

Chapter 3

Benefits of public transport

3.1 This chapter summarises and comments on the arguments put in submissions about the benefits of public transport.

3.2 The major benefits are said to be:

- public transport moderates traffic congestion;
- priority to public transport, walking and cycling improves the general urban amenity by economising the space needed for cars and strengthening existing transit-accessible centres;
- public transport, being more energy-efficient than car travel, supports policies to improve energy efficiency, reduce reliance on imported oil, and reduce transport greenhouse emissions;
- public transport use promotes public health;
- public transport is needed to reduce the transport disadvantage and social isolation of people without cars.

3.3 All governments accept these benefits. State strategic plans now commonly include ambitious goals to increase public transport use.¹ It appears that public attitudes also favour improving public transport. For example, the International Association of Public Transport (UITP) referred to a recent Melbourne survey in which respondents agreed far more with 'the government needs to provide more on public transport' (92 per cent agreed) than with 'it is more important to give people tax cuts' (61 per cent agreed) or 'the government needs to spend more on road infrastructure' (58 per cent agreed).²

3.4 The purposes of public transport may have different emphases in different areas. Public transport as mass transit to relieve traffic congestion refers mainly to

1 There are official goals to increase the public transport mode share from 7% to 10.5% in South East Queensland by 2011 (*Transport 2007*); from 9% to 20% of motorised trips (thus about 15% of all trips) in Melbourne by 2020 (*Melbourne 2030*); from 7% to 10% of Adelaide's passenger kilometres by 2018 (*SA Strategic Plan 2004*); to reduce car-as-driver trips in Perth by one third by 2029 (*Perth Metropolitan Transport Strategy 1995-2029*); and to increase the proportion of peak hour trips by public transport to 25% in Sydney (*A New Direction for NSW - State Plan*, 2006).

2 UITP, additional information 23 March 2009. P. Moore (UITP) *Committee Hansard* 19 March 2009, p.13. In a Western Australian survey 87 per cent of respondents supported 'use road funding to pay for public transport, cycling and walking': Prof. P. Newman, additional information 23 April 2009. See also Public Transport Users Association 2009a:25 for public comment in the preparation of the *Melbourne 2030* plan; 'Fix public transport before roads, poll shows', *The Age* 25/11/2008:1 for an Age/Nielsen poll; RAC Foundation 2009:20.

services on trunk routes and in more congested inner areas of cities. Public transport in outer suburban and rural and regional areas usually has less role in relation to congestion, but still serves the other purposes.

Public transport to reduce traffic congestion

3.5 On present trends urban traffic will increase by 37 per cent between 2005 and 2020. The result will inevitably be more traffic congestion.³

3.6 The Bureau of Infrastructure, Transport and Regional Economics (BITRE, formerly BTRE) has estimated that the avoidable cost of congestion in the Australian capital cities was about \$9.5 billion in 2005, and in the base case (business as usual on present trends) this will increase to \$20.4 billion in 2020.

3.7 The BTRE notes that the growth of congestion over the last 15 years has been moderated by significant road-building, more sophisticated management to maximise road capacity, and peak spreading; however continued improvement in these ways 'will likely pose a challenge for some jurisdictions.'⁴

3.8 The base case assumes that the public transport mode share stays around its present level. The BTRE also ran the following scenarios:

- public transport, walking and cycling double their mode share.⁵ In that case the 2005 avoidable congestion cost would have been about \$7 billion (base case \$9.5 billion), and the 2020 cost would reduce to about \$14 billion (compared with base case \$20.4 billion).
- all public transport, walking and cycling trips, present and projected, become car trips. In that case the 2005 avoidable congestion cost would have been about \$12.5 billion (base case \$9.5 billion), and the 2020 cost would increase to about \$27 billion (compared with base case \$20.4 billion).⁶

3.9 Thus it is estimated that about \$3 billion per year of traffic congestion cost is avoided by the existence of walking, cycling and public transport use at their present levels; and this figure will double by 2020.

3 Bureau of Transport and Regional Economics 2007:52

4 Bureau of Transport and Regional Economics 2007:52. The 'avoidable cost' of congestion is excess travel time and other resource costs or external costs which traffic suffers in excess of the costs which would be incurred if the traffic had operated at an economically optimal level of congestion. The economically optimal level of congestion is the level at which the cost of further abatement outweighs the benefits. Comparing actual congestion with 'no congestion' is not useful because 'no congestion' is unachievable in the real world, and it would not be economically rational to try to achieve it in any case (the cost would outweigh the benefits).

5 Except for peak hour public transport to city centres, which was assumed to have only 20 per cent spare capacity.

6 Bureau of Transport and Regional Economics 2007:57,119-120

3.10 This may be compared with the public subsidy to public transport estimated at about \$3.3 billion (five capital cities - see paragraph 2.27ff).⁷ The public transport subsidy includes subsidy to many services which have no congestion-helping role (typically, poorly patronised outer suburban services), so the subsidy relating to the services which do have a congestion-helping role may be quite cost effective (the subsidy of course also serves the other social policy goals discussed below).

3.11 It is by now generally accepted, including by road authorities, that urban traffic congestion cannot be solved by building roads - or at least, not only by building roads.⁸ This is because building roads encourages the growth of traffic and entrenches patterns of urban development that create high car use. Even without this feedback, building enough roads to handle traffic growth would be impractical and unaffordable:

Past transport studies and experience have shown that building freeways does not solve congestion, and they will in fact increase congestion in the long term.⁹

3.12 It is inevitable that as our cities grow public transport must play a greater role in combating traffic congestion.

How public transport moderates traffic congestion

3.13 Traffic congestion reaches an equilibrium at which the costs of entering the congested system are greater than the benefits for the marginal user. The marginal user will then travel to a less congested place, or at a less congested time, or avoid travelling, or use public transport.¹⁰

7 Australasian Railway Association 2006:22. 'Five cities': Sydney, Melbourne, Brisbane, Adelaide, Perth

8 For example, Victorian Government 2008a:88. NSW Government 2005:160. This does not mean that no more roads should be built. It means that capacity expansions must consider the effects on the whole traffic system. A congestion point may act as a flowing-constricting valve which improves conditions downstream; if removed, the congestion created downstream may be worse than the congestion removed upstream: Metz 2008:54. See also submission 152, Save Our Suburbs, p.5, for discussion of the Downs-Thomson paradox: road expansion, if it degrades the viability of alternative public transport, may lead to a worse outcome for all travellers (motorists and public transport users). Downs 1992, Mogridge 1990. See SACTRA 1994 and Litman 2009 for discussion of induced traffic.

9 Submission 156, Municipal Association of Victoria, p3. Similarly NSW Government 2005:160: 'The cost of meeting unconstrained travel demands, particularly in peak periods, is becoming prohibitive. Building new capacity just to meet peak needs is very expensive, and as has been demonstrated in other cities, will not solve transport problems or improve accessibility on its own.' In Vancouver, alone among Canadian cities, the average time taken for the journey to work has been declining over the last 15 years as a result of policies to improve public transport and build no new major roads: Dr P. Mees, *Committee Hansard* 30 March 2009, p.62. Dr J. Stone, *Committee Hansard* 30 March 2009, p.49.

10 Litman 2009:1. This explains why it is found that closing roads often reduces the total traffic level, and rarely increases congestion to the extent that was feared: T. Avramis (People for Public Transport (SA) Inc.), *Committee Hansard* 23 July 2009, p.19. See Cairns et. al 2002

3.14 If public transport alternatives are improved, more motorists will use them, and the equilibrium point for the traffic will be a less congested situation.

3.15 When traffic is close to the capacity of a road even a small increase in traffic can greatly increase congestion.¹¹ From that position even a small reduction in traffic may have disproportionate benefits.

3.16 This applies best to services that are independent of the traffic congestion. Buses and trams cannot attract motorists from congested traffic if they are caught up in it themselves. This suggests a strong need for more bus and tram priority measures.

3.17 The benefit is increased by 'transit leverage': the car travel forgone is greater than the public transport travel created, as public transport users tend to plan their travel more economically.¹²

Connection between public transport and congestion charges

3.18 The second role of public transport in coping with traffic congestion is an indirect, political one: better public transport is essential to make congestion charges economically defensible and politically acceptable.

3.19 A motorist entering a congested road suffers delay, but also causes delay to others. A cost that a person imposes on someone else without paying for is an 'external cost.' If motorists are not required to pay for the costs they impose on others, their behaviour will not respond to the full cost, and economically inefficient overuse of the road will result.¹³ Congestion is the most significant road-related external cost.¹⁴

3.20 Tailored 'congestion charges' are a way of reducing the external congestion cost. Motorists are charged to use roads at the most congested times and places.¹⁵ Those who value their use of the road less than the charge adjust their behaviour by travelling less often, or at other times, or switching to public transport. Those who

11 Bureau of Transport and Regional Economics 2007:114

12 Submission 8, Prof. P. Newman, p.8

13 This applies regardless of whether motorists as a group pay the congestion costs that they create as a group (by jointly suffering the congestion). A relevant externality is a cost external to the *individual*, since that is what affects individuals' choices.

14 Bureau of Transport and Regional Economics 2002:93ff. Bureau of Infrastructure, Transport and Regional Economics 2008:59

15 For example, a cordon charge to enter a Central Business District (London, Singapore), or a charge varying with the time of day to use a dedicated lane on a motorway. See Bureau of Infrastructure, Transport and Regional Economics 2008.

value the use of the road more have a less congested trip. The overall result for community welfare is positive.¹⁶

3.21 The BITRE has estimated that levying optimal road user charges in major Australian cities could reduce peak hour travel by 20 per cent, overall travel time by 40 per cent, and total traffic fuel consumption by close to 30 per cent.¹⁷

3.22 In its 2006 review of urban congestion COAG said:

Pricing measures stand out as the most effective option for alleviating congestion and improving the efficiency and productivity of the transport network (at least when delivered as part of a total policy package of complementary measures)... Those price-based measures with the primary purpose of reducing congestion when and where it occurs are most effective. For example, the London area-based pricing scheme implemented in 2003 has achieved sustained improvements, including reduced traffic delays of 30-50 per cent, reduced overall travel times by around half this percentage, improved journey reliability, improved efficiency of distribution of goods and services, and improved city amenity.¹⁸

3.23 The economic case for congestion charging is strong, and some peak organisations now support it.¹⁹ However it has been politically difficult because of the perception that it is 'yet another tax on motorists'.²⁰

3.24 One review of 25 examples around the world found that 'the common experience was that pricing was only acceptable if this objective could be seen as the solution to an already accepted problem, and a sufficiently widespread acceptance that other existing policies are not capable of solving it.' To win support for a proposal it was very important that the revenue was hypothecated to transport improvements. It was found that channelling revenue to public transport in particular increases public and political acceptance.²¹

16 To achieve the benefit it is important that the charge targets only congested times and places. A flat rate city-wide or state-wide 'road use charge' is not a congestion charge. Australian Automobile Association 2008:23

17 Bureau of Transport and Regional Economics 2002:xv. Bureau of Transport and Communications Economics 1996.

18 Council of Australian Governments 2006:12

19 For example, submission 58, RACQ, p.9. . M. Roth (RACQ), *Committee Hansard* 3 March 2009, p.75. Submission 33, Bus Industry Confederation, p.21 and submission 108, Roads Australia, p.3 refer to 'road pricing' apparently with the same meaning. The Australian Automobile Association (AAA) supports 'a user charge to address externalities' but this seems to refer to a more general, geographically indiscriminating charge, since the AAA then says 'other measures... should be introduced ahead of introducing a congestion charge.' Submission 127, p.11

20 The NSW government has recently ventured into congestion charging in a small way by making the Sydney Harbour Bridge toll higher in peak hours from 27 January 2009.

21 Commission for Integrated Transport 2006.

3.25 Better public transport is essential to make congestion charges politically palatable, by giving more motorists other choices:

Congestion pricing receives community support when consumers are given sufficient alternatives to avoid the congestion charge and are understanding of the benefits through reduced congestion. To achieve this, an inner city congestion charge would need accompanying measures that improve the frequency and reliability of public transport, and the provision of free bypass or ring roads.²²

3.26 In a recent review of this issue the BITRE commented:

Congestion charging is gaining favour as an enduring solution that directly targets congestion, has strong theoretical foundations, has worked well in key cities and provides an 'innovative source of finance... [however] the gains from a scheme depend on behavioural change for which Australian cities may not be well-placed, due to insufficient coverage of high quality public transport services.'²³

Committee comment

3.27 The object of a congestion charge is to reduce congestion. It is noteworthy that some peak organisations now support this. There are now a number of successful examples around the world to look to. The committee suggests that Australian governments should take a more active role in educating the public about the benefits of congestion charges. To make the idea more politically acceptable it is desirable to hypothecate the revenue to transport improvements. This should include improving public transport services, so that more motorists have alternatives to their cars.

Public transport to improve the urban amenity

3.28 Submissions argued that planning to give more priority to public transport, and less priority to roads and cars, improves the the general urban amenity (that is, the pleasantness of the urban environment for activities other than driving). Car-limiting and public transport friendly planning policies economise the amount of land needed for roads and parking, land which may be put to more attractive uses; and they strengthen older activity centres which are usually more accessible by public transport and have a better environment for pedestrians:

[Waverley] Council's transport policy aims to reduce the land area of the public domain devoted to cars: private motor vehicle movements, vehicular access and parking by 5% by 2010. This would free-up and allow the re-

22 Submission 58, RACQ, p.10. Similarly P. Moore (UITP), *Committee Hansard* 19 March 2009, p.26.

23 Bureau of Infrastructure, Transport and Regional Economics 2008:v

allocation of land to other uses: widening footpaths, cycleway, parks and community gardens.²⁴

Where significant investment in public transport has taken place, such as the construction of the northern and southern rail lines or bus enhancements like the CAT in Central Perth within the more established areas of the region; the public transport network has contributed to the overall vitality and cohesion of the wider city. This has typically occurred through 'place making' or by reinforcing the role of existing activity centres and former strip developments.²⁵

3.29 There is strong worldwide evidence that public transport improvements (particularly congestion-free railways or busways) increase nearby property values. For example, according to a Transportation Research Board comparative study of busways, Brisbane's south-east busway, opened in 2001, caused increases in property values of about 4 per cent in Eight Mile Plains, 8 per cent in Upper Mount Gravatt, and up to 20 per cent in Holland Park West.²⁶

3.30 Better public transport should improve the viability of car share schemes, since it makes it practical for more people to avoid owning a car by using a mixture of public transport and car share cars as needed. Less car ownership will reduce pressure on roads and parking space, particularly in inner suburbs.²⁷

Public transport for environmental goals

3.31 Environmental goals, other than the urban amenity goals just mentioned, are -

- to reduce oil dependence; and
- to reduce transport greenhouse emissions.

3.32 These are closely related, since greenhouse emissions from transport are roughly proportional to fossil fuels burnt.

3.33 Public transport is relevant to these goals because it is more energy efficient than car transport. Urban buses, trams and trains use about a fifth to half as much fuel

24 Submission 142, C. Mason, p.11. Similarly G. Broadbent (Australian Conservation Foundation), *Committee Hansard* 30 March 2009, p.3

25 Submission 123, WA Department for Planning and Infrastructure, p.2

26 See Transportation Research Board 2003 for Brisbane case study. The Royal Institution of Chartered Surveyors (2002) reviewed 150 studies, and said: 'Impacts are more easily identified for tram and metro investments than for bus investments.' (p.2) Similarly T. Litman, *Committee Hansard* 31 July 2009, p.4,10.

27 Car share: a kind of self-service car rental suitable for very short hires. Australia's biggest car share business, GoGet, has 140 vehicles in Sydney, Melbourne, Adelaide and Brisbane, mostly in inner suburbs. Cars are stabled in accessible places and members access them using a smart card. Submission 68, GoGet Carshare. C. Mason, *Committee Hansard* 31 March 2009, p.47

as cars per passenger kilometre, depending on the mode and the conditions.²⁸ The advantage of public transport is much greater in peak periods, since in peak periods, compared with the all day average, buses and trains tend to be fuller while cars tend to be less full. The advantage would be greater if there was more public transport use: see paragraph 3.45.²⁹

Need to reduce oil dependence

3.34 Most of Australia's oil consumption (77 per cent) is used for transport, and almost all transport is fuelled by oil (95 per cent). Australia's reliance on imported oil is increasing. Oil prices have risen greatly in the last few years and now stand at \$US70 per barrel. Prices are predicted to remain high: the International Energy Agency's 'reference scenario' assumes an average price of \$US100 per barrel to 2015 rising to \$US120 to 2030 (in 2007 dollars), since 'marginal costs of supply exert upward pressure on prices', with increased price volatility.³⁰

3.35 There are concerns about when world oil production will peak. 'Peak oil' activists predict a peak soon, with serious economic detriments if mitigating action is not taken. Professor Aleklett of the Association for the Study of Peak Oil and Gas (ASPO) said:

We are at the peak now, on a plateau, and the question is when we will start to decline from the plateau. I do not like to say that the future is the end of the world. Instead I would like to say we have to build a new world. We have to build a new crash mat and we have to build it as thick as possible, because if we get a thick crash mat we will not be so hurt when we fall down.³¹

28 ABARE 2009:70. Garnaut 2008:509. Apelbaum 2008:10. Alford and Whiteman 2008:6. Australasian Railway Association 2006:49. Estimates appear to allow for actual typical load factors in service, however details are mostly unclear. The estimates in the different sources differ significantly: 'a fifth to half' covers most of the range. PTUA 2009b gives the clearest explanations: it estimates energy consumption in megajoules per passenger-kilometre, including allowance for the energy embodied in making the vehicle, as: train with 400 people - 0.2; tram with 20 people - 0.8; bus with 10 people - 1.4; car with 1.1 people - 4.7.

29 The advantage of electric trams and trains is not as great in greenhouse terms as in energy terms if coal-fired electricity is used, as coal fired electricity is more greenhouse intensive than petroleum per unit of energy delivered. According to Garnaut (2008:509) rail and bus have a greenhouse emissions intensity about half as much as cars per passenger kilometre in average conditions.

30 Bureau of Transport and Regional Economics 2005a:3. Department of Resources, Energy and Tourism 2009:13. ABARE, *Australian Commodities*, vol. 16 no. 2, p.331. International Energy Agency 2008:40. The current oil price of about \$US70 per barrel, though lower than the 2008 peak of \$US135 per barrel, this is still higher than the prices of \$US25-30 per barrel which subsisted before the present price rises started in 2004.

31 Prof. K. Aleklett (ASPO), *Committee Hansard* 9 June 2009, p.7

3.36 Many others, including peak government agencies, accept that oil production will peak, but have varying views on how soon it will be and how concerning it is.³² The International Energy Agency has given strong warnings of a possible oil 'supply crunch' in the near term if there is not enough investment in new capacity:

Some 30 million barrels a day of new capacity is needed by 2015. There remains a real risk that under-investment will cause an oil supply crunch in that timeframe.... the gap now evident between what is currently being built and what will be needed to keep pace with demand is set to widen sharply after 2010.³³

3.37 Demand for oil is relatively inelastic because for its major use - transport - there are no easy substitutes. This means that a relatively small shortfall in supply can cause a large increase in price. This will increase the volatility of the price in response to small changes in supply when there is little spare capacity.

3.38 The Australian Government is currently working on an Energy White Paper expected to be released late in 2009. The terms of reference mention among other things 'conservation technologies', 'environmental sustainability' and 'energy security'. The discussion papers acknowledge the warnings in the *World Energy Outlook 2008* mentioned above - for example, 'There is increasing recognition that a major decarbonisation of the world's energy system is likely to occur in coming years'. They suggest a possible priority of 'reducing carbon emissions and energy intensity'. However the possibility of an unexpectedly early peak oil, which might require active mitigation, is not mentioned.³⁴

Committee comment

3.39 It is regrettable that the discussion papers for the Energy White Paper now under development do not mention the possibility of an unexpectedly early peak oil which might require active mitigation. Given the risks involved, it would be wise for Australia to pay more attention to 'peak oil' concerns, and to adopt strong policies to reduce its oil dependence in the long term. Public transport, because of its energy efficiency, has an obvious role to play in that.

Transport greenhouse emissions

3.40 Transport accounts for 14.6 per cent of Australia's greenhouse emissions.³⁵ Passenger cars are responsible for 53 per cent of transport emissions. Transport

32 Senate Standing Committee on Rural and Regional Affairs and Transport 2007:40ff

33 International Energy Agency 2008:41

34 Department of Resources, Energy and Tourism 2009:11,16

35 This refers only to fuel used in combustion. The figure would be higher if it took account of the energy embodied in building roads, railways and vehicles: see Lenzen 1999, Public Transport Users Association 2009b.

emissions are the second greatest source of of emissions growth after stationary energy.³⁶

Committee comment

3.41 There is an obvious role for public transport to improve the energy efficiency of urban transport. In relation to greenhouse emissions, there is extra advantage in that electric rail can use renewable power.

3.42 The committee acknowledges that the principle of the government's Carbon Pollution Reduction Scheme is to allow market forces to focus greenhouse mitigation actions where they are most cost-effective. There is no particular demand for all sectors to contribute equally: if mitigation is more costly in transport than some other sector, there will be less mitigation in transport.

3.43 However, given the growth in transport emissions, the committee does not think it is satisfactory to imply that, having instituted the Carbon Pollution Reduction Scheme, the Australian Government does not need to take any interest in other avenues of mitigation in transport.³⁷

3.44 Submissions stressed that there should be a multi-faceted approach to reducing transport emissions, of which a carbon charge is one element. This will include more ambitious fuel efficiency standards for cars, travel demand management; road pricing that reflects the full costs of road transport; landuse planning policies to reduce the demand for travel; and better public transport so that motorists facing higher fuels prices have more alternatives.³⁸

3.45 The present car/public transport modal split in Australian cities is about 90%/10% on average. This may suggest that any realistically achievable increase in public transport use (for example, an 80/20 split, which is a goal in some policies), would still have only a small effect on total transport energy use. However the benefits would be increased by these considerations:

- On average one public transport trip tends to replace more than one car trip, as people adjust their habits to travel more efficiently; so increasing public transport mode share implies decreasing total travel.³⁹
- While the *average* bus/train trip is about twice as fuel efficient as the average car trip, the gain from transferring the *marginal* trip will be much greater, since the marginal energy cost of putting an extra rider on an existing train or

36 Department of Climate Change 2009:6-7. 2007 transport emissions: passenger cars 41.9 Mt CO₂e; total 78.8 Mt CO₂e.

37 This was the general tenor of the Department of Climate Change's evidence to the committee: Ms S. Thompson, Department of Climate Change, *Committee Hansard* 20 March 2009, p.10ff.

38 Submission 33, Bus Industry Confederation, p.21. Submission 130, Environment Victoria, p.4

39 Submission 8, Prof. P. Newman, p.8

bus service is practically zero. Increasing public transport use implies an increasing average load factor, which will increase the energy advantage of public transport.⁴⁰

- Where greater public transport use reduces traffic congestion, the remaining motorists may enjoy greater fuel efficiency in the less congested conditions.

Public transport to promote public health

3.46 Health costs of the current transport mix include -

- road deaths and injuries;
- effects of motor vehicle pollution;
- effects of an inactive, car-dependent lifestyle.

3.47 Greater public transport use, implying less car use, has benefits in reducing these costs.

Reducing the road toll

3.48 In 2000 the BTRE estimated road crash costs 'conservatively' at nearly \$15 billion per year (1996 dollars), comprising human costs \$8.3 billion, vehicle costs \$4.1 billion, and general costs \$2.5 billion. Since then road deaths have fallen, but injuries requiring hospitalisation have increased. In 2005-06 31,204 people were seriously injured in road crashes. A 2006 study estimated the road crash cost in 2003 at \$17 billion. New estimates are now in preparation by the BITRE.⁴¹

3.49 Crash costs broken down by urban/ non-urban are not available; but if at a guess half the costs were incurred in major urban areas, it implies that a one per cent reduction in traffic created by a shift to public transport and active transport in these areas could save \$85 million per year.⁴²

Reducing health impacts of pollution

3.50 Pollution in the form of particulates and noxious gases from motor vehicles increases ill health from cardiovascular and respiratory diseases. Particulates are microscopic solid particles produced by the combustion of petrol and diesel and, combined with road dust, are suspended in the air and inhaled. This contributes to a

40 As the existing service becomes full extra services must be provided, but providing an extra service for the first overflow passenger still gives an average load factor of at least 50 per cent, which is probably better than most public transport achieves at present as an all-day average.

41 Bureau of Transport Economics 2000:xi. Connelly & Supangan 2006. Berry & Harrison 2008:vii. 'Seriously injured': admitted to hospital.

42 Assuming that crash costs are proportion to traffic volume. Road deaths and serious injuries are much higher per population in rural areas than in metropolitan areas: Berry and Harrison 2008:28. NSW Centre for Road Safety 2007:32

cumulative decrease in lung function efficiency and can contribute to the incidence of breathlessness, heart disease and asthma. There is increasing recognition that even small exposures are injurious.⁴³

3.51 Motor vehicles are the main cause of air pollution in cities. The BTRE has estimated that in 2000 motor vehicle pollution accounted for between 900 and 4500 morbidity cases, and between 900 and 2000 early deaths (this may be compared with Australia's road toll of 1,464 dead in 2008). The economic cost of pollution-related morbidity in 2000 was estimated at between \$0.4 billion and \$1.2 billion, and the economic cost of premature mortality was estimated at between \$1.1 billion and \$2.6 billion.⁴⁴

3.52 A shift from car travel to public transport will help reduce air pollution. While overall a very large increase in public transport use would be needed to have more than a small marginal effect on pollution (because of the low public transport mode share at present), the prospects of public transport are best in more congested areas, and these are the areas that suffer most pollution.⁴⁵

Public transport for a more active lifestyle

3.53 There has been much comment in recent years about the 'obesity epidemic'. According to Doctors for the Environment Australia:

Australia faces an epidemic of obesity, with almost 60% of Australian adults and 25% of children being obese or overweight, with type 2 diabetes and other adverse health effects from physical inactivity and unhealthy diets prevailing... Currently diabetes is estimated to cost \$6 billion annually. This is expected to double by 2020.⁴⁶

3.54 Inactive lifestyles associated with excessive car use are a significant part of the problem:

People who live in sprawling suburbs are more likely to drive their cars and have higher body mass indexes.⁴⁷

Research has indicated that each additional hour of daily driving leads to a 6% increase in the likelihood of obesity.⁴⁸

43 Submission 70, Doctors for the Environment Australia, p.2

44 Bureau of Transport and Regional Economics 2005b:ix. Department of Infrastructure, Transport, Regional Development and Local Government 2009:1

45 Brindle et al. 1999:27

46 Submission 70, Doctors for the Environment Australia, p.3

47 Submission 27, Australian Conservation Foundation, p.3, referring to Garden and Jalaludin 2008.

48 Submission 70, Doctors for the Environment Australia, p.3

3.55 Use of public transport and active transport can help ensure that people have minimum activity levels:

Daily activities such as walking, cycling to the shops or to public transport, can provide the level of physical activity recommended in the National Physical Activity Guidelines. In studies of cities throughout the world a positive relationship has been found between availability of public transport and lower levels of obesity. This is simply due to factors such as commuters needing to walk to and from the bus, tram and train stops.⁴⁹

As little as 30 minutes exercise daily helps to promote weight loss and improve physical fitness....Even moderate exercise via endorphin release in the brain as well as the positive benefits of feeling fitter promotes psychological wellbeing. Use of public transport of itself promotes exercise in that people need to get to transport nodes, either by walking or bicycling.⁵⁰

3.56 Recent studies have confirmed that public transport use is associated with greater physical activity, after controlling for other variables.⁵¹

Committee comment

3.57 In the committee's view the connection between car-dependent lifestyles, inactivity and the incidence of overweight is a serious matter which needs to be taken up more vigorously in both public health policies and urban planning policies.

3.58 Building urban fringe developments in a way that makes it inevitable that more than 90 per cent of the residents' trips will be by car should be regarded as no more acceptable than building on contaminated land.

Public transport to reduce transport disadvantage and social isolation

3.59 Many submissions noted that public transport is important to reduce the transport disadvantage and social isolation.⁵²

3.60 'Transport disadvantage' has two aspects: inadequate public transport for people who do not have licences or cars (or not enough cars for the needs of all household members); and the possibly excessive burden of car costs for those who are

49 Submission 70, Doctors for the Environment Australia, p.3

50 Submission 13, Public Health Association Australia, p.4. Similarly S. Powrie (Bicycle Institute of South Australia), *Committee Hansard* 23 July 2009, p.51

51 Submission 142, C. Mason, p.7. Similarly M. Burke (Pedestrian and Bicycle Transport Institute of Australasia, *Committee Hansard* 3 March 2009, p.18. See also Public Health Association, additional information 26 March 2009. Wen & Rissel 2007. Bassett et al. 2008. Lachapelle & Frank 2009.

52 For example submission 67, Western Sydney Regional Organisation of Councils, p.6. Submission 114, Metropolitan Transport forum, p.4. Submission 123, WA Dept for Planning and Infrastructure, p.1. See also Currie (2007).

forced to have cars (or more cars than they might want) because of poor public transport.⁵³

3.61 The Western Sydney Regional Organisation of Councils (WSROC) described research that found that almost a third of Sydney people live in transport disadvantaged census collector districts. Over half of those people were located in western Sydney:

International studies... point to a strong evidence base that a lack of suitable and affordable public transport can be a significant barrier to participation in work and education and access to health services, shopping and social, cultural and recreational activities for socially disadvantaged people.⁵⁴

3.62 Similarly in Melbourne, 83% of residents do not live within access of an at least half hourly full time bus service.⁵⁵

3.63 For those who do have cars the cost of the car (or the second car) may be an excessive burden of necessity, especially for people of lower socio-economic status in the outer suburbs:

An important and generally unique feature of Australian cities is the concentration of lower income and financially marginalized residents in fringe urban areas. There are strong relationships between where disadvantaged Australians live and the lack of public transport. There is also evidence that this has encouraged many low income families to become car dependent. As a result a high share of low income households on the fringe of our cities have high car ownership despite high costs of running cars. The result is "transport poverty". Providing even a minimum public transport level of service can provide a significant release for these pressures.⁵⁶

53 Australia-wide the proportion of people of driving age with a licence is about 63% for under 20s, rises to 95% for age 40-49, and falls to 61% for over 70s. Figures for men and women are similar except that among over 70s 75% of men and 50% of women are licence holders (2003 information). About 9 per cent of dwellings have no motor vehicle. Austroads 2005a:37, ABS 2006 census. 'About 45% of Perth's population does not have ready access to a private car': submission 123, WA Dept for Planning and Infrastructure, p.1

54 Submission 67, Western Sydney Regional Organisation of Councils, p.6. Hurni 2006:2,6. 'Transport disadvantaged' was defined as living more than 800m from the nearest bus service that runs half hourly or better during the day, without regard to where the bus runs to.

55 Submission 34, Prof. G. Currie, p.2

56 Submission 34, Prof. G. Currie, p.5. Similarly submission 114, Metropolitan Transport Forum, p4. N. Sipe & J. Dodson, *Committee Hansard* 3 March 2009, p.38ff

3.64 In Melbourne 20 per cent of households with income below \$500 per week are running two or more cars. Fifty-eight per cent of households in north west Sydney have two or more cars.⁵⁷

3.65 Outer suburban people and rural and regional people with high car use will be particularly vulnerable to rising oil prices.⁵⁸

3.66 In light of these points the Australasian Railway Association suggested that public transport services can be regarded as 'as essential as health services...'

Like health services, transport services have 'socio-technical' content and both are identified as sectors ripe for greater Commonwealth investment and accountability for sustainability.⁵⁹

3.67 Rural and regional people without cars suffer particular transport disadvantage. Many submissions described the difficulties of life for people without cars or driver's licences - for example, difficulties that the elderly have in getting to doctor's appointments, or that youth have in gaining the independence they need. This particularly applies to transport from the smaller towns to the regional centres. Providing even a little public transport can greatly increase these people's opportunities.⁶⁰

57 Submission 87, Australasian Railway Association, p.41. Submission 67, Western Sydney Regional Organisation of Councils, p15

58 Dodson and Sipe 2008. N. Sipe & J. Dodson, *Committee Hansard* 3 March 2009, p.38ff

59 Submission 87, Australasian Railway Association, p.41

60 For example submission 4, Alexandrina Council. Submission 47 Fleurieu Regional Development. Submission 155, Municipal Association of Victoria, p.11. K. Owen & S. Holcombe (Municipal Association of Victoria), *Committee Hansard* 20 July 2009, p.2ff

