

# Active travel: a climate change mitigation strategy with co-benefits for health

**Chris E. Rissel**

Health Promotion Service, Sydney South West Area Health Service  
School of Public Health, University of Sydney

Email: [criss@email.cs.nsw.gov.au](mailto:criss@email.cs.nsw.gov.au)

**Abstract:** Reducing the burning of fossil fuels for transport will help reduce the rate of climate change and the severity of the impact of climate change. The alternatives to private motor vehicles include active travel modes such as walking, cycling and use of public transport. While simultaneously reducing carbon dioxide emissions and traffic congestion, active transport leads to increased levels of physical activity and social interaction. This article summarises a number of NSW active travel initiatives. Despite some positive steps in NSW, other Australian states have invested far more and can demonstrate greater changes in travel behaviour.

New South Wales (NSW) per capita greenhouse gas emissions are in the order of 23 tonnes per person each year, which is more than double that of the United Kingdom, Germany and Japan (with emissions at just over 10 tonnes per person) and almost double the average for industrialised nations (about 13 tonnes).<sup>1</sup> Transport emissions include those from road (cars, buses and trucks), rail, shipping and aviation for both passengers and freight, and represent the second largest source of emissions (14%).<sup>2</sup>

Reducing the burning of fossil fuels for transport will help reduce the rate of climate change and the severity of the impact of climate change. A number of factors are now simultaneously contributing to higher oil and petrol prices, which are likely to have the effect of reducing the consumption of fossil fuels for transport. If Australian government policy introduces an emissions trading scheme that includes transport, the price of (carbon-based) petrol will increase.

Even greater increases in price will come from oil supply crises (e.g. natural disasters such as Hurricane Katrina, or

threats to the oil supply from terrorists). Ultimately, demand for oil will exceed supply (which is finite) as the economies of China and India continue to grow. This situation is likely within our lifetime.<sup>3-5</sup> Already Australians are looking at the cost of driving motor vehicles and thinking about driving less, and the shift away from cars is expected to become more pronounced as petrol prices inevitably rise and concern about climate change increases.

## Transport is a social determinant of health

Although transport is not a traditional focus for health services, it is recognised internationally as a social determinant of health.<sup>6</sup> As well as being a source of greenhouse gas emissions and other air pollutants, the transport system contributes to injury rates and congestion, and affects access to services and social activities. As transport costs increase, transport and transport availability will increasingly be an issue of equity. Transport deserts – areas without reasonable access to public transport – have already been identified in parts of western Sydney, and people living in such areas will be increasingly disadvantaged.<sup>7</sup> People who cannot afford to drive will need other transport options, such as public transport and bicycle paths. It will be the responsibility of government to ensure that this infrastructure is provided. As Enrique Peñalosa, former mayor of Bogotá, Colombia, said, ‘A safe cycle path is a symbol of democracy; it shows that a person on a \$40 bicycle is as important as a person in a \$40 000 car’ (personal communication, July 2008).

The alternatives to private motor vehicle-oriented transport include active travel modes such as walking, cycling and use of public transport, either for the whole or part of journeys. While simultaneously reducing carbon dioxide emissions and traffic congestion, active travel leads to increased levels of physical activity, reduced exposure to pollutants (air and noise) and increased social interaction. While the concept of active travel is quite simple, people will default to current practice (i.e. use of the private motor vehicle) unless the alternative travel modes are uncomplicated, safe, easy, affordable and convenient. Active travel is more difficult in settings where there is no or infrequent public transport, or where distances make the time and distance barrier too great to make cycling or walking feasible, as is the case in some outer urban and rural settings.

## NSW initiatives

In NSW there are a number of initiatives that seek to increase active travel. While these initiatives are usually designed initially to increase physical activity levels, they also have the added benefit of mitigation of climate change. This outcome is in contrast to many other initiatives that represent adaptation and response to climate change (e.g. responding to severe weather events).

In NSW, the Premier's Council for Active Living involves a number of relevant agencies in high level discussions and collaboration.<sup>8</sup> The role of the Council is to 'provide leadership and advice to the Premier to encourage more people to be more active more often' by working collaboratively with senior representatives from government, industry and community sector. Projects tend to be of statewide significance, and include:

- work with a developer to incorporate active living design considerations in new housing developments
- incorporation of active living physical environment characteristics into Metrix, a proposed tool that the Department of Planning is developing to evaluate local councils' local environmental plans
- input into the urban design code for new housing release areas
- work with the NSW State Property Authority to incorporate end-of-trip facilities (such as secure bicycle parking, showers and change rooms) within refurbished buildings when government agencies relocate
- co-ordination of a new whole-of-NSW government Bicycle Plan
- co-ordination of a high level government agency active transport roundtable.

Specific government agencies have also developed guidelines for planners and engineers responsible for building the urban environment that can positively or negatively influence physical activity and active travel.<sup>9</sup> The former NSW Department of Infrastructure, Planning and Natural Resources in conjunction with the Roads and Traffic Authority (RTA) developed planning guidelines for walking and cycling, and the RTA runs training programs for local government engineers, who are in a position to apply these guidelines to the building of specific local environments.<sup>10</sup> The RTA also conducts free courses in how to prepare transport access guides. Other agencies such as the National Heart Foundation of Australia have also produced similar documents that highlight the benefits of designing urban environments to facilitate walking and cycling.<sup>11</sup>

## Sydney South West Area Health Service initiatives

There are many examples of local programs that promote active travel. The Sydney South West Area Health Service (SSWAHS) has implemented a number of programs over the last decade. One such program was a health service worksite program involving social marketing and an individual travel

behaviour change program that led to modest changes in driving to work and reduced car travel on weekends.<sup>12</sup> Another strategy has been the development of transport access guides for major trip generators such as hospitals.<sup>13</sup> These guides illustrate how to travel to and from the hospitals through active travel by showing where the locations of cycle paths, recommended walking routes from rail stations and bus stops (including an indication of the frequency of buses). By not showing parking stations and making active travel easier, this strategy is intended to influence the decision of how to travel to these specific destinations.

An innovative research program underway in SSWAHS is promoting cycling in two local government areas (with a third as a comparison area). The Cycling Connecting Communities project will test whether promoting the use of cycling infrastructure such as new cycle paths in the Fairfield and Liverpool areas will increase overall levels of physical activity in the community.<sup>14</sup> It will focus on adults, and particularly those people who do not currently ride bicycles, with a wide range of strategies. This project continues earlier cycling promotion work involving the development of a cycling proficiency course to increase the skills and confidence of people wanting to ride more, and the development of a staff bicycle pool.<sup>15,16</sup>

Two other programs in SSWAHS have focused on active travel to school. One is the Central Sydney Walk to School Trial, involving 24 primary schools in the inner west of Sydney and the other is the NSW TravelSmart Schools Program involving 15 primary schools in the inner west and eastern suburbs of Sydney.<sup>17,18</sup> Both programs had a modest influence on travel behaviour, and highlighted that it is the parent journey to work that is a key factor that influences parents' decisions on how they and their children travel to and from school.<sup>19</sup> Interestingly, most of the walk-to-school programs internationally have had small effects. In contrast, a well-funded program in California sought to change the physical environment around schools and the main routes to schools.<sup>20</sup> This program is probably the most successful of any in the world in increasing the number of children actively travelling to school.

With cycling the lowest of the active travel modes, there is considerable potential to increase the proportion of trips by bicycle. Cycling is the fourth most popular form of recreational sport or exercise in Australia, and the Australian Bureau of Statistics census indicates that the journey to work by bicycle has consistently increased over the last decade, with a 22% increase across Australia from 2001 to 2006.<sup>21,22</sup> Almost half (42%) of all households in Sydney in 2005 had a bicycle and new bicycles have consistently outsold new cars for each of the last eight years in Australia.<sup>23,24</sup>

## Investment in cycling produces outcomes

Despite some positive steps towards a greater emphasis on active transport in NSW, other Australian states have

invested far more and can demonstrate greater changes in travel behaviour. For example, investment in cycling infrastructure over the last decade in Melbourne (up to \$13 million per annum) has led to increases in cycling from 2001 to 2006 of 42%.<sup>22,25</sup> In comparison, cycling in Sydney has increased only 9%, with the RTA spending \$7 million across NSW in 2006–07 (see Table 1).<sup>26</sup> The city of London, as part of their Climate Action Plan, has increased funding for cycling and walking by almost five-fold – from £13 million a year in 2003–04 to £62 million in 2008–09.<sup>27</sup>

Analysis of the 1980 to 1987 Fremantle Network Bike Plan found that it was a worthwhile economic investment for the community, with a 12% annual increase in the cycling population resulting in transport and health savings to that community of \$420 000 per annum, compared to the implementation costs of the bike plan of \$273 000 per annum.<sup>28</sup> In addition to social and environmental benefits, there was a benefit-to-cost ratio, in economic terms alone, of 1.46 : 1.<sup>28</sup>

A recent review of transport and health promotion interventions to increase levels of cycling found that, despite varying levels of research rigour, most programs did lead to a positive increase in cycling.<sup>29</sup> An investment in infrastructure for cycling and social and behavioural programs

that encourage cycling will readily lead to more Australians cycling.

### Recommendations to increase cycling

The barriers to more Australians cycling are relatively well known.<sup>30</sup> A report commissioned by the Australian Department of Health and Ageing seeking to raise population levels of physical activity identified the barriers and recommended strategies that a whole-of-government approach could use to increase levels of cycling.<sup>22</sup> These recommendations are largely dependent upon each other and would need to be implemented in an integrated, co-ordinated way:

- Improved bicycle infrastructure: to provide safe, attractive and enjoyable on and off road bicycle routes as well as high quality end-of-trip facilities.
- Funding: to better reflect the role and value of cycling in a range of areas, including transport, health and sustainability, with support from all levels of government.
- Mass marketing campaigns: to promote the multiple health, environmental, transport, economic and social inclusion benefits of cycling, and address perceived barriers such as safety, required fitness level and road-user behaviour. These campaigns can be supported through the extensive network of cycling organisations around Australia, and should be combined with infrastructure improvements.
- Behaviour change programs such as TravelSmart, Ride to Work and Ride to School programs: to help more Australian children and adults make the daily commute by bicycle.
- Bicycle events: to encourage infrequent and novice riders to cycle in a supportive social environment.
- Bicycle education programs: to increase confidence and skill levels in both the child and adult population.
- Urban design: to create a physical environment more conducive to cycling, such as higher density, mixed use development and shorter trip distances.

Cycling is a carbon-neutral, petrol-free form of transport, simultaneously helping Australians fight climate change, reduce fuel costs and increase physical activity and improve health. As Australian society comes to terms with global warming and the need to change personal behaviour to slow the rate of climate change, active travel needs to be a central platform in this program. Political will is necessary to create an environment that facilitates walking and cycling, as well as public transport options, for all.

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**Table 1. Investment in cycling\* and change in cycling usage for journeys to work by Australian capital cities, 2001 to 2006**

	Annual investment in cycling (\$ '000s)*	Journey to work by bicycle – ABS data (% change 2001 to 2006)
Sydney	7000**a	9
Melbourne	13 000b	43
Adelaide	3450**b	31
Hobart	750**b	25
Perth	9750b	16
Canberra	2950b	16
Brisbane	17 000c	13
Darwin	1270d	–7

Per capita expenditure has not been calculated as the scope of expenditure varies by the nature of the geographic areas covered (e.g. city council, greater metropolitan area, or statewide). \*Expenditure by state authority responsible for roads/traffic. \*\*Expenditure is across the state. Source: <sup>a</sup>Roads and Traffic Authority. *RTA Annual Report 2007*: p. 60. (Cited 24 July 2008.) Available from: [http://www.rta.nsw.gov.au/publicationsstatisticsforms/downloads/2007\\_rta\\_annualreport\\_mainbody.pdf](http://www.rta.nsw.gov.au/publicationsstatisticsforms/downloads/2007_rta_annualreport_mainbody.pdf) <sup>b</sup>Cycling Promotion Fund. State and Territory Spending on Cycling. Cycling Promotion Fund, Melbourne (2007). <sup>c</sup>Brisbane City Council. Council Budget – Moving Brisbane. (Cited 11 December 2008.) Available from: [http://www.brisbane.qld.gov.au/bccwr/lib513/budget0809\\_moving\\_brisbane.pdf](http://www.brisbane.qld.gov.au/bccwr/lib513/budget0809_moving_brisbane.pdf) <sup>d</sup>City of Darwin. 2008/2009 City of Darwin Annual Plan and Budget. (Cited 11 December 2008.) Available from: [http://www.darcity.nt.gov.au/documents/2008-09AdoptedCityofDarwinAnnualPlanandBudget\\_000.pdf](http://www.darcity.nt.gov.au/documents/2008-09AdoptedCityofDarwinAnnualPlanandBudget_000.pdf)

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