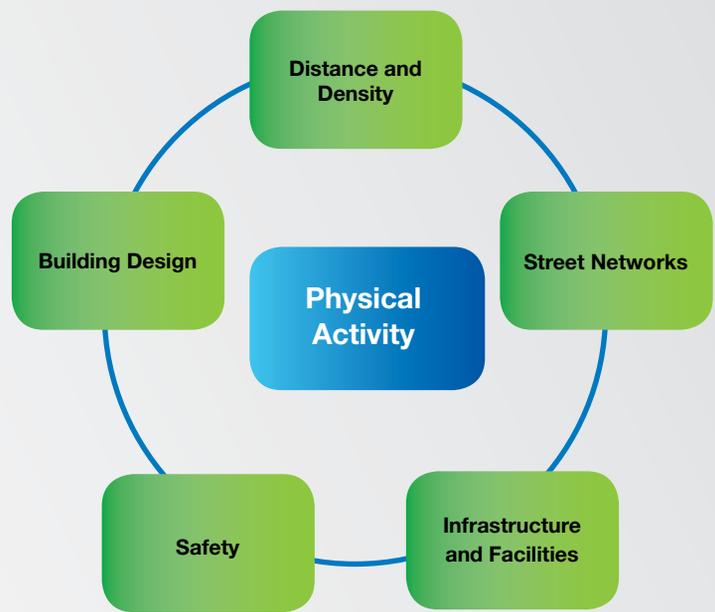
Stairways in buildings should be attractive, safe, accessible and visible alternatives to the use of escalators and lifts.

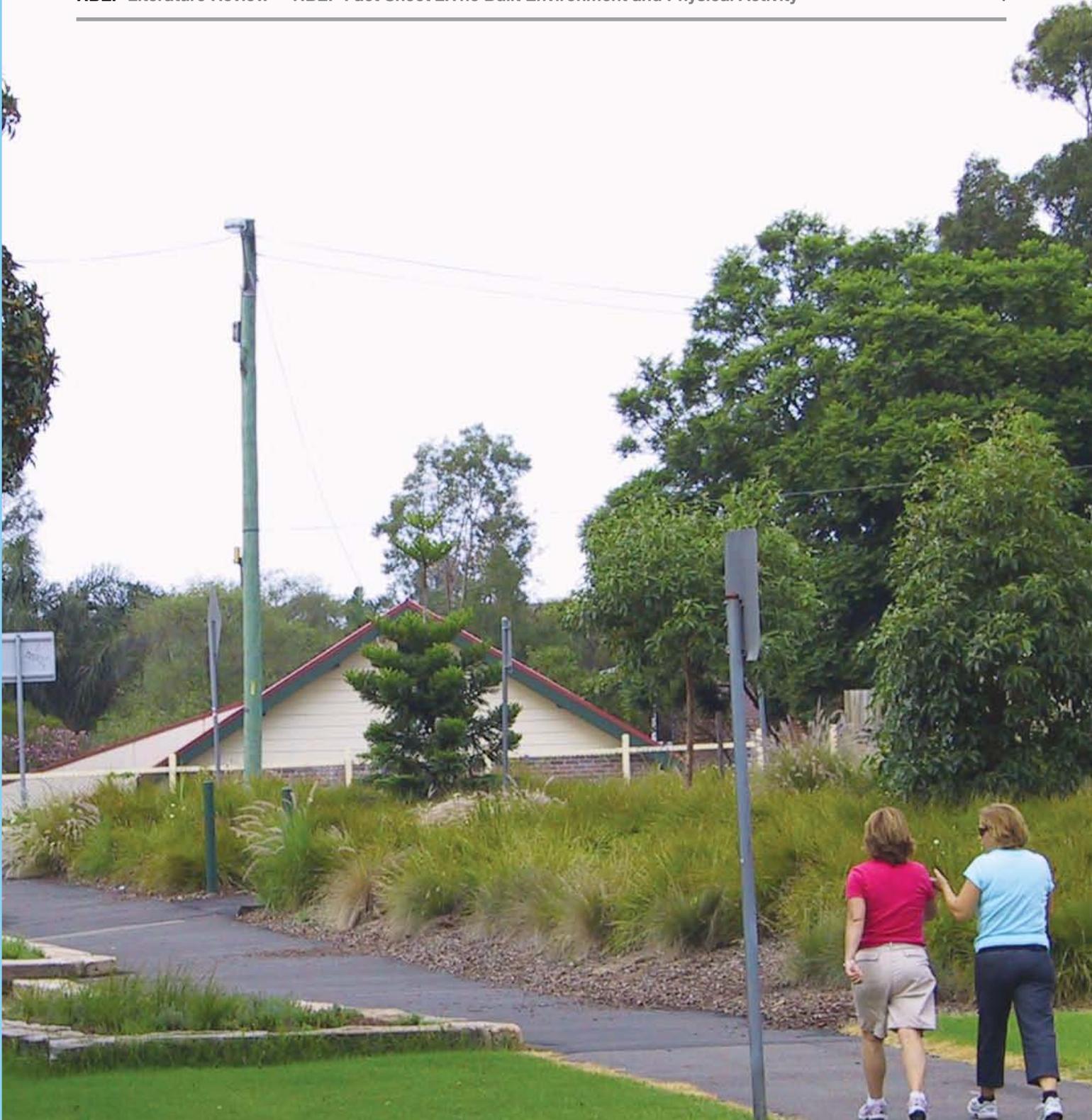
#### Sample Policy:

“The design and location of escalators should be based on peak flow rates ... Alternative access (adjacent stairs) is required”.

*NSW Ministry of Transport, Guidelines for the Development of Interchange Facilities, 2008, p. 18.*

### Aspects of the Built Environment that Influence Physical Activity





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# The Built Environment and Connecting and Strengthening Communities

A sense of community and belonging where people live, work and travel are important determinants of physical and mental health. Sense of belonging fosters perceptions of security, confidence and comfort which can encourage people to be active and engaged in their neighbourhood, as well as socially connected to others. Incidental interaction enhances possibilities for human connection and caring. In turn, this increases perceptions of safety and reduces feelings of loneliness and isolation, all of which have benefits for mental health.

## Community is Complicated

**The Research Evidence:** Communities are made up of people from different age groups, and with varying cultural and linguistic backgrounds, physical abilities, socio-economic status and educational attainments. What works to promote community in one locality, within a particular group at one time, will not necessarily translate to another (LR p. 66).

### What are the implications for policy?

Many of the elements of healthy built environments will need to be firmly embedded in place and tailored to the people using places. Policies should be pursued that promote place based planning, for example, through the use of neighbourhood structure plans. These plans must be informed by meaningful consultation with local communities.

### Sample Policy:

“The Community Summit acknowledged Port Phillip’s complex character as a city but also expressed the need to celebrate and acknowledge the smaller communities that contribute to the City’s character. These include neighbourhoods, defined by a sense of place and communities formed by common bonds, be they cultural, sporting, age or lifestyle”.

City of Port Phillip Council (Victoria), *City of Port Phillip Community Plan 2007-2017*, 2007, p. 12.

## The Importance of Incidental Interactions

**The Research Evidence:** Spaces between buildings – on the street and in town squares – are important for encounters and social interaction. An incidental greeting between individuals waiting for a bus or walking along the footpath can begin a conversation which contributes to sense of community. Active transport presents further opportunities for casual interaction not afforded by the private motor car. Interaction will not occur, however, unless adequate provision is made to protect individual privacy (LR p. 69 and pp. 71-74).

### What are the implications for policy?

Policies should be pursued to ensure urban areas include a variety of well maintained and safe public spaces. Arrangements for the ongoing maintenance of such spaces should be formalised. Natural and physical territorial enforcement should be encouraged as a way to protect privacy.

### Sample Policy:

“Create pleasing places to be:

- Landscape open spaces and other public places (e.g. squares and malls) to provide pleasant places for people to sit, meet and talk
- Provide natural shade or structured shelter within activity centres and open spaces to promote sitting, meeting and talking ...”

National Heart Foundation of Australia (Victorian Division), *Healthy by Design*, 2004, p. 15.



## Safety

**The Research Evidence:** While sense of community and social interaction are key determinants of health, a large body of research suggests that people will not interact within, or feel part of, a community that they perceive to be unsafe (LR pp. 74-75).

### What are the implications for policy?

Policies to involve communities in crime prevention programs and policies based on existing Crime Prevention Through Environmental Design (CPTED) guidelines need to be pursued. Crime prevention policies must be coordinated with other healthy built environment policies.

### Sample Policy:

“...orientate buildings:

- to allow surveillance from the street to the building, from the building to the street, and between buildings,
- to allow surveillance of the spaces around the building
- so that access points are in clearly visible locations”.

Rockdale City Council (NSW), *Development Control Plan No 67 - Crime Prevention Through Environmental Design*, 2002, p. 18.

## Knowing How to Interact

**The Research Evidence:** The built environment can promote orderly social interaction by removing ambiguity in expectations and educating communities about behavioural norms. This is particularly important in environments that may be new and unfamiliar, such as recently established community gardens and shared pathways (LR p. 77).

### What are the implications for policy?

Planning of environments that are new and unfamiliar should include provisions for educational programs and infrastructure. Policies to retrofit existing public spaces and environments with appropriate, creative and consistent signage detailing behavioural expectations should be pursued.

### Sample Policy:

“Potential conflicts between path users can be reduced through:

- Management – centre lines and signage encourage safe path use behaviour, such as keeping to the left”.

Department of Infrastructure, Planning and Natural Resources (NSW), *Planning Guidelines for Walking and Cycling*, 2004, p. 55



## Participation and Empowerment

**The Research Evidence:** Participation in shaping the built environment supports interaction and psychological health directly by encouraging a sense of empowerment and custodianship. Governance of the built environment can foster this participation. The involvement of children in the planning of green and open spaces should be particularly encouraged (LR p. 77).

### Sample Policy:

“Involve your community in planning activities...”

- Engage community members early in the planning process to accommodate their ideas about their local area
- Liaise with young people and children when planning new development areas or urban renewal projects”.

National Heart Foundation of Australia (Victorian Division), *Healthy by Design*, 2004, p. 22.

### What are the implications for policy?

Public participation provisions in existing built environment policy and legislation should be regularly reviewed to ensure they make use of contemporary technology and are suitable for today's communities. Policies for public participation in governance of the built environment should be adaptable to encourage inclusivity through participation from all community members.

## Building Strong Communities: Key Considerations





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# The Built Environment and Providing Healthy Food Options

Regular physical activity needs to be accompanied by a healthy intake of food to ensure that energy intake is balanced with energy expenditure. This is the key to maintaining a healthy weight. Research indicates that convenient food access is a determinant of food choice. Proximity of healthy food outlets, including supermarkets, can positively influence the consumption of such foods. Through zoning and land use regulation, the built environment can be shaped to support or inhibit exposure to healthy food options.



## Food Accessibility

**The Research Evidence:** There is a logical link between exposure to healthy food options and healthy eating, with research suggesting that access to a supermarket or other reliable source of fresh, healthy produce will improve dietary intake (LR pp. 86-88).

### What are the implications for policy?

Policies should be pursued to ensure food retail areas are characterised by a variety of food options. Supermarkets should be centrally located within urban areas to ensure equitable access.

### Sample Policy:

“... to ensure that the village centre maintains its role and function as the primary active hub within the Pottsville locality, a comprehensive Structure Plan has been developed. ... The key components of the revised structure plan include:

- Increasing the maximum building height limit to 11 metres (allowing up to 3 storeys);
- Encourage commercial and residential uses to upper levels within the retail core; ...
- Identification of a series of sites suitable for full-line supermarket development; ...”

Pottsville (NSW). *Locality Based Development Code*, 2010, p 99.



### Food Accessibility and Socio-Economic Status

**The Research Evidence:** Studies have consistently shown that access to healthy food is more difficult in areas of lower socio-economic status. While the majority of this research has been undertaken in the USA, there is evidence to suggest a socio-economic stratification of accessibility to healthy food options in Australia (LR pp. 88-89).

#### What are the implications for policy?

As for other elements of healthy built environments, policies to provide healthy food options should be firmly embedded in place and tailored to the people using places. Innovative policy initiatives need to be supported to encourage healthy food retailers to enter lower socio-economic markets. This may include providing financial subsidies for fledgling retail ventures as they establish in new areas.

#### Sample Policy:

**“Minimum WIC\* Food Stock Requirements:**

Retail food vendors in counties with a population of 250,000 or more ... must have in stock and available for purchase the following WIC foods: ...

1. **Fresh Fruits and Vegetables:** Thirty pounds of WIC-allowed fresh fruits and vegetables in at least seven varieties, two of which must be bananas and carrots”.

Identification of a series of sites suitable for full-line supermarket development; ...”

\*The “Women’s Infants and Children” program is a food stamp program initiated by the Minnesota Department of Health (USA) to increase intake of healthy foods in low income families.

### Land Use Around Schools

**The Research Evidence:** Food availability within and around school environments is a determinant of what children eat. While built environment professionals have little influence over the ‘interior’ food environment of schools, planning processes can – through land use zoning and regulation – influence the types of uses near schools, including the number of fast-food outlets and the advertising of fast food (LR pp. 90-91 and p. 93).

#### What are the implications for policy?

Policies should be pursued to prohibit the co-location of fast food outlets and schools. Policies should be pursued to regulate the advertising of fast food in and around school environments.

#### Sample Policy:

“Because drive-in businesses, fast-food restaurants and automobile service stations present certain unusual problems, they are hereby required to meet the following requirements ...

**Proximity to Schools, Churches, Public Recreational Areas and Residential Lots:**

No drive-in business or fast-food restaurant shall be located on a site that is within four hundred (400) feet of a public, private or parochial school, a church, a public recreation area, or any residentially zoned property”.

Section 6(D)(a), Arden Hills Zoning Ordinance, Minnesota, USA.



### The Built Environment and Larger Scale Food Production

**The Research Evidence:** Urban agricultural lands play an important part in the production and supply of healthy food to urban areas in Australia and should be protected (LR p. 93).

**What are the implications for policy?**

Policies to assess the value of peri-urban land as land for food production should be encouraged prior to re-zoning.

**Sample Policy:**

State Environmental Planning Policy (Rural Lands) 2008

Part 4 of this NSW planning policy has explicit provision for the protection of “state significant” agricultural lands from demand for other uses, such as housing development. State significant agricultural lands are listed in a schedule to the policy.

### Farmers’ Markets and Community Gardens

**The Research Evidence:** The link between exposure to community gardens and farmers’ markets with increased consumption of fresh fruit and vegetables is obvious although difficult to quantify. Markets and gardens also facilitate community interaction and physical activity. They are an extremely valuable element of a healthy built environment (LR p. 92).

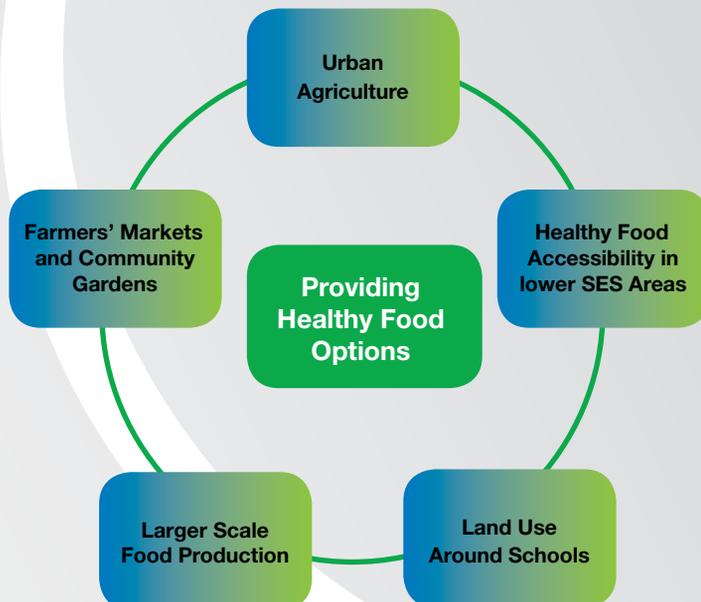
**What are the implications for policy?**

Land use zoning should support, not prohibit, the use of land for farmers’ markets and community gardens. To be effective, these policies require support from other agencies, such as schools, gardening clubs, and recycling and sustainability groups.

**Sample Policy:**

Marrickville Council in Sydney’s inner west supports five community gardens located in schools, church grounds and community areas. The gardens have been partially funded by various Council managed community grants.

### Issues to Consider in Providing Healthy Food for All





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## The Importance of Green Open Space

With continuing urban population growth, provision for additional green open space is essential. In rapidly developing urban areas where land costs are high, governments must ensure that funding is available for the purchase of adequate amounts of open space, as well as landscape design and upkeep. The well documented benefits to health – including prevention of chronic diseases – provide strong arguments for such policies.

### Open Space and Recreational Physical Activity

**The Research Evidence:** There is substantial evidence that people who live close to a variety of recreation facilities are more physically active than those who do not enjoy such proximity. The recreation occurring in urban open spaces can vary from organised sport, impromptu games and play, as well as walking, jogging and cycling (LR p. 57).

#### What are the implications for policy?

Policy needs to reflect the diverse array of users of open space. The facilities provided in open space and the way open spaces are landscaped and managed need to be negotiated in close contact with the community, including children. Provisions need to be made for the ongoing management of open spaces prior to their development.

#### Sample Policy:

“Differences from one community to the next, and from area to area should be considered, as should the recreation patterns and preferences of the whole community, of relevant community sub-groups, or of particular localities”.

NSW Department of Planning, *Recreation and Open Space Planning Guidelines for Local Government*, 2010, p.21.

### Open Space and Community Interaction

**The Research Evidence:** The location and treatment of green and open spaces can support both organised and incidental social interactions and activities. They create a focal point for communities to meet and develop (LR pp. 66-68).

#### What are the implications for policy?

As cities densify – and the urban environment becomes busier with more hard surfaces and increased visual and aural stimulation – planning policies must support the provision of green open space.

#### Sample Policy:

“The specific aims of this policy are:

- to protect bushland for its scenic values, and to retain the unique visual identity of the landscape...
- to maintain bushland in locations which are readily accessible to the community ...
- to promote the management of bushland in a manner which protects and enhances the quality of the bushland and facilitates public enjoyment of the bushland compatible with its conservation”.

SEPP 19 *Bushland in Urban Areas*, Clause 2(2) (NSW) 1988.



## The Importance of Green Space

**The Research Evidence:** The benefits of natural, green and open spaces extend well beyond the provision of trails for walking and fields for playing. Research suggests that there is an instinctive bond between human beings and other living systems. Removal of this bond by ‘building out’ natural elements (including plants, animals and even the weather) is fundamentally detrimental to health (LR pp. 66-68).

### What are the implications for policy?

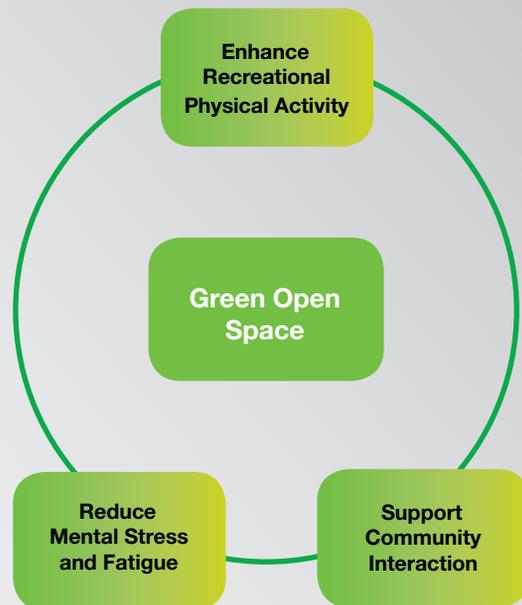
Small scale encounters with nature and people within natural settings are equally as significant to health as access to large areas of natural open space. Policies to encourage the incorporation of nature into urban and building design should be pursued, particularly in higher density areas. This can include roof top gardens and feature plantings in window boxes and building entries. Provision needs to also be made for these plantings to be maintained.

### Sample Policy:

“Investigate non-traditional locations for public space, such as roof tops, building facades or foyers, for a diversity of activities including after hours recreation. ... Investigate non-traditional landscaping at different levels of buildings, including walls, roof top and podium gardens, as well as integrated foyer planting for private or public use”.

Brisbane City Council, *City Centre Master Plan 2006*, 2006, p.198; p. 202.

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