

Economic Benefits of Cycling for Australia

Prepared by the Cycling Promotion Fund
June 2008



Cycling offers a range of financial savings to the individual and wider economic benefits that extend throughout the entire community. This fact sheet focuses on the significant economic savings to government and the economy from current and future participation in cycling.

Recent data from the Australian Bureau of Statistics show that 1.35 million Australians make car journeys to work of less than 5km each day (2006).

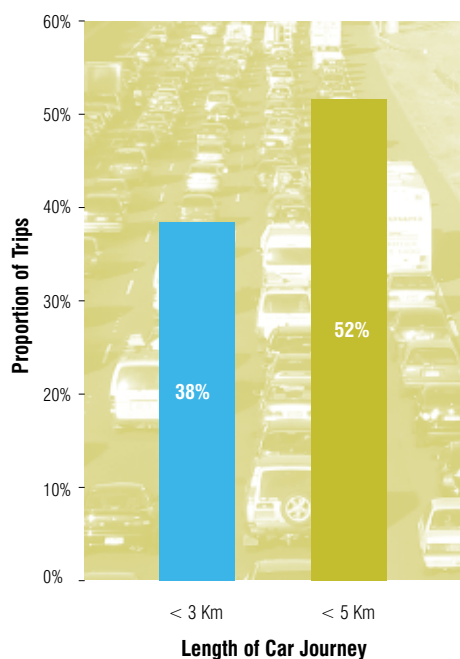
Cycling provides economic benefit in terms of improved public health, reduced levels of traffic congestion and greenhouse gas emissions, as well as reductions in expenditure on transport fuel.

These benefits accrue most readily when the bicycle is used as a substitute for car journeys. Though many trips are too long to be comfortably undertaken by bicycle alone, Graph 1 below highlights that a large proportion of our car trips are of a distance suited to cycling.

“ Thousands of Australians have already made the switch to cycling ”

The number of people who cycle to work (sole mode) in Australian cities has increased markedly between Census 2001 and 2006 (rising 28.9% on average).

Graph 1:
Typical distances of car journeys in Australian cities



Source: RMIT, 1999; Austroads, 2005

Table 1:
Bicycle commuting travel (Capital cities)

	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: Australian Bureau of Statistics, 2007

Health

Cycling cuts millions off Australia's waist line and bottom line.

“ The direct gross cost of physical inactivity to the Australian health budget in 2006/07 was \$1.49 billion ”

Cycling increases the health of participants and when used as a replacement to car travel, offers additional savings that extend to the wider community. These benefits can be divided into the following categories:

Physical activity

Physical inactivity is one of the major causes of ill health in Australia. In fact, around half the Australian adult population are insufficiently active to protect against sedentary lifestyle disease, such as diabetes (Australian Institute of Health and Welfare, 2006).

The direct gross cost of physical inactivity to the Australian health budget in 2006/07 was \$1.49 billion (Econtech, 2007). This translates to \$198.57 per adult, per year. Table 2 below illustrates the itemised cost for some of the major diseases affecting the Australian population. Cycling provides a practical, sustainable opportunity to help get more Australians active and drive down the cost of physical inactivity.

In 2006, over 1.68 million Australians cycled for recreation and of those, 417,400 cycled more than 104 times a year (Australian Sports Commission, 2006).

These individuals can be classified as meeting the levels of physical activity to protect against sedentary lifestyle diseases from cycling alone.

Current cycling participation (for recreation and commuting) cuts sedentary lifestyle disease costs by approximately \$154 million.

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. According to the Australian Greenhouse Office (2006), around 66% of our journeys are for non-commuting purposes.

Mental health

The World Health Organisation has demonstrated that cycling is an effective method of reducing depression and anxiety (Dora & Phillips, 2000), which combined cost Australian businesses almost \$10 billion a year. This includes \$6.6 billion for sick days and \$3 billion for poor work performance (Hilton, 2005).



Cycling is an effective method of reducing depression and anxiety.

Table 2:
The costs of inactivity

Coronary Health Disease	\$371.5 million
Stroke	\$162.4 million
Type 2 diabetes	\$210.7 million
Breast cancer	\$42.2 million
Colon cancer	\$61.4 million
Depression Symptoms	\$177.3 million
Falls	\$468.7 million
Total Gross Costs	\$1,494.4 million

Source: Econtech, 2007

“ Cycling provides a practical, sustainable opportunity to help get more Australians active and drive down the cost of physical inactivity. ”

“ The more cyclists there are, the safer it becomes ”

Air and noise pollution

Motor vehicles are a major source of air and noise pollution in Australian cities (Standing Committee on Environment and Heritage, 2005; Commissioner for Environmental Sustainability, 2007; Bureau of Transport and Regional Economics, 2005). Between 900 and 4500 cases of cardio-vascular and respiratory disease occurred due to motor vehicle related air pollution in 2000, costing between \$0.4 billion to \$1.2 billion. In addition, air pollution caused by motor vehicles accounted for between 900 and 2000 premature deaths, with an estimated cost of between \$1.1 billion and \$2.6 billion (Bureau of Transport and Regional Economics, 2005).

The impact of air and noise pollution is greatest in dense urban centres. Cycling therefore offers significant potential to reduce this cost, as these areas are also the most amenable to cycling, as trip distance is likely to be shorter than in outer areas.

Road trauma

Road trauma in Australia costs \$17 billion a year. This is equal to 2.3% of Australia’s gross domestic product (Connelly & Supangan, 2006). There is increasing evidence that higher levels of motor vehicle use increase the risk of road trauma (Litman & Fitzroy, 2005). Graph 2 below provides an indication of the cost incurred by road trauma.

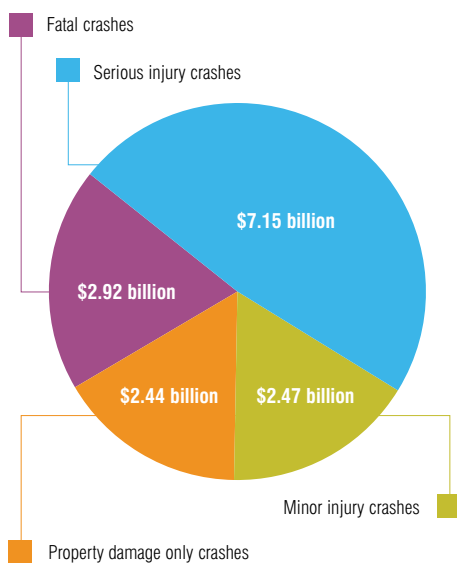
Strategies that provide non-motorised transport options are increasingly recognised as an effective road safety strategy (Litman & Fitzroy, 2005). In fact, policies aimed at reducing car use typically result in around a 10% reduction in vehicle kilometres travelled and this could cut road trauma costs in Australia by between \$0.850 billion and \$1.7 billion per year (Victoria Transport Policy Institute, 2007).

Safety

The number of cyclists in London has jumped 83% and yet the number of serious crashes involving cyclists has fallen proportionally by 28% (Greater London Authority, 2007). This finding is consistent with domestic and international data demonstrating that as cycling rates double, the risk per kilometre falls by around 34% (Jacobsen, 2003, cited in Robinson, 2005).

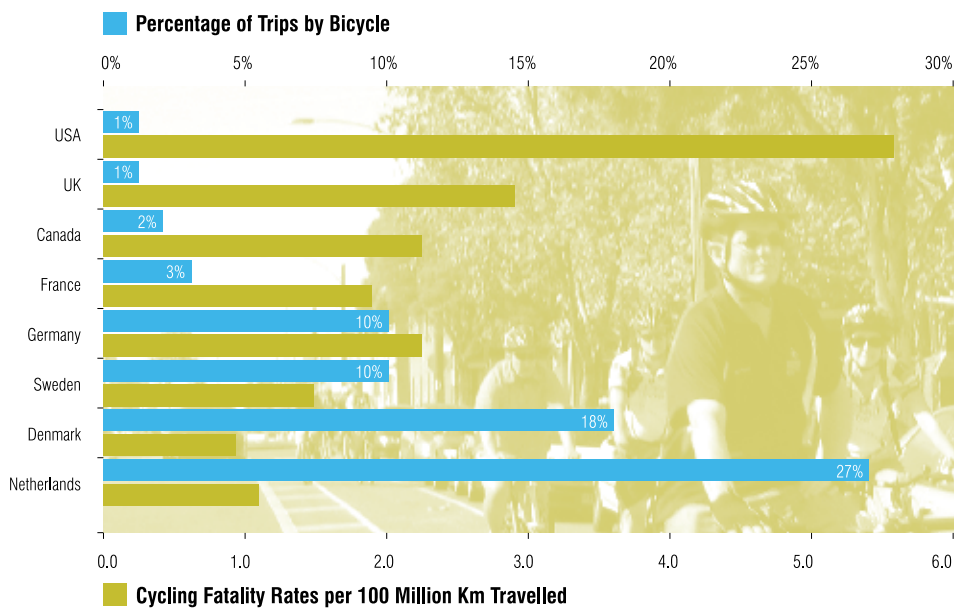
“ The number of cyclists in London has jumped 83% and yet the number of serious crashes involving cyclists has fallen proportionally by 28%. ”

Graph 2:
The economic cost of road crashes in 1996



Source: Australian Transport Council 2001

Graph 3:
The more cyclists there are, the safer it becomes



Source: Pucher & Buehler (2008) / Organisation for Economic Cooperation and Development (2005), European Union (2003), US Department of Transportation (2003 & 2005) cited in Pucher, (2006)

Congestion Reduction

Cycling:
Take twice daily to avoid congestion.



60 Cars vs. 60 Cyclists:
The congestion solution is obvious.



Source: City of Muenster

“ By 2020, the Bureau of Transport and Regional Economics estimate that congestion costs in our capital cities will soar to \$20.4 billion ”

The primary cause of congestion is private automobile use (Bureau of Transport and Regional Economics, 2007). The Bureau of Transport and Regional Economics found that the cost of *avoidable* congestion in 2005 was \$9.4 billion. Avoidable congestion is described as situations where the benefits to drivers of travel in congested conditions are less than the costs imposed on other members of the community. This cost is composed of:

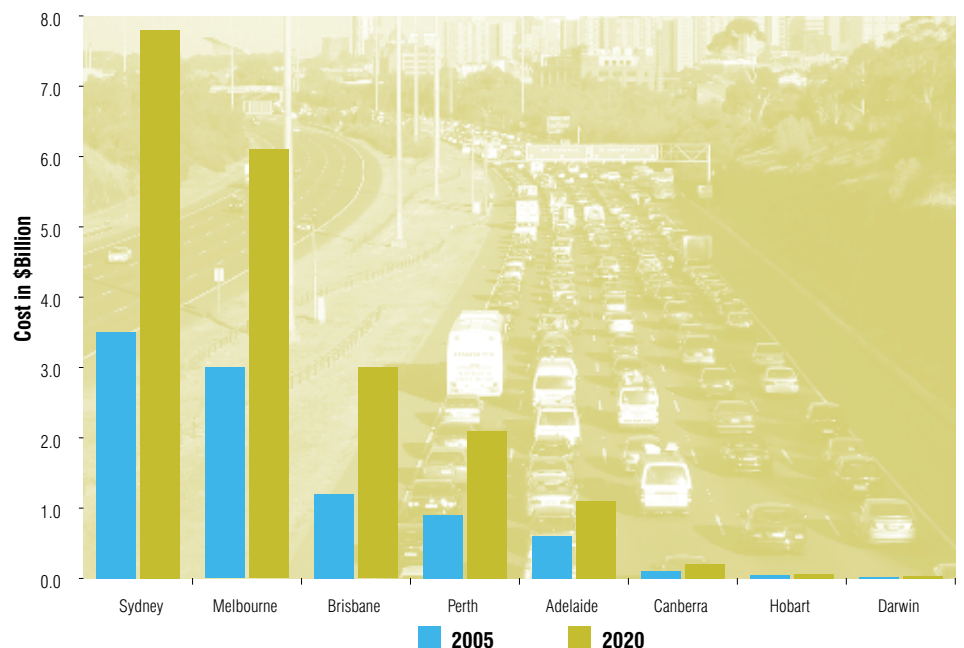
- Business time costs \$3.6 billion
- Private time costs \$3.5 billion
- Extra vehicle operating costs \$1.2 billion
- Extra air pollution costs \$1.1 billion

By 2020, the Bureau of Transport and Regional Economics estimate that congestion costs in our capital cities will soar to \$20.4 billion (2007), with each capital showing the growth illustrated in Graph 4 below.

Current commuter cycling reduces the cost of congestion by approximately \$63.9 million per annum (Bauman et al, 2008).

The encouragement of cycling is a cost effective response to the challenge posed by traffic congestion (Austroads, 2005; Litman, 2004). Once again, congestion intensity is at its greatest in the areas most suitable for cycling – urban areas, where trip distances are likely to be shorter.

Graph 4:
Congestion Costs in our Capital Cities



Source: Bureau of Transport and Regional Economics, 2007

Greenhouse gas abatement

Australia's per capita contribution to climate change is one of the highest in the world

Garnaut Climate Change Review, 2008

“ Transport emissions rose 30% between 1990 and 2005 and this is expected to soar 67% above 1990 levels by 2020 ”

Transport is a significant and growing source of these emissions. The Australian Greenhouse Office reports that 34% of household emissions are generated from million motorised transport (2006). Transport emissions rose 30% between 1990 and 2005 and this is expected to soar 67% above 1990 levels by 2020 (Department of Climate Change, 2008).

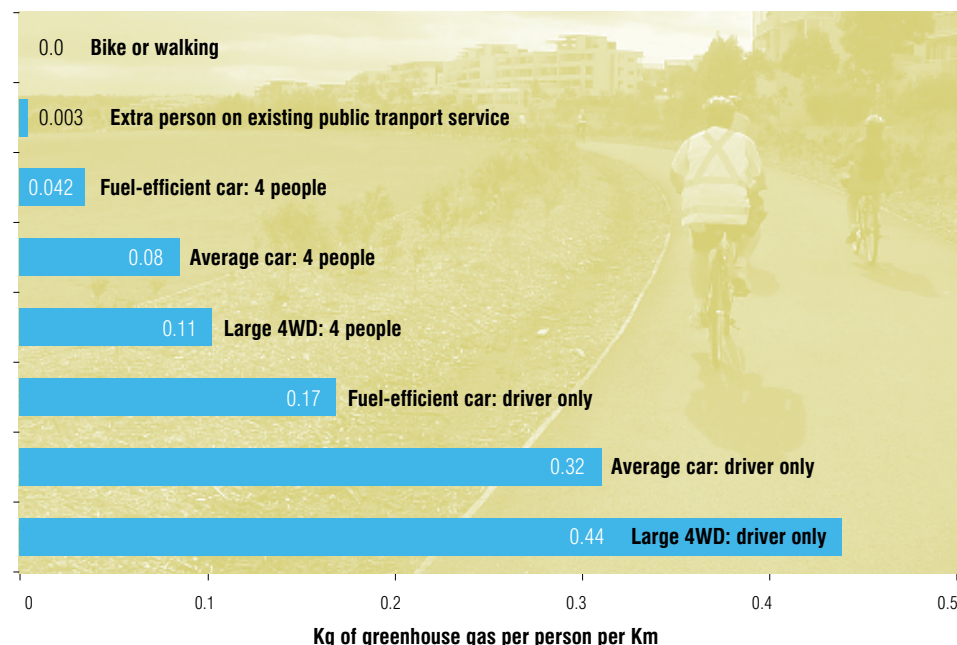
Even with the current lack of appropriate bicycle infrastructure in Australian cities, cycling to work in 2006 accounted for 189,392,000km travelled in Australian capitals (derived from Census 2006 data). This amounts to a greenhouse gas saving of 45,000 tonnes per year (Bauman et al, 2008). At \$40/tonne, this equates to \$1.8 million per year.

Cycling, as a zero-emission form of transport, offers substantial and currently untapped potential to lower emissions in the passenger transport sector. In addition to not emitting greenhouse gases, cycling is a cost-effective option, with negligible running costs. There is no question that improvements in vehicle technology will be necessary to reduce greenhouse gas emissions, but unlike a number of 'high tech' options, bicycles are an equitable, off-the-shelf option that can be deployed immediately.



Cycling: A zero emission for of transport.

Graph 5: Greenhouse gas emissions from different forms of transport



Source: Australian Greenhouse Office, 2006

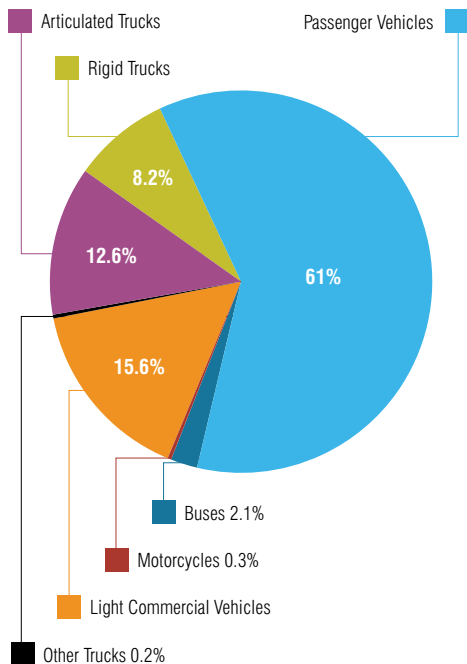
Fuel costs

Oil is central to the Australian economy and community. Car use is the major consumer of oil in Australia.

The chart below illustrates that the majority (61%) of fuel consumption for road transport can be attributed to car use.

Concerns over oil depletion raise serious questions about Australia's long term energy needs and future prosperity. Australian oil production peaked in 2000/01 (Geoscience Australia, 2006), resulting in greater dependence on imports – often from unstable regions of the world. In fact, only 53% of Australian oil consumption is from domestic production (Australian Bureau of Agricultural and Resource Economics, 2008). By 2020, this is expected to drop to 27% (Australian Petroleum Production and Exploration Association, 2007). Graph 7 highlights that Australia is growing increasingly reliant on imports.

Graph 6:
Australian road fuel consumption by type of vehicle, 2005-06



Source: Apelbaum Consulting Group, Australian Transport Facts, 2007, cited in Australian Bureau of Agricultural and Resource Economics, 2008.

“ Australia is looking down the barrel of a \$25 billion trade deficit in petroleum products by 2015 ”

The Hon Martin Ferguson AM MP, APPEA Conference, 7th April, 2008

“With only about a decade of known oil resources remaining at today's production rates, Australia is looking down the barrel of a \$25 billion trade deficit in petroleum products by 2015” (The Hon Martin Ferguson AM MP, APPEA Conference, 7th April, 2008).

Automotive gasoline imports have jumped 209.8% between 2000/01 to 2005/06. Over the same period, domestic crude oil production dropped by 37.2% (Australian Bureau of Statistics, 2008). Using figures from the 2006 Census, commuter cyclists in Australian capital cities save approx. \$35 million on fuel (calculated at 2008 prices).

It is now increasingly clear that excessive car use is having negative economic repercussions. The soaring cost of oil, spiralling rates of obesity and congestion as well as mounting concern over climate change reinforces the urgent need to assess our current transport behaviour and seek practical, sustainable alternatives.

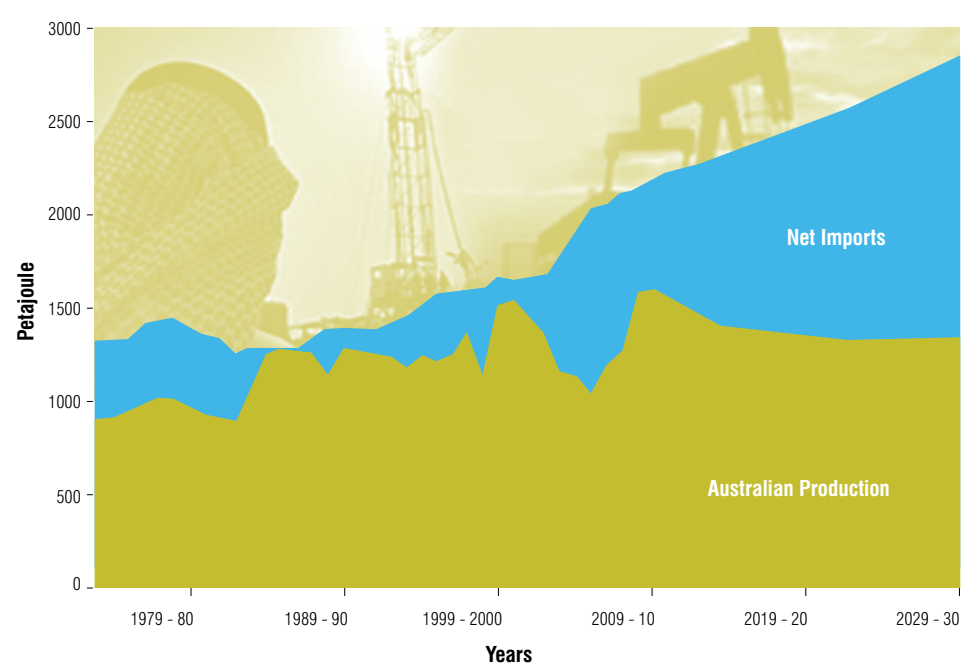
Cycling is not just good fun, it's a good investment. Cycling has emerged as a smart way of simultaneously tackling the

converging issues of rising fuel costs, climate change, inactivity and congestion.

To increase our economic productivity in a sustainable manner, it is recommended that government:

- Lower traffic speeds in urban areas and implement traffic calming; this is the most effective way to increase real and perceived safety for all road users
- Separate cars and bicycles on key routes, with bike lanes or dedicated cycling paths that are clearly signposted and marked
- Connect bicycle lanes with good intersection treatments, including 'bicycle streets' where people on bikes have right of way
- Create seamless connections between cycle ways and public transport
- Develop first class end of trip facilities, such as the Cycle Centre in Brisbane, with secure bicycle storage, showers and change rooms
- Introduce extensive driver education to raise motorists' awareness of cyclists' use of the roads and relevant road rules.

Graph 7:
Australian oil and LPG production and net imports



Source: Australian Bureau of Agricultural and Resource Economics, 2008, p. 16.

References

- Austrroads, 2005 *National Cycling Strategy 2005 – 2010*, Austrroads, Sydney. <http://www.austrroads.com.au/documents/TheAustralianNationalCyclingStrategy2005-2010.pdf>
- Australian Bureau of Agricultural and Resource Economics 2008 *Energy in Australia 2008*, Department of Resources, Energy and Tourism, Australian Government, Canberra. http://www.abareconomics.com/publications_html/energy/energy_08/energyAUS08.pdf
- Australian Bureau of Statistics, 2008 *Year Book Australia 2008*, Commonwealth of Australia, Canberra. <http://www.abs.gov.au/AUSSTATS/abs@.nsl/Latestproducts/2C85CF256D79E06FCA2573D20010CFE9?opendocument>
- Australian Bureau of Statistics, 2006 *Environmental Issues: People's Views and Practices*, Commonwealth of Australia, Canberra.
- Australian Bureau of Statistics, 2007 *2001 and 2006 Census of Population and Housing*, Journey to Work Files, Canberra.
- Australian Greenhouse Office, 2006 *Global Warming: Cool It*, Department of the Environment and Heritage, Australian Government, Canberra. www.greenhouse.gov.au/gwci/pdf.html
- Australian Institute of Health and Welfare, 2006 *Australia's Health 2006*, Australian Government, Canberra. <http://www.aihw.gov.au/publications/aus/ah06/ah06.pdf>
- Australian Petroleum Production and Exploration Association, 2007 *Key Statistics*, Australian Petroleum Production and Exploration Association, Canberra. http://www.appea.com.au/content/pdfs_docs_xls/Statistics/key_stats_2008_6.pdf
- Australian Sports Commission, 2006 *Participation in Exercise, Recreation and Sport Survey*, Department of Communications, Information Technology and the Arts, Australian Government, Canberra. http://www.ausport.gov.au/scoresresearch/ERASS2006/ERASS_2006_annual_report_T16.pdf
- Australian Transport Council 2001 *The National Road Safety Strategy 2001 – 2010*, Australian Transport Council, Canberra. <http://www.atcouncil.gov.au/documents/pubs/strategy.pdf>
- Bauman A., Rissel C., Garrard J., Ker I., Speidel R., Fishman E., 2008 *Cycling: Getting Australia Moving: Barriers, facilitators and interventions to get more Australians physically active through cycling*, Cycling Promotion Fund, Melbourne.
- Bicycle Victoria, 2007 *The Cycle-Friendly Workplace*, Department of Health and Ageing and the Department of Environment and Water Resources, Canberra, Australia. http://www.bv.com.au/file/file/RTW/BICY%20-%20CycleFndly%20Workplaces_v12.pdf
- Bureau of Transport and Regional Economics, 2005 *Health impacts of transport emissions in Australia: Economic costs*, Working paper 63, Department of Transport and Regional Services, Australian Government, Canberra. <http://www.btre.gov.au/info.aspx?ResourceId=94&NodeId=59>
- Bureau of Transport and Regional Economics, 2007 *Estimating urban traffic and congestion cost trends for Australian cities*, Working Paper 71, Department of Transport and Regional Services, Canberra, Australia.
- Commissioner for Environmental Sustainability, 2007 *Creating a city that works: Opportunities and solutions for a more sustainable Melbourne*, Victorian Government, Melbourne. [http://www.ces.vic.gov.au/CA256F310024B628/0/99086A5A4188EF7DCA2572E6000E935D/\\$File/Creating+a+City+That+Works+-+low+res.pdf](http://www.ces.vic.gov.au/CA256F310024B628/0/99086A5A4188EF7DCA2572E6000E935D/$File/Creating+a+City+That+Works+-+low+res.pdf)
- Connelly L.B., Supangan R., 2006 *The Economic Costs of Road Trauma: Australia, States and Territories*, Accident Analysis and Prevention, Vol.38 No.6, November 2006, pp.1087-93. <http://dx.doi.org/10.1016/j.aap.2006.04.015>
- Department of Climate Change, 2008 *Transport Sector Greenhouse Gas Emissions Projections 2007*, Commonwealth of Australia, Canberra. <http://www.greenhouse.gov.au/projections/pubs/transport2007.pdf>
- Dora C, Phillips M., eds. 2000 *Transport, environment and health*, World Health Organization Regional Office for Europe, Copenhagen. <http://www.who.dk/document/e72015.pdf>
- Econtech, 2007 *Economic modelling of the net costs associated with non-participation in sport and physical activity*, Prepared by Econtech Pty. Ltd. for Medibank Private.
- Garnaut Climate Change Review, 2008, *Interim Report to the Commonwealth, State and Territory Governments of Australia*, Garnaut Climate Change Review, Melbourne Australia. [http://www.garnautreview.org.au/CA25734E0016A131/WebObj/GarnautClimateChangeReviewInterimReport-Feb08/\\$File/Garnaut%20Climate%20Change%20Review%20Interim%20Report%20-%20Feb%2008.pdf](http://www.garnautreview.org.au/CA25734E0016A131/WebObj/GarnautClimateChangeReviewInterimReport-Feb08/$File/Garnaut%20Climate%20Change%20Review%20Interim%20Report%20-%20Feb%2008.pdf)
- Geoscience Australia, 2006 *Oil and Gas Resources of Australia 2004*, Department of Industry, Tourism and Resources, Commonwealth of Australia, Canberra. http://www.ga.gov.au/image_cache/GA8550.pdf
- Greater London Authority, 2007 *The Mayor announces huge rise in cycling in London*, Media Release, 1st May. http://www.london.gov.uk/view_press_release.jsp?releaseid=11791
- Hamilton C., Denniss R., 2000 *Tracking Well-being in Australia: The Genuine Progress Indicator*, Discussion Paper No. 35, The Australia Institute, Canberra.
- Hilton M., 2005 *The Costs of Depression*. Online Opinion. <http://www.onlineopinion.com.au/view.asp?article=46>
- Jacobsen P.L., 2003 *Safety in numbers: more walkers and bicyclists, safer walking and bicycling*, Injury Prevention, Vol. 9, p. 205 – 209.
- Litman T, Fitzroy S., 2005 *Safe Travels: Evaluating Mobility Management Traffic Safety Impacts*, Victoria Transport Policy Institute, Victoria, Canada. <http://www.vtpi.org/afstrav.pdf>
- Litman T., 2004 *Quantifying the Benefits of Nonmotorized Transportation for Achieving Mobility Management Objectives*, Victoria Transport Policy Institute, Victoria, Canada. <http://www.vtpi.org/nmt-tdm.pdf>
- Martin Ferguson, 2008 *APPEA Address*, APPEA Conference, 7th April, 2008 <http://minister.ret.gov.au/TheHonMartinFergusonMP/Pages/2008APPEACONFERENCE.aspx>
- Pucher J, Buehler R., 2008 *Making Cycling Irresistible: Lessons from The Netherlands, Denmark & Germany*, Transport Reviews, Vol. 28, p. 495 – 528.
- Robinson D.L., 2005 *Safety in numbers in Australia: more walkers and bicyclists, safer walking and bicycling*, Health Promotion Journal of Australia, Vol. 16, Issue 1, pp. 47-51.
- Royal Melbourne Institute of Technology, 1999 *Victorian Activity & Travel Survey 1994 – 1999*, Melbourne.
- Senate Economics Committee (2005) *Incentives for petroleum exploration in Frontier areas*, Parliament of Australia, Chapter 3 - Schedule 5, p E12. Available at http://www.ap.gov.au/SENate/committee/economics_ctte/tlab_7/report/c03.htm
- Standing Committee on Environment and Heritage, 2005 *Sustainable Cities*, House of Representatives, The Parliament of the Commonwealth of Australia, Canberra. <http://www.ap.gov.au/House/committee/enviro/cities/report.htm>
- World Health Organisation, 2000 *Air Quality Guidelines for Europe, 2nd ed*, WHO Regional Office for Europe, Publications European Series No.: 91, Copenhagen.



Cycling increases the health of participants.

Disclaimer

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.