

# **Moving Australians Sustainably**

## ***Transport Policy in the National Interest***



*Front cover photo credits: CityRail, Community Action for Sustainable Transport, Public Transport Users Association, Queensland Rail*

Moving Australians Sustainably: Transport Policy in the National Interest  
August 2007

Published by the Public Transport Users Association on behalf of the following organisations:

Public Transport Users Association (Vic) 247 Flinders Lane Melbourne Vic 3000 <a href="http://www.ptua.org.au">www.ptua.org.au</a>	Community Action for Sustainable Transport (Qld) <a href="http://sustainable-transport.blogspot.com">sustainable-transport.blogspot.com</a>
---	--

People for Public Transport (SA) 120 Wakefield Street Adelaide SA 5000 <a href="http://www.ppt.asn.au">www.ppt.asn.au</a>	Sustainable Transport Coalition WA c/- PO Box 3383 Perth Adelaide Tce, WA 6832 <a href="http://www.stcwa.org.au">www.stcwa.org.au</a>
--	--

Action for Public Transport (NSW) PO Box K606 Haymarket NSW 1240 <a href="http://www.aptnsw.org.au">www.aptnsw.org.au</a>	ACT Transit Group GPO Box 1533 Canberra ACT 2601
--	--

*Authorised by: Vaughan Williams, 247 Flinders Lane, Melbourne Victoria 3000*

## Table of Contents

<b>1</b>	<b>Executive Summary</b> .....	<b>1</b>
1.1.	Economic performance .....	1
1.2.	Environmental sustainability.....	2
1.3.	Social outcomes .....	2
1.4.	A national response.....	2
<b>2</b>	<b>Economic performance</b> .....	<b>3</b>
2.1	Human capital .....	3
2.2	Congestion.....	3
2.2.1	<i>Fringe Benefits Tax</i> .....	5
2.3	Energy security .....	5
<b>3</b>	<b>Environmental sustainability</b> .....	<b>7</b>
3.1	Climate Change .....	7
<b>4</b>	<b>Social outcomes</b> .....	<b>9</b>
4.1	Healthy Transport .....	9
4.1.1	<i>Cancer</i> .....	10
4.1.2	<i>Injury prevention and control</i> .....	10
4.1.3	<i>Cardiovascular health</i> .....	10
4.1.4	<i>Diabetes mellitus</i> .....	11
4.1.5	<i>Mental health</i> .....	11
4.1.6	<i>Asthma</i> .....	11
4.1.7	<i>Arthritis and musculoskeletal conditions</i> .....	12
4.2	Community interaction .....	12
<b>5</b>	<b>A national response to national challenges</b> .....	<b>13</b>
5.1	International comparisons .....	13
5.1.1	<i>Canada</i> .....	13
5.1.2	<i>Spain</i> .....	14
5.1.3	<i>United States</i> .....	14
5.2	Accountability.....	15
<b>6</b>	<b>Recommendations</b> .....	<b>16</b>
6.1	Tax reform .....	16
6.2	Transport funding.....	16
6.3	Government operations.....	16
	<b>References</b> .....	<b>17</b>

---

# 1 Executive Summary

*Moving Australians Sustainably* is the result of collaboration between the following groups from around Australia:

- Action for Public Transport (NSW)
- Public Transport Users Association (Victoria)
- People for Public Transport (SA)
- Sustainable Transport Coalition WA
- Community Action for Sustainable Transport (Queensland)
- ACT Transit Group

This report outlines a number of key areas where transport policy impacts on other national policy objectives and areas of federal government responsibility. These policy areas are categorised into three main groups:

- economic performance,
- environmental sustainability, and
- social outcomes.

Comparisons are also drawn with a number of similar countries around the world, and a range of recommendations are put forward to ensure that federal transport policy contributes positively to the other policy areas discussed.

## 1.1. *Economic performance*

Public transport contributes to well-functioning, liveable cities that can compete for skills and capital on the world stage. Enhanced public transport could make a significant contribution to economic performance and the fiscal positions of Australian governments by contributing to enhanced participation and productivity among the Australian workforce.

Traffic congestion is estimated to cost the Australian economy up to \$20 billion per annum. Public transport is an essential component of any successful congestion management strategy. Public transport removes a substantial amount of

traffic from the road system, particularly at peak times and in the most congested areas where it can account for a large majority of journeys.

Even when carrying a relatively small share of journeys, it can make a disproportionate contribution to improving the performance of congested roadways. Serious gaps in the coverage of fast, high-capacity public transport are, however, constraining its contribution to mobility and congestion management.



*Note: Federal funding could help to fill the gaps in urban public transport networks.*

Current Fringe Benefits Tax (FBT) provisions offer a concession to company cars that becomes more generous as the distance the vehicle is driven each year increases. This concession amounts to a subsidy of more than \$1 billion each year and contributes to increased traffic, pollution and vehicle costs for business. Reform of the FBT legislation, as recommended by a growing number of groups, could free up resources for other priorities and operate to ease traffic pressures in our major cities.

Australia's excessive private motor vehicle use is exacerbating a growing gap between domestic oil consumption and production. Within the next decade, the annual cost of oil imports is on track

---

to exceed the entire merchandise trade deficit of 2006-07, putting further pressure on Australia's balance of trade. An expanded role for energy-efficient public transport would significantly reduce Australia's oil import requirements, without the financial, logistical and environmental challenges of new supply chains and vehicles compatible with alternative fuels.

## ***1.2. Environmental sustainability***

The likely impact of climate change on communities and industries around Australia is now becoming clear, including increased frequency and severity of drought, storms and bushfires. Increased political instability and natural disasters around the world are also likely to lead to large-scale refugee movements. The transport sector is one of the largest and fastest growing sources of greenhouse gas emissions in Australia, with cars and trucks producing the vast majority of the sector's emissions. Smog from motor vehicles also reduces the ability of plants to absorb carbon dioxide, thus compounding the impact of carbon emissions.

Action to reduce transport emissions is needed to help Australia meet its overall emissions reductions targets and obviate the need for disproportionately larger emissions reductions in other sectors such as the electricity, manufacturing and agricultural industries. The energy efficiency of the transport sector could be substantially improved by boosting the contribution of walking, cycling, public transport and rail freight.

## ***1.3. Social outcomes***

Motor vehicles are the largest source of urban air pollution, which causes more deaths each year than road crashes. Car-dominated urban design and rising traffic levels are deterring people from walking and cycling, leading to increasingly sedentary lifestyles.

At an individual level, replacing car use with walking, cycling and public transport use can contribute to regular physical activity. Regular physical activity is associated with significant reductions in the risk of suffering from obesity, high blood pressure, adult diabetes, depression, adult-onset asthma among women and a range of cancers.

The risk of dying in a crash is at least five times higher when travelling by car than when using public transport, while cities that focus on public transport for a higher proportion of their mobility needs tend to suffer from fewer fatalities.

## ***1.4. A national response***

All tiers of government in Australia fund roads, and often demand matching funding from state governments which leaves a diminished share of funds for public transport. Despite a relatively high degree of Vertical Fiscal Imbalance in Australia, responsibility for funding public transport has fallen almost exclusively on state governments. By contrast, national government contributions to public transport are commonplace across other Western nations, including Canada, Spain and the United States. The time has now come for the federal government to formalise a more substantial and effective role in funding public transport as it already does for roads.

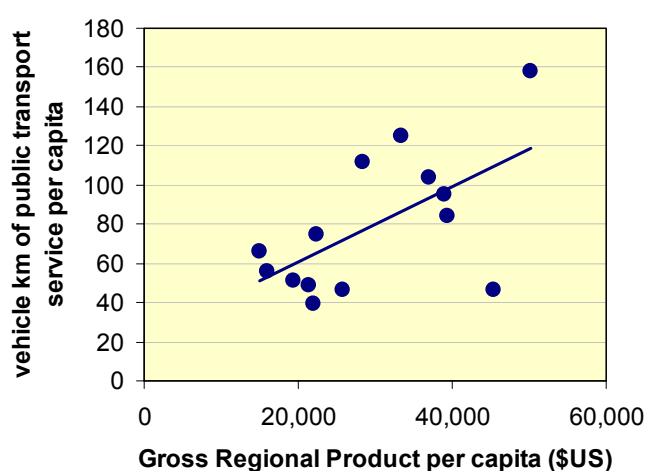
The steps needed to boost public transport's contribution to economic performance, environmental sustainability and social outcomes are focussed around three key areas:

- tax reform to encourage people onto public transport,
- funding public transport infrastructure to improve the coverage and quality of transport choices, and
- government leading by example and facilitating more sustainable transport options for its employees and clients.

## 2 Economic performance

Public transport features prominently in the transport policies of many of the world's most affluent nations. High quality public transport contributes positively to the liveable urban environments that attract internationally mobile knowledge workers and capital<sup>1</sup>. Public transport also reduces car dependence and cuts the aggregate cost of transport to the broader regional economy<sup>2</sup>.

Figure 2.1: Regional wealth and public transport provision in world cities<sup>3</sup>



### 2.1 Human capital

In 2006, the Council of Australian Governments (COAG) agreed to a new National Reform Agenda (NRA) to build upon previous microeconomic and competition policy reforms<sup>4</sup>. A large component of the NRA is the enhancement of Australia's human capital, especially improving productivity and participation among Australia's workforce.

By pursuing objectives such as reducing the prevalence of key risk factors that contribute to chronic disease<sup>5</sup>, the productivity and participation streams of the NRA are estimated to offer a fiscal dividend to Australia's governments of some \$34 billion p.a.<sup>6</sup>. Such

measures are also estimated to add around 8% to Gross Domestic Product<sup>7</sup>.

As discussed in Section 4.1, transport and land-use practices can have a profound impact on the prevalence of a range of chronic diseases such as diabetes which is a priority area under the NRA.

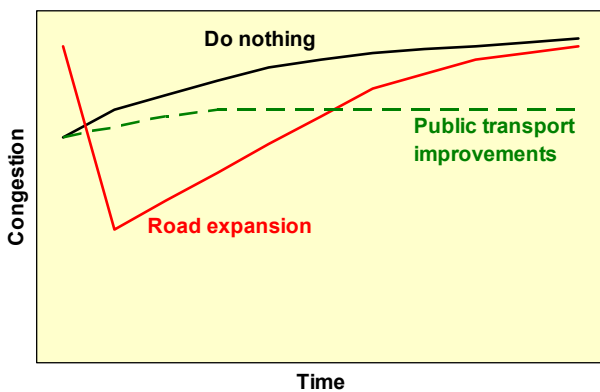
Transport can also have more direct impacts on participation, with many studies indicating that transport disadvantage can be a major barrier to education and employment<sup>8</sup>. When available, public transport can provide access to employment, productivity-enhancing education and community services for people who are unable to drive or afford a car.

### 2.2 Congestion

Estimates of the national cost of traffic congestion range up to over \$20 billion per annum. Australian and international experience has clearly shown that simply building additional road capacity does not solve congestion, but instead encourages more traffic<sup>9</sup>.

Public transport is an essential component of any successful congestion management strategy. Public transport that is time-competitive with car travel acts as a pressure-release valve for road infrastructure, enticing motorists out of their cars and putting a cap on congestion growth<sup>10</sup>. Viable alternatives to car use, such as adequate cycling and public transport facilities, are also indispensable if other demand management measures are to effectively reduce congestion<sup>11</sup>.

**Figure 2.2: Congestion impacts of transport upgrades<sup>12</sup>**



*Note: Road expansion does not affect the equilibrium level of congestion that road users will endure, so congestion returns to previous levels as suppressed demand is released and additional traffic is induced. Public transport improvements make public transport a more attractive alternative relative to driving, so congestion is lower than it would otherwise be, even allowing for induced traffic.*

While public transport in Australia currently caters for a smaller share of total journeys than it serves in world cities that have properly supported public transport<sup>13</sup>, it does make a substantial contribution to moving people during peak periods and in the most congested parts of our cities. Public transport caters for a substantially higher share of journeys to work (when transport infrastructure is under most pressure) than average mode share figures would suggest.

**Table 2.1: Share of journeys to work by public transport<sup>14</sup>**

City	CBD	Inner city
Sydney	79%	56%
Melbourne	64%	38%
Brisbane	59%	n/a

*Note: Based on 2001 census data. Patronage has generally grown strongly in recent years due to rising petrol prices. Journeys using public transport and one or more other modes are counted as public transport given use of park and ride, etc.*

For example, public transport caters for the majority of journeys to work in the CBD's of Australia's largest cities, and a sizeable share of

journeys to work in other parts of the inner city, thus removing a huge amount of traffic from the road system (Table 2.1). More favourable policy settings would also allow public transport capacity to serve a larger proportion of travel outside the traditional peak periods when most freight movements take place. The lower share of journeys attracted by public transport in outer suburban areas generally reflects dependency upon bus services that are often infrequent and slow and therefore poorly utilised. Expanding the coverage of higher service level, higher capacity mass transit would enable public transport to attract a substantially higher share of journeys in these areas, especially when properly integrated with land use planning.

**Figure 2.3: Traffic on Punt Road, Melbourne**

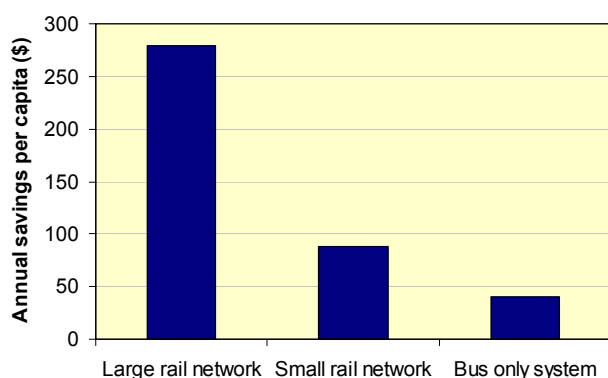


*Note: In the absence of effective priority measures, buses (top right) are often caught in traffic, thus making them unattractive to potential passengers, which in turn leads to additional low occupancy car journeys.*

However, public transport does not need to absorb a large proportion of car journeys to have a significant impact on traffic flow. When near capacity, relatively small changes in the volume of traffic can have a large effect on traffic flow. For example, a 5% reduction in traffic on a congested road can lead to a 10-30% increase in vehicle speeds<sup>15</sup>. Public transport is also capable of moving substantially higher volumes of people through a given corridor. While a typical six lane freeway only manages around 12,000 people per hour in both directions, a typical two track railway can easily accommodate 40,000

people per hour in both directions. The ability of extensive rail networks to both attract and absorb significant numbers of commuters is a key factor in the congestion cost savings made by cities that have such networks (Figure 2.4).

**Figure 2.4: Congestion cost savings<sup>16</sup>**



Significant gaps in the public transport networks of Australia's major cities are constraining the ability of public transport to offer a viable alternative to commuters, thus worsening congestion and hampering mobility. Better public transport networks will enhance productivity growth in Australia's major economic centres and contribute to future economic performance.

### 2.2.1 Fringe Benefits Tax

Under current Fringe Benefits Tax laws, company-provided motor vehicles are offered tax concessions via a "Statutory Formula" that becomes more generous as the distance the vehicle is driven each year increases (Table 2.2). As a result, employees are encouraged to undertake additional travel to attain more favourable fractions and company-provided cars are significantly over-represented in peak hour traffic<sup>17</sup>. Since the Statutory Formula includes both business and private use, much of the additional driving relates to personal rather than business purposes. This perverse subsidy from government and employers for personal motor vehicle use results in greater congestion, energy use, emissions and car expenses for business.

The revenue foregone by the Commonwealth Government as a result of the concessionary Statutory Formula amounts to over \$1 billion per annum<sup>18</sup>. Eliminating this concession would free up resources for other priorities and help to ease traffic congestion in the nation's major economic centres, as well as bring environmental benefits. Removal of a similar provision in the United Kingdom is estimated to have reduced business travel in company cars by 300-400 million miles p.a. and private use of company cars by as much 100 million miles, as well as contributed to reduced annual compliance costs for business<sup>19</sup>.

**Table 2.2: Statutory fraction for car fringe benefits**

Annual travel (km)	Taxable portion of car benefit
Under 15,000	26%
15,000-24,999	20%
25,000-40,000	11%
Over 40,000	7%

*NB: Both private and business use is included in annual travel.*

Reform of this provision has been recommended by the Institute of Chartered Accountants<sup>20</sup>, the Victorian Competition and Efficiency Commission<sup>21</sup>, the Senate Inquiry on Australia's Future Oil Supply<sup>22</sup> and the House Sustainable Cities Inquiry<sup>23</sup>, as well as numerous environment and public transport groups.

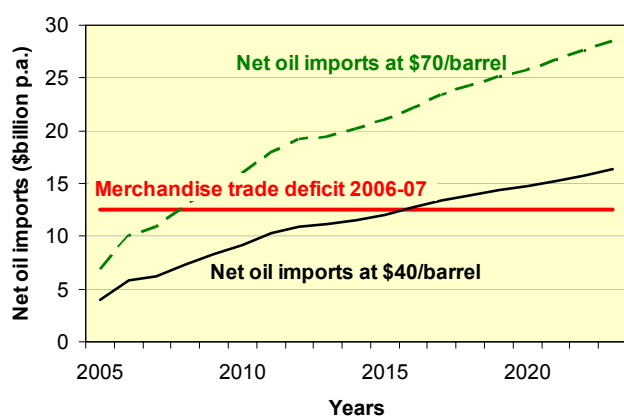
### 2.3 Energy security

Oil production in Australia currently equates to around three quarters of domestic consumption. With consumption forecast to rise and production to decline as resources are further depleted over the next two decades, self-sufficiency is expected to decline to around one fifth of domestic consumption. Even at the relatively low price of US\$40 per barrel, our net oil import bill is on track to exceed the total 2006-07 merchandise trade deficit in little over a decade. Based on current exchange rates and market expectations for future oil prices<sup>24</sup>, our



net oil import bill in 2021 will be twice the total 2006-07 merchandise trade deficit. This massive import bill will be a major drag on the Australian economy and a significant risk to national energy security (Figure 2.5). Although the strong Australian dollar is currently softening the impact of rising global oil prices, the economic impact of increasing oil imports will be even more significant if the dollar depreciates from its current high levels.

**Figure 2.5: Australia's ballooning oil import bill<sup>25</sup>**



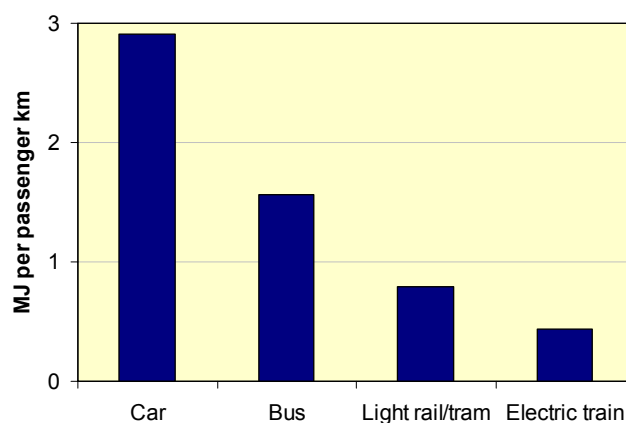
While biofuels and other alternative fuels may play a niche role in reducing the shortfall, especially in rural areas, there are no affordable alternatives that are capable of replacing oil at forecast levels of consumption.

Australia's oil consumption and import requirements could be significantly reduced by transferring some passenger journeys from private cars to more efficient modes such as public transport, walking and cycling (Figure 2.6). Furthermore, grid-connected public transport (e.g. suburban trains and trams) are not reliant on petroleum fuels and can already use power generated from any number of proven and emerging conventional and renewable energy sources. This ability to use existing distribution infrastructure and rolling stock overcomes the enormous financial and logistical barriers to fuel substitution faced by private transport.

By contrast, nearly half of vehicles on Australian roads cannot use ethanol-blend fuel<sup>26</sup> and this is unlikely to change rapidly due to the typical 20+ year lifespan of cars in Australia<sup>27</sup>. Combined with a lack of production and distribution infrastructure for alternative fuels, this slow turnover of vehicles will also impede the rollout of alternative fuel vehicles or other efficiency technologies including hybrids and hydrogen or electric cars.

The manufacture of each new car also requires the energy equivalent of 20 barrels of oil - enough petrol to drive a typical car for 2 years<sup>28</sup>.

**Figure 2.6: Energy use per passenger kilometre<sup>29</sup>**



### 3 Environmental sustainability

Public transport has numerous environmental benefits, including reduced air pollution, reduced energy use and greenhouse emissions, and reduced water use and pollution. These benefits contribute directly to many federal government policy objectives.

**Figure 3.1: Swanston Walk, Melbourne**



Note: Walking, cycling and electrified public transport produce no local air pollution.

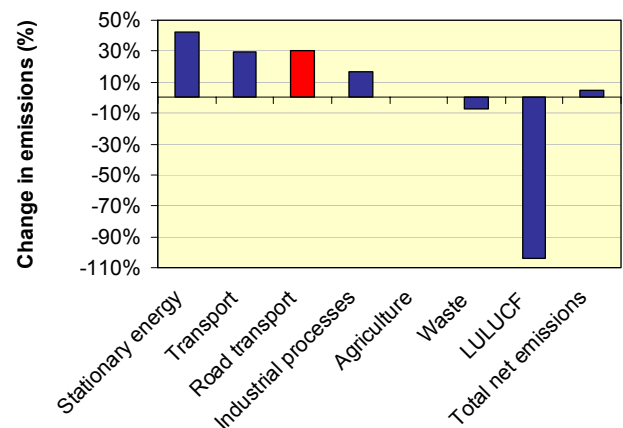
#### 3.1 Climate Change

Recent reports by the Intergovernmental Panel on Climate Change (IPCC) and analysis by eminent economist Sir Nicholas Stern have confirmed that climate change will have huge economic costs and cause massive disruption to communities across Australia. More frequent and more severe droughts will devastate rural and regional areas, while urban and regional areas alike will feel the effects of less reliable water supplies and more frequent extreme weather events such as floods, bushfires and severe storms.

A panel of retired senior US military personnel has also

warned that climate change poses a serious threat to national security and will contribute to instability and tensions across the world<sup>30</sup>. Declining food production and increased pressure on water supplies will exacerbate conditions that foster conflict, extremism and radical ideologies. Relatively stable regions, such as Australia, are also likely to face increased pressure to accept large refugee and immigrant populations following conflict and extreme weather events<sup>31</sup>.

**Figure 3.2: Greenhouse emissions growth 1990 to 2005<sup>32</sup>**



Note: Large reductions in land-clearing have contributed to land use, land use change and forestry (LULUCF) becoming a net sink in 2005. Excluding LULUCF, total net emissions rose by 25.6% from 1990 to 2005.

---

*Transport emissions are one of the strongest sources of emissions growth in Australia ... The major source of transport emissions in Australia is road transportation ... Emissions from road transportation increased by 30.6% (16.6 Mt) between 1990 and 2005. (Australian Greenhouse Office)*

---

Transport is one of the largest and fastest growing contributors to Australia's greenhouse emissions, growing by 30% from 1990 to 2005. Close to 90% of Australia's transport emissions come from cars and trucks, with aircraft emissions contributing much of the remainder<sup>33</sup>. Left unchecked this emissions growth will significantly increase the

magnitude of emissions reductions required from other sectors, such as the electricity industry and agriculture, if Australia is to meet its Kyoto Protocol target or achieve meaningful reductions in its overall emissions.

New research is also pointing to a previously unrecognised contribution to climate change from vehicle emissions other than carbon dioxide. Smog reduces the ability of plants to absorb carbon dioxide by 14-23%, which could result in an additional 0.5-1.25 degrees of warming<sup>34</sup>. This extra contribution to global warming from vehicle emissions increases the risk of abrupt, large-scale shifts in the climate system, such as the collapse of heat-conveying currents in the world's oceans.

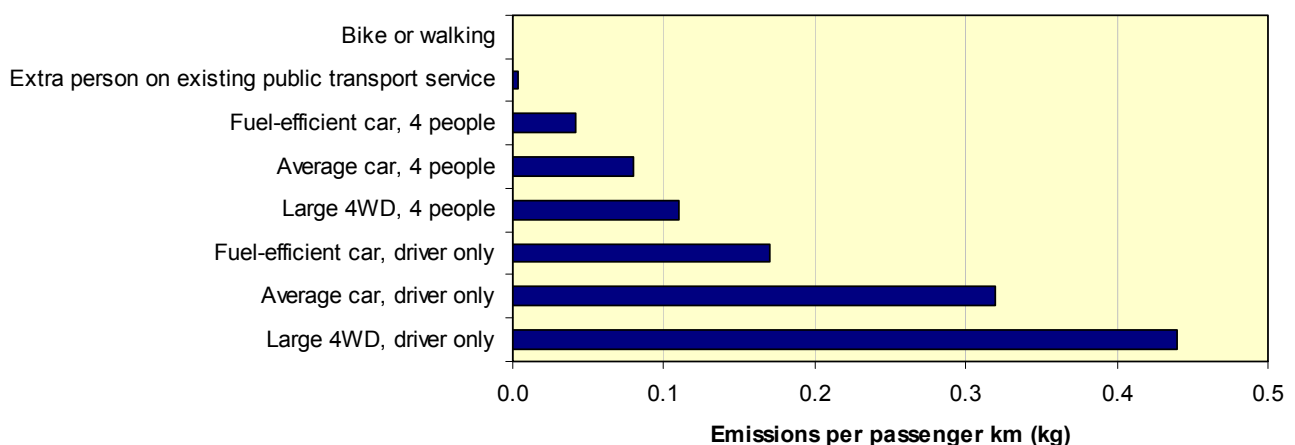
Huge potential exists to improve energy efficiency in the transport sector by shifting to inherently efficient modes such as public transport and rail freight. With sustainable policy settings, a majority of trips in urban areas could be made by walking, cycling and public transport, while many intrastate and interstate trips could be made by train instead of by air if rail networks were upgraded to acceptable standards<sup>35</sup>. The coverage and quality of public transport and rail freight can also be enhanced now without the need for costly and time-consuming research and development or rolling out unproven technology.

With growing awareness of the need to reduce greenhouse emissions, carbon offset products are becoming common, especially tree-planting programs to offset emissions from motor vehicles. Although reforestation has a vital role to play in combating salinity and protecting biodiversity, significant doubts exist regarding the permanence of such carbon sinks, and it will not compensate for projected greenhouse emissions from Australia's transport sector<sup>36</sup>. If 100% of carbon emissions from Australia's cars were offset by planting trees, the resulting plantations would require large tracts of land that are currently used for other productive purposes such as agriculture. Without significant emissions reductions, as distinct from offsets, diversion of productive land on a large scale is likely to have little impact in meeting emissions reductions targets, and is likely to result in negative impacts on rural communities and food production.

**Table 3.1: Policies, measures and instruments shown to be environmentally effective<sup>37</sup>**

Mandatory fuel economy, biofuel blending <sup>38</sup> and CO2 standards for road transport
Taxes on vehicle purchase, registration, use and motor fuels, road and parking pricing
Influence mobility needs through land use regulations, and infrastructure planning
Investment in attractive public transport facilities and non-motorised forms of transport

**Figure 3.3: Greenhouse gas emissions from different forms of transport<sup>39</sup>**

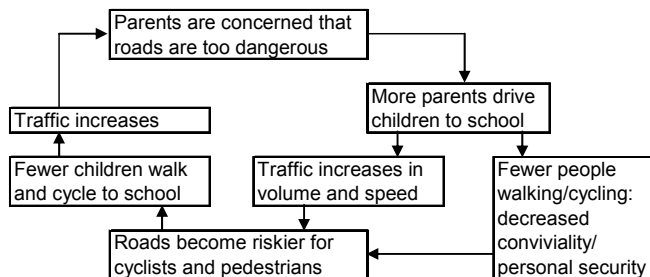


## 4 Social outcomes

### 4.1 Healthy Transport

Transport policy has a major impact on health outcomes. Road-dominated strategies inevitably lead to increased car use and lower levels of walking, cycling and public transport use, which in turn reduces the amount of incidental physical activity in daily lives. A vicious circle can also result where pedestrians and cyclists are intimidated by rising traffic volumes and switch to driving, thus compounding the trend (see Figure 4.1). The resulting vehicle emissions are also the main source of urban air pollution which may be the cause of more deaths each year than road crashes<sup>40</sup>. As noted by the IPCC, the health benefits of reduced air pollution may off-set a significant proportion of the cost of reducing greenhouse gas emissions<sup>41</sup>.

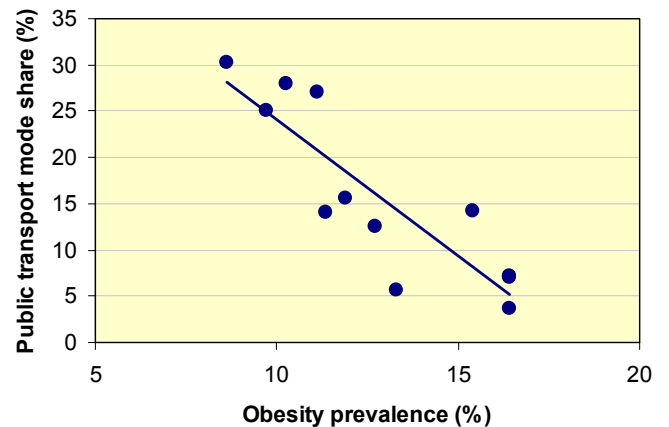
**Figure 4.1: Impact of increased traffic<sup>42</sup>**



Physical inactivity is a significant risk factor in many of the leading health problems in Australia, including most of the National Health Priority Areas discussed below. Research has indicated that each additional hour of daily driving leads to a 6% increase in the likelihood of obesity<sup>43</sup>. On the other hand, daily activities such as walking or cycling to the shops, work or public transport can provide the level of physical activity recommended in the National Physical Activity Guidelines<sup>44</sup>. These incidental activities have the advantage of becoming an ingrained element of daily routine, rather than being an additional structured exercise program that

could be abandoned due to time or financial constraints.

**Figure 4.2: Public transport & obesity in world cities**



*Note: In major cities around the world, higher levels of public transport use appears to be related to lower levels of obesity.<sup>45</sup>*

Despite efforts to raise awareness of the benefits of physical activity, participation rates have been declining in recent years<sup>46</sup>. A growing body of research is pointing to the importance of supportive environments in encouraging and maintaining physical activity<sup>47</sup>. Safe, walkable streets and the availability of adequate public transport are seen as key factors in the level of physical activity undertaken across the population<sup>48</sup>.

**Table 4.1: Mode of transport to school - Adelaide<sup>49</sup>**

Mode	1981	1997
Car	24%	60%
Walk	42%	20.5%
Cycle	14%	4.5%

**Table 4.2: Obesity & overweight prevalence among Australian children aged 12-15 years<sup>50</sup>**

Gender	1985	1995
Boys	10.7%	26.1%
Girls	11.4%	18.9%

### 4.1.1 Cancer

Cancer treatment consumes about \$3 billion p.a., or 6% of total health expenditure. Cancers of the colon/rectum, breast and prostate account for around 40% of new cases of cancer in Australia (excluding non-melanoma skin cancers)<sup>51</sup>.

Physical activity has been shown to:

- reduce the risk of colon cancer by 40-50%,
- reduce the risk of breast cancer by up to 40%, and
- reduce the risk of prostate cancer by 10-30%.<sup>52</sup>

Airborne particulate matter, especially from road traffic, significantly increases the risk of cancer, particularly cardiopulmonary and lung cancers<sup>53</sup>.

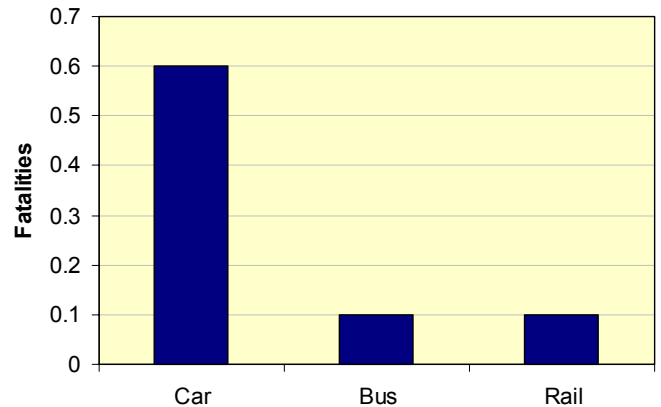
### 4.1.2 Injury prevention and control

Australia, and Victoria in particular, have long been innovators in the field of road safety, with early adoption of mandatory seat belts and other vehicle safety standards, random breath testing and use of speed cameras. While this is reflected in relatively low road fatality rates when compared to the OECD average, a large proportion of the people killed on Australia's roads should not have been behind the wheel. Around a quarter of drivers killed each year are over the blood alcohol limit, and about 20% of fatalities involve fatigue. Diminished fitness to drive also contributes to a significant number of crashes, and this can be expected to rise as the population ages. The economic cost of road crashes is estimated to be about \$17 billion p.a.<sup>54</sup>.

In 2004, the Inquiry into National Road Safety<sup>55</sup> recognised that a reduction in road trauma could be achieved by providing alternatives to private motor vehicle trips. Encouraging alternatives to motor vehicle use is now a strategic objective of the National Road Safety Strategy. The risk of being killed in a crash is at least five times higher for car occupants than for public transport users (Figure 4.3), and this is reflected in lower fatality

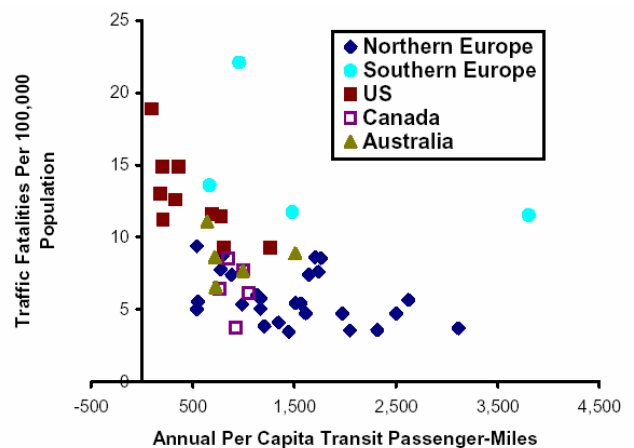
rates in cities that focus on public transport for a large part of their mobility needs (Figure 4.4).

**Figure 4.3: Fatalities per 100 million passenger kilometres<sup>56</sup>**



In contrast, by encouraging additional motor vehicle travel and urban sprawl, cities that focus on roadway expansion experience higher levels of fatalities for both vehicle occupants and pedestrians<sup>57</sup>.

**Figure 4.4: International Traffic Deaths<sup>58</sup>**



Note: Cities that rely on public transport for a greater part of their mobility needs tend to suffer from fewer traffic fatalities.

### 4.1.3 Cardiovascular health

Cardiovascular disease (CVD) encompasses conditions such as angina, heart attacks, heart disease, stroke, heart failure and aneurysms. CVD affects over 3.2 million Australians and is

---

expected to affect a quarter of the population by mid-century. CVD currently consumes 11% of health spending and results in indirect financial costs in excess of \$6.6 billion per annum.

Inadequate physical activity doubles the risk of chronic heart disease, as well as contributing to other risk factors for CVD such as obesity, diabetes and high blood pressure. On the other hand, increased physical activity can reduce the risk of high blood pressure by 30% and reduce blood pressure among people already suffering from hypertension.

Recent research is also pointing to a significant link between airborne particulate matter, largely from motor vehicle exhausts, and cardiovascular conditions including sudden cardiac death and myocardial infarction<sup>59</sup>.

#### 4.1.4 Diabetes mellitus

Diabetes affects about 1 million Australians, with around 100,000 new cases emerging each year. This is one of the highest rates in the Western world and is more than double the incidence in 1981. The most common form of diabetes mellitus in Australia is Type 2 diabetes which accounts for nearly 90% of diabetes cases, about 5% of the total burden of all diseases and is the seventh leading cause of death of Australia<sup>60</sup>.

Increasingly sedentary lifestyles are a key factor in the rising prevalence of Type 2 diabetes, as society has structured daily activity and travel patterns around car use. Walking, cycling or using public transport in place of driving can contribute to a 50% reduction in the risk of developing adult diabetes<sup>61</sup>.

#### 4.1.5 Mental health

Research has indicated that the risk of dementia among elderly men is doubled by physical inactivity<sup>62</sup>. Conversely, physical activity is associated with a 17-28% reduction in the risk of suffering from depression<sup>63</sup>. Together these two conditions cost Australians over \$22 billion p.a.<sup>64</sup>. Mental health outcomes are also harmed by the social isolation that accompanies transport disadvantage, that is the lack of mobility faced by non-drivers in car-dependent communities.

Improved public transport availability and physical environments that encourage walking and cycling would reduce transport disadvantage and encourage greater physical activity as part of daily lives, thus reducing some of the biological and social risk factors for mental illness.

---

*"Public transport services connect people with places. Using public transport is cheaper than driving a car, reduces congestion on our roads and enables people to fit a little more activity into their daily life by walking or cycling to stations or stops. To encourage increased public transport use, services need to be accessible, frequent, reliable, inexpensive and safe!"*  
(Heart Foundation 2004)

---

#### 4.1.6 Asthma

Asthma affects 14-16% of children and 10-12% of adults in Australia. The prevalence of asthma in Australia has been increasing in recent decades and is one of the highest rates in the world<sup>65</sup>. Air pollution triggers and exacerbates the symptoms of asthma leading to visits and admissions to hospital and medication usage<sup>66</sup>. Motor vehicles are the main source of urban air pollution.

While asthma sufferers must take care to avoid exercise-induced asthma, light exercise such as walking and cycling to destinations or public transport can be an important component of asthma management. New research is also pointing to a link between adult-onset asthma among women and being overweight in childhood<sup>67</sup>.

### 4.1.7 Arthritis and musculoskeletal conditions

Musculoskeletal conditions include osteoporosis and various forms of arthritis. Arthritis affects more than 16% of the population and osteoporosis affects more than 10% of women over 65 years of age. The combined cost of these conditions is over \$11 billion p.a.<sup>68</sup>.

Numerous studies have shown increased incidence and severity of arthritis among people who are obese<sup>69</sup>. Not only can moderate physical activity help to manage weight, it can also help arthritis sufferers by strengthening muscles to protect joints, decreasing pain and preventing joints from becoming stiff. Exercise throughout life is also vital for building and maintaining bone strength to guard against osteoporosis, and for maintaining balance and coordination which help to prevent falls and associated fractures.

## 4.2 Community interaction

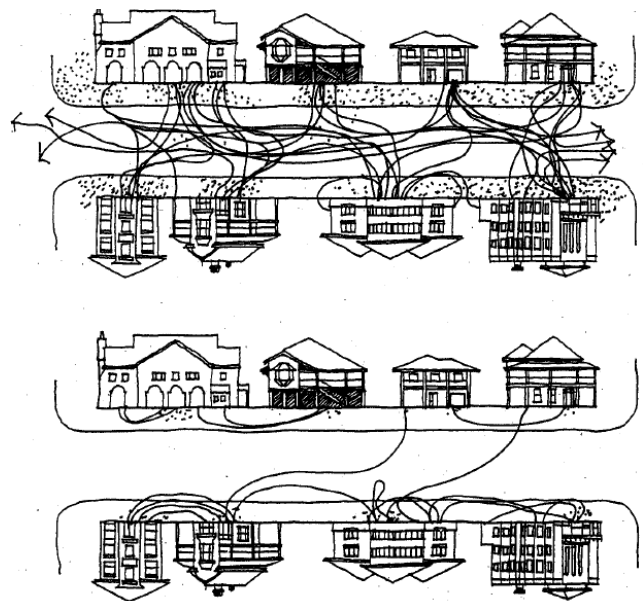
Passive surveillance by neighbours and passers-by is one of the most effective forms of security. Police and insurers have recognised the value of good relationships with neighbours in preventing and detecting criminal acts such as burglary. Not only does knowing your neighbours reduce the risk of crime, it also helps to build social capital which is vital for fostering prosperous and resilient communities.

Unfortunately car-dominated transport policies can undermine local amenity and social cohesion. Streets with high traffic volumes tend to deter pedestrians and cyclists and reduce opportunities for incidental social interaction (Figure 4.1). As a result, residents of high traffic streets tend to have fewer friends and acquaintances in the street than residents of streets with low traffic volumes (Figure 4.5). The reduced interaction and cooperation among neighbours, combined with reduced foot traffic

in the vicinity, opens up opportunities for criminals to work unnoticed.

Some communities have recognised the importance of promoting pedestrian-friendly streets that encourage local interaction and reduce the dominance of motor vehicles in public spaces<sup>70</sup>. These strategies would be complemented by consistent strategies across state and federal levels that also encourage a shift away from motor vehicles and towards walking, cycling and public transport.

Figure 4.5: Effect of traffic on local interaction<sup>71</sup>



**Top:** 2,000 vehicles per day: at relatively low traffic levels, residents engage freely with their neighbours, having on average 3 friends and 6.3 acquaintances in the street.

**Bottom:** 16,000 vehicles per day: with high traffic levels, social engagement is limited and residents have only 0.9 friends and 3.1 acquaintances in the street.

---

## 5 A national response to national challenges

Roads receive substantial and regular funding from all tiers of government, including federal funding of roads that are considered to be the responsibility of state governments<sup>72</sup>. In comparison, federal funding of public transport has been relatively minor and ad hoc. This imbalance has played a large role in creating the economic, environmental and social challenges discussed elsewhere in this report.

This funding anomaly is disturbing given the extent of Vertical Fiscal Imbalance (VFI)<sup>73</sup> in Australia compared to countries that have significant national-level public transport funding programs.

Federal funding for road projects is generally only provided if matching funds are also provided by the state government. As a result, state governments can be required to direct a significant portion of their transport expenditure to road projects that are jointly funded by the federal government. In effect, the current federal transport funding framework not only starves public transport of federal funding, it also reduces the share of state funding that is available for improving public transport.

The federal government has made a number of important investments in urban public transport over the years. For example, federal funding has been instrumental in delivering:

- rail extensions in Melbourne,
- train electrification in Brisbane, and
- light rail construction in Sydney.

With Commonwealth and State roles being re-assessed in areas such as industrial relations, water management, education and health, it is an appropriate time for the federal government to formalise a more significant and ongoing program of support for public transport.

**Figure 5.1: Railway station in Brisbane**



*Note: Commonwealth funding was instrumental in the electrification of Brisbane's rail network. © CAST*

### 5.1 International comparisons

While public transport services are generally a municipal or regional responsibility, national government contributions to public transport services and/or infrastructure are common in other OECD and Western countries<sup>74</sup>. Many also apply a zero or reduced rate of Value Added Tax (or GST) to public transport fares. These countries range from relatively centralised unitary systems of government through to federal systems with lower levels of Vertical Fiscal Imbalance than that existing in Australia. Canada, Spain and the United States provide useful comparisons.

#### 5.1.1 Canada

Also a federal constitutional monarchy and fellow member of the Commonwealth of Nations, Canada shares many historic and cultural similarities with Australia. Until recent times, the Canadian Government's role in public transport had also been relatively minor and ad hoc. A range of federal programs are now making significant investments in urban public transport, for example:



- The Canadian Strategic Infrastructure Fund was introduced in 2001 and has directed C\$4 billion towards projects of national or regional significance including public transit expansion and railway level crossing eliminations.
- The Public Transit Fund allocated C\$400 million to public transit infrastructure in 2005-06.
- The Public Transit Capital Trust is allocating C\$900 million to investments in public transit infrastructure.
- The Gas Tax Fund, funded from federal petrol excise, is providing around C\$12 billion to public transport, water, wastewater and community energy projects around Canada.

Reflecting a pre-election statement that "improved public transit usage will help both reduce traffic congestion in our urban centres and reduce carbon dioxide and other emissions", in March 2007 the new Conservative government announced a commitment of up to C\$962 million for transport infrastructure in the Greater Toronto Area on top of the above programs, including C\$697 million for a subway extension.

In 2006, the Canadian government also introduced a tax credit on the cost of monthly or longer public transport passes, primarily aimed at reducing traffic congestion and greenhouse emissions.

### 5.1.2 Spain

Spain, like Australia, is a constitutional monarchy and is often described as a quasi-federal system with significant responsibilities placed at sub-national level in the 17 *comunidades autónomas* (Autonomous Communities).

#### Madrid

Madrid is both the largest city in Spain and, combined with surrounding municipalities, one of Spain's Autonomous Communities. Under the

Statute of Autonomy of the Community of Madrid (roughly analogous to a constitution), responsibility for railways within the Community rests with the Community Government. By contrast, the Spanish national railway company RENFE is responsible for interurban and suburban railways through the Community. The establishment of a regional transport authority in 1986, the *Consortio Regional Transportes de Madrid* (CRTM), formalised a structure to integrate and manage the constituent parts of the regional network in a coherent manner. Around 40% of the subsidy for the CRTM is provided by the national government which has also 2 members on the CRTM Board of Directors.

### 5.1.3 United States

The USA is one of the most car-oriented societies on earth, reflecting the dominance of roadway expansion in US federal transport policy through much of the 20th century. With growing recognition of the social and environmental costs of car dependence, federal transport funding was broadened to include significant investments in public transport with the introduction of the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991 and subsequently the Transportation Equity Act for the 21st Century (TEA-21) in 1998 and then the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) in 2005. Since 1991, federal funding for public transit under these programs has grown from US\$2.8 billion per annum to around US\$9 billion per annum<sup>75</sup>. In response, public transport has started to regain lost market share from private cars. Around half of capital expenditure on public transport in the United States is now provided by the federal government.

The US federal government also allows employers to provide tax-free packaging of public transport fares which is estimated to increase public transport use by around 10% and

reduce traffic, emissions and parking demand at employer premises<sup>76</sup>.

**Figure 5.2: Bundoora tram in Melbourne**



Note: Commonwealth funding was a key factor in the Bundoora tram extension in Melbourne.

## 5.2 Accountability

While public transport services in Australia are traditionally seen as the domain of state governments, federal funding, through matched or partial contributions, would help to ensure that state governments remain accountable for delivering sustainable transport projects.

The use of federal funding to ensure state government action has been demonstrated through AusLink and the previous Roads of National Importance (RONI) where federal money allocated for projects ensured that such projects were undertaken by the respective state governments.

Applying the same principles to public transport would see the provision of federal funding for public transport infrastructure upgrades reflecting federal policy objectives in areas such as greenhouse emissions and traffic congestion.

In light of concerns over cost shifting and the tendency for state governments to work from roads authority wish-lists of urban freeways that are overwhelmingly used by low occupancy commuter traffic, federal contributions should not be seen as a *carte blanche* addition to state transport funds. The opportunity exists to provide national leadership in sustainability, economic efficiency and fiscal discipline by making the existing pool of federal transport funding available also to public transport – thus enabling the current level of funding to be allocated in accordance with merit rather than mode. Any increases in the total size of this pool will depend upon overall Commonwealth budget priorities.

For even greater accountability, federal transport funding could be made contingent upon the demonstration of robust project identification and evaluation processes that integrates transport and land-use planning and encourages greater use of active transport and public transport as aspired to in many federal and state government strategies.

Under such a model, federal involvement in urban public transport would not result in cost-shifting, but would leverage the effectiveness of federal transport funding.

---

## 6 Recommendations

The following recommendations are aimed at formalising an appropriate role for the Commonwealth Government in public transport provision, thus delivering better outcomes in areas such as economic performance, environmental sustainability and public health.

### 6.1 *Tax reform*

- Replace the existing concessional FBT Statutory Formula for car benefits with a methodology that removes the incentive for increased car travel.
- Allow tax rebates or pre-tax salary packaging for periodical public transport tickets.
- Reintroduce automatic indexation of fuel excise to maintain real value over time.
- Incorporate transport emissions in any national greenhouse emissions trading system.

### 6.2 *Transport funding*

- Expand AusLink funding guidelines to include urban, intrastate and interstate public transport infrastructure to ensure that federal transport funding is based on merit rather than mode.
- Adopt the recommendation of the Senate Inquiry on Australia's Future Oil Supply that AusLink corridor strategies take into account the goal of reducing oil dependence.
- Establish a Commonwealth Sustainable Transport Fund to fund infrastructure (and rolling stock where applicable) for walking, cycling and public transport.

- Ensure more rigorous assessment of transport funding to incorporate comprehensive social and environmental criteria and measures to manage demand for car travel.
- Make federal transport funding contingent upon community-based integrated transport and land-use planning at state and local government levels that prioritises walking, cycling and public transport over car use, and that requires reductions in transport emissions.
- Ensure any roads benefiting from federal funding cater fully for the needs of pedestrians, cyclists and road-based public transport.

### 6.3 *Government operations*

- Ensure government offices are located close to high quality public transport to improve accessibility for employees and clients.
- Prepare Green Travel Plans across the public sector to identify and implement opportunities to reduce motor vehicle use.
- Phase out salary-packaging of motor vehicles by public sector employees.

---

## References

- <sup>1</sup> *Transport and Liveability: The Path to a Sustainable Victoria*, Coalition for People's Transport, 2006
- <sup>2</sup> *Most Liveable and Best Connected: The Economic Benefits of Investing in Public Transport in Melbourne*, by Jan Scheurer, Jeff Kenworthy and Peter Newman, 2005, page 5.
- <sup>3</sup> See Note 2, page 4.
- <sup>4</sup> Council of Australian Governments' Communiqué, 10 February 2006
- <sup>5</sup> See Note 4, Attachments A (Human Capital Stream) and D (Better Health for All Australians: Action Plan)
- <sup>6</sup> Productivity Commission 2006, *Potential Benefits of the National Reform Agenda*, Report to the Council of Australia Governments, Canberra, p.52
- <sup>7</sup> See Note 6, pp.46-49
- <sup>8</sup> See Note 1, pp.19-21
- <sup>9</sup> Submission to Victorian Competition & Efficiency Commission Inquiry into Managing Transport Congestion, Public Transport Users Association, 2005, pp. 19-20; See also Note 11, p.18.
- <sup>10</sup> *Evaluating Public Transit Benefits and Costs*, by Todd Litman, Victoria Transport Policy Institute, <<http://www.vtpi.org/tranben.pdf>>, pp.27-35
- <sup>11</sup> *Review of Urban Congestion Trends, Impacts and Solutions*, Report prepared for the Council of Australian Governments by the Competition and Regulation Working Group, December 2006, pp.60-61
- <sup>12</sup> *Congestion Reduction Strategies*, Victoria Transport Policy Institute, <<http://www.vtpi.org/tm/tm96.htm>>
- <sup>13</sup> See Note 2, p.3
- <sup>14</sup> Method of travel to work data from 2001 Census, Australian Bureau of Statistics. CBD figures based on Journey To Work Study Areas. Inner city figures based on statistical subdivisions and not available for Brisbane.
- <sup>15</sup> See Note 12.
- <sup>16</sup> Litman, T. 2006, *Rail Transit in America: A Comprehensive Evaluation of Benefits*, Victoria Transport Policy Institute, <<http://www.vtpi.org/railben.pdf>>, p.18
- <sup>17</sup> See Note 9, p.17
- <sup>18</sup> *Tax Expenditures Statement 2006*, Australian Treasury, p.132
- <sup>19</sup> *Report on the Evaluation of the Company Car Tax Reform: Stage 2*, Her Majesty's Revenue & Customs (UK), March 2006
- <sup>20</sup> *Fringe benefit tax design: decision time*, Institute of Chartered Accountants, March 2006
- <sup>21</sup> Victorian Competition and Efficiency Commission 2006, *Making the right choices: options for managing transport congestion*, Final report, September
- <sup>22</sup> <[http://www.aph.gov.au/Senate/committee/rrat\\_ctte/oil\\_supply/](http://www.aph.gov.au/Senate/committee/rrat_ctte/oil_supply/)>
- <sup>23</sup> <<http://www.aph.gov.au/house/committee/enviro/cities/>>
- <sup>24</sup> Based on crude oil futures prices on the New York Mercantile Exchange (NYMEX). For discussion of the validity of this price assumption, see <<http://www.med.govt.nz/upload/20755/oil-price.pdf>>.
- <sup>25</sup> Oil production and consumption data from GeoScience Australia. Net oil import volume calculated as domestic crude oil and condensate consumption less domestic crude oil and condensate production. Net oil import value assumes \$AU1 = \$US0.85. Merchandise trade data from Australian Bureau of Statistics publication 5368.0 June 2007.
- <sup>26</sup> Hagan, K. 2007, 'Study puts brakes on ethanol fuel plan', *The Age*, 10 March, available at: <<http://www.theage.com.au/news/national/study-puts-brakes-on-ethanol-fuel-plan/2007/03/09/1173166986002.html>>
- <sup>27</sup> For example, over 20% of passenger vehicles in the Australian Bureau of Statistics Motor Vehicle Census are over 15 years old, rising to one third in some states.
- <sup>28</sup> Manufacture of a typical car requires about 120GJ of energy which is equivalent to about 3,130 litres of petrol. Given the average fuel efficiency and annual travel of passenger vehicles in Australia, an average car would consume this quantity of fuel in slightly less than 2 years. Analysis of the energy embodied in cars can be found in Maclean, Heather L. & Lester B. Lave, "A Life-Cycle Model of an Automobile." *Environmental Policy Analysis* v.3 n.7 (1988), pp. 322A-330A
- <sup>29</sup> *Sustainable Transportation and Global Cities*, by Peter Newman, 2000

- 
- <sup>30</sup> *National Security and the Threat of Climate Change*, CNA Corporation, 2007
- <sup>31</sup> See also *Human tide: the real migration crisis*, by Christian Aid, May 2007, pp.23-28, available at: <[http://www.christian-aid.org.uk/indepth/705caweekreport/human\\_tide.pdf](http://www.christian-aid.org.uk/indepth/705caweekreport/human_tide.pdf)>
- <sup>32</sup> Australian Greenhouse Emissions Information System
- <sup>33</sup> *National Inventory Report 2005*, Australian Greenhouse Office, 2007
- <sup>34</sup> Hopkin, M. 2007, 'Carbon sinks threatened by increasing ozone', *Nature*, 26 July, available at: <http://www.nature.com/nature/journal/v448/n7152/full/448396b.html>
- <sup>35</sup> For example, several hours could be saved on rail journeys between the capital cities by modernising track configurations that have not been upgraded since the steam age.
- <sup>36</sup> Knorr, W., Gobron, N., Scholze, M., Kaminski, T., Schnur, R. and Pinty, B. 2007, 'Impact of terrestrial biosphere carbon exchanges on the anomalous CO<sub>2</sub> increase in 2002–2003', *Geophys. Res. Lett.*, 34, L09703, doi:10.1029/2006GL029019;
- Total Environment Centre, 2007, *Carbon Neutral Watch – Corporates, Consultants and Credibility*, Sydney, p.15-16
- <sup>37</sup> IPCC Fourth Assessment Report, Working Group III, Summary for Policymakers, May 2007, p.30
- <sup>38</sup> The IPCC notes that the impact of biofuels on emissions will depend upon their production pathway, i.e. the full life-cycle impact including land use changes, production, harvesting, processing, transport, etc which outweigh the benefits according to some analyses. See Note 37, pp.18-19, and Romanowicz, G. 2006, 'Biofuel policy will give 'negligible' carbon cuts', EDIE, available at: [http://www.edie.net/news/news\\_story.asp?id=11549](http://www.edie.net/news/news_story.asp?id=11549)
- <sup>39</sup> *Global Warming - Cool it*, Australian Greenhouse Office, 2006, <<http://www.greenhouse.gov.au/gwci/pubs/gwci.pdf>>
- <sup>40</sup> Beer, T. 2004, *Air pollution death toll needs solutions*, media release, 2 March, CSIRO, viewed 12 April 2007, <<http://www.csiro.au/files/mediaRelease/mr2004/PrAirPollution2.htm>>; Kjellstrom, T., Neller, A. & Simpson, R.W. 2002, 'Air pollution and its health impacts: the changing panorama', *Medical Journal of Australia*, 177 (11/12): 604-608, available at: <[http://www.mja.com.au/public/issues/177\\_11\\_021202/kje10481\\_fm.pdf](http://www.mja.com.au/public/issues/177_11_021202/kje10481_fm.pdf)>
- <sup>41</sup> See Note 37, p.16
- <sup>42</sup> Mason, C. 2000, 'Healthy People, Places and Transport', *Health Promotion Journal of Australia*, 10(3), <[http://www.isf.uts.edu.au/publications/CM\\_2000c.pdf](http://www.isf.uts.edu.au/publications/CM_2000c.pdf)>, pp.191-192
- <sup>43</sup> Wen, LM., Orr, N., Millett, C. & Rissel, C. 2006, 'Driving to work and overweight and obesity: findings from the 2003 New South Wales Health Survey, Australia', *International Journal of Obesity*, Vol 30 Issue 5, pp782–786
- <sup>44</sup> Department of Health and Aged Care, 1999, *National Physical Activity Guidelines for Australians*, available at: <<http://www.ausport.gov.au/fulltext/1999/feddep/physguide.pdf>>; Besser, L. 2005, 'Walking to Public Transit: Steps to Help Meet Physical Activity Recommendations', *American Journal of Preventive Medicine*, November 2005, Vol 29 Issue 4, pp273-280
- <sup>45</sup> Obesity prevalence from World Health Organisation Global Database on Body Mass Index. Mode share data from *Most Liveable and Best Connected: The Economic Benefits of Investing in Public Transport in Melbourne*, by Jan Scheurer, Jeff Kenworthy and Peter Newman, 2005, p.3
- <sup>46</sup> See Note 47, page 28.
- <sup>47</sup> Bauman A, Bellew B, Vita P, Brown W, Owen N. *Getting Australia active: towards better practice for the promotion of physical activity*. National Public Health Partnership. Melbourne, Australia, March, 2002, available at: <<http://www.ausport.gov.au/fulltext/2002/nphp/gaa.pdf>>
- <sup>48</sup> National Public Health Partnership. (2001). *Promoting active transport: an intervention portfolio to increase physical activity as a means of transport*. August, available at: <<http://www.nphp.gov.au/publications/sigpah/active.pdf>>; Heart Foundation, 2004, *Healthy by Design: a planners' guide to environments for active living*, National Heart Foundation of Australia (Victorian Division), available at: <<http://www.heartfoundation.com.au/downloads/Healthy%20by%20Design.pdf>>
- <sup>49</sup> Tranter, P. & Malone, K., 2003, 'Out of bounds: Insights from children to support a cultural shift towards sustainable and child-friendly cities', *State of Australian Cities National Conference*, December 2003, available at: <[http://www.uws.edu.au/download.php?file\\_id=5009&filename=6.2\\_FINAL\\_TranterMalone.pdf&mimetype=application/pdf](http://www.uws.edu.au/download.php?file_id=5009&filename=6.2_FINAL_TranterMalone.pdf&mimetype=application/pdf)>
-

- 
- <sup>50</sup> Australasian Society for the Study of Obesity, no date, *Obesity in Australian Children*, available at: <[http://www.asso.org.au/freestyler/gui/files//factsheet\\_children\\_prevalence.pdf](http://www.asso.org.au/freestyler/gui/files//factsheet_children_prevalence.pdf)>
- <sup>51</sup> Australian Institute of Health and Welfare, *Cancer in Australia 2001*, available at: <<http://www.aihw.gov.au/publications/can/ca01/ca01.pdf>>
- <sup>52</sup> Hardman, A. 2001, 'Physical activity and cancer risk', *Proceedings of the Nutrition Society*, ; National Cancer Institute, 2004, *Physical Activity and Cancer: Fact Sheet*, available at: <<http://www.cancer.gov/newscenter/pressreleases/PhysicalActivity>>
- <sup>53</sup> Annesi-Maesano, I., Forastiere, F., Kunzli, N. & Brunekref, B. on behalf of the Environment and Health Committee of the European Respiratory Society, 'Particulate matter, science and EU policy', *European Respiratory Journal*, 2007 29: 428-431, available at: <<http://www.erj.ersjournals.com/cgi/reprint/29/3/428>>
- <sup>54</sup> Connelly, L.B. & Supangan, R. 2006, 'The economic costs of road traffic crashes: Australia, states and territories', *Accident Analysis & Prevention*, Vol 38, Issue 6, November 2006, pp.1087-1093
- <sup>55</sup> <http://www.aph.gov.au/House/committee/trs/roadsafety>
- <sup>56</sup> *Cross Modal Safety Comparisons*, Australian Transport Safety Bureau, 2005
- <sup>57</sup> Ewing, R., Schieber, R. & Zegeer, C. 2003, 'Urban Sprawl as a Risk Factor in Motor Vehicle Occupant and Pedestrian Fatalities', September 2003, Vol 93, No. 9, *American Journal of Public Health*, 1541-1545
- <sup>58</sup> See Note 16, page 29.
- <sup>59</sup> See Note 53
- <sup>60</sup> Marks, G., Coyne, T. & Pang, G., 2001, *Type 2 Diabetes Costs in Australia – the potential impact of changes in diet, physical activity and levels of obesity*, Australian Food and Nutrition Monitoring Unit
- <sup>61</sup> World Health Organisation, 2000, *Transport, environment and health*, [www.euro.who.int/document/e72015.pdf](http://www.euro.who.int/document/e72015.pdf)
- <sup>62</sup> Abbott, R., White, L., Ross, W., Masaki, K., Curb, J. & Petrovitch, H., 'Walking and Dementia in Physically Capable Elderly Men', *Journal of the American Medical Association*, 2004;292:1447-1453;
- Weuve, J., Kang, J., Manson, J., Breteler, M., Ware, J. & Grodstein, F., 'Physical Activity, Including Walking, and Cognitive Function in Older Women', *Journal of the American Medical Association*, 2004;292:1454-1461
- <sup>63</sup> VicFit, no date, *Physical Activity and Depression/Anxiety*, Melbourne
- <sup>64</sup> Access Economics 2003, *The Dementia Epidemic: Economic Impacts and Positive Solutions for Australia*, Alzheimer's Australia, Canberra;
- Beyondblue, 2004, *The Way Forward 2005 - 2010*, beyondblue: the national depression initiative, Melbourne
- <sup>65</sup> AIHW Australian Centre for Asthma Monitoring 2005, *Asthma in Australia 2005*, AIHW Asthma Series 2. AIHW cat. no. ACM 6. Canberra: AIHW., available at: <http://www.asthmonitoring.org/PDF/aia05.pdf>
- <sup>66</sup> Rural and Regional Health and Aged Care Services Division 2004, *Review of public health interventions for asthma*, Melbourne, Victorian Department of Human Services, available at: <[http://www.health.vic.gov.au/nhpa/downloads/asthma\\_intervention.pdf](http://www.health.vic.gov.au/nhpa/downloads/asthma_intervention.pdf)>, p.22
- <sup>67</sup> Burgess, J., Walters, E., Byrnes, G., Giles, G., Jenkins, M., Abramson, M., Hopper, J. & Dharmage, S., 'Childhood adiposity predicts adult-onset current asthma in females: a 25-yr prospective study', *European Respiratory Journal*, 2007 29: 668-675, available at: <<http://www.erj.ersjournals.com/cgi/reprint/29/4/668>>
- <sup>68</sup> Access Economics 2001, *The Prevalence, Cost and Disease Burden of Arthritis in Australia*, The Arthritis Foundation of Australia, Canberra;
- Access Economics 2001, *The Burden of Brittle Bones in Australia: Costing Osteoporosis in Australia*, Osteoporosis Australia, Canberra
- <sup>69</sup> Access Economics 2005, *Arthritis - the bottom line*, Arthritis Australia, Sydney, pp.34-35
- <sup>70</sup> City of Gosnells, 2001, *SafeCity Urban Design Strategy*, viewed 12 April 2007, available at: <<http://www.gosnells.wa.gov.au/upload/gosnells/F3E24ABC366C4541916F003040CA0054.pdf>>
- <sup>71</sup> Engwicht, D., 1992, *Towards an Eco-City: Calming the Traffic*, Envirobook
- <sup>72</sup> For example, Federal Transport Minister Mark Vaile's statement "These roads that we are actually funding ... should have been done by the state Labor government" quoted in AAP, 2007, "States 'failing to fund road projects'", *The Age*, 15 May, available at: <<http://www.theage.com.au/news/National/States-failing-to-fund-road-projects/2007/05/15/1178995124455.html>>
- <sup>73</sup> Vertical Fiscal Imbalance refers to a mismatch between each tier of government's revenue raising capability and its expenditure obligations. By international standards, Australian states have restricted revenue raising abilities

---

relative to their spending obligations under our federal system:

Warren, N., 2006, *Benchmarking Australia's Intergovernmental Fiscal Arrangements: Final Report*, Review Commissioned by the NSW Government, 29 May 2006

<sup>74</sup> Richardson, E, 2004, *Funding Choices for Sustainable Urban Transport*, Metropolitan Transport Forum, pp.5-7, available at: <[http://www.mtf.org.au/binary.php/resouces\\_presentation/funding\\_choices\\_for\\_sustainability.pdf](http://www.mtf.org.au/binary.php/resouces_presentation/funding_choices_for_sustainability.pdf)>

<sup>75</sup> See Note 74, p.6;

Hill, E., 2006, *Funding for Transportation: What the New Federal Act Means for California*, Legislative Analyst's Office, available at: <[http://www.lao.ca.gov/2006/trans\\_SAFETEA/trans\\_SAFETEA\\_011906.pdf](http://www.lao.ca.gov/2006/trans_SAFETEA/trans_SAFETEA_011906.pdf)>

<sup>76</sup> Transportation Research Board, 2005, *Analysing the Effectiveness of Commuter Benefits Programs*, Washington