



TO:

The Secretary

Standing Committee on

Planning, Public Works and Territory and Municipal Services

GBO Box 1020

Canberra City, ACT 2601

committees@parliament.act.gov.au

Submission to the ACT Legislative Assembly Standing Committee Inquiry into the issue of vulnerable road users

Dear Secretary,

With reference to the above the Heart Foundation ACT in conjunction with Urban Synergies welcomes the opportunity to provide a submission to the Standing Committee into the issue of vulnerable road user in our community.

As part of this submission we outline and examine the current situation we find ourselves in, followed by the definition of the issue and examples of international best practice and recommended opportunities for change, to better protect and support vulnerable road users.

The submission contains a selection of key resources as well as evidence, both of which inform our recommended opportunities for change.

Current condition

In 2009 the Heart Foundation, in partnership with the Planning Institute of Australia and the Australian Local Government Association, developed a national guide to promote healthy living called *Healthy Spaces and Places* (copy attached). The purpose of this document is to guide communities in planning, designing and creating sustainable communities that encourage healthy living.

The document highlights that Australia is one of the most overweight of the developed nations, with overweight and obesity affecting about one in two Australian adults and up to one in four children.

Health crisis

Cardiovascular disease is the leading cause of death in the country, with approximately 23,000 deaths in 2007. The environment can have a significant influence on each person's level of physical activity and has the potential to save the health system a significant amount of money. Obesity (overweight excluded) was estimated to cost Australia \$58.2 billion (financial cost \$8.28 billion, lost wellbeing \$49.9 billion).

Chronic disease results for the ACT

The latest results from the Australian Bureau of Statistics Australian Health Survey: Biomedical Results for Chronic Diseases (2011-12) are compelling and indicated for the ACT:

- 63% of Canberrans over the age of 18 are overweight or obese;
- 59.2 % of Canberrans over the age of 18 are sedentary or do low levels of exercise;
- 31.6% of Canberrans over the age of 18 have high cholesterol levels;
- 20.1% of Canberrans over the age of 18 have high blood pressure; and
- 18% of Canberrans over the age of 18 show prevalence of CVD.

Planning dilemma

Canberra has for many years been planned around the car – which is a key contributor to high rates of physical inactivity and in turn high rates of obesity and chronic disease.

The government admits that Canberra has an established and well-designed road system and despite of the lowest number of road fatalities for 50 years, we are now facing an unprecedented overweight and obesity epidemic as well as high levels of social isolation in the Territory.

We have literally engineered physical activity out of most people's daily routines and through smart actions in the space of active travel we may be able to reverse this issue.

Leadership

The current government has placed active living high on its agenda. At the last Active Living Forum on the 8 May 2012 Minister Corbell said: "*Community life is of the utmost importance and through our investment into planning, transport and climate change initiatives now; we can ensure Canberra remains a city that is active, healthy, and a great place to live,*"¹

Policy implications

Vulnerable road users are of great importance if we are to achieve this. The Dutch Institute for Road Safety Research (SWOV) defines vulnerable road users in accordance with Wegman & Aarts (2006) "pedestrians and cyclists are referred to as vulnerable road users because of their unprotected state. More specifically, they refer to aspects of task capacity, e.g. inexperience of children and a declining task capability (physical vulnerability) of the elderly"².

¹Media release relating to the Active Living Forum on 8 May 2012 can be accessed under the following link: http://www.cmd.act.gov.au/open_government/inform/act_government_media_releases/corbell/2012/act_labor_on_the_pulse_healthy_policies_for_a_healthy_city

²Wegman, F. & Aarts, L. (ed.) (2006). Advancing Sustainable Safety; National Road Safety Outlook for 2005-2020. SWOV, Leidschendam.

Transport for Canberra

The recent Transport for Canberra Strategy responded to the issue in a comprehensive manner and sets out an integrated approach on transport in the ACT. This will have strong impacts for vulnerable road users in the community.

Making Walking count audit

As shown in the Making Walking Count international benchmarking survey, conducted in Canberra late 2010, if the ACT community made the decisions on where to spend transport funding they would allocate 43 per cent to active travel (walking, bicycling and access to public transport). Public transport would receive another 37 per cent³. However current budget allocations differ from that community desire.

Furthermore, the Transport for Canberra strategy sets good intention of the ACT Government toward the promotion of individual's independence and autonomy, aims to decrease isolation and increase social inclusion and better access to destinations for people with a high task capacity. The city to Gungahlin transit corridor study looks at options to reduce congestion along one of the busiest transport corridors in Canberra. Particular attention needs to be paid to treatment of vulnerable road users similar to Constitution Avenue.

Iconic City Cycle Loop

For example the iconic Civic Cycle Loop offers all Canberrans an easier, safer, inclusive and more efficient cycling and walking route into and around the city centre. The transformation of Bunda Street into a "shared space" will make the bustling precinct a safer and more functional space for bicycle and foot traffic.

Planning Strategy

The Planning Strategy also outlines a number of issues that are relevant and influence road user behaviour. The strategy seeks to embrace *Healthy Spaces and Places*. A more compact built form, better access and more quality spaces where people work, live and play are conducive to an environment where vulnerable road users are more protected.

Statistics are alarming

Sadly our overweight and obesity rates are not yet decreasing; in fact the opposite is happening. In accordance to the national health survey from 2007/08 compared to the findings in 2011/12 the number of people classified as overweight and obese has increased by another **5.2 per cent**.

There is widespread agreement that there is sufficient evidence to warrant public health action on the role of the built environment in increasing physical activity.⁴⁵ Vulnerable roads users walk and use bicycle.

³ ACT Government, Transport for Canberra strategy, p.11

⁴ Heart and Stroke Foundation of Canada. Position statement: the built environment, physical activity, heart disease and stroke. Ottawa: Heart and Stroke Foundation of Canada, 2007

⁵ Transportation Research Board. Does the built environment influence physical activity? Examining the evidence. Washington DC: Transportation Research Board, 2005

Healthy Weight Action Plan

Evidence suggests a whole-of-government approach is crucial to the creation of 'walkable' communities in new and existing developments⁶. The ACT government has launched its *Healthy Weight Action Plan* and established this approach with the Heart Foundation being a long standing advocate for a high level group that identifies opportunities to enable more Canberrans to achieve higher levels of physical activity as part of their daily routines. Better health outcomes can be achieved through high priority, leadership and outcome focus on proposals, processes and budget bids.

Active Living Project

Heart Foundations objective is to build and strengthen commitment for Active Living initiatives in the ACT, provide support to include and improve Active Living principles in processes, plan and strategies of the ACT government, and assist in implementing key policies such as the ACT Planning Strategy and Transport for Canberra.

Support from PIA and Urban Synergies

Urban Synergies as a full member of the Planning Institute of Australia supports this approach. The PIA *Planning Matters* statement outlines a commitment to strengthening communities, promoting economic development and improving the choice of where and how people live and work. It helps identify hazards and reduce risks; it identifies and protects environmental, social, cultural and heritage values.

Federal government position

At the recent launch of the state of Australian cities report Anthony Albanese highlighted "As other cities have found around the world, people will walk or cycle if it's safe and convenient to do so."⁷

Urban Synergies strongly supports this notion and wishes to advocate for better treatment of vulnerable road users in our urban system of Canberra. The notion to increase productivity and economic outcomes for Canberra through physical activity can't be neglected and needs to be addressed.

The former federal Minister indicated further "*for each person that cycles 20 minutes to work and back, our economy benefits by \$20 with better health outcomes, smoother roads, reduced vehicle and road costs and cleaner air, and for each person who walks, the saving is around \$8.50.*" with reference to the white paper on *Walking, Riding and Access to Public Transport*⁸.

⁶ National Heart Foundation position statement on *the built environment and walking*, p 1.

⁷ Further information on the speech of the launch of the state of Australian cities report can be obtained from the following link http://www.minister.infrastructure.gov.au/aa/speeches/2013/AS19_2013.aspx

⁸ *Walking, Riding and Access to Public Transport—supporting active travel in Australian communities* White paper can be obtain from the following link http://www.infrastructure.gov.au/infrastructure/mcu/urbanpolicy/active_travel/index.aspx

Useful built environment resources that are based on international best practise

Together Heart Foundation (ACT Division) with Urban Synergies jointly wishes to ensure that *Healthy Spaces and Places* guidelines are incorporated into residential estates, urban renewal areas and activity centres. The document identifies the following key design principles to plan for healthy and more active communities:

- Active transport;
- Aesthetics;
- Connectivity;
- Environments for all people;
- Mixed density;
- Mixed land use;
- Parks and open space;
- Safety and surveillance;
- Social inclusion;
- Support infrastructure.

Built environment and walking position statement

Heart Foundation has also released a position statement on *The built environment and walking*⁹ that underpins interrelated factors associated with transport-related walking. This includes spatial land-form pattern, population density and mixed land use.

The position statement outlines factors that are associated with physical activity¹⁰:

- Individual factors (knowledge, attitudes, values, skill, self-efficacy)
- Social environmental factors (social support, having someone to walk with, and social norms—i.e. broader peer-group or community beliefs about what is valuable or important)
- Built environment factors (the presence of recreational facilities, neighbourhood design, safety, aesthetics, facilities, destinations to walk to, and policies that influence land use and transportation systems).

All of these have implications for the behaviour of vulnerable road users and need to be addressed to improve conditions for people that choose to walk.

Detail design response matters

Micro environments encompass small-scale local neighbourhood features. These micro-level characteristics—such as street lighting, signage, safety, lane use and traffic calming measures—can improve use of streets by vulnerable road users.¹¹¹²

⁹ A copy of the Heart Foundation position statement can be downloaded from the following link <https://www.heartfoundation.org.au/active-living/Documents/Built-environment-position-statement.pdf>

¹⁰ Heart Foundation position statement the built environment and walking, page 2

¹¹ Morrison D, Thompson H, Petticrew M. Evaluation of the health effects of a neighbourhood traffic calming scheme. *J Epidemiol Community Health* 2004; 58: 837–40.

¹² Ogilvie D, Egan M, Hamilton V, Petticrew M. Promoting walking and cycling as an alternative to using cars: systematic review. *BMJ* 2004; doi:10.1136/bmj.38216.714560.55

Active Living Impact Checklist

The ACT specific *Active Living Impact Checklist* has been design to assist professionals and interested stakeholders to achieve better active living outcomes on site specific development level¹³.

Planning recommendation

- Consistent and coherent network planning for active travel (walking, bicycling, and access to public transport) with an increased annual budget allocation is essential to better treatment of vulnerable road users.
- Strong commitment to implementation under innovative and flexible new Design Standard (DS) Guidelines 13 for walking and bicycling, of infrastructure projects such as the city cycle loop that can be rolled out in all town centres, community destination and employment hubs. Reviewing existing TAMS standards not just for walking and bicycling infrastructure, but also public realm design, development and works processes should be considered.
- Distances between people's homes, workplaces, schools, shops and other facilities are an important factor in the amount of time and influenced the mode choice we spent on the roads. Through the provision of a greater density of schools, shops and services, as well as quality urban densification with access to high quality green open space in easy walking or bicycling distance we can enable more opportunities to live and play close to work with access to good active travel infrastructure. This will create a more inclusive, safe and healthier environment for all.
- Reviews of the Territory Plan Codes and inclusion of Active Living design principles in master and concept plans, precinct codes will help to enable better environments for vulnerable road users.

International research shows that social inclusion can lead to greater community cohesiveness and better overall health standards. Suburbs that depend solely on cars for access can isolate people- particularly the young and old- without cars. Designing rather engineering a natural and built environment that fosters social interaction through walking and bicycling on streets is essential for better health outcomes.

Useful resources relating to safe speed that are based on international best practise

Those members of the community, who walk more, are often exposed to, and therefore more aware of, higher traffic volumes. Parents of children are particularly concerned about traffic exposure and safety.

In November 2008, the Heart Foundation worked in collaboration with health and local government stakeholders, as well as the city of Port Phillip and Yarra on the issue of road speed in Australia. The consortium found good evidence that perceived traffic hazards (including vehicle speed) are a major constraint on walking and cycling for transport.

The findings of the Walk 21 audit found that Canberrans traditionally do not perceive walking as a form of transport. Speed reduction schemes that improve perceptions of safety may assist in increasing active travel behaviour in the capital.

¹³ A copy of the Active Living Impact checklist can be accessed under <http://www.heartfoundation.org.au/active-living/built-environment/pages/default.aspx>

Research suggests that the main barriers to speed reduction are perceived and actual increases in vehicle travel time and associated costs. While speed reduction strategies can lengthen the time taken to complete a journey, the impacts are typically minimal (approximately 9 seconds/km¹⁴) and need to be weighed against the potential benefits to the community in terms of improved liveability and greater opportunities for physical activity. Speed reduction can also deliver additional benefits in the form of reduced fuel use, air and noise pollution and greenhouse gas emissions, as more people shift from car-based transport to active travel options.

World Health Organisation (WHO) advice states that human tolerance to injury by a car is exceeded if the vehicle is travelling at more than 30km/h (Figure 1). Almost a quarter of casualties on the ACT roads involved people on foot and on bicycles with 3 killed and 101 injured in 2008¹⁵. Risk of death to a pedestrian or cyclist as a function of impact speed¹⁶.

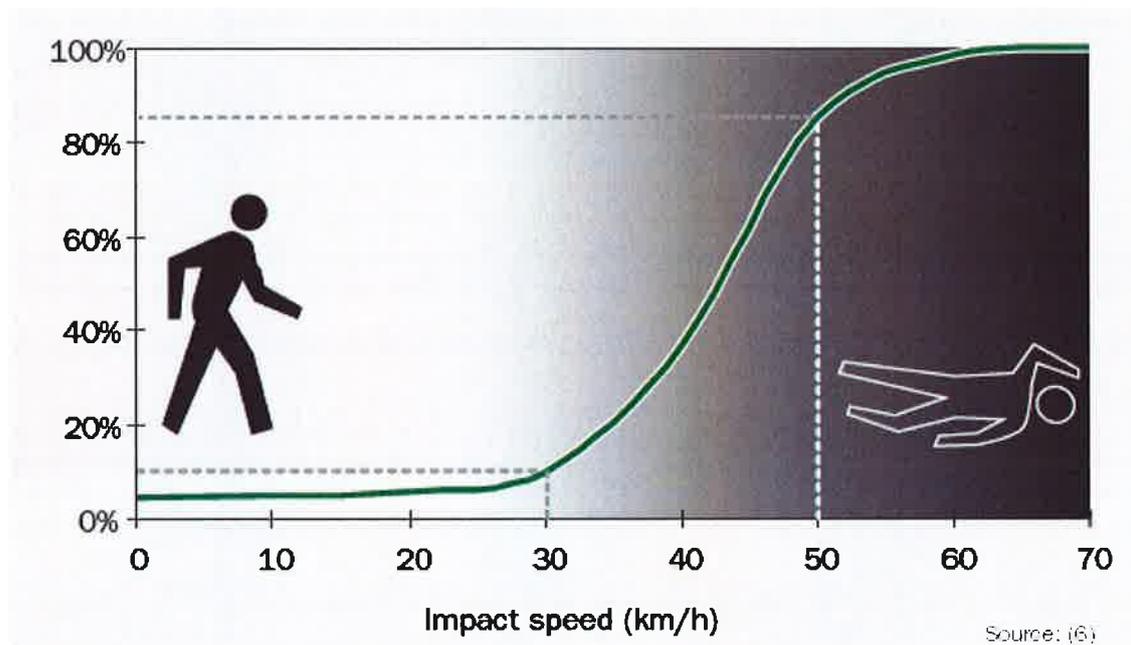


Figure 1: Probability of a fatal injury for a walker or bicyclist struck by a motorised vehicle type. (Source: WHO 2008)

To promote safer walking and cycling, most cities in the Netherlands, Denmark and Germany traffic calmed their local residence streets through a variety of infrastructure measures as well as speed limits of 30 km/h. Figure 2 illustrates the international and Australasian speed limits in comparison. Most of the European models have 30 km/h restrictions in school areas and residential areas. Also cities in all these countries are increasingly adopting and implementing "home zones", which are residential streets with a speed limit of 7 km/h. All motorists share the full width of the road with pedestrians, bicyclists and playing children.

¹⁴ Herrstedt L. (1992). Traffic calming design—a speed management method: Danish experiences on environmentally adapted through roads. *Accident Analysis and Prevention*, 24: 3–16.

¹⁵ Department of Infrastructure, Transport, Regional Development and Local Government: Road deaths Australia 2008 statistical summary; 2009; p. 21

¹⁶ Anderson R, McLean A, Farmer M, Lee B, & Brooks C. 1997

In Australia we are still a long way away with our car- dominated streets. However the 40 km/h for town centres as well as around schools is a good start as well as isolated instances e.g. around ANU, Parliament Triangle and in Civic of 10 km/h shared zones on short sections of the street.

ROAD TYPE	EUROPE (mainly)	AUSTRALASIA (mainly)
School areas	30 km/h	40 km/h
Residential areas	30 km/h	50-60 km/h
Built-up areas	60 km/h	70-80 km/h
Urban roads	60-70 km/h	80 km/h or higher
Rural roads	80-90 km/h	100 km/h
'Motor' roads	100 km/h	100 km/h
Motorways	120 km/h	110 km/h

Figure 2: International and Australasian speed limits (Source: Fildes et al. 2005)

Researchers provided evidence that in combination with shorter distances near centres, lower speed limits for motorised vehicles and slowing effects of traffic congestion in the inner city may contribute to higher rates of cycling and walking¹⁷.

Tranter introduced the concept of "effective speeds" arguing that slow cities and slow traffic are in fact better for overall health outcomes (such as physical activity and healthy food), through support for the 'slower' more active modes of transport. He shows how higher speeds (in cars) do not save us time, but instead steal our time, health and money. He also acknowledges that "lifestyle trends that have contributed to increased feelings of time pressure amongst adults in many western societies include longer working hours, longer commutes, and increased time spent outside the home"¹⁸. A holistic approach to vulnerable road users can help to reverse this unhealthy behaviour effect and contribute to more liveable neighbourhoods.

Fildes explains that "perhaps the most important deterrent to cycling is the excessive speed permitted on Australian roads." Australia has among the highest speed zones for most road types in the industrialised world.¹⁹ If all neighbourhood were traffic calmed to 30 km/h, as in northern Europe, walking and cycling would become much safer and more pleasant than it is now, and it would greatly enhance the overall bicycle route network." Researchers recommend a coordinated policy approach with better and stronger enforcement as well as education around the issue.

¹⁷ Pucher et. al.: Bicycling in Sydney and Melbourne, Journal of Transport Geography; Vol 18; 2010; p.21

¹⁸ Tranter P.: Speed kills: the complex links between transport, lack of time and urban health, NCBI, Urban Health. 2010 March; 87(2): 155-166

¹⁹ Fildes et. al. 2005

Heart Foundation safe speed working group²⁰ found that traditionally, little consideration has been given to the additional, non-injury benefits of speed reduction. These are multiple and wide-ranging, and are likely to include increased active transport and the associated benefits of active living and reduced motor vehicle use. If these 'externalities' were included in algorithms used for setting speed limits, it is likely that the benefits of speed reduction in urban areas would outweigh the disadvantages in the form of small increases in vehicular travel time and associated costs.

Safe speed recommendation

- Lower traffic speed (active travel streets) in urban and residential areas (preferably based on a speed limit of 30 km/h or lower) will improve pedestrian and cyclist safety and community liveability, and is likely to contribute to increased rates of walking and cycling for transport. 'Safe speed' is often conceptualised in terms of vehicle speeds that minimise the risk of injury, but in the light of the multiple benefits of active transport, it may be more appropriate to think of 'safe speed' as that which delivers injury prevention outcomes as well as many additional health and social benefits.
- A trial of 30 km/h speeds or lower in a residential suburb, to test the benefits of this approach in a holistic assessment that examined the use of the streets by pedestrians and cyclists, the level of social connection, and changes in the perception of the streets as places for cars or for people.
- Focus needs to be on removing traffic danger from people, not people from the hazardous environment we have inadvertently created. Reducing traffic speed to 30 km/h and below where people live, work and play is an effective way of righting this balance and encouraging people to engage in active transport modes with ease, resulting in significant improvements in the health and wellbeing of the population and the environment.

Education and behaviour

To ensure a sustainable level of improvements of vulnerable road users, any changes to vulnerable road user treatments should address the nature of achieving behaviour change, either through effective social marketing for Active Living, or through incentives and disincentives. Increased vehicle parking costs, more rigorous training for car drivers and bicycle riders, stronger enforcement of road rules, awareness raising through social media info graphics are just some of the tools available.

²⁰ Garrad J.: Safe speed: promoting safe walking and cycling by reducing traffic speed, Commissioned by the Safe Speed Interest Group, November 2008

Education and behaviour recommendation

- Appropriate education and behaviour change strategies should be considered and holistically addressed when dealing with vulnerable road users. Fund social marketing programs to promote better understanding – and adherence – to road laws for motorists, cyclists and pedestrians – eg The 'Make it a metre' campaign;
- In residential areas the true maximum speed is 30 km/h, as suggested above, and not 'a little more';
- Support mandatory cycle training and pedestrian education in all schools across all jurisdictions;
- In residential areas children are permitted to play on the street; motorised traffic and other non pedestrian traffic must behave as a good guest;
- At allocated crossing points, pedestrians and cyclists are truly given free passage; stopping for pedestrians must once again become the normal behaviour.

Should you have any further question please don't hesitate to contact us under Tony.Stubbs@heartfoundation.org.au or gregor@urbansynergiegroup.org.

Yours faithfully,



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HEALTHY SPACES & PLACES

A national guide to designing places for healthy living

An overview

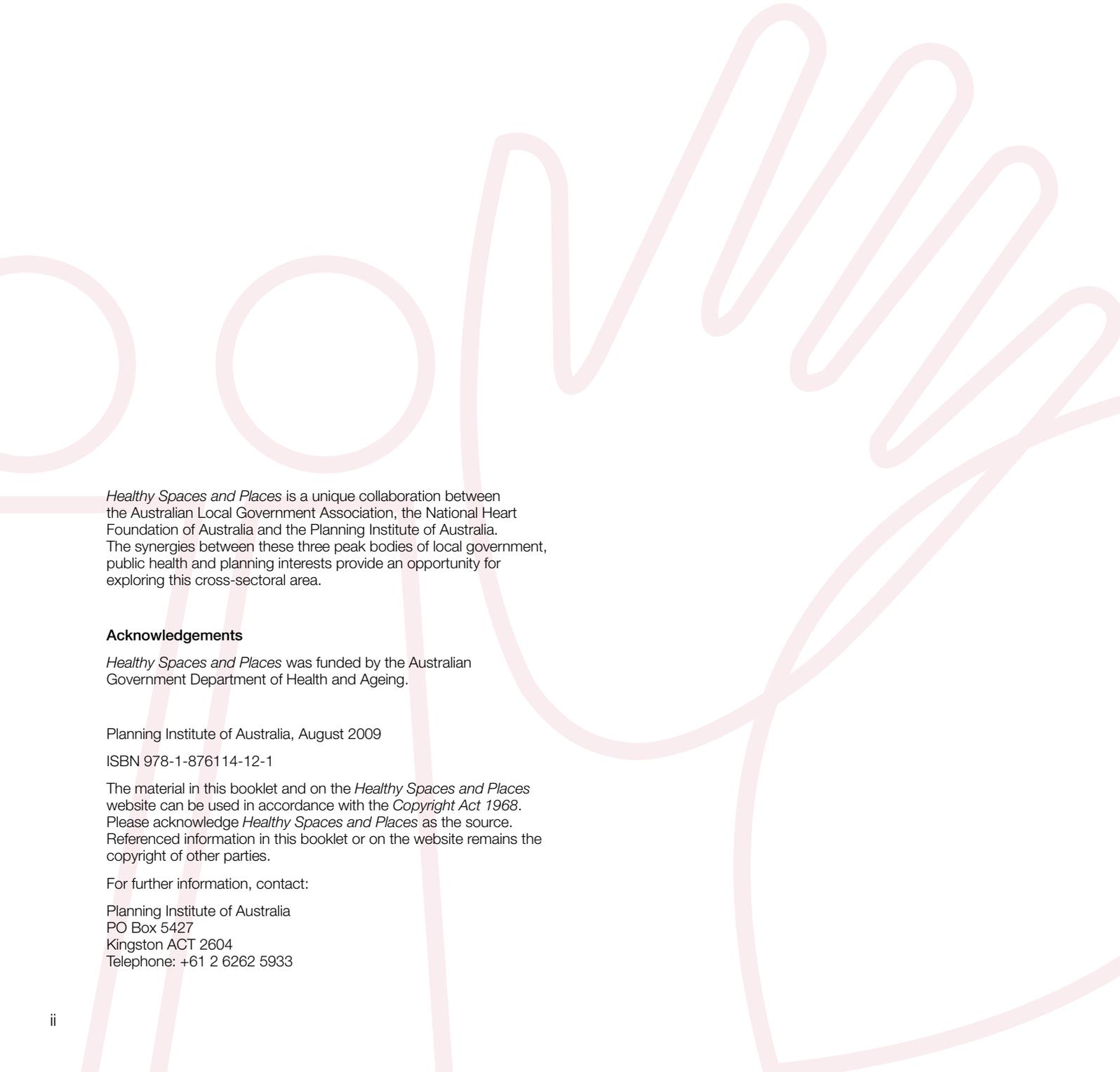


www.healthyplaces.org.au

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Healthy Spaces and Places is a unique collaboration between the Australian Local Government Association, the National Heart Foundation of Australia and the Planning Institute of Australia. The synergies between these three peak bodies of local government, public health and planning interests provide an opportunity for exploring this cross-sectoral area.

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Planning Institute of Australia, August 2009

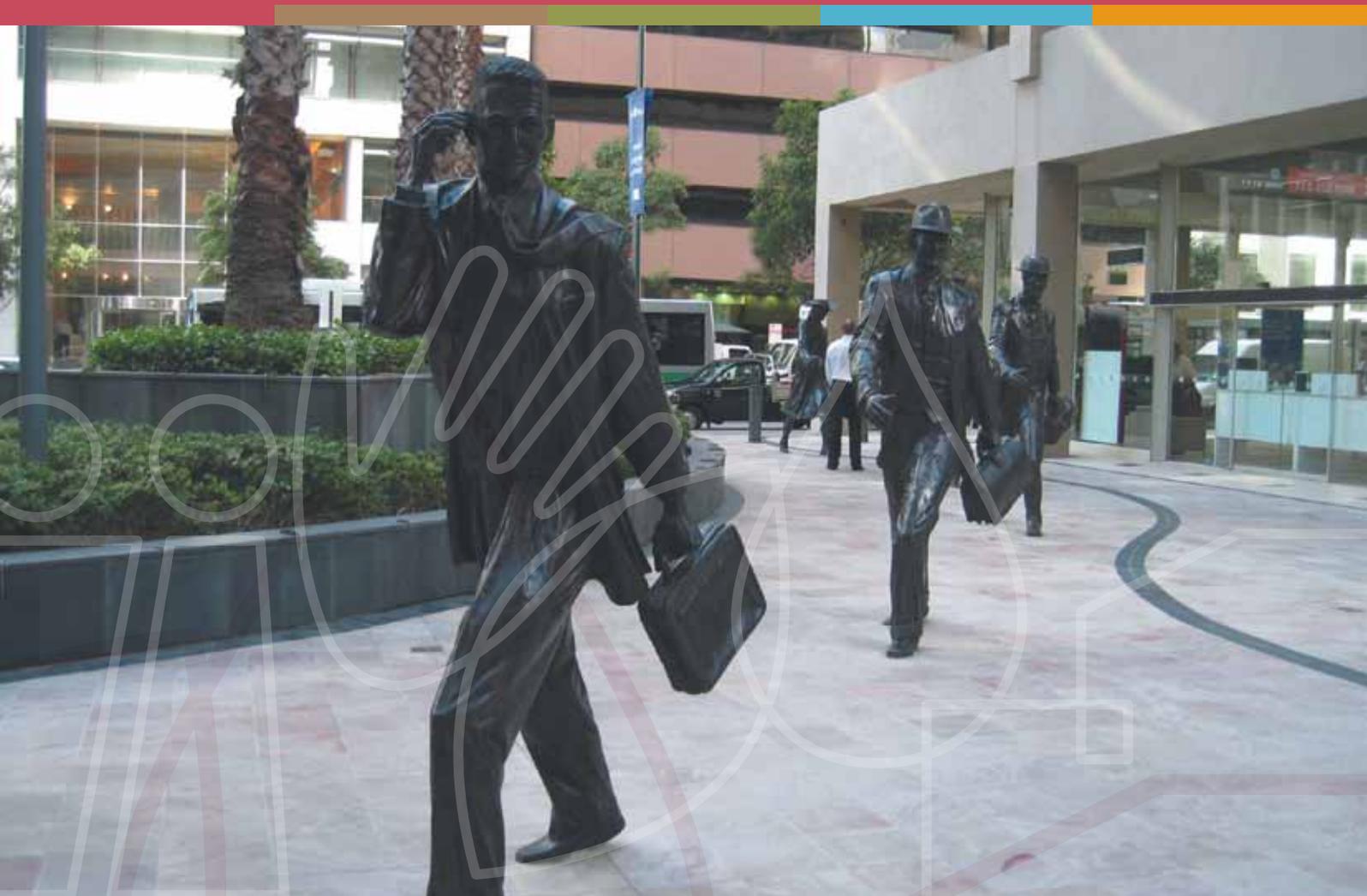
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What is *Healthy Spaces and Places*?



Healthy Spaces and Places is a national guide for planning, designing and creating sustainable communities that encourage healthy living.

This overview provides a summary of the information available on the *Healthy Spaces and Places* website www.healthyplaces.org.au, which is the primary resource.

Through practical tools, case studies and guidelines, *Healthy Spaces and Places* aims to:

- encourage the development of built environments that provide opportunities for physical activity and other health-related activities

- continue to improve health outcomes for all Australians through better-designed built environments
- raise awareness of the relationship between physical activity and the built environment, and
- contribute to a national policy setting.

Healthy Spaces and Places is for everyone who can make a difference to the overall health and wellbeing of Australians. Planning and design professionals, health professionals, the property development industry, governments and the community (individuals, community organisations and anyone with an interest in active, healthy living) can make a difference in order to bring about positive community-level change.



Spaces and places describes the composite of the physical environment where Australians live, work and socialise, and includes neighbourhoods, movement networks, schools, workplaces and parks.

Healthy Spaces and Places is fundamentally about planning for more sustainable communities, with a particular emphasis on the benefits to people's physical and mental health from active or healthy living. It is a guide to help better understand and respond to modern-day issues around planning and health. It highlights the importance of planning and designing communities for people movements, not just car movements, and provides tools for doing this.

Active living is defined as a way of life that integrates physical activity into daily routines.

At present in Australia, the built environment does not often encourage active lifestyles, but rather reinforces sedentary behaviour and car dependence. Evidence of how the physical environment can make a difference to health and wellbeing has helped shape *Healthy Spaces and Places*.

As a national guide, *Healthy Spaces and Places* supports and complements planning and design initiatives of state, territory and local governments. It is a single source of easy-to-find information that:

- brings together expertise from different areas (e.g. experts in health, planning, urban design, community safety and transport planning) to help break down the 'silo' mentality and barriers that can prevent knowledge and expertise combining to achieve the best results
- provides links to the health and planning research (the evidence base) that supports planning for active living
- offers a national approach to policy and principles for planners to create environments for active living, and
- is practical, using Australian case studies that show what is achievable.

The design principles identified by *Healthy Spaces and Places* provide the foundation for planning for active living and for healthier, more active communities. Professional experts in a variety of disciplines have reviewed the design principles and practical advice.

Healthy Spaces and Places is a unique collaboration between the Australian Local Government Association, the National Heart Foundation of Australia and the Planning Institute of Australia. The synergies between these three peak bodies of local government, public health and planning interests provide an opportunity for exploring this cross-sectoral area. *Healthy Spaces and Places* was funded by the Australian Government Department of Health and Ageing.

Why health and planning?



Health, physical activity and the built environment

Perhaps the most compelling reason for taking a deeper interest in what *Healthy Spaces and Places* has to offer comes from evidence about the human, health and financial costs of preventable disease/illness.

Australia is one of the most overweight of the developed nations, with overweight and obesity affecting about one in two Australian adults and up to one in four children.¹ Cardiovascular disease is Australia's leading cause of death, with almost 23,000 deaths in 2007.² Diabetes is the fastest growing chronic disease in Australia, with about 275 Australians developing the condition every day.³

In 2008, obesity (excluding overweight) was estimated to cost Australia \$58.2 billion (financial cost \$8.28 billion, lost wellbeing \$49.9 billion). This included costs attributable to diseases, such as diabetes, cardiovascular disease, various cancers and osteoarthritis.⁴ Being more physically active every day and choosing a healthy lifestyle can help reduce the risk of developing chronic disease.

Research shows that the built environment can have a significant impact on a person's level of physical activity. Good design and people-friendly spaces and places can promote active lifestyles by encouraging walking, cycling, public transport and active recreation. On the other hand, places designed around private motorised transport can limit a person's opportunities and desire to be physically active.



Current research shows strong links between people's overall health (mental and physical) and regular physical activity. An active lifestyle can reduce the risk of preventable disease, including coronary heart disease, stroke, type 2 diabetes, obesity and some cancers, and may also lower blood pressure and prevent falls in the elderly. It can also help in managing some mental health issues and improve community life, social wellbeing and community safety. According to health experts, it takes as little as 30 minutes of physical activity a day on most, preferably all days of the week, to make a difference to health and wellbeing.

Our sedentary, car-dependent lifestyles are significant contributing factors to the prevalence of preventable health issues. Development practices have contributed to these problems by often giving priority to cars (vehicular movement), rather than encouraging people to walk, cycle and use public transport.

There are many benefits for communities and individuals when planners make planning for active living integral to their work. For example, in Perth, adults who had access to large, attractive public open space were 50 per cent more likely to undertake high levels of walking.⁵ There is growing evidence that attractive, well-designed public open space is restorative, reducing mental fatigue and stress.⁶

***Built environment** means the structures and places in which we live, work and play, including land uses, transportation systems and design features.*

These findings are also reflected in a recent study of European urban adults. Residents of areas with the highest levels of greenery were more than three times as likely to be physically active and 40 per cent less likely to be overweight or obese than those living in less aesthetically-pleasing areas.⁷ People who are more active are also more likely to make healthier food choices. Other evidence suggests that when people get more involved in their communities, communities and social networks are strengthened.





In Australia:

- *10% of all car trips are less than one kilometre (the equivalent to a 10-minute walk) and*
- *30% of all car trips are less than three kilometres.*⁸



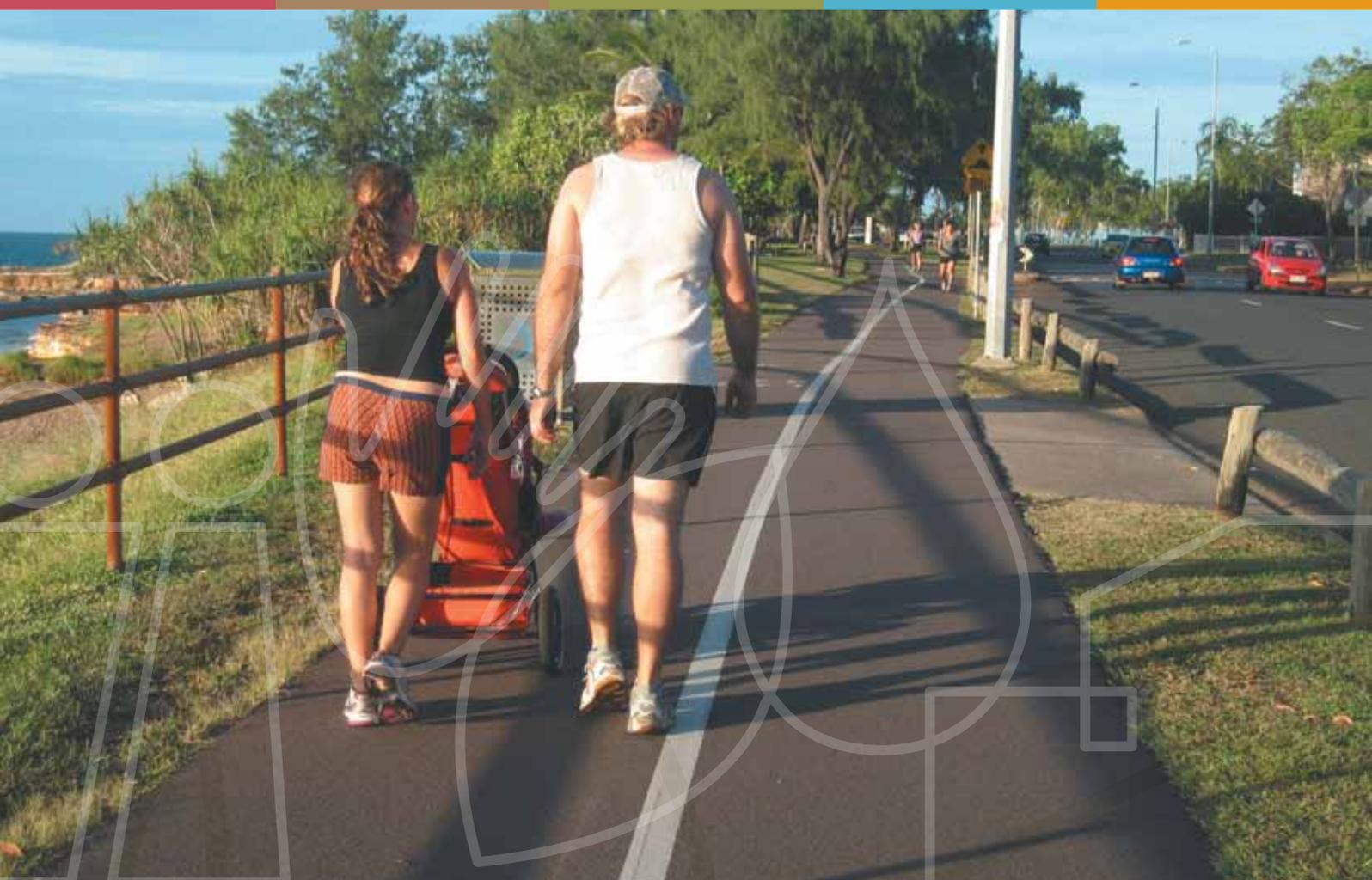
Neighbourhoods that have good access to destinations including shops, schools, public transport and other facilities and have connected street networks, mixed land use and higher densities are associated with increased walking and cycling for transport.

Research that links health and wellbeing with the built environment comes from diverse disciplines, including public health, health promotion, urban studies and planning and transport planning. For more detail on the evidence base, see the fact sheets on the *Healthy Spaces and Places* website.

By bringing together the research and tools for planning for active lifestyles, *Healthy Spaces and Places*:

- demonstrates the strong links between health and planning, equipping planning and design professionals with evidence of how their work can contribute to health and wellbeing
- provides planners and planning and design professionals with an easy-to-access guide to the essential elements of planning for active living
- provides health professionals and design professionals with a rationale for collaboration, and for sharing information about the factors that can influence healthy lifestyles, such as the built environment
- informs the broader community about the essential ingredients of planning for healthy and active lifestyles, and
- makes available to the broader community information about the benefits of being active lifelong.

Who is this guide for?



Everyone is involved, everyone can make a difference

Healthy Spaces and Places is for everyone. Anyone with an interest in the health of the community, community wellbeing and their local environment can benefit from *Healthy Spaces and Places*. This is because it demonstrates the benefits of planning for active living and provides evidence on how the built environment can promote healthy lifestyles. It provides practical advice on how planning and design can create environments for active, healthy living.

Why get involved?

There is a role for all of us in influencing changes in our behaviour and environment that will benefit individual and community health and wellbeing. Most immediately, through *Healthy Spaces and Places* we can become:

- better informed about the considerations planners, designers and related professions make when developing or redeveloping places, and
- better equipped to advocate for priority to be given to planning for people movements in order to encourage less sedentary behaviour and less use of the motor car, especially for local trips.

The *Healthy Spaces and Places* website www.healthyplaces.org.au is a good starting place for getting involved or learning about healthy planning. It provides information for everyone, and particularly for:

- planning and design professionals, including urban and regional planners, urban designers, landscape architects, building designers and transport planners
- the property development industry, including developers, project managers, the real estate industry and the construction industry
- health professionals, including health educators, health advocates, public health officers and population health managers
- government decision-makers, including local councillors, state/territory and federal politicians, and senior public sector executives, and
- community members, including individuals, community organisations, schools, advocacy organisations and peak bodies.

Given their key role in designing and managing the built environment, planners are an important audience for *Healthy Spaces and Places*. Through planning and designing places that make it easier for more Australians to be more active, including walking and cycling, and using public transport every day, planners can help tackle some of the major health issues for Australia, including preventable health disease.

Planners are professionals who specialise in designing the communities in which we live, work and play. Balancing built and natural environments, community needs, cultural significance and economic sustainability, planners aim to improve our quality of life and create vibrant communities.

The contribution of health professionals to the *Healthy Spaces and Places* website enables us to be better informed about the increasing body of evidence supporting the links between good health, design and planning and how we can all benefit from taking small steps towards leading active lifestyles.



What makes a healthy place?



Designing healthy places: good practice considerations

The health and planning research evidence highlights the need to consider how planning policies, development decisions and planning processes or actions can benefit people's health and wellbeing. *Healthy Spaces and Places* is a practical guide on good practice for planning for active living. It provides:

- design principles for positive health and wellbeing (see next page)
- development types where these principles can be applied, and
- case studies showing how others are achieving best possible outcomes. Key processes for creating healthier places are also identified.



Design principles

Healthy Spaces and Places identifies the following key design principles to plan for healthy communities.

- **active transport:** travel modes that involve physical activity, such as walking and cycling, and include the use of public transport that is accessed via walking or cycling
- **aesthetics:** the attractiveness of a place or area affects the overall experience and use of a place (e.g. walking, cycling, viewing and talking). An attractive neighbourhood invites people to use and enjoy its public spaces and to feel safe
- **connectivity:** the directness of links and the number of connections in a path, street or road network, and for *Healthy Spaces and Places*, the ease with which people can walk and cycle around a neighbourhood and between places
- **environments for all people:** places that are safe and easily accessible for everyone, regardless of age, ability, culture or income, with a suitable range of facilities and services that are available to all
- **mixed density:** residential development that contains a mix of housing types, such as single dwellings and multi-units and development of varying size and height. This promotes a more diverse community and caters to various stages of life
- **mixed land use:** complementary uses, such as houses, shops, schools, offices, libraries, open space and cafes, are co-located to promote active transport to and between different activities. People are more likely to walk, cycle or take public transport when they can conveniently undertake multiple activities at one destination
- **parks and open space:** land reserved for passive recreation, sport and recreation, preservation of natural environments, green space and/or urban stormwater management
- **safety and surveillance:** perceptions of safety influence the nature and extent that people use spaces and places. Design that aims to reduce crime can enhance the physical, mental and social wellbeing of a community
- **social inclusion:** refers to a society where all people and communities are given the opportunity to participate fully in political, cultural, civic and economic life, and

- **supporting infrastructure:** facilities that encourage regular and safe physical activity, such as walking (footpaths, lighting, water fountains and signs), cycling (bike paths, bike lockers, signs and showers), public transport (safe shelter, lighting and signs), social interaction (seating, shade, shelter and toilets) and recreation (seating, play equipment and facilities).

Detailed information on each of the above principles is provided on the website at www.healthyplaces.org.au/design.php

Walkable distances means a distance that most people could walk in 5-10 minutes. This is commonly about 400 metres.

Development types

Healthy Spaces and Places also shows how the healthy design principles can be applied to a range of development types—infill development, neighbourhood parks, neighbourhood planning and design, regional recreational facilities, retirement accommodation, schools, shopping precincts, urban squares, rural and regional communities and workplaces—in different locations. For more information, see the website at www.healthyplaces.org.au/devtype.php.

Case studies

When applied correctly, the design principles can create spaces and places that are attractive and interesting, and safe for walking, cycling, relaxing or playing. The evidence shows that these are the kinds of places that help improve lifelong health and wellbeing because people are motivated to be active and have opportunities to be active. *Healthy Spaces and Places* gives examples of different approaches that work in specific places through case studies on the website. See www.healthyplaces.org.au/casestudies.php for further information.

Making it happen



Everyday decisions for designing healthy places

Planning for active living calls for a commitment to applying healthy planning principles to all levels of the planning system, at every stage of the planning process and in every planning project. These principles can be applied 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. They can be incorporated into big and small budgets, strategic planning, development control and community engagement programs.

Research

Research informs decisions. 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

Integrated approaches lead to coordinated, effective responses. Integration means working across sectors, roles and responsibilities, regulations, policies and program delivery. For example, engaging communities in the development process provides the opportunity for planners to incorporate local knowledge into design, whilst also giving community members a sense of project ownership. This can increase the overall effectiveness of a project.

Planning for active living needs to be considered by and across all professions involved in the design and approval processes. Seemingly small considerations (e.g. widening footpaths or lowering traffic speeds) can count as much as the major decisions when it comes to planning that can improve people's health and wellbeing.

Implementation

Success requires shared ownership of the processes and the end goals, and clear understanding of who does what during implementation. Implementation needs to 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 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

Behavioural change requires making healthy choices the easy choices. This requires education and training for different audiences about the links and interrelations between environments and health. Professional development for those 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 planning for active living in planning and health courses and to encourage continuing professional development on health and urban environment issues.

Healthy Planning Course – University of New South Wales

The Healthy Planning Course at the University of New South Wales is offered as an elective course for undergraduate students in the built environment and medical/health disciplines. The course aims to develop students understanding and knowledge about key health problems facing urban populations and to understand the relationship between urban planning, city form and current health problems in contemporary cities.

For more details, see www.healthyplaces.org.au/casestudies

Partnerships

Partnerships based on shared strategic vision and coordinated investment are essential for delivering sustainable outcomes in urban and built environments. Through partnerships, it is possible to define short- and long-term goals, collaborate with like-minded organisations and individuals and establish clear management processes and structures with agreed outcomes, benchmarks and measures of progress defined roles and responsibilities, including for review, consultation and revision.

Partnership and collaboration have enabled *Healthy Spaces and Places* to bring together this research-supported national guide, with evidence to show that planners have a major opportunity to contribute to improved community health and wellbeing in Australia by adopting planning for active living approaches. Cross-professional partnerships are essential if people are to be encouraged to be more physically active.

Lightsview Development, Adelaide

Lightsview in Adelaide is an example of a new (greenfields) development that is incorporating health considerations into the design and planning phases from the outset. The developers are working collaboratively with the South Australian Active Living Coalition (a partnership between the Heart Foundation, the Planning Institute of Australia, the Cancer Council and key South Australian government departments) to ensure design principles from the Heart Foundation's Healthy by Design® initiative are incorporated into the development. For more details, see www.healthyplaces.org.au/casestudies.



Key considerations:

- Planning for active living needs to be considered at all levels of the planning system—planning policies and strategies, development proposals, site design and projects. For instance, at the policy level, people's health and wellbeing is a key consideration, and
- In planning for active living, everyone who is affected by a plan or proposal should be consulted and involved. This includes the community, developers, experts, professionals and specific population groups (e.g. people with disabilities, the elderly, children and people from culturally and linguistically diverse backgrounds).

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

Appropriate checklists can help ensure that planning for active living considerations is included at the site level. For further information see www.healthyplaces.org.au/measuring_success.php

Measuring success

Successful implementation requires clearly articulated goals and measures for evaluation.

To help ensure success, define aims and objectives clearly, be clear about the big picture framework, 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, cultural and financial.



Health and sustainability



Planning for health contributes to developing more sustainable communities

Planning, health and sustainability are closely linked. There is widespread acceptance of the principle of sustainable development, due in part to the significant environmental challenges that confront society today, including climate change, fossil fuel dependency, food security, rising greenhouse gas emissions, excessive water use and pollution of the air, water and soil.

Sustainable development fulfils social, cultural, environmental and economic priorities, at the same time safeguarding the interests of current and future generations.

Healthy urban planning contributes to sustainable outcomes for all by:

- encouraging active transport (walking and cycling) rather than car dependency, thus reducing greenhouse emissions, and
- encouraging social inclusiveness and safe communities where residents feel part of their local community and are engaged and active.

Healthy and sustainable communities are well designed and safe and include:

- local facilities (e.g. schools, corner stores, child-care facilities, medical practices, recreation facilities, community services)
- movement networks designed for active transport (i.e. walking and cycling)
- parks and public spaces for people to meet and interact
- places for people to experience art and culture
- cycle facilities, and
- public transport.

The approaches to planning that *Healthy Spaces and Places* sets out will help achieve positive results against the quadruple bottom line sustainability measure (economic, social, environmental and cultural sustainability).

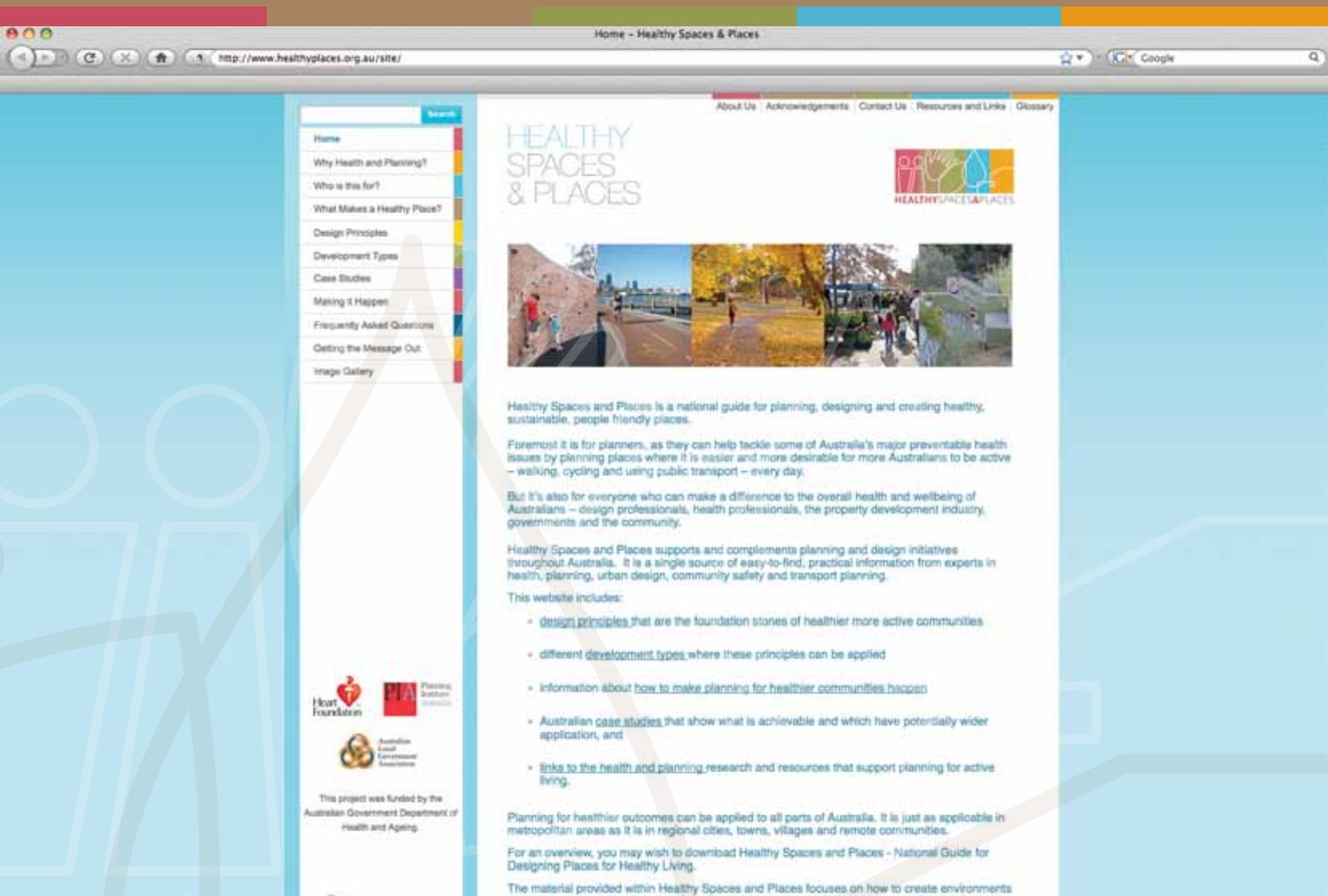
Sustainable Community Rating Tool

A sustainable rating tool has been developed by VicUrban to assist in planning and delivering sustainability in new residential communities. It is based on five interrelated objectives: community wellbeing (including health), environmental leadership, urban design excellence, housing affordability and commercial success. For more information, go to:

www.sustainablecommunityrating.com



Healthy Spaces and Places online



The website www.healthyplaces.org.au is the principal resource for the *Healthy Spaces and Places* project. It is a single source of easy-to-find, practical information from experts in health, planning, urban design, community safety and transport planning.

The website includes:

- design principles that are the foundation stones of healthier more active communities
- different development types where these principles can be applied
- information about how to make planning for healthier communities happen

- Australian case studies that show what is achievable and which have potentially wider application, and
- links to the health and planning research and resources that support planning for active living.

The website's primary focus is on how to create built environments that support physical activity, so it does not provide in-depth information on other aspects in this area such as nutrition, food security and noise and air pollution.

If you do not have web access, a CD is available for order free of charge (see order form inside front cover).

Glossary

Active living is defined as a way of life that integrates physical activity into daily routines.

Active transport is walking, cycling or using public transport. Active transport is an alternative to car travel and can provide benefits, such as increasing daily physical activity and reducing greenhouse gas emissions. Ancillary benefits can also include an increase in the sense of community and improved mental health.

Built environment means the structures and places in which we live, work and play, including land uses, transportation systems and design features.

Connectivity is the degree to which networks, such as streets, railways, walking and cycling routes, services and infrastructure, interconnect. A highly-connected place will have many public spaces or routes linked to it.

Density is the measure of the number of dwellings in a given land area. It can also be a measure of population in a given land area.

Health is a state of complete physical, mental and social wellbeing, not merely the absence of disease or infirmity.

Healthy communities are communities where people come together to make their community better for everyone through collaboration, community ownership, inclusive approaches and long-term, positive commitment. A healthy community will:

- provide affordable, appropriate, accessible housing
- adjust the physical environment for inclusiveness and accessibility
- ensure access to key health and supportive services
- ensure accessible, affordable, reliable and safe transport
- provide work, volunteer and education opportunities, and
- encourage participation in civic, cultural, social and recreational activities.

Land-use mix (mixed land uses) is the diversity or variety of land uses (e.g. residential, retail, commercial, industrial and agricultural, parks and open space). A diverse land-use mix is associated with shorter travel distances between places of interest and activities.

Mixed density refers to residential development that contains a range of housing types, such as single dwellings, medium-density dwellings and higher-density dwelling units, including apartment buildings, and usually includes a variety of building forms.

Social cohesion (also referred to as sense of belonging) refers to the degree to which people in a community feel connected and committed to and part of a community.

Social inclusion refers to a society where all people are given the opportunity to participate fully in political, cultural, civic and economic life because they feel valued, their differences are respected and their basic needs are met so they can live in dignity.

Transport system (also referred to as movement network) is the physical infrastructure of roads, footpaths, bike paths and railway lines that provide the physical connection between places. Travel time, comfort and safety are factors that determine the quality of transport systems. It is also used as a term to describe the level of service provided (e.g. accessibility to public transport, routes, frequencies and connectivity).

Walkability is the measure of the overall walking conditions in an area. A place is walkable when it has characteristics that invite people to walk.

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Position statement

The built environment and walking

The Heart Foundation's National Physical Activity Advisory Committee

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Facts

- Physical inactivity is a modifiable risk factor for cardiovascular disease and a range of other chronic diseases, including diabetes mellitus, cancer (colon and breast), obesity, hypertension, bone and joint diseases and depression.¹⁻³
- Physical activity is important in reducing risk factors for cardiovascular and other chronic diseases.^{4,5}
- Promoting walking is recognised as a promising means of increasing population levels of physical activity.
- The built environment is directly associated with physical activity, particularly walking.
- The built environment can either facilitate or discourage walking.
- Walking for transport is associated with living in neighbourhoods that have good access to destinations (including public transport), connected street networks, and higher residential densities.^{6,7}
- Neighbourhood aesthetics (including access to public open space) tend to be associated with increased walking for recreation.
- There is widespread agreement that there is sufficient evidence to warrant public health action on the role of the built environment in increasing physical activity.⁶⁻⁹
- A whole-of-government approach is crucial to the creation of 'walkable' communities in new and existing developments.



Summary statement

Promoting walking is an effective way to increase population levels of physical activity.

To increase walking, a whole-of-community approach is required that combines multiple-level strategies: public education, changes to the built environment and strategies that create a positive social environment.

Walking for recreation and walking for transport are influenced by different features of the environment. Walking for transport is associated with living in neighbourhoods that have connected street networks, good access to destinations and public transport, and higher residential densities. Neighbourhood aesthetics and access to facilities, parks and beaches tend to be associated with increased walking for recreation.

There are considerable opportunities for the health and other sectors to collaborate to promote walking and improve the walkability of neighbourhoods. This includes advocating the need for healthy planning policies for new developments; educating state and local governments, developers and planners about the built environment features that facilitate walking; and promoting walking to the general public.

Rationale

Three groups of factors appear to be associated with physical activity:

- individual factors (knowledge, attitudes, values, skill, self-efficacy)
- social environmental factors (social support, having someone to walk with, and social norms—i.e. broader peer-group or community beliefs about what is valuable or important)
- built environment factors (the presence of recreational facilities, neighbourhood design, safety, aesthetics, facilities, destinations to walk to, and policies that influence land use and transportation systems).

Although the built environment is the least understood, it is becoming apparent that these factors act together to motivate, support and provide opportunities to encourage physical activity.¹⁰ Thus, multi-level interventions that target individuals, the social environment and the built environment are more likely to be effective than interventions that target only one of these factors.¹¹

In Australia, approximately half of the population is sufficiently active to achieve health benefits.^{4,12} Encouraging walking holds great promise as a means of increasing population levels of physical activity. Not only is it easily incorporated into daily activities, but Australian research consistently finds that walking is popular among adults, particularly among women and people in low socioeconomic groups.^{13,14}

The built environment can either facilitate or discourage walking: land use systems, transportation systems and urban design coalesce to create a pedestrian environment that impacts upon people's decisions to walk. There are two key conduits for increasing walking: encouraging more walking for transport, and/or encouraging more walking for recreation. A Western Australian study found 63% of adults reported walking for recreation, while 32% reported walking for transport.¹⁴ Various literature from public health, transportation and urban planning have investigated the factors that inhibit or encourage people to walk. Importantly, the evidence suggests that walking for recreational purposes and walking for transport are influenced by different features of the environment.^{10,15–17} These features are detailed below.

1. The built environment and its impact on walking for transport

Compact, connected urban environments with a mixture of densities and land uses create shorter distances between desired destinations, thus encouraging people to walk for transport. This highlights the importance of considering the interrelated factors associated with transport-related walking, including spatial land-form patterns, population density and mixed land use.^{10,16,18–28}

Walkability refers to how ‘friendly’ an area is for pedestrians. Transportation researchers and planners have created walkability indices that take into account three factors.

- **Mixed-use planning**—the variety and proximity of destinations (how close destinations are to walk to); access to key destinations is a critical factor influencing the choice to walk for transport.⁹
- **Density**—areas with higher residential densities are more likely to support the presence of shops and services; thus the density of an area is indirectly related to walking.⁹
- **Street connectivity**—the directness of travel routes between homes, shops, workplaces and other destinations. Neighbourhoods with grid-pattern street networks typically have greater connectivity than those with curvilinear layouts. Walking for transport is encouraged when the street network is more connected, obstacles are kept to a minimum, and there is no requirement to cross major roads.^{16,22}

A walkability index developed by American researchers²² has been adapted for use in Australia.²⁹ The tools which have been developed to measure walkability involve objective assessment (rather than perceptions) using a Geographic Information System that can measure density, connectedness, slope and hilliness, residential/retail mix and green space.²⁹ Methods of defining, weighting and scoring these elements of walkability are in the early stages of development.

The evidence on the impact of traffic on walking is mixed, depending upon the behaviour and the target group. In adults, perceiving traffic to be present and heavy has been shown to be both positively¹³ and negatively³⁰ associated with walking for transport. There are two possible explanations for the counterintuitive finding that increased traffic is associated with increased walking for transport. While the presence of destinations encourages more walkers, destinations will also attract more drivers who access these same places by motor vehicle, thereby increasing traffic volume. Those who walk more, are often exposed to, and therefore more aware of, higher traffic volumes.³¹ Parents of children are particularly concerned about traffic exposure and safety. These concerns are considered below.

2. The built environment and its impact on walking for recreation

Different elements of the built environment appear to be associated with recreational walking. Elements consistently found to be positively associated with walking for recreation or exercise include the attractiveness or aesthetics of the neighbourhood environment³² and the convenience of facilities.¹⁵ Access to beaches or large attractive public open space also appears to encourage recreational walking.^{10,13,33} Conversely, perceiving traffic to be present appears to discourage walking for recreation.³⁰



3. Environmental attributes that influence children's walking behaviour

The impact of the built environment on children's physical activity, especially their walking behaviour, is complex. Children's behaviour is largely influenced by their parents, especially in terms of transportation. Trend data show a decline in walking or cycling to school, and an increase in travel by car rather than public transport.³⁴ A range of factors have been shown or hypothesised to influence children's walking behaviour, but personal and traffic safety issues are key factors.

Given that motor vehicle accidents are the leading cause of death in Australian children aged 1–14 years,³⁵ parental concerns about traffic safety are somewhat justified. Protecting children from exposure to high traffic volume is clearly critical to reduce both their absolute and perceived risk of traffic injury. For example, one recent study³⁶ found a relationship between the construction and maintenance of footpaths, the installation of traffic lights on routes leading to schools, and increases in children's active commuting. Neighbourhoods with increased proximity between homes and a greater proportion of park area are associated with greater physical activity in young children.³⁷

The published evidence on the association between street network connectivity and children's walking is inconsistent.³⁸ For younger children, living in cul-de-sacs may increase opportunities for active play,³⁹ however, the presence of cul-de-sacs may decrease walking for transport among adults and may reduce the potential for older children to walk to school.⁴⁰ Therefore, connected communities may have a differential impact on the walking behaviour of children depending upon their age and stage of development. Moreover, children's walking behaviour is influenced by factors other than the built environment alone.^{41,42} Specifically, parents are the gatekeepers of children's behaviour and determine whether or not they are allowed to walk, irrespective of the quality and safety of the built environment.

4. Designing, retrofitting and rejuvenating neighbourhoods to encourage walking

Awareness of the macro-level and micro-level environmental features that influence walking is important when new residential subdivisions are being developed and established neighbourhoods are retrofitted. The macro environment encompasses state and local government policy initiatives, as well as urban planning guidelines (e.g. 'smart urban planning codes') that influence urban development and land use, transport systems, car usage and broader environmental and sustainability issues. Moreover, the macro environment dictates the neighbourhood-level characteristics of the built environment, including residential density, street connectivity and access to destinations that impact upon walking for transport.

Micro environments encompass small-scale local neighbourhood features. These micro-level characteristics—such as street lighting, signage, safety, lane use and traffic calming measures—can improve pedestrian use of streets.^{43,44} High-quality local aesthetics, facilities, parks and local road networks may enhance the walkability of local neighbourhoods and contribute to social capital and community cohesion.^{45–47} Attention to micro-level features can improve the aesthetic appeal and presentation of neighbourhoods, which influences residents' predilection to walk for recreation.



Creating a more walkable environment in established neighbourhoods provides additional challenges. Retrofitting and rejuvenating relates to redesigning or upgrading existing neighbourhoods to enhance their capacity for walking. Increasing land-use mix would considerably improve the walkability of an existing area by improving the proximity of facilities. However, increases to residential densities are a necessary prerequisite to make these additional shops and facilities economically viable. At this stage, although there is recognition of the need to retrofit existing suburbs, there is no published evidence from well-designed studies supporting the retrofitting of existing neighbourhoods.

There are potential barriers to implementing macro-level changes to existing development, including the formidable public and private sector costs of remodelling or retrofitting neighbourhoods, the slow pace of change in the urban landscape, zoning regulations that do not facilitate mixed land use and a lack of communication between different stakeholders.⁴⁸ While retrofitting the macro-level environment to promote walking is challenging, this should not deter action, particularly given the large amount of 1980s-style low-density development in Australian cities.

Improvements to the micro-level environment are easier to implement and also have the potential to promote walking. However, the impact of micro-level changes in isolation of a supportive macro environment (e.g. destinations to walk to) is unknown. Urban design features that can improve the amenity of a neighbourhood include street lighting, shade trees, and the installation and maintenance of footpaths and street-crossing aids. The introduction of walking and cycling infrastructure as well as traffic calming and other traffic diversions also have the potential to help to encourage local walking as well as cycling.^{43,49}

In terms of walking, macro-level policies and the resulting residential development provide the preconditions essential to promoting walking for transport. Conversely, the micro-level environment is fundamental to the aesthetic presentation and appeal of a neighbourhood, and is necessary to encourage walking for recreation or exercise. Changes at both levels have the potential to target both walking outcomes and maximise benefits to public health.

A whole-of-government approach is crucial to the creation of walkable communities in new and existing developments. There are considerable opportunities for the health sector to collaborate with other sectors at all levels of government to work towards improving the walkability of neighbourhoods, including advocating the need for healthy planning policies for new developments; educating state and local government, developers and planners about the built environment features that facilitate walking; and promoting walking to the general public. Many micro-environment design features are the responsibility of local government, and local governments often work with developers who build new developments and retrofit existing areas. Consequently, local government policy plays a crucial role in enhancing the walkability of micro- and macro-environments.



Recommendations

To increase walking, a whole-of-community approach is required that combines multiple-level strategies including public education, strategies that create a positive social environment (i.e. social and cultural norms) and changes to the built environment. The Heart Foundation makes the following recommendations.

All adult Australians

To increase their own physical activity levels, and help to create physical environments conducive to walking, the Heart Foundation recommends all Australian adults:

- incorporate walking and cycling into their day through active transport and increased use of public transport
- become involved in the development and review of strategies designed to improve the walkability of local areas, and advocating change where it is needed; community members are important sources of local knowledge and their involvement in the planning process may increase acceptance of the strategies employed
- encourage their workplaces to replace subsidies that promote the use of private and company motor vehicles with inducements for employees to walk, cycle or take public transport to work via:
 - > fare rebates
 - > shower facilities and safe bicycle parking
 - > bicycle maintenance vouchers
 - > bonuses for use of alternative forms of transport.

Health sector

The health sector should promote community, government and industry understanding of the need to create environments that are supportive of walking, cycling and public transport use. The Heart Foundation recommends that the health sector:

- advocate inter-sector collaboration between local and state government departments, non-government organisations and the land development industry to create environments supportive of walking, cycling and public transport use
- design public education campaigns and programs, and undertake media advocacy to encourage walking, cycling and public transport use
- lobby workplaces to replace subsidies that promote private and company motor vehicle use with inducements that encourage employees to walk, cycle or take public transport to work.

Governments

The Heart Foundation encourages governments to prioritise the needs of pedestrians, cyclists, public transport users and recreational walkers in urban and regional planning by promoting land use, transport systems and urban design that support transport-related walking and cycling, public transport use and walking for recreation.

Consideration needs to be given to factors that influence macro- and micro-environments.

Methods for prioritising pedestrians and cyclists in the design and redesign of local neighbourhoods include:

- improving proximity and accessibility to shops, services, public transport and public open space by increasing residential densities around these destinations and providing connected street networks and footpaths
- designing and redesigning public open space to create attractive open space with good surveillance, safe pedestrian access, walking paths and trees, catering for the needs of multiple users
- reducing exposure to traffic for pedestrians and cyclists
- reallocating road-space to cyclists and pedestrians
- introducing traffic calming measures
- creating safe routes to school
- creating attractive, well-lit streetscapes with shade trees
- ensuring footpaths are an adequate width, with an even surface, minimal obstacles and curb cuts/pram ramps to provide a supportive walking environment for multiple users; consideration could be given to footpaths being on both sides of the street.

Methods for prioritising pedestrians and cyclists around shopping centres, workplaces and schools include:

- reducing exposure to traffic for people accessing the destinations by foot or bicycle
- reallocating road space to cyclists and pedestrians
- introducing traffic calming measures
- creating safe routes to major destinations including safe road crossings and walking and cycling paths
- designing shopping centres and workplaces with active frontages that promote the natural surveillance of adjacent streets and car parks, and ensuring these areas are well lit at night.



Urban planners, transportation planners and the land development industry

The Heart Foundation encourages urban planners, transportation planners and the wider land development industry to prioritise the needs of pedestrians, cyclists, public transport users and recreational walkers when designing and redesigning residential environments. Planners and developers should consider implementing the above recommendations.

Rating the evidence

The evidence in relation to walking and the built environment is drawn mainly from cross-sectional studies, expert committee reports and case studies. While this level of evidence limits causal inferences being drawn, evidence on correlates is sufficient to support policy advocacy and change.¹⁷ This is further supported by agreement across a large number of expert committees that there is sufficient evidence to warrant public health action addressing the areas listed in Table 1.⁶⁻⁹

Summary of evidence

Summary of the evidence	Key studies and reports
Walking for transport is consistently associated with:	
• proximity of destinations including shops and public transport	9, 50
• mixed-use planning	9
• street connectivity	16, 51
• population density	9
• greater walkability (generally a composite of the above attributes).	29
Walking for recreation is consistently associated with:	
• access to beaches, facilities and parks	10, 13
• pedestrian infrastructure	15
• aesthetics.	32, 45
Children's walking is associated with:	
• closer proximity to parks	37
• good pedestrian infrastructure	36
• traffic safety	35
• parental influence.	41, 42
Designing neighbourhoods to encourage walking is associated with:	
• community-scale urban design and land use policies and practices (zoning regulations, street connectivity, residential and employment density)	48
• street-scale design and land use policies and practices (lighting, safe street crossings, continuity of footpaths, traffic calming measures and aesthetic enhancements)	48
• federal, state and local government policy initiatives and urban planning guidelines.	48

Table 1: Summary of evidence

Future research

There is a growing body of evidence supporting the association between features of the built environment and walking. However, gaps remain in the knowledge base. It is recommended that future research:

- distinguish between walking for transport and walking for recreation, and measure the different factors in the built environment associated with these different walking outcomes
- use reliable and valid environmental measures, and behavioural and context-specific walking outcomes
- use longitudinal study designs to assist in establishing causality and to examine the role of self-selection in behaviour
- involve evaluations of natural experiments that entail opportunistic or planned environmental changes (e.g. neighbourhood revitalisation programs) that might influence the physical activity of local residents; potential funding bodies should be responsive to the need to act quickly to ensure baseline measures can be collected
- further investigate the impact of transport policies (e.g. roadway design) and practices (e.g. path provision) on physical activity and walking for transport
- consider environmental attributes that may influence the walking behaviours of different subgroups (e.g. gender, age, stage of life, socioeconomic factors and other socio-demographic variables)
- examine environmental factors that influence recreational and transport-related walking in different settings (e.g. rural and regional environments)
- examine interrelationships between individual and social determinants of walking and the built environment; such associations may differ for different types of walking (e.g. for transport or recreation) and for people with different levels of self-efficacy or social support^{52,53}
- examine the economic utility of creating more walkable neighbourhoods and the efficient provision of various environmental interventions
- further refine and develop conceptual models and theories to guide understanding and analysis of the relationship between the environment and walking.



Terminology

Built environment: the neighbourhoods, roads, buildings, food sources and recreational facilities in which people live, work, are educated, eat and play.⁵⁴

Connectivity: how directly a person can travel from one destination to another via existing transportation networks.⁵¹

Density: the concentration of people, objects or destinations within the built environment. Density influences proximity.⁵¹

Macro environment: the state and local government policy initiatives and urban planning guidelines that influence urban development and land use, transport systems, car usage and broader environmental and sustainability issues.

Micro environment: small-scale local neighbourhood features, including street lighting, signage, public transport stops, street furniture, street trees and traffic calming measures.

Mixed-use planning: land-use development wherein different types of uses (e.g. commercial and residential) are located within close proximity to one another.⁵¹

Pedestrian friendly: neighbourhoods that contain multiple features that encourage walking, including higher residential and commercial densities, connected street networks, public amenities such as squares, parks and other gathering places, as well as wide footpaths, street lighting, street furniture, street trees and traffic calming.

Physical activity: bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above the basal (i.e. resting) level.⁹

Public open space: land used for recreational purposes by the public, including parks, public gardens, foreshore reserves, playgrounds and sports fields.⁵⁵

Walkability: the extent to which an area or neighbourhood is pedestrian friendly. In relation to walking for transport, walkability is measured in terms of the connectivity of street networks, the level of mixed-use planning and higher residential densities.⁵⁶

Walking for recreation: walking for exercise, health or recreation.

Walking for transport: walking to get to and from places, including walking for errands, to and from work, and to and from transport stops. Also referred to as 'utilitarian' walking.

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About the Heart Foundation

The Heart Foundation is the leading organisation in the fight against cardiovascular disease (heart, stroke and blood vessel disease) in Australia. Our mission is to reduce suffering and death from cardiovascular disease in Australia.

Since our establishment in 1959, we have championed the hearts of Australians by promoting health in the community, supporting health professionals and funding world-class research. As a charity, we rely on donations and gifts in wills to continue our work. While our work has helped to reduce the number of deaths from cardiovascular disease, it remains one of Australia's most devastating health problems. It claims a life almost every 10 minutes. It also adversely affects the quality of life of nearly one in five Australians.

Our focus is to:

- help all Australians to achieve a healthy weight
- help all Australians to identify and understand the warning signs of a heart attack
- inform and educate women about their risk of heart disease and the steps they can take to prevent it
- help all Australians to have improved access to prevention and treatment
- increase our commitment to supporting research as well as using quality research in all of our work
- increase funds raised.



For heart health information
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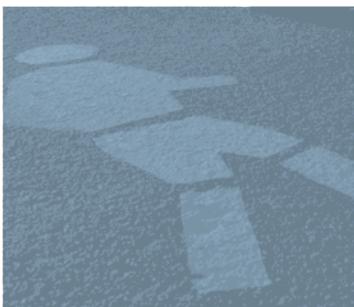
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The information contained in this position statement is current as of October 2008.

Active Living impact checklist

A tool for developments in
the Australian Capital Territory



Acknowledgements

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Foreword



The Australian Capital Territory (ACT) is one of the most active places in Australia. However, the rates of obesity and overweight in the ACT are increasing.

The evidence clearly demonstrates that our built environment can either facilitate or discourage physical activity.

As a community we often underestimate the importance of creating opportunities within our urban environment to improve our physical activity levels and general wellbeing.

The National Urban Design Protocol 'Creating Places for People – An Urban Design Protocol' identified a gap for guidance on designing places for Active Living on site level in the ACT. While urban planners and related professionals work to provide good design in all their projects, the Heart Foundation would like to provide support through usable and specific guidance in the ACT in creating spaces that support Active Living.

We believe that the Active Living impact checklist for developments will be a valuable tool in the ACT.

Tony Stubbs

CEO – Heart Foundation (ACT)



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Introduction

Our vision is a built environment that promotes health, happiness and wellbeing. Planning for a healthy built environment considers the issues related to broader social capital and sense of community to ensure that everyone benefits from a quality urban form.¹ However, the Heart Foundation acknowledges that a single checklist cannot be the only option to create a healthy human environment. Due to the complexity of thinking about health and wider implications on the built environment holistically, the checklist will focus on one major aspect of the problem, physical inactivity, with a focus on individual developments.²

As identified in the ACT Active Living Scoping Study strategic action areas, the Active Living impact checklist has been developed to inform the planning phase of development.³ The checklist will support Active Living as a fundamental design principle for new developments.

This checklist is informed by the Heart Foundation's healthy planning design objectives and the previous work undertaken by the enHealth Council, Department of Health and Ageing,⁴ the Premier's Council for Active Living NSW,^{5,6} the Australian Local Government Association, the Planning Institute of Australia and the Heart Foundation.^{7,8} ACT-specific policy content has been included through the work of a local expert working group.

Target audience

The target audiences for the Active Living impact checklist include:

- planning and design professionals
- other interested stakeholders (land owners, developers, funders, investors, ACT Government Directorates, occupiers and community groups).

The national document *Healthy Spaces and Places*⁹ provides the framework for the Active Living impact checklist. The checklist is an easy-to-use guide to show how a proposed development can cater for Active Living, which can ultimately create a built form that supports a more active and healthy Canberra.

Ultimately, we hope that the checklist encourages the inclusion of Active Living design principles in future developments in the ACT.



Why Active Living?

Background

Physical inactivity is a significant independent risk factor for poor health in Australia. Being obese and overweight is closely linked to low levels of physical activity and poor eating habits. Obesity has reached pandemic proportions and is a major contributor to the burden of disease and deaths. This burden is, and will continue to create, enormous challenges for the Australian health system, the economy and, in turn, the community.

Active Living is a fundamental part of improving the physical health and general wellbeing of the community. Research evidence suggests that the environment can be modified to make it easier for people to become more physically active.

The National Preventative Health Task Force discussed this issue in its recent report *Australia: the healthiest country by 2020*.¹⁰ The report established the key national priorities for preventative health activities and identified that low-density, car-dependent planning approaches are creating 'urban obesity-promoting environments'.¹⁰

It noted the need to reshape urban environments towards healthy options. This can be achieved through consistent town planning and building design that encourages greater levels of physical activity, and through appropriate infrastructure investments (e.g. for walking, cycling, food supply and recreation).^{2,9,11–13}

In 2009 the Heart Foundation, in partnership with the Planning Institute of Australia and the Australian Local Government Association, developed *Healthy Spaces and Places*, a national guide to promote healthy living.⁹ The purpose of this document is to guide the planning, design and creation of sustainable communities that encourage healthy living.

Healthy Spaces and Places outlines the particular need for active places and shows the strong links between

Compelling reasons

- Physical inactivity is a significant factor in the epidemic of overweight and obesity.¹⁵
- The proportion of people who are overweight or obese increased from 48.7% (2004–05) to 57.8% (2007–08) in the ACT.¹⁶
- Between 1998–99 and 2004 the ACT's ecological footprint increased from 7.4 to 8.5 global hectares.¹⁶
- Contact with people outside the household declined by 16.4% between 2002 and 2006 in the ACT.¹⁷
- Healthcare costs in the ACT are increasing by 11% per annum, which is currently higher than any other jurisdiction in Australia.¹⁸
- The top four environmental barriers to walking in the ACT:¹⁹
 1. Poorly lit areas
 2. No amenities in walking distance
 3. Poor pavement
 4. Nowhere to rest if needed.

overall health and regular physical activity.⁹ The guide identifies 10 key design principles to plan for healthy and more active communities and can be accessed at www.healthyplaces.org.au.

The Heart Foundation has also released a position statement on the built environment and walking that underpins interrelated factors associated with transport-related walking.¹⁴ These include spatial land-form patterns, population density and mixed land use.



Aim of the Active Living impact checklist

The Active Living impact checklist is a useful tool to support design and planning professionals to address Active Living principles in their work. The checklist promotes the key principles of Active Living in a design and planning context for the ACT. The main aims of the impact checklist are:

- to increase the incorporation of Active Living principles in individual developments to achieve better health outcomes through convenient, safe and attractive environments
- to build and enhance the knowledge and skills of the workforce (e.g. planning and design professionals).

Where can the checklist be applied?

Active Living design principles can be applied at the street and site-specific scales of development and planning, from the design of individual dwellings through to the planning of a larger development sites. Each scale, and each project, will have its own set of Active Living issues and possible solutions. The checklist has been produced specifically to inform the design of good quality Active Living outcomes throughout the lifecycle of a development. It should complement and enhance the ACT Crime Research and Urban Design Resource Manual²⁰ and the Canberra Central Design Manual.²¹

How does the checklist relate to official planning decisions legislation and development approval?

Canberra is a unique, planned city. Since Walter Burley Griffin originally designed Canberra, the city's layout has been influenced by several planning streams, such as Ebenezer Howard's garden city concept, and unique

planning responsibilities have evolved. Self-governance dictates that planning is a shared responsibility of the Commonwealth and Territory governments. Canberra's role and function as the national capital remains the responsibility of the Commonwealth through the National Capital Authority (NCA) and the National Capital Plan (NCP). The ACT's second responsibility to the city is managed by the ACT Government Environment and Sustainable Development Directorate (ESDD) through the Territory Plan and Spatial Plan, under the Planning and Development Act 2007. For further details about ACT planning legislations, policies and the different roles and responsibilities of government authorities please visit the following websites:

- National Capital Authority, www.nationalcapital.gov.au
- ACT Government Environment and Sustainable Development Directorate Planning and Policy, www.actpla.act.gov.au.

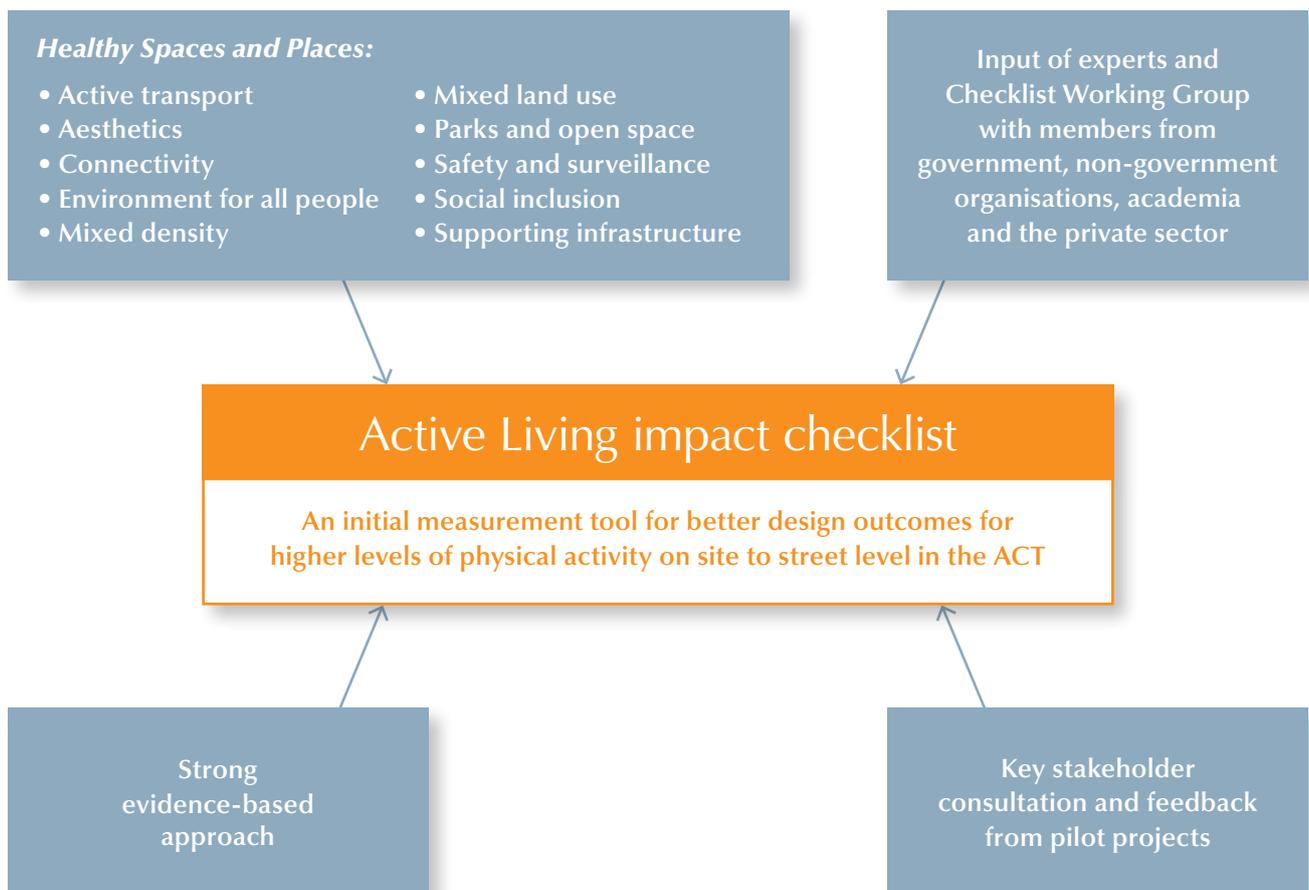
The Active Living impact checklist is **not** intended to be a **rating or ranking tool**, or to add to approval requirements. It is intended to complement and enhance the design and development process and lead towards higher voluntary standards in ACT Government and industry. This tool is not designed to assess health equity for individual sites as it targets opportunities for improved physical activity only, but it can help to address the issue. **Be aware that some criteria in the checklist may or may not be applicable to a development as urban form, context, density and scale varies from site to site.** However, we are confident that it will encourage discussion and raise awareness around designing for healthy ageing and Active Living. The Heart Foundation hopes this tool improves the long-term health outcomes for people and cities.



What are the Active Living key design principles?

Healthy Spaces and Places contains a comprehensive overview of important evidence-based information that promotes the design of built environments that encourage physical activity.⁹ It identifies 10 key design principles for Active Living that can help to plan and design healthy communities.

The Active Living impact checklist builds on *Healthy Spaces and Places* and considers other new evidence on health and design principles. The figure below shows the approach taken to create this checklist for the ACT.





Overview of *Healthy Spaces and Places* key design principles

Active transport

Active transport includes non-motorised forms of transport involving physical activity, such as walking and cycling. It also includes public transport for longer distance trips, as public transport trips generally include walking or cycling components as part of the whole journey. Active transport requires the urban structure to be designed so that walking and cycling trips are convenient, safe and pleasant in a green and landscaped setting.

Aesthetics

Attractiveness of the neighbourhood environment, together with a functional landscape performance, is associated with improved overall experience and use for activities such as walking, cycling, viewing and conversation. If a neighbourhood is attractive it invites people to use and enjoy its public spaces and places and to feel safe in doing so. This includes living walls and roofs in compact built environments.

Connectivity

Intersection types and density in an area influence the directness of travel between destinations. This determines how people move around (i.e. by foot, bike, public transport or car).

High connectivity, including improved habitat connectivity and ecological function for other species, with good provision of walking and cycling facilities, is more likely to encourage walking and cycling for transport and recreation within the human movement system.

Environments for all people

Environments for all people means that neighbourhoods, towns and cities are safe and easily accessible for all members of the community regardless of age, ability or income. A suitable range of facilities and services are available to everyone. The aim is for people to feel connected to, and part of, a community. Regenerative, green environments can also help to improve air quality, lessen the impact of heat islands and reduce noise pollution.

Mixed density

Residential development that contains mixed housing types, such as single dwellings and multi-storey units and a variety of development forms, promotes healthy, active lifestyles. Mixed density is encouraged for new residential developments to provide a range of housing choices, which have performance-related outcomes and prescriptive height specifications. It can also help to maximise infrastructure and land use and support the provision of public transport.

Mixed land use

Mixed land use refers to a range of complementary land uses that are located together, including residential development, shops, employment, community and recreation facilities, and parks and open space. This makes alternative forms of transport to the car, such as public transport, walking and cycling, more viable. Mixed land use can enhance the vitality and perceived security of areas by increasing the number of people on the street and in public spaces. It can incorporate design interventions, which support direct linkage and relationships with broader landscape activity nodes and networks. It can also improve the retail and economic development of an area (smart growth).



Parks and open spaces

Parks and open space vary in size, form and the range of functions they perform. The landscape quality, character and opportunity is important as it has the greatest direct benefit to Active Living. Public open space is usually categorised into a hierarchy including neighbourhood, district and regional open space and may perform either a passive or active recreation role. The provision of suitable parks and open space can help people to meet the following Australian physical activity recommendations:

- children and adolescents – at least 60 minutes of moderate to vigorous activity each day
- adults – 30 minutes of moderate-intensity activity each day.

Safety and surveillance

Perceptions of safety influence the nature of, and extent to which people use, spaces and places. Street and place design that aims to reduce crime can enhance the physical, mental and social wellbeing of a community.

Social inclusion

International research shows that social inclusion can lead to greater social cohesiveness and better standards of health. Designing facilities to encourage meeting and social interaction in communities can improve mental health. Cycling, walking and public transport can stimulate social interaction on the streets as well as providing health benefits for residents. Suburbs that depend solely on cars for access can isolate people – particularly the young and old – without cars. Social isolation and lack of community interaction are associated with poorer health.

Supporting infrastructure

Appropriate, well-designed and maintained infrastructure that promotes Active Living is critical to support recreation, social interaction and active transport options. Both the public and private sector have a role to play in providing a range of facilities and infrastructure to support better health outcomes for the community.



Benefits of using the Active Living impact checklist

A development proposal should aim for good design outcomes. Over the past decade there has been a significant shift towards designing and redesigning places that promote active forms of transport such as walking and cycling. Good design can lead to a more sustainable performance of a development. Investments in relevant Active Living design principles result in significant co-benefits and value for money.

The value statement on page 10 provides an overview of these benefits for all stakeholders involved in the planning and life cycle of a development.

Historically, cost-benefit analyses have underestimated the value of an active transport environment, because very few studies have accounted for the impacts of increased activities. The Heart Foundation commissioned a discussion paper that highlights the financial benefits to retailers and residents in making commercial streets more walking and bicycling friendly. The report found the following:

- a high proportion of all retail expenditure comes from local residents and workers
- space allocated to bicycle parking can produce much higher levels of retail spending than the same space devoted to car parking
- many car-borne shoppers are 'drive-through' shoppers, who shop to pick up one item on the way to their eventual destination, rather than people for whom shopping is their main purpose for visiting the area
- it is difficult to estimate the value of non-drive-through spending for main streets; however, it is always greater than we think
- retail vitality would be best served by traffic restraint, public transport improvements, and a range of measures to improve the walking and bicycling environment.²²

The case studies in the report show that making streets more walking and bicycling friendly will:

- increase retail values
- increase sale prices of nearby homes
- significantly increase pedestrian and bicyclist activity
- generate more business and stimulate the local economy
- revitalise 'drive-through' districts into lively places that people want to visit
- encourage people to spend time outside their homes
- reduce noise levels
- create attractive and popular places.²²

The full report can be accessed at www.austroads.com.au/abc/images/pdf/hf_goodforbusinessfinal.pdf.

The Active Living impact checklist does not provide a specific ranking for a development to allow users to cater for the greatest impact with a limited amount of money. Ideally, a development should meet as many criteria as possible to enable a healthy built environment that contributes to greater health, social, environmental and economic benefits for all members of the community, and the community as a whole.



Value statement

The general benefits of good design for Active Living are outlined in the following table.²³ Please note that some values listed may occur in both the short and long term.

Stakeholder	Short-term value	Long-term value
Landowner	Potential increase in land value	Attracts a high value of land uses through recognition of a proven desirable location
Funder	Potential greater security of investment depending on market	Encourages cross-sector funding and lending support based on proven outcomes and long-term value increase
Government Directorate	Strong links to government planning policies for healthy, safer and accessible urban environments	Improved social, economic and environmental outcomes for urban communities and government
Developer	<ul style="list-style-type: none"> Increased public support and negotiation Swifter approval of development applications Higher sales value potential Increased funding potential Allows difficult sites to be dealt with 	<ul style="list-style-type: none"> Increased reputation within the community Future collaboration more likely Integration of healthy design and planning into early development process
Design professional	<ul style="list-style-type: none"> Increased business and repeat commissions from clients Identify and integrate design, engineering and urban planning aspects in the early project development stages 	<ul style="list-style-type: none"> Enhanced professional development Ease of reference material Better quality management Basis for promoting sustainable design solutions to clients
Investor	<ul style="list-style-type: none"> High rental returns, lower vacancies Increased asset value Quality urban living product Competitive investment edge Enhanced asset differentiation 	<ul style="list-style-type: none"> Higher asset value base through higher neighbourhood involvement Reduced maintenance costs Higher re-sale value Higher quality, long-term tenants Higher value of portfolio asset



Stakeholder	Short-term value	Long-term value
Occupier	<ul style="list-style-type: none"> Greater accessibility to other uses/facilities Increased occupier prestige Enhanced basis for community safety and belonging within site and precinct Encourages outdoor neighbourly activities 	<ul style="list-style-type: none"> Better health and wellbeing Better productivity Increased business confidence Greater accessibility to other uses/facilities Reduced security expenditure Increased occupier prestige Reduced running cost (fewer vehicles)
Public interest	<ul style="list-style-type: none"> Renewal potential Less public/private discord Public realm brought closer to community realm tends to reduce vandalism after completion Physical and aesthetic improvement in overall outcome is recognised Key agencies can contribute on site, social and local issues and inform impact assessment 	<ul style="list-style-type: none"> Reduced public expenditure More time for positive planning Increased economic viability for neighbouring uses/development opportunities Increased local tax revenue More sustainable and healthy environment
Community interest	<ul style="list-style-type: none"> Better accessibility and equity Sense of place Potentially more efficient public transport system Better active travel Increase in active lifestyles More socially inclusive public spaces Greater community ownership that leads to civic pride Higher property prices 	<ul style="list-style-type: none"> Better community health (physically and mentally) Better security and less crime Enhanced and increased cultural vitality Less pollution Less stress Better quality of life Better accessibility and equity Sense of place Potentially more efficient public transport system Better active travel



Glossary

Term	Definition
Accessibility	The ease with which people can physically enter a place, or use a service (e.g. actively trying to enter bus network facilities).
Active frontage	Ground floor shop windows or transparent frontages that allow the activity within the building to be visible from the street. Ideally this should include opportunities for activity to spill out onto pavements through street cafés and shop displays. These active frontages should ideally relate to ground floor retail spaces, cafés, restaurants, bars and well-designed townhouses, and houses with useable front yards. However, they can also include hotel public facilities, office receptions, galleries and public facilities. These should, where possible, be included on the ground floor of residential and office developments.
Active street	A street along which people shop, work, meet, relax and often live. It is usually well serviced by public transport.
Active transport (travel)	Walking, cycling and/or using public transport.
Aesthetics	The study of appreciation of beauty and good taste.
Amenity	Relates to the qualities, characteristics and attributes people value about a place, which contributes to their experience of a high quality of life. These include physical landscape or streetscape; areas of vegetation and public and private open space for recreation, such as parks, reserves and gardens; urban design, including the scale and dominance of buildings; historic and cultural heritage; public views and outlooks; privacy; public safety; and the accessibility of places.
Car pooling	The planning and shared use of a car or other motor vehicle by the driver and one or more passengers travelling in the same direction at the same time.
Car sharing	Shared-use motor vehicles provided by a membership-based organisation with a centralised booking and billing system. Vehicles can be booked for as little as one hour.
Complexity	The visual richness of a place. The complexity of a place depends on the variety of physical elements.
Connectivity	Refers to the directness of travel between destinations.
Crime prevention through environmental design	A crime prevention strategy that focuses on the planning, design and structure of cities and neighbourhoods. It reduces opportunities for crime using design and place management principles that reduce the likelihood of essential crime ingredients (law, offender, victim or target, opportunity) intersecting in time and space.
Enclosure	The degree to which streets and other public spaces are visually defined by buildings, walls, trees, and other vertical elements.



Term	Definition
End of trip facility	Items required at a destination to facilitate walking and cycling as an alternative means of transport. This includes facilities that cater for the needs of both the cyclists and their equipment.
Green plot ratio (GPR)	The GPR determines required outcomes in terms of the percentage of functional landscape incorporated within a development. The GPR is based on a biological parameter called the leaf area index (LAI), which is defined as the single-sided leaf area per unit ground area. The LAI measures the greenery on site. It is presented as a ratio similar to the building plot ratio (BPR) currently in use in many cities to control maximum allowable built-up floor area in building developments. BPR is the ratio of gross liveable area of a site. The GPR can also be defined as the ratio of the total single-sided leaf area of the planted landscape to the plot or site area.
Human scale	The size, texture, and articulation of physical elements that match the size and proportions of humans (e.g. the Modulor principle) and, importantly, correspond to the speed at which humans walk.
Imageability (legible)	The quality of a place that makes it distinct, recognisable and memorable. A place has high imageability (legible) when specific physical elements and their arrangement capture attention, evoke feelings, and create lasting impressions.
Liveability	In a planning context, liveability refers to the perceived quality of a place, including the built environment and open space, as well as the location and accessibility of services and facilities required to undertake daily activities. It can also encompass intangible elements such as a place's character, cultural heritage and 'sense of place'.
Local area traffic management	Involves re-engineering local roads to distribute, and in some cases reduce, traffic in particular streets through the use of traffic calming devices. It also encourages traffic to slow down.
Maintenance plan	A plan designed to address the continuous protective care of an item or area, as distinguished from repair, which involves restoration or reconstruction.
Mode share	The proportion of travel that is undertaken using different forms of transport, such as public transport, car, bicycle and walking.
Parks and open spaces	Land that has been reserved for the purpose of sport and recreation, preservation of natural environments, provision of green space and/or urban stormwater management.
Passive surveillance	Can be natural, as undertaken by people as they go about their daily activities, with 'eyes on the street or place'. Places where all publicly/semi-publicly accessible, well-defined spaces or routes and entrances can be overlooked at all times.



Term	Definition
Permeability	The ease with which people can move around an urban area. A permeable urban area has plenty of streets, laneways and paths, and it is possible to move through the area by a variety of routes.
Public domain guidelines	A set of construction level plans, sections and details showing the public domain surrounding the proposed development.
Social inclusion	A society in which all people and communities are given the opportunity to participate fully in political, cultural, civic and economic life.
Supportive infrastructure	Built facilities that encourage regular and safe physical activity (e.g. footpath, lighting, water bubblers, seating, shade, showers and signage).
Transparency	The degree to which people can see or perceive objects and activity – especially human activity – beyond the edge of a street.
Walkability	In qualitative terms, walkability is the relative condition of an area that makes it accessible by foot. In quantitative terms, walkability is defined by drawing a line along all streets to a distance of 400 m (for a centre) or 800 m (for a centre that includes a public transport stop) and identifying all sites accessible from that line.
Walkability catchment (also known as pedshed)	The space within which it is considered possible to readily reach a location on foot. The catchment area is generally defined as a radius of 400 m (or a 5-minute walk) around a centre, and 800 m (or a 10-minute walk) around a centre that includes a public transport stop.
Wayfinding	Wayfinding refers to the manner in which people orientate themselves in their physical environment and navigate from one place to another. It incorporates the processes of knowing where you are, where you are going, the best way to get there, recognising when you have arrived at your destination and knowing how to leave the area. Wayfinding can also include indications of where people should not go.

Glossary definitions sourced from:

Australian Local Government Association, National Heart Foundation of Australia and the Planning Institute of Australia. *Healthy Places and Spaces: A national guide to designing places for healthy living*. Canberra: Australian Local Government Association, National Heart Foundation of Australia and the Planning Institute of Australia, 2009.

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Active Living impact checklist

1. Active transport: The level of intent is to achieve better health for people who walk, bicycle or take public transport.

	Yes	No	n/a	Justification/comments
1.1 Depending on density, vehicle amount and speed, minimise contact between cars and pedestrians in the walkability catchment through provision of footpath (if possible with a separate bicycle lane) on both sides of the street (where possible as part of a coherent movement network). ⁹				
1.2 Easy wayfinding achieved (e.g. signs, landmarks, path lighting, public art) and provide a human scale. ^{24,25}				
1.3 Design to reduce traffic conflict; ²⁶ location of vehicular access points away from major bus stops; possible confinement of vehicular access to side streets (through lot consolidation if necessary) and avoid slip lanes.				
1.4 Maximise pedestrian and bicycle priority at road crossings, ^{19,*} reduce wait times and circuitous routes. (Items such as pedestrian crossings, prioritising natural walking paths, and faster pedestrian lights makes walking and bicycling for transport more attractive). ²⁷ * The ACT Government signed the <i>International Charter for Walking</i> on 1 November 2010 and undertook the <i>Making Walking Count</i> audit.				
1.5 If density and road casualties are high, reduce vehicle speed through local traffic calming measures ²⁸⁻³⁰ by at least 25% of the traffic speed of nearby arterial roads. ^{31,32}				
1.6 Integrate appropriate landscaping – including canopy trees and secondary structural vegetation – within all walking and bicycling routes. ^{33,34}				
1.7 If residential development only: ensure restriction of parking (e.g. local resident parking pass, visitors). ^{35,36}				
1.8 Design for bicycle access: interface design/gradients, bike friendly/bike parking next to entrance (weather protected if possible) in accordance with ACT Government Design Standard 13 but with consideration of Complete Street guidelines. ^{37,38}				
1.9 Achieve Access and Mobility General Code ³⁹ for footpath or shared paths, pavement, slip resistance and edge treatments: grades and materials. ^{9,40}				
1.10 Design for clear, safe and accessible routes to bus stop locations where possible. Provide amenities such as seating and lighting. ²⁰				

Active Living impact checklist

2. Aesthetics: The level of intent is to achieve better health for people through friendly and safe places that will invite people and encourage exploration by foot or bicycle.

	Yes	No	n/a	Justification/comments
2.1 Design of building exterior and massing contributes to a walking friendly urban environment (active frontage) that includes maximum variety and transparency, well lit with opportunities for passive surveillance; high quality amenity including canopies. ²⁰				
2.2 Incorporate orientation features (e.g. landmarks, key sites, public art, lighting) into public space planning. ⁴¹				
2.3 Incorporate 'living green' canopies and other landscape infrastructure provisions to create a range of health co-benefits, including opportunities for urban air and water quality. ⁴³				

3. Connectivity: The level of intent is to achieve better health for people through convenient and direct routes, whether by active travel for transport or recreation.

	Yes	No	n/a	Justification/comments
3.1 Provide travel links that are attractive, safe, direct and convenient to ensure permeability, creating better accessibility towards a destination (e.g. street layout and subdivision pattern for walking and bicycling). ⁹				
3.2 Internal movement network promotes equal accessibility and connectivity to shared spaces and zones. ^{27,39}				
3.3 Incorporate actions for improved habitat connectivity and ecological function within pathways. ⁴³				
3.4 Accessible local facilities within easy walking distance to neighbourhood hubs/activity centres and public transport (ideally 400 m from residence, but dependent on attractiveness of destination). ⁹				
3.5 If shared paths are considered ensure they are carefully designed, with sufficient width, adequate sightlines, gentle gradients and turns, and marked centrelines. ³⁷				

Active Living impact checklist

4. Environments for all people: The level of intent is to achieve better overall health for people by creating places where people can have a sense of belonging, comfort and be part of a community.

	Yes	No	n/a	Justification/comments
4.1 Provision of an on-site focus for social interaction with transitional zones (public, semi-public and private spaces) such as communal open spaces, meeting rooms, communal gardens (possible roof-top/podium), with seating, children’s active facilities, shading and weather protection. ^{44,45}				
4.2 Weather protection from heat, rain and wind at key locations and all public transport locations. ^{46,47}				
4.3 Ensure a high level of air quality and pay attention to acoustic level; maximise cross-ventilation. ⁴⁸				
4.4 Climate conscious design solutions included in design (e.g. green roofs, avoid strong wind tunnels, noise pollution and air pollution, impacts of sun, heat islands). ^{49,50}				
4.5 Incorporate multi-functional landscape design elements as a priority in developing climate conscious design solutions with microclimate benefits (e.g. living walls, roofs) to screen and buffer spaces from noise and air pollutants. ⁵¹				

5. Mixed density: The level of intent is to achieve better overall health for people by creating a variety of buildings that support a broad selection of healthy and active lifestyles within a smaller footprint.

	Yes	No	n/a	Justification/comments
5.1 Ensure the building height has an environmental performance–related outcome that complements/supports the surrounding density mix with a focus on social return (e.g. green plot ratio). ^{9,48,52,53}				

Active Living impact checklist

6. Mixed land use: The level of intent is to achieve better overall health for people by having destinations in close proximity to make active transport more viable and convenient.

	Yes	No	n/a	Justification/comments
6.1 Site location relatively close to centres (including public transport), open space and other key destinations and incorporates design solutions, which support direct linkage and relationships with broader landscape activity nodes and networks. ⁹				
6.2 Consideration and inclusion of active land use and transit-supportive activities/active uses at bus stops (corner shops, phone boxes, Wi-fi hotspots). ⁵⁴				
6.3 Does the development comply with the Liveable Housing Design Guidelines (Commonwealth Government). ⁵⁵				

7. Parks and open spaces: The level of intent is to achieve better overall health for people as parks and open spaces can have the highest direct benefits to Active Living.

	Yes	No	n/a	Justification/comments
7.1 Stimulating and attractive routes to key destinations: landscaping, shade, opportunities to stop, rest and enjoy (seating at least every 100 m within an approximately 400 m radius of a key destination). ^{9,43}				
7.2 Ensure provision and protection of street trees (consider façade greening, canopy effect). ⁵⁴⁻⁵⁷				
7.3 Sun protection/shading: public spaces and external areas. ^{14,58,59}				
7.4 Check for potential contribution to public space planning (consider partnership arrangement for management and maintenance). ⁶⁰				
7.5 Accommodate multiple forms of recreation to enable environments for different ages, ³⁸ and ensure easy access (e.g. limited barriers to access such as significant changes in level). ^{59,61}				
7.6 Development should be developed in relation to broader green infrastructure network context and within the walkability catchment to local parks and recreation areas. ⁴³				
7.7 Optimise opportunities to integrate landscape design solutions at site level with broader neighbourhood and urban design, planning and management objectives for Active Living. ^{61,62}				

Active Living impact checklist

8. Safety and surveillance: The level of intent is to achieve better overall health for people through a reduction of places that are perceived as unsafe. This can enhance the physical, mental and social wellbeing of a community.

	Yes	No	n/a	Justification/comments
8.1 Crime prevention through environmental design general code; surveillance, territorial reinforcement, access control and space management; 'natural surveillance' preferred; well lit/overlooked by buildings/clear sightlines. ^{35,61-63}				
8.2 Multiple entrances that are highly visible and unobstructed from the street; separated from traffic where possible; include creative solution/public art and consider imageability ²⁵ from a child perspective. ^{9,64,65}				
8.3 Integrate accessibility and legibility for all users, especially the young, aged or frail, through design, construction and maintenance. ⁴³				

9. Social inclusion: The level of intent is to achieve better overall health for people through greater social cohesiveness, a reduction of social isolation and increased social interaction.

	Yes	No	n/a	Justification/comments
9.1 Consider contribution to the public realm, to maximise social inclusion across a range of ages, cultures and abilities. ^{9,14}				
9.2 Convenient access for people who are mobility impaired (elderly, parents with prams, and disabled people), ^{39,70} including, for example, ramps, priority parking spaces for electric bikes and other forms of transport, and safe, connected routes.				
9.3 Provide opportunities for input into the decisions about facility management and place making for future occupants (e.g. basketball courts, play equipment, community gardens to attract people to interact). ⁶⁶				
9.4 Promoting a street focus with human scale; addressing the street consistently in plans and documentation (e.g. avoid blank walls, short distances between entrances, good semi-public space design). ^{67,68}				

Active Living impact checklist

10. Supporting infrastructure: The level of intent is to achieve better overall health for people as quality infrastructure can support the level of recreation, social interaction and active transport choices.

	Yes	No	n/a	Justification/comments
10.1 Provision of supporting infrastructure in desirable locations of the development with shade if needed (e.g. resting areas, entertainment space, information boards, toilets, water bubblers). ⁹				
10.2 Encourage stair use through provision of conveniently, well-designed and prominently located stairways both inside and outside buildings. ⁶⁹				
10.3 Posting motivational and directional signage for cycling/walking routes to key destinations (outside) and to encourage stair use for future building occupants (inside) with consistent themes to encourage familiarity (if possible in minutes and with internationally recognised symbols). ^{24,70}				
10.4 Provision of end-of-trip facilities on site (e.g. cycle parking, change rooms and showers) and assessed/rated by Pedal Power. ⁹				
10.5 Lighting for night-time safety, located to light up walkways, meeting places, road crossings, signage, public transport stops and other well-used night-time areas. ⁶⁹				
10.6 Drinking water access is important in many public areas; consideration should be given to providing water fountains in destinations and rest areas. ²⁵				
10.7 Facilities' ease of long-term maintenance and access for cleaning, servicing and repairs of all soft and hardscape elements as well as ground infrastructure. ^{46,47}				



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