

# HEALTHY PLACES AND SPACES

## A national guide to designing places for healthy living

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### Abstract

Physical inactivity is estimated to cost the Australian community around \$10 billion annually in direct health care costs; the costs of obesity are as high as \$5 billion.<sup>1</sup> Common lifestyle choices of increased inactivity and car dependency are significant contributors to chronic diseases, including cardiovascular disease and diabetes. They are also affecting the sustainability of Australian cities and towns, particularly given the relationship between greenhouse gas emissions from motorised transport and climate change.

Research shows that regular physical activity can not only reduce the risk of chronic disease but also improve people's mental health and wellbeing. Regular physical activity undertaken locally also engenders a sense of belonging in the community.

The Planning Institute of Australia, the Australian Local Government Association and the National Heart Foundation of Australia, funded by the Australian Government Department of Health and Ageing, are undertaking the *Healthy Spaces and Places* project. The project seeks to provide guidance to planning practitioners and related professions on how to incorporate active living principles into the built environment. The aim is to improve the understanding of how the built environment influences active living, by ensuring that the built environment results in:

- a sense of belonging – social inclusion
- a sense of place
- positive health impacts (reducing the future health burden); and
- sustained economic wellbeing.

A strength of *Healthy Spaces and Places* is that it aims to draw together not only on planners and related professions but also health professions to address the challenges of the built environment contributing to healthy living, lifelong. Decision makers, including elected representatives and communities themselves are also a focus of the project.

The *Healthy Spaces and Places* National Planning Guide was launched in August 2009, along with a complementary website.

**Key Words: active living, built environment, health and wellbeing, urban design, physical activity**

### Introduction

For a number of years Planning Institute Australia (PIA) has been drawing attention to the links that exist between the urban environment and the decisions people make about whether they will walk, cycle, use public transport or drive (or a combination of these) to local amenities, work and shops, and walk or cycle for recreation and fitness. It is clear that built environment professionals can play an important role in

contributing to healthy lifestyles and healthy outcomes for communities as a whole. The focus of this paper is on how planning and the urban environment can support physical activity and it calls for a holistic and integrated approach including strategic policy reform and guidance, and attention to detailed planning processes and practices at the community, neighbourhood and site level.

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<sup>1</sup> Stevenson J., Bauman A., Armstrong T., Smith B. and Bellew B. (2000), *The costs of illness attributable to physical inactivity in Australia*, Commonwealth Department of Health and Aged Care.

It is interesting to reflect that planning emerged as a profession in the nineteenth century at a time when some of the critical issues of urban form related to health, particularly the need for urban water supply and sewerage systems. Cities in the nineteenth century were rapidly industrialising and had overcrowded substandard housing and at the same time, grappling with an accumulation of vast amounts of waste, and experiencing massive outbreaks of infectious diseases. The urban planning and public health movements together sought to address sanitation and housing reforms and the planning profession developed from this desire to improve the quality of urban life and create healthier living environments. Over time both professions moved apart, focussing on their particular issues. In the twentieth century, a focus on housing and transport and particularly planning for motor vehicles has had a great impact on the health of people. In recent times some areas of the health profession have been emphasising the importance of taking preventive measures to address the basic causes of ill health rather than focussing on the treatment and control of diseases. Planners and health professions are now reconnecting, aware of the links between public health, planning, transport, urban design and physical activity.

### **The Health of Australians**

Australia is experiencing an epidemic of chronic conditions such as cardiovascular diseases, arthritis, diabetes, cancer, auto-immune diseases such as rheumatoid arthritis that are affecting quality of life. And because people are living longer, the elderly are particularly affected. Research has shown clearly that "regular physical activity throughout life reduces the risk of all-cause mortality, as well as the incidence of and fatality from cardiovascular disease .....moderate improvements in fitness bring about substantial health benefits, and by improving physical fitness, people of all ages can reduce the risk of premature death" (Bauman, Wright, Brown et al, 2001, p.1-2). Nine million Australians are considered not active enough on a daily basis for health benefits.

Increasing obesity trends are also alarming especially in relation to the health of

Australian children with recent research stating that the rate of obesity and being overweight in Australians aged between seven and fifteen years has doubled since 1985. In 2002, one in five Victorian children were overweight or obese and 23 per cent of children aged 10 to 12 years were overweight or obese (DHS, 2002). Also, eighteen per cent of Australian adults are obese, a figure which has doubled since 1989. The potential consequences of obesity are not only physical illness such as diabetes, cardiovascular disease and accelerated ageing, but it can have mental health consequences as well, particularly for children who may become victims of low self esteem and poor self image (DHS 2002). The economic cost of obesity in Australia is huge with Access Economics estimating this to be \$AU3.8 billion in 2006 (Giles Corti 2007).

### **Urban Planning**

The way we plan and design urban environments can have a profound effect on the long-term health of the inhabitants. For example the tendency to design low density extensive housing estates with few community facilities and local destinations, long distances to public transport, and almost total reliance on the motor car means not only social isolation and the alienation of young people, but also unhealthy, car-dominated, physically inactive lifestyles. Other aspects of the built environment that directly influence physical health include the amount of air pollution, noise, climate change and pollution of the food and water chains, the potential for injury and accidents, access to fresh food and access to the sun and sun protection (adapted from VicHealth 2003, p.5).

A combination of urban design policies and principles, land use patterns and transportation systems that promote walking and cycling will help create active, healthier, more liveable communities (Handy et al 2002). For example, locating medium and high density residential developments within walking distance of public transport can be a carrot for the development of other initiatives which encourage social interaction such as outdoor cafes and shops, and local residents to get out and about exercising. Locating the highest density adjacent to public transport

may be simple logic but is not always done – sometimes other factors such as views or economics have greater pull. Further, to achieve healthier built environments and active communities means that all agencies and bodies involved in planning and designing cities must work together and that all levels of intervention must be integrated and have consistent and purposeful messages (Morris, 2006).

In Australia, ten percent of all car trips are less than one kilometre (which is the equivalent to a ten minute walk) and thirty percent are less than three kilometres (Bureau of Transport Economics, 2002).

There are substantial direct benefits to health and in the reduction of greenhouse gas emissions by encouraging people to walk or cycle rather than drive.

The detailed planning of neighbourhoods and sites to support active transport (walking and cycling) is vital. For over 50 years we have planned our environments - shopping, business, residential around vehicular access. Our continued reliance on the motor vehicle in Australia is clearly apparent. The 2001 Census revealed that nearly 67 per cent of people who lived in Melbourne (population currently 4 million) travelled to work by car (approximately 1.03 million people) compared to 4.4 per cent who travelled only by train (just under 15,000 people), one per cent who used the bus and 0.6 per cent who took the bus and the train (Birnbauer, 2002). Further, Tolley (2002) maintains that there is a lack of balance between people and the growth of traffic and a bias towards vehicles. He considers that people should be given a greater ownership of the street and there should be much greater investment in the pedestrian including more attention given to the interests and needs of the pedestrian. Engwicht (2005) promotes “reclaiming the streets” and claims that removing street signs, road markings, speed humps and traffic lights makes traffic slower and streets safer thus enabling the social life of the street to return.

### **Strategic Planning and Policy Development**

It is vital that the strategic level planning frameworks and planning documents support and encourage healthy urban environments.

Governments at all levels and planning agencies should support and encourage the espousing of goals, visions and similar strategic level mission statements that proclaim the importance of planning and designing healthy built environments. This is an opportunity to educate decision makers, elected representatives and members of the community about how land use plans and development, transportation plans and the location of public facilities such as schools and hospitals can influence the ability of residents to be physically active.

Some State Governments in Australia have developed policies and programs designed to encourage people to be physically active e.g. Go for Life and Healthy and Active Victoria. They have also developed policies that aim to create more active communities and include leadership of matters such as housing choice and increasing densities in residential areas and mixing up land uses rather than separating land uses. Policies on matters such as car parking are also needed – we should be moving towards reduced provision of car parking spaces and no car parking provision in some cases.

Government leadership in providing the policy basis for decision making is vital. Examples are:

- The Melbourne 2030 Plan, a strategic plan guiding the growth of Melbourne to the year 2030 includes strategic visions relating to health and wellbeing such as supporting more compact development around activity centres, walkable communities, and good public transport.
- Sustainable Sydney 2030 is the City of Sydney’s Vision for making Sydney a green, global and connected city, more liveable, more accessible, more inclusive—a more vibrant and captivating place to live and work.
- Sustainable Neighbourhoods Provisions of the Victoria Planning Provisions which are supportive of active transport in neighbourhoods, local destinations, community safety.
- Western Australia’s Liveable Neighbourhoods Policy with its emphasis on the movement network, lot layout including density and diversity, public parkland, activity centres, walkable catchments for schools.

### **The Healthy Spaces and Places Project**

The *Healthy Spaces and Places* Project is a landmark project demonstrating the importance of taking a national perspective to:

- managing our environments, particularly how the physical characteristics of where Australians live, work and play can influence their physical and mental health and wellbeing
- investing in Australia's future health and wellbeing
- reducing health costs
- fostering collaborative partnerships supporting preventive measures for disease and injury.

*Healthy Spaces and Places* project has a national approach to raising awareness of the relationship between health and the built environment, and to contributing to the development of a national policy setting. The Australian Local Government Association, the National Heart Foundation of Australia and the Planning Institute of Australia are working together to develop *Healthy Spaces and Places*. This is a unique partnership of the peak local government body, the professional planners institute and a key non-government health promotion agency which leverages knowledge, advocacy and networks to create a strong influence for change. The project has received funding assistance from the Australian Government Department of Health and Ageing.

The aim of the project is to promote the ongoing development and improvement of built environments where Australian people live, work and play, which will facilitate lifelong active living and promote good health outcomes for all.

Some possible benefits of considering people's health in planning are:

- People engaged in regular physical activity – more active and healthier people
- Improved understanding of how the built environment influences active living choices
- Sense of belonging – social inclusion – engendering strong and growing community spirit and maximising social capital benefits
- Sense of place – designing spaces for community inclusion and engagement

- Positive health impacts on future health burden
- Sustained economic wellbeing.

### **Project Status**

The *Healthy Spaces and Places* Project commenced in 2007 with an initial scoping stage. During 2008 there was extensive consultation throughout Australia to find out what health, planning and built environment professionals, researchers, practitioners and decision makers considered should be in a national planning guide. Implementation commenced following this stage. A National Planning Guide to designing places for healthy living has been produced and a website developed (see [www.healthyplaces.org.au](http://www.healthyplaces.org.au)). The resource materials were trialled at a series of focus groups held throughout Australia in March, April and May 2009 and progressively revised prior to an official launch in August 2009. Evaluation is planned to occur following the launch and into 2010.

One of the strengths of *Healthy Spaces and Places Project* is that it supports and complements many existing initiatives of state, territory and local governments, the development industry and the community sector. As *Healthy Spaces and Places* progresses, this side of it will grow as some of these exciting examples of how communities are working on supporting healthier lifestyles are actively promoted. The consultations revealed that there is strong support for a national guide, both web-based and in print that clearly explains the links between health and well-being and the built environment and that people want to see the guide clearly stating national principles for planning for health and active living. People consulted wanted to see:

- case studies of current practice, including critical analysis, visual illustrations, good and poor practice, successes, learnings and barriers
- the guide being evidence based (linking planning principles with health outcomes), inspirational, challenging and a vision of good practice
- information tailored to different audiences

➤ the guide and project responding to a broad range of partners – all governments, the education sector, professional groups, industry peak bodies and the community.

### **Design for Healthy Spaces and Places**

The Healthy Spaces and Places Project has developed a kit of resources to assist built environment professionals to plan, design and build public spaces, streets, parks and communities that support people to be physically active and be healthy. Key design principles and design elements to achieve these outcomes are:

- Active transport
- Connectivity and permeability
- Environments for all people
- Mixed density
- Mixed land use
- Safety and surveillance
- Social inclusion
- Aesthetics
- Supporting infrastructure
- Parks and Open Space

Examples of the type of material to be included in the Healthy Spaces and Places website on some of the topics that relate to public works engineers follow.

### **Designing for Active Transport**

Active transport refers to travel modes that involve physical activity such as walking and cycling and includes use of public transport where it is accessed via walking or cycling. Active transport provides an alternative to car based journeys. It can provide health benefits by increasing people's daily physical activity and reducing greenhouse gas emissions and pollution. Ancillary benefits can also include an increase in the sense of community and improved mental health. The majority of local trips are for shopping, followed by work, recreation and education. Given that, in most cities, ten percent of all car trips are within one kilometre, thirty percent are within three kilometres and fifty percent are within five kilometres of home, there is considerable scope for modal change to walking and cycling as these distances are easily walked or cycled (Brisbane City Council, 2006). However, recent conventional subdivisions have made walking and cycling a difficult mode of transport due to disconnected street

networks, lack of footpaths, unsafe routes and long distances to most destinations. To encourage people to walk and cycle the urban structure needs to ensure that pedestrian trips are as short and pleasant as possible. The movement network must be legible and permeable and provide safe, convenient routes, with a high level of amenity, to destinations.

In order to facilitate active transport the urban structure needs to be designed for those who walk and cycle and to increase the use of public transport. In particular, to increase walking and cycling it is important to:

- integrate these modes of transport into the transport planning process to develop a sustainable transport framework so that all users are catered for
- develop a movement network with a highly-interconnected street network that clearly distinguishes between arterial routes and local streets, establishes good internal and external access for residents, maximises safety, supports public transport and minimises the impact of through traffic
- ensure a wide range of local destinations are within walking and cycling distance
- the environment of the movement network and the destination invite people to walk and cycle, rather than just accommodates walking and cycling
- the pedestrian and cycling network responds to:
  - projected bike travel demand
  - expected vehicular traffic volumes and composition
  - linkages between trip attractors such as schools, local centres and other community facilities
  - safety, security and convenience for users
- invest to expand and improve the network of shared paths and bike lanes to provide a coordinated network covering rural and urban areas
- pedestrian and cycling infrastructure is delivered at the same time, in greenfield area development, and as soon as possible where retrofitted in established areas.

Specifically, the pedestrian network needs to:

- be legible and permeable

- provide safe, direct routes to key destinations and attractors
- avoid steep and hilly terrain on preferred routes
- provide footpaths on both sides of all streets. However, for cost reasons, footpaths may be omitted from one side of lower order access streets, unless the street forms an important pedestrian link (for example to a school, centre or station).

The bicycle network should provide a permeable network of routes for cyclists in order to promote on pavement cycling to daily activities. The following should be encouraged:

- 'bicycle streets', in appropriate locations, where cars are permitted but cyclists have right of way over the entire breadth of roadway
- slower vehicle speeds and low traffic volumes on roads and appropriate lane widths along local streets (projected traffic volume <3000vpd) to allow cyclists to share travel lanes with cars
- on busy streets (projected traffic volume >3000vpd) and near schools, train stations, activity centres, etc marked cycle lanes
- shared paths and routes parallel to busy roads
- For long distance commuter cycling and recreational cycling the following should be encouraged by : marked cycle lanes on busy streets (projected traffic volume >3000vpd) and specially-designed shared paths or cycle-only paths
- Shared paths should be constructed in accordance with approved construction standards, and take into account the safety requirements of all potential users, including facilities for the separation of pedestrians and cyclists where appropriate (e.g. meeting points or junctions on high-use paths) and
  - be designed to cater for projected user types and volumes
  - link with existing or proposed networks in adjacent neighbourhoods
  - provide grade separated or signalised intersection treatment at busy roads
  - incorporate wayfinding/directional signage providing information on the direction and distance to the various destinations along the route

- End of trip facilities, including measures such as secure bike parking facilities change rooms, showers and lockers should be provided.

Bus routes should be located on neighbourhood collector roads to provide highly accessible and relatively direct routes to key trip generators, including commercial and community facilities. An efficient bus service may be assisted by:

- linking with the pedestrian and cycling network
- locating bus stops conveniently for the walkable catchment served at an average spacing of 300-400 m to balance accessibility with running time
- locating bus stops adjacent to traffic lights and median islands on busy roads to improve accessibility
- ensuring bus stops and most access routes to them will have some surveillance from surrounding development
- providing shelter, seating, clear signage and service information and lighting at bus stops
- ensuring traffic management devices are bus friendly
- installing adequate cycle facilities for bike storage at public transport stops
- providing bike racks on the bus which will enable users to access public transport via active transport options or partially ride the route and complete it on public transport.

### **Connectivity and Permeability**

Permeability affects the degree to which transportation networks such as streets, walking and cycling paths, connect people to their destinations (including intermediate destinations such as public transport services). Good permeability and connectivity provide easy access to key destinations for pedestrians. Excellent permeability actively seeks to discourage car use by making local trips easier and more pleasant by foot than by car.

Transportation activity (walking or cycling) is positively associated with number of destinations and public transport and perceived access to bike lanes near home (Hoehner et al., 2005). In addition, the presence of well-maintained footpaths is

associated with walking for recreation and for transport (Pikora et al, 2006).

The type and density of intersections in the network (not just those for cars) has a significant impact on how people move around, whether by foot, bike, public transport or car (Gebel et al, 2005). A less permeable network has few intersections making it difficult to reach a destination in a reasonably direct route, and using a number of different routes between point A to point B (Frumkin et al, 2004). Destinations in areas with a well connected path network are easier to reach, than those in areas with a less connected path network.

When combined with mixed use planning, a permeable and connected path network significantly increases the opportunities for residents to walk to undertake daily tasks, rather than drive.

Many people refer to 400 metres being a “reasonable” distance for people to walk. A “reasonable” walking distance is likely to be affected by location, topography, weather, pedestrian facilities, trip purpose and cultural factors. While a five minute walk (the time taken for the average person to walk 400 metres) may seem like a reasonable benchmark, it will not provide for a person’s daily exercise needs alone. More recent studies have shown that people are willing to walk much greater distances if the walking environment is favourable (an average of 1.2 kilometres in good conditions).

To achieve a connected and permeable neighbourhood:

- Provide a grid network – spacing of pathways should optimise pedestrian movement and discourage car movement such as the use of cul-de-sac roads with pathways to enable pedestrian only access to the next street
- Plan new subdivisions based on pedestrian and cyclist movement in the first instance before then “fitting” the road network into the plan
  - Retrofit existing subdivisions by closing road space (particularly one leg of cross intersections) while retaining cyclist/pedestrian paths (this makes pedestrian movement safer and more attractive while also improving vehicle safety at these intersections)
- Provide footpaths on both sides of all streets except where the road surface is so

narrow that cars are expected to share the space with pedestrians

- Provide local employment, recreation and retail facilities
- Increase residential densities to support additional localised facilities (over 30 dwellings per hectare will sustain a basic level of facilities within walking distance)
- Ensure pathway networks connect with arterial networks to travel longer distances (particularly relevant for cycle use)
- Apply Australian Standard 1428 Parts 1 & 2, Part 13 *AustRoads Guide to Traffic Engineering Practice: Pedestrians* which sets a minimum standard footpath width of 1.2m as adequate for most road and street situations except in commercial and shopping environments, where pedestrian demands and accident risk may require wider paths.

On average people are willing to walk one kilometre to reach a functional destination. This is dependant on many factors including topography, weather and the walking environment including directness of the route. By providing path connections around every 100 metres a suburb will be highly permeable and more likely to encourage pedestrian trips. Where major barriers (such as creeks and railway lines) make connections expensive to provide, the network should confluence around fewer crossing points spaced around 500 metres apart.

### **Development Types**

Information on how to achieve healthy outcomes for a number of different development types is also included, such as infill (medium density), new subdivisions, offices, centres, open space, regional recreation facilities, retirement villages and schools.

### **Case Studies**

A number of case studies are included in the Healthy Spaces and Places resources. Case studies will cover all topics relevant to achieving healthy spaces and places and encompass a wide geographic spread – rural, regional, metropolitan, different states and age and population groups. Case studies are place-based and process-based, and include education and research

examples. Two relevant examples are the Walkability Toolkit, Geelong, Victoria and Bendigo City Centre, Victoria.

### **Making It Happen**

Healthy planning calls for a commitment to healthy planning principles to be applied at all levels of the planning system, at every stage of the planning process and in every planning project, no matter what the scale, from metropolitan or regional wide to local neighbourhoods in regional, rural and remote communities. Everyday decisions and changes, no matter how small, can make a difference and lead to improved health and wellbeing.

There are six processes identified in *Healthy Spaces and Places* for creating healthier places, which are outlined below. They can be tailored to fit individual projects, policies and developments to develop healthier places. They can be incorporated into big and small budgets, strategic planning, development control and community engagement programs.

### **Research**

Research is essential for better understanding issues and associations between health and the built environment. Research provides for strengthened project or policy rationale as the gaps between research and practice are bridged. Over time, tools can be developed to track links between the built environment and health.

### **Integration**

Integration means working across sectors, roles and responsibilities, regulations, policies and program delivery. Healthy planning needs to be considered by and across all professions involved in the design and approval process. Seemingly small considerations (i.e. widening footpaths or lowering traffic speeds) can count as much as the major decisions when it comes to planning that will improve people's health and wellbeing.

What is needed is to embed the healthy planning principles in day-to-day planning at every level and process and for thinking laterally.

### **Implementation**

Key success factors include using existing

community networks for engaging communities in activities that promote health and wellbeing; identifying, implementing and measuring timely, tangible, high-quality results; and monitoring and reviewing the application of any regulation, policy or program.

The existing planning frameworks of Australia's eight jurisdictions can cater for planning that considers people's health and wellbeing as a priority. From strategic state or citywide planning, down to an individual development assessment, the capacity to consider people's health and wellbeing ensuring integrated implementation between each stage of the planning process can be achieved.

### **Education and training**

Education and training for different audiences about the links and interrelations between environments and health is required. Professional development for all professions involved in planning and design should include work rotations between industries influencing the built environment (including private development industries and roads authorities) from which will come better understanding of the complexities of environments for health. There is also a need to include healthy planning in planning and health courses and to encourage continuing professional development on health and urban environment issues.

### **Partnerships**

Partnerships based on shared strategic vision and coordinated investment are essential for delivering sustainable outcomes in urban and built environments.

Partnership and collaboration have enabled *Healthy Spaces and Places* to bring together this research-supported national guide, with evidence to show that built environment professionals have a major opportunity to contribute to improved community health and wellbeing in Australia by adopting healthy planning approaches.

### **Measuring success**

To help ensure success, define aims and objectives clearly, be clear about the big picture framework. Also, it is important to be inclusive of all stakeholders, be rational and rigorous and have an effective

implementation and evaluation plan. Mechanisms for partnership and collaboration need to be established at the outset and need to involve a wide range of skills, including professional, technical, community, cultural, financial, local and generalist.

The design principles provide a useful checklist for evaluating development proposals. Key questions could be asked for different design principles, for example, for active transport, are there provisions for walking and cycling routes? For parks and open space, are there parks within easy walking distance of most residences?

### **Other Resources**

The Healthy Spaces and Places resources also include extensive references, web links and a glossary.

### **Conclusion**

#### **Challenges for Creating Healthy Communities**

There are a number of challenges facing us as we aim to create healthier communities.

- There is a lack of understanding of health issues within planning processes and by governments. It is rare to find planning and engineering departments and health departments exchanging data and information.
- Better integration is required between built environment professionals and health professionals. Most government departments work independently with little opportunity for cross departmental action. This issue occurs at all levels of government and is linked to the previous point. We need teams of people from planning, community, health and recreation departments and agencies working together on a regular basis.
- There is a lack of research and dissemination of information to the built environment profession. More research is needed so that we can better understand how local communities work and what helps people to walk.
- Retrofitting design elements into existing areas is a real challenge.

Despite the challenges there are a number of positive initiatives underway. The Australian Government is taking a concerted

interest in addressing health issues (obesity) and issues for ageing Australia. The Healthy Spaces and Places project is a unique partnership with Federal Government support that will establish a framework for achieving healthier communities. Many Local Governments are now requiring health impact assessments for new developments. The Planning Institute of Australia will continue to get the message out to members, governments and other built environment professionals and other interested agencies and individuals. Obesity, cardiovascular disease and cancer may be diseases of our time but built environment professionals can make a difference by providing more opportunities for physical activity and healthy eating in particular and considering the potential health impacts of planning decisions. For the motor vehicle to be a less attractive option relative to walking or cycling will be a challenge. Multiple remedies such as increasing densities, mixing up land uses, housing choices, vastly improved public transport, safer and more attractive pedestrian and cycle routes and convivial public spaces, as well as attitude changes, with all strategies undertaken in a coordinated not piecemeal way! Planners have a vital role to play and the community expects them to take the lead.

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### **Web Links**

Bicycle Victoria – information on creating a cycle friendly workplace

<http://www.bv.com.au/change-the-world/10573/>

Brisbane Active Transport Strategy: Walking and Cycling Plan 2005-2010

[http://www.brisbane.qld.gov.au/BCC:BASE::pc=PC\\_2307](http://www.brisbane.qld.gov.au/BCC:BASE::pc=PC_2307)

Complete the Streets

<http://www.completestreets.org/resources.html>

Shared Streets

<http://www.walkinginfo.org/engineering/calming-street.cfm>

Projects for Public Spaces

<http://www.pps.org/>

Streets as Places

[http://www.pps.org/info/streets\\_as\\_places/](http://www.pps.org/info/streets_as_places/)

<http://www.dft.gov.uk/pgr/sustainable/manforstreets/>

Geelong case study

[http://www.geelongaustralia.com.au/Services/In\\_Geelong/Planning/Planning\\_for\\_People/New\\_Subdivisions\\_-\\_Clause\\_56\\_-\\_Walkability\\_Tool](http://www.geelongaustralia.com.au/Services/In_Geelong/Planning/Planning_for_People/New_Subdivisions_-_Clause_56_-_Walkability_Tool)

*Bendigo case study*

[www.bendigo.vic.gov.au/citycentreprogram](http://www.bendigo.vic.gov.au/citycentreprogram)

### **Author's Biography**

Stephanie Knox, BA (Hons), MTCP (University of Sydney), LFPIA, CPP  
Stephanie Knox is an urban, regional and social planner with extensive experience in social planning, community safety, community consultation and strategic planning. She has worked at all levels of government and in private consultancy, in Australia and overseas. She has managed numerous strategic planning studies and planning projects in Australia and overseas and mostly recently she was the Director of the PIA Post Tsunami Planning Support Project. Projects include healthy urban planning projects, safer design guidelines, social and community facilities studies, training and capacity building. She was the

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