

Cycling: getting Australia moving – barriers, facilitators and interventions to get more Australians physically active through cycling

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1 Introduction

The Commonwealth government commissioned a report (Cycling Promotion Fund - CPF, 2008a) in order to gain greater insight into the current state of cycling, what prevented more Australian adults from participating and what could be done to overcome these barriers. There was an understanding that cycling has the potential to address some key challenges and therefore the Department of Health and Ageing were keen to explore strategies to increase cycling participation.

The objective of that report was to provide public policy makers with a clear assessment of the nature of current cycling participation, the reasons for non-participation and how these could be overcome. In summary, the objectives were to:

- investigate the contribution of cycling to key public policy challenges
- identify barriers to increasing participation in cycling
- identify strategies to overcome barriers to cycling.

The report then set out to deliver evidence-based recommendations to increase the level of adult cycling participation.

This paper is a summary that captures the major findings of the larger paper (CPF, 2008a) delivered to the Commonwealth government in June 2008.

A comprehensive literature review was undertaken to identify all published Australian research studies, both in the peer-reviewed literature and the 'grey' literature, that identified quantifiable health benefits of cycling, identified barriers to cycling, or evaluated intervention programs or policies to increase cycling. A number of electronic databases, including MEDLINE, PUBMED, and APAIS were searched for the years 1995-2007. The Google internet search engine was used to help locate possible reports or papers that described the evaluation of interventions to promote cycling. Further, the authors contacted all major Australian cycling organisations or persons active in the promotion of cycling in Australia to identify unpublished evaluation reports of cycling promotion programs. International reviews of the cycling literature were considered for their relevance in the Australian context, with key policy recommendations for the encouragement of cycling identified.

In addition to the literature review, a number of existing data-sets were examined to extract some summary figures on levels of cycling in Australia, and injury risk. These datasets included the journey to work Census data (ABS, 2007) and the Australian Sports Commission (2006) Exercise Recreation and Sport Survey.

2 Cycling participation in Australia

Australians have shown a strong inherent interest in cycling. Figures from Bicycle Industries Australia (2006) have shown a rapid increase in bicycle sales, with over 1.4 million sold in 2007, outnumbering new car sales for the eighth consecutive year. The rise in the number of Australians purchasing bicycles has been accompanied by an increase in cycling participation. An analysis of the Australian Sports Commission (2006) Exercise Recreation and Sport Survey (ERASS) reveals that cycling is Australia's fourth most popular physical activity for adults. Moreover, in terms of frequent participation, it is Australia's third most popular physical activity.

One of the strongest growth areas for cycling in recent years has been as a mode of transport to work (commuting). The latest Census data released by the ABS show Australian capital cities are experiencing an average increase of 28.9% between Census 2001 and 2006. Melbourne and Adelaide experienced the most rapid increases, at 48.2% and 39.1%, respectively (Table 1). This analysis of cycling participation in Australia demonstrates that Australians are both buying more bicycles than ever before and using them in increasing numbers (CPF 2008b).

Table 1 – Bicycle Journeys to Work 2001 & 2006

	Bicycle Commuters (sole mode trips only)			Kilometres/Year		
	2001 Census	2006 Census	% Change	2001 Census	2006 Census	Change
Sydney	8,684	10,175	17.2%	30,394,000	35,612,500	5,218,500
Melbourne	12,179	18,047	48.2%	42,626,500	63,164,500	20,538,000
Brisbane	6,347	7,502	18.2%	22,214,500	26,257,000	4,042,500
Adelaide	4,376	6,085	39.1%	15,316,000	21,297,500	5,981,500
Perth	5,179	6,323	22.1%	18,126,500	22,130,500	4,004,000
Hobart	622	810	30.2%	2,177,000	2,835,000	658,000
Canberra	3,093	3,763	21.7%	10,825,500	13,170,500	2,345,000
Darwin	1,498	1,407	-6.1%	5,243,000	4,924,500	-318,500
TOTAL	41,978	54,112	28.9%	146,923,000	189,392,000	42,469,000

Source: ABS (2007)

3 Economic benefits of cycling participation

It is well recognised that cycling offers considerable benefits to the individual, in terms of improved health, reduced transport expenses and lifestyle enhancements. Placing a value on current and potential cycling participation is challenging as there are a number of different methodologies used and the value varies depending on the profile of the person cycling in terms of their age and current physical activity levels and frequency and lengths of their cycling trips. Nevertheless, attempting to determine the value of cycling participation is important for policy formation and decision making. Government and the wider community benefit from cycling in the following ways:

- Increased physical activity levels, with subsequent reductions in health care costs.
- Reduced cost of transport 'externalities'. These include air and noise pollution, road traffic injuries, congestion and climate change.

This report brings together different sources of evidence to quantify, in monetary terms, the value of current cycling participation.

3.1 Economic Benefits of Leisure Cycling

The savings to the health budget from regular recreational cycling only in 2006 is estimated at \$82.9 million. This was calculated using figures from Australian Sports Commission (2006) on recreational cycling participation numbers. Only those that participated in cycling at least three times per week were included, as this is the frequency required to gain significant health benefits.

3.2 Economic Benefits of Commuter Cycling

The benefits of commuter cycling include both the positive impact on public health, as well as the reduction in the 'externalities' of transport. It should be noted that a significant amount of additional transport-based cycling occurs (visiting friends, shops etc...), but are not collected by the Census and for reasons of consistency are not included in these calculations. According to the Australian Greenhouse Office (2006), around 66% of personal transport is for non-commuting purposes. It can therefore be said that the figures presented below are conservative and should additional travel data be available, are likely to be higher.

Cyclists currently save the economy \$63.9 million per year in reduced congestion costs and \$72.1 million in reduced health costs. The economic benefit of commuter cycling, including congestion, health savings and 'externalities' such as air pollution amounts to \$144.3 million per year.

The congestion and health savings are both derived through an analysis of the Census data regarding *Journey to Work* responses in Australian capital cities. Through this, we were able to determine the number of journeys and typical travel distance. This provided the researchers with the number of kilometres completed by commuting cyclists in capital cities, providing the basis for congestion and health savings.

3.3 Potential for improved road safety through the reduction in car use

Road trauma in Australia costs \$17 billion a year (Connelly and Supangan, 2006). This is equal to 2.3% of Australia's gross domestic product. There is increasing evidence that higher levels of motor vehicle use increase the risk of road trauma. Strategies that provide non-motorised transport options are increasingly recognised as an effective road safety strategy (Litman and Fitzroy, 2005). In fact, policies aimed at reducing car use typically result in around a 10% reduction in vehicle kilometres travelled and this could cut road trauma costs by between \$850 million and \$1.7 billion per year (Litman, 2007).

The authors note that research on the economic benefits of current and future cycling participation is limited in Australia. Further research is required to gain a clearer understanding of these benefits, in order to inform public policy.

4 Barriers to Adult Cycling in Australia

A general theme within this document is the need to create supportive environments for health. The *Ecological Model of Physical Activity* takes the view that environments can either support or restrict healthy behaviour. In this model, used to guide discussion in this section, individual, social/cultural, built environment, and policy factors all influence physical activity participation, often unintentionally (Sallis et al., 1998). For a comprehensive description of each of the following barriers to cycling, as well as a more detailed description of the *Ecological Model of Physical Activity* please refer to the full report (CPF 2008a).

- **Individual factors** such as poor health, lack of knowledge and skills and time.
- **Social and cultural factors** such as socio-economic demographics. For instance, it was found that those living in lower socio-economic areas had reduced access to supportive environments for physical activity (Popkin *et al.*, 2005; Estabrooks *et al.*, 2003; Kavanagh, 2007).
- **Built environment factors** such urban design, land use planning and bicycle infrastructure. Figure 1Figure 3describe some of the policy interventions used to overcoming built environment barriers to cycling:

CASE STUDY – BRISBANE CITY COUNCIL

Brisbane City Council has recently developed purpose built, high quality end-of-trip facilities for their staff. As the pictures below illustrate, the council has gone beyond simply providing bicycle parking; they also feature showers, lockers and ironing facilities.



Figure 12 Staff Bicycle Parking



Figure 13 Ironing facilities provided for cyclists



Figure 14 Secure bicycle parking outside a transport hub in Brisbane

The development of first class end of trip facilities at Brisbane City Council offers a very good demonstration of the importance of end of trip facilities in encouraging bicycle commuting. Prior to the development of the new facilities, Council provided 100 basic bicycle parking spots. The new facility accommodates 150 bike spaces and 200 lockers. The new facility reached capacity within a few months of opening and there is now a waiting list.

Photos: Courtesy of Brisbane City Council

Figure 1 – End of trip facilities can help boost the attractiveness of cycling to work

Source: CPF (2008a)

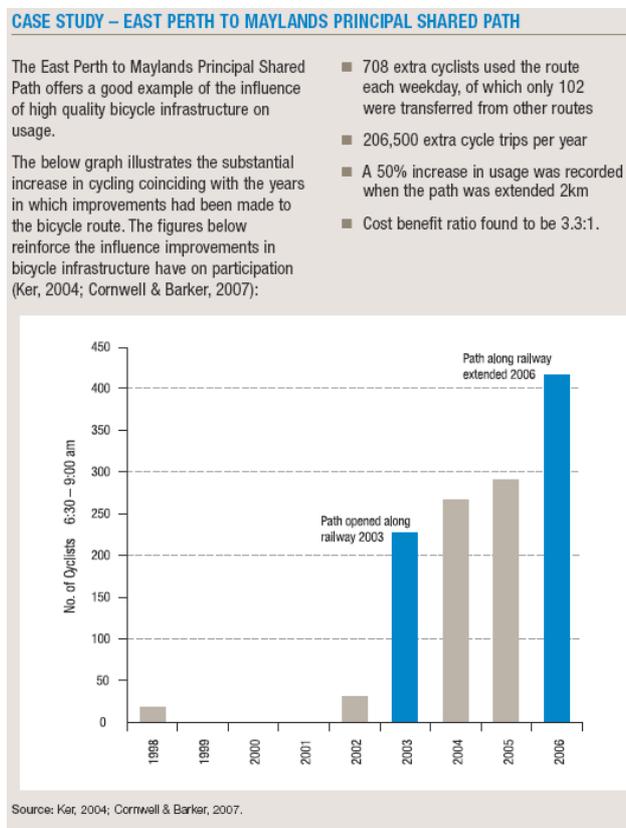


Figure 2 – Boosting the quality of bicycle paths makes it easier for more people to cycle

Source: CPF (2008a)

How to encourage better integration of bicycles with public transport

Bicycles and Public Transport

Safe bicycle routes to public transport

Carrying bicycles on public transport

Secure bicycle parking at transport hubs

See appendix 17 for information on the opportunities available for carry bicycles on public transport.

BICYCLES AND PUBLIC TRANSPORT

The combination of cycling and public transport offers the opportunity to cover distances not comfortably achieved by bicycle alone. In countries that have maximised opportunities for bicycling, such as the Netherlands, 38.6% of train trips involve a bicycle ride to the station (Cycle Council of the Netherlands, 2007).

The three key areas to encourage more people to integrate bicycle and public transport travel are:

- **Safe Bicycle Routes to Public Transport Hubs:** This is the essential first step required to enable more people to feel safe and comfortable when riding to the station/stop. Appendix 16 illustrates how an integrated network of bicycle routes leading to train stations can increase the catchment area of public transport hubs.
- **Secure Bicycle Parking:** Once passengers have cycled to the station, they will require a secure place to lock their bicycle – as it will typically be left unattended for a large portion of the day.
- **Taking bicycles on public transport:** Providing the opportunity for people to take their bicycles on public transport allows people to ride both to and from their public transport journey. This has proven to boost the attractiveness of each of these modes of transport, as demonstrated by a comprehensive review of current programs throughout the United States (Federal Transit Administration, 2005).

THE NETHERLANDS MODEL FOR BICYCLE INFRASTRUCTURE

The pictures below demonstrate how well the Netherlands' efforts in providing safe bicycle routes to train stations and bicycle parking have been embraced.



Photo: Ministry of Transport, Public Works and Water Management, The Netherlands 2007



Photo: Elliot Fishman

The heavy demand for bicycle parking at train stations is not limited to major centres such as Amsterdam. Even regional centres have successfully fostered a culture of riding to the train station, as illustrated in the second photograph.

THE WESTERN AUSTRALIA EXPERIENCE WITH PUBLIC TRANSPORT CATCHMENT AREAS

A study on Perth's Northern Suburbs Transit System has found that 30-55% of those driving to the station live within 3km (Department for Planning and Infrastructure, unpublished).

At another station, with a relatively narrow catchment in an older developed area, nearly half the cars in the *Park and Ride* facility are registered at addresses within 800 metres of the station (Jim Krynen, Western Australian Public Transport Authority).

This pattern of vehicle usage reinforces the potential of cycling to replace short distance car trips to public transport facilities like railway stations.

Figure 3 – Integration of bicycles with public transport can help more people adopt sustainable transport patterns:

Source: CPF (2008a)

- **Safety** was found to be a major deterrent to cycling and this was explored, assessing both perceived and actual levels of risk faced by cyclists. This report found very clear evidence that the more cyclists there are, the safer it becomes, as illustrated in Figure 4.

It may be the case however that a transition period exists, whereby the boost in relative safety lags slightly behind the increase in number of cyclists. In Victoria for instance, cycling has increased at a faster rate than any other part of Australia, but injury rates too have spiked. Using the theory of *'safety in numbers'*, one might expect the injury rate per kilometre travelled to reduce in coming years, as cycling skills improve and driver behaviour becomes more attune to the needs of cyclists.

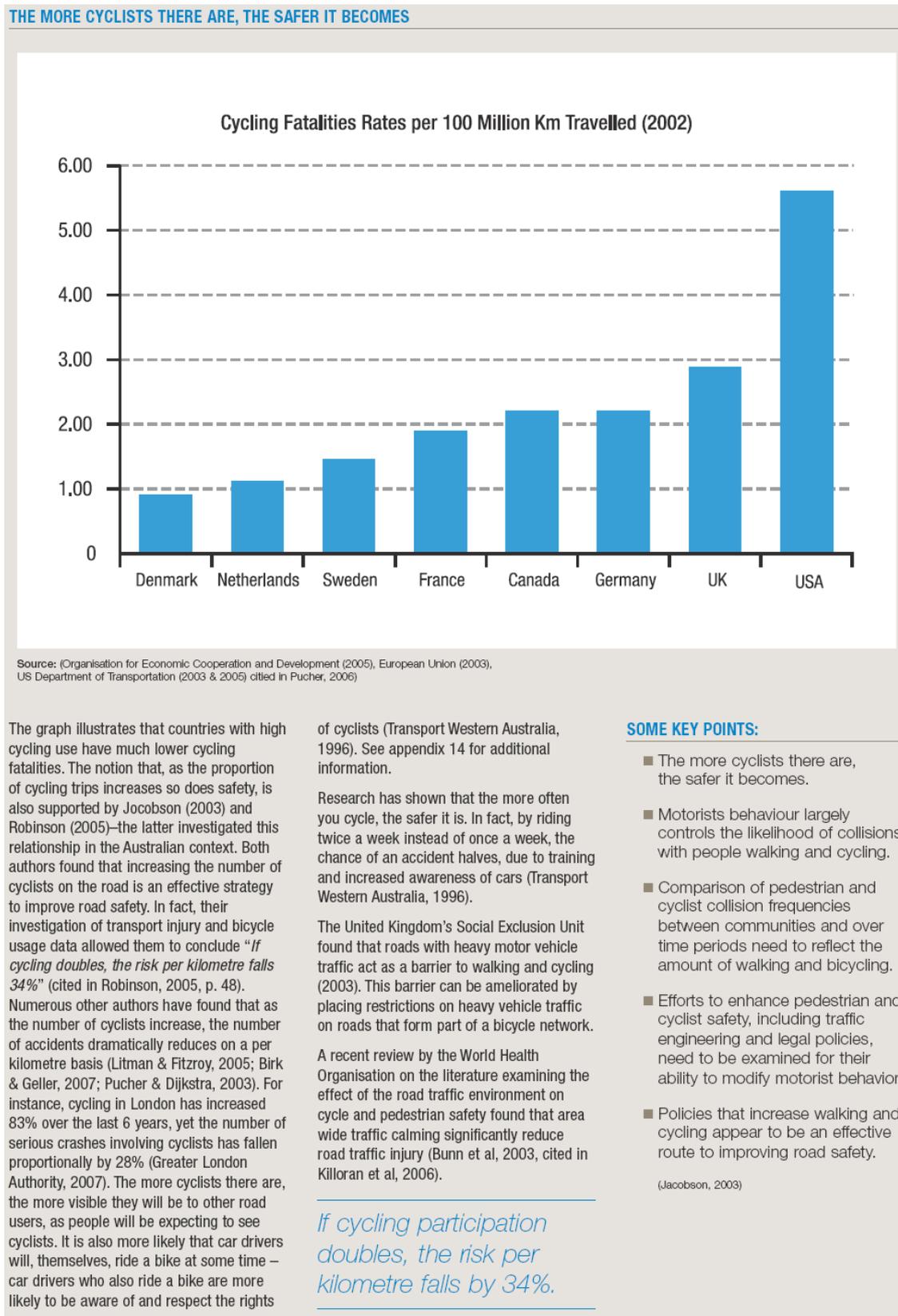


Figure 4 – The more cyclists there are, the safer it becomes

Source: CPF (2008a)

- **Policy and regulation** such as transport and land use policies affecting funding and priorities between different modes of transport.

5 Recommendations to increase adult cycle participation

The following policy interventions are designed to respond directly to the barriers to cycling outlined earlier and are based on the best available, most domestically relevant evidence.

5.1 Mass marketing campaigns

A national mass marketing campaign should be developed to address perceived barriers to cycling. Key messages likely to be successful include:

- Cycling is safer than you think
- You don't need to be super fit to cycle
- Improve road user behaviour/safety/awareness of cyclists
- Benefits of choosing to cycle; health improvements, greenhouse gas and petrol savings, relief from congestion and parking problems.

It is important to ensure that mass marketing is done in coordination with infrastructural improvements to ensure new cyclists are not deterred from the experience.

5.2 Bicycle education programs

A national bicycle education program should be developed and implemented across years 5 and 6, as well as community and workplace programs for adults.

5.3 Behaviour change programs

Behaviour change initiatives such as TravelSmart, Ride to School and Ride to Work programs should be expanded.

5.4 Cycling events

Government support for cycling events should be provided, to act as an entry point for new cyclists.

5.5 Bicycle friendly urban design

National guidelines to ensure the built environment contributes to, rather than detracts from, public health should be established. Design should be encouraged through legislation that increases density, combines residential with other land uses and prioritises active forms of transport.

5.6 Bicycle infrastructure development

High quality, integrated bicycle routes (on and off road) should be provided to meet the challenge of increasing Australia's participation in active travel and recreation.

5.7 Funding

Funding needs to be substantially increased at all levels of government to better reflect the contribution cycling makes to priorities in the transport, climate change, health and economic sectors.

6 Conclusion

This report found cycling is currently increasing rapidly, including as a form of transport. While the contribution bicycles make to Australia's transport system is currently modest, significant potential exists to boost the role of cycling in Australian cities and regional centres. This report found that as Australians continue to lead time poor lives, cycling is in a unique position for its ability to integrate physical activity into everyday living, as well as reduce greenhouse gas emissions, congestion and vulnerability to increasing expensive petrol. Yet for these gains to be achieved, significant barriers to the uptake of cycling need to be overcome. These barriers include many societal issues, such as the perception of safety and prestige association with different modes of transport. Moreover, many areas of Australia were found to lack bicycle friendly design and this presents a considerable barrier to greater bicycle use. Overcoming these barriers requires the development of a whole-of-government approach, encompassing the health, transport, environment, education and planning portfolios. Only through a combined approach can the significant benefits of increased cycling be fully realised.

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