Submission to the Rural and Regional Affairs and Transport Committee

Inquiry into the investment of Commonwealth and State funds in public passenger transport infrastructure and services

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This submission has drawn on research conducted at the University of Wollongong. However, it does not necessarily reflect the views of the University.

1. The year of 1974 saw the introduction of Commonwealth funding of urban public transport in Australia's major cities under the *States Grants (Urban Public Transport) Act* by the Whitlam Government. Prior to 1974, there had been no Commonwealth funding for urban public transport in Australia's state capital cities. The Act ratified an agreement between the Commonwealth and States to upgrade urban public transport. However, Federal funding of urban public transport in the 35 years from 1974 to 2009 has been characterised by 'on- again, off-again' funding. More details are given in Appendix A.

Appendix A also notes that in the 25 years from 1974 to 1999, in 1999 values, the Federal Government allocated $17.9 billion (bn) to the National Highway System with $42.8 bn on all roads. A net allocation (excluding equity in National Rail) of $1.2 bn was made to rail capital works, and about $1.5 bn to urban public transport.

As noted[1] Federal allocations in the five years to 2004, in 2004 values (being 1.1526 times 1999 values), were about $4.0 bn to the National Highway System, $8.8 bn to all roads, $0.9 to rail capital works, and virtually nothing to urban public transport. **Accordingly, in the 30 years from 1974 to 2004, in 2004 values the Federal Government allocated $24.6 bn to the National Highway System with $58.0 bn on all roads, $2.2 bn to rail capital works, and about $1.8 bn to urban public transport.**

It would be good to see the corresponding figures for the five year period from 2004 to 2009. The indications are that despite the introduction of AusLink, the Federal government has continued its bias toward roads at the expense of rail and urban public transport.

2. In 1990, Professor Peter Newman et al[2] suggested that *"A decade of emphasis on rail funding is required after a decade of emphasis on road funding which has shifted out cities towards an excessive dependence on the automobile . .."*

In 1994, this writer[3] recommended *"A period of further investment (by the Federal Government into urban public transport) over a decade at a level of at least $100 million*

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[1] *Australian land transport - is it sustainable ?* P Laird, G Adorni-Braccesi and M Collett Towards Sustainable Land Transport" Conference November 2004 in Wellington New Zealand

[2] Newman, P., Kenworthy, J., Lyons, T., Transport Energy Conservation Policies for Australian Cities, Murdoch University, 1990 (p. xi)

[3] *Rail and urban public transport: Commonwealth funding and policy issues* P G Laird, Research Paper No.12, 1994 Department of the Parliamentary Library, Parliament of the Commonwealth of Australia (see Appendix A)

per year in a structured program is also warranted, with consideration given to the money being raised from petrol taxes."

Both Prof Newman, this writer and others in a 2001 joint authored book (Chapter 4, page 89)[4] found that: *"It needs a new approach to address the heavy bias to oil-based road transport in Australia. A whole new program is also required to shift passengers from road to rail in our cities and regions, and, to shift freight from road to rail."*

3. There is increased concern about climate change. This was in part reflected by the decision of the Rudd Government to ratify the Kyoto protocol in December 2007. The increased concern within Australia about global warming is also reflected by scientific reports and legislation at a State level, with South Australia of note[5].

The decision to include transport in the proposed Carbon Pollution Reduction Scheme (CPRS) is supported. However, the proposed rebate for CPRS charges for cars over three years (by offsetting fuel excise) and trucks for twelve months by reducing road user charges could further delay improvements in energy efficiency in road vehicles. The incentive to switch to less energy intensive modes of public transport and rail (and sea) freight is further reduced by imposing carbon pricing on these modes.

Given that most road passenger vehicles have a low energy efficiency in moving people when compared with rail and bus transport, there is a case for a much increased investment in urban public transport.

4. The world scene in regards to oil supply and demand is also rapidly changing. This led to the Senate Rural and Regional Affairs and Transport Legislation Committee holding an Inquiry during 2006 into Australia's future oil supply and alternative transport fuels. A response is now awaited to the findings and recommendations of this Committee that were made in its Final Report of February 2007.

As per Appendix B, there have been many Parliamentary and other inquiries held over the past 30 years that have recommended improved rail and urban public transport.

5. New Zealand ratified the Kyoto protocol in 2002, and along with increasing fuel excise took a number of measures, including budgetary, to place more emphasis on sustainability. The New Zealand government has continued to make transport policy decisions to reflect both greenhouse and oil security. See Appendix C re some recent overseas transport initiatives including both Canada and Japan.

6. Quite simply, of Australia's five major cities, only Perth has a good urban rail system that has been recently expanded to meet growth areas. In fact, and as outlined in Appendix D, Perth (assisted by smart cards for multimodal fare payment) now exhibits

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[4] *Back on Track: Rethinking Transport Policy in Australia and New Zealand* P Laird, P Newman, M Bachels and J Kenworthy UNSW Press, 240 pp ISBN 086840411X

[5] See for example, Steffen, W (2006) *Stronger evidence but new challenges: 'Climate change science 2001 – 2005*, DEH-AGO, also the actions of the Government of South Australia (http://www.climatechange.sa.gov.au) including legislation (*Climate Change and Greenhouse Emissions Reduction Act 2007*)

world best practice and Adelaide, Brisbane and Melbourne have catch-up programmes underway. Sydney, due to sustained past under-investment, presents major challenges. Light rail (including trams in Melbourne and Adelaide) is also important and is also outlined in Appendix D.

7. Public passenger transport services include inter-urban rail services (eg Sydney-Newcastle) and may also be regarded as including intercity services such as Sydney Canberra. The quality of these services including the all important transit time depend critically on track alignment and capacity questions. These are related to questions about the adequacy of existing interstate mainline track to support more freight on rail, as outlined in a 2007 report of the House of Representatives Standing Committee on Transport and Regional Services *The Great Freight Task: Is Australia's transport network up to the challenge?* This report outlines Australia's growing land freight task and gives numerous examples of inadequate transport infrastructure.

In regards to interurban transport, some progress has been made by the Governments of Queensland, Victoria and Western Australia. Regional rail upgrades in the past two decades of note include Brisbane-Caboolture (and now to Nambour), Brisbane - Gold Coast, the Victorian Regional Fast Rail project on four lines (completed c2006) and the current North East rail revitalization project, and the Perth - Mandurah railway.

However, much work is now needed to improve regional rail links to Sydney, including a capacity upgrade of the Strathfield - Gosford track (which may need fast tracking with attention given to options). A marked improvement of train services between Sydney and each of the Southern Highlands of NSW and Wollongong, with the attendant track upgrades including some track straightening is now long overdue. Completion of the 35 km Maldon - Dombarton rail link would allow the existing Sydney Wollongong line to carry more passenger trains, serve an expanding port at Port Kembla, and allow road haulage of coal to be reduced from a high level of over 5 million tonnes per annum (mtpa) as opposed to plans by the coal industry to increase it up to 10 mtpa. These plans are currently under assessment by the NSW Department of Planning.

8. In August 1978, Australia introduced import parity pricing for all Australian-produced crude oil as a revenue raising measure. The Prime Minister of the day made it clear that import parity pricing was being introduced in response to a changing world situation and a need to encourage energy conservation, oil exploration in Australia and the development of alternative energy sources. Government complementary measures included a National Energy Conservation Program. In the eight year period 1976 to from 1984-85 there was a marked improvement in energy efficiency in land freight transport with diesel savings actually exceeding projected savings. To paraphrase:[6]

> In the 8 year period from 1976 to 1984, the average energy efficiency of road freight increased from 0.6 to 0.71 net TKM/MJ (Net tonne km per megajoule) saving 360 ML (megalitres) of diesel as against a projected 270 ML (due to N Gentle in a 1983 IE Aust Conference paper on Energy Use – Transport). For rail freight, an increase in energy efficiency over these 8 years from 1.75 to 2.42 net TKM/MJ saved 184 ML a year as against a projected 62 ML per year.

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[6] *The potential for liquid fuel savings in Australian land freight transport*, P Laird Greenhouse and Energy 1990, edited by D. Swaine, p 304-314, CSIRO Australia

It is doubtful of these savings would have been made so quickly without import parity oil pricing.

9. Quickly following the second world oil price shock in the late 1970s, a then relatively 'new' approach to energy use in transport was suggested in 1979 in a government Australian Transport Advisory Council publication called *Transport and Energy Overview.* Although the data used in this report is now dated, the approach is commended, as are the conclusions. In part: *"... rail is relatively energy efficient compared to road for long distance freight ... (and) ... does have fuel substitute options, such as coal-oil slurries or electrification ..... As far as possible pricing and cost recovery policies should be consistent across the modes so as to encourage use of modes appropriate to particular tasks. Appropriateness may be defined broadly as minimising the total social cost of transport services, including externalities."*

10. As noted in Appendix B, many Government and parliamentary inquiries since 1979 have explored the question of how to improve energy efficiency in transport in Australia. Of particular note is the Senate Standing Committee on Industry, Science and Technology in its 1991 report *Rescue the Future: reducing the impact of the greenhouse effect* that addressed, inter alia, transport. Noting that transport contributed over a quarter of Australia's Carbon dioxide emissions, the Committee made six specific transport recommendations. These comprised:

- an integrated national transport strategy within two years .
- a national action plan for urban public transport
- minimum fuel economy of 8 litres per 100 km for all new vehicles sold in Australia reducing to 6 litres per 100 km by 2005.
- incentives for fuel efficient vehicles, mode shifting to public transport, and replacing high standing charges (registration and insurance) by those proportional to vehicle use.
- favouring LPG and natural gas
- research re use of lower carbon fuels

The 1991 Senate Committee report also noted that ***"already much has been written and said, including strategies and recommendations that would greatly reduce greenhouse gas emissions. The element that is missing is not information but action."***

Australia's record in achieving these six worthwhile goals has been limited. The integrated transport strategy had to wait effectively until 2004 with the release of the AusLink White Paper and this did not include urban public transport.

11. A 1991 report from an Ecologically Sustainable Development (ESD) Working Group on Transport is also of note. This report was one of nine reports on ESD sponsored by the Federal Government. The ESD transport final report gave a careful examination of the issues and made some 30 recommendations. These addressed concerns about concessions within the Fringe Benefits Tax system that encouraged the provision of company cars, the need to encourage the use of public transport as part of salary packages, better vehicle pollution control measures, effective schemes to improve fuel efficiency with labelling, the removal of subsidies to encourage greenfield suburbanisation, road pricing mechanisms, priority for high-occupancy vehicles, bicycling etc.

Many of these recommendations were passed over by Government when formulating budgets, although some influenced 1992 Government policies on ESD, and a National Greenhouse Reduction Strategy. This included reducing *'...total energy consumption in transport through improved technical and economic efficiency of urban and non-urban transportation and switching to alternative transport technologies or modes where this reduces greenhouse emissions per passenger or unit of freight'.*

12. In addition, a National Strategy for Lowering Emissions from Urban Traffic and a National Action Plan, as approved by the Australian Transport Council in August 2002, recommended a new approach. To quote from the communique for this meeting: *The Strategy and Action Plan developed by the National Transport Secretariat in collaboration with all states, territories and the Commonwealth government provides a groundbreaking national approach to reducing greenhouse emissions from the transport sector. This includes, within the next 5-10 year 'programs that encourage people to take fewer trips by car' and transport 'from predominantly fixed to predominantly variable costs' to '... ensure that transport users experience more of the true cost of their travel choices.'*

13. To quote from http://www.climatechange.gov.au (accessed 18 February 2009 via projections) " *Transport sector emissions in 2005 were 80.8 Mt CO2-e, 30 per cent higher than the 1990 emissions level of 62.1 Mt CO2-e.*
The 'with measures' emissions in the Transport sector is projected to increase to:
• 88.1 Mt CO2-e per annum over the Kyoto period, 42 per cent above 1990 levels. • 103.7 Mt CO2-e in 2020, 67 per cent above 1990 levels."
It is also noted that emissions in the absence of abatement measures ('Business as Usual') are projected to be higher by the amount of 1.8 Mt CO2-e per annum over the Kyoto period and 5.0 Mt CO2-e in 2020.

From the ABS SMVU conducted annually by the Australian Bureau of Statistics (cat. no 9208.0) all registered motor vehicles in Australia traveled an estimated 215.2 billion kilometres in the 12 months ended 31 October 2007. This was an increase of 8.1 % compared with the 12 months ended 31 October 2004 (199 bn km). These vehicles consumed 30,047 million litres of fuel in the 12 months ended 31 October 2007. This was an increase of 9.2% from the 27,505 million litres of fuel used for the 12 months ended 31 October 2004. **This suggests a decrease in average fuel efficiency for all Australian road vehicles from 2004 to 2007.**

By way of contrast to fuel use by road vehicles, during 2006-07, rail used some 899 million litres of diesel and 1750 GigaWatt hours of electricity (Australasian Railway Association 2007 rail productivity report at ara.net.au). This modest energy use was for both rail freight and passengers. [The 2006-07 rail freight task at 199 billion tonne km was larger than the road freight task at 184 billion tonne km and the rail passenger task was small (at 11.8 bn passenger km) compared with a much larger road passenger task].

14. It can be argued that Australia's recent past and present road pricing policies have encouraged an increase in road vehicle use. More comment is given in Appendix E with reference to a $13 bn per annum 'road deficit'. The subject of road pricing formed an entire chapter of the report of the 2003 NSW Parry Inquiry into Sustainable Transport. Coupled with some deficiencies in public transport, this has led to excessive automobile dependence in our main cities. It is also a factor why Australia continues to have the highest road freight activity in the world (expressed as net tonne kilometers per capita).

15. During the late 1990s, two notable contributions to the transport debate in Australia were made by non government organisations. One was from the Chartered Institute of Transport in Australia who found it necessary to issue a sternly worded statement at its 1998 National Symposium about the oil situation: *"Our greatest ever source of cheap energy may soon contract and the 'Petroleum Age' in which we live now can be seen to be approaching an eventual end. ...The Symposium heard that a clear consensus is emerging that cheap oil production outside the Middle East will begin permanent decline around the year 2000, to be followed by permanent world decline within 15 years ...'More of the same' in our current transport plans and ways of thinking is no longer tenable. ..."*

Engineers Australia (1999)[7] found that we have major problems in major cities, and, there is a need to respond to the challenges. In brief:

A Taxation and fiscal policy instruments should encourage sustainable transport. At present, these measures encourage car and truck use.
B There is a strong case for increased investment in transport infrastructure that is more sustainable and less greenhouse gas intensive. Where market forces fail, government should intervene.
C More holistic approaches to transport decisions are needed that integrate considerations of impacts on health, sustainability and greenhouse gas emissions.
D There is a need for research to support cleaner transport fuels and technologies, along with transport pricing, economics and demand management technologies.

16. Some ten years on from the first warning, with recent international events and oil prices, the warnings and remedy of these two conservative bodies are even more relevant. The challenge for Australia is to reverse the long standing transport policies that act so as to increase both oil dependence and transport greenhouse gas emissions.

17. The Bureau of Transport and Regional Economics has more than once examined reducing energy use and greenhouse gas emission from transport, including in 2002[8] with some 11 groups of measures. These include reduce vehicle kilometres travelled (VKT), nine measures to reduce emissions per VKT, four road pricing measures (mass-distance charges for heavy trucks, tolls, internalising transport externalities and emission charging), carbon taxes and tradable permits. Optimal road pricing was held to offer the best way forward.

18. The House of Representatives Standing Committee on Environment and Heritage was inviting submissions in 2003, taking evidence in 2004 and in September 2005 their report on Sustainable Cities was released. Given the bipartisan approach taken in the report, and issues affecting sustainability, greenhouse gases and oil security, it is hard to understand why the response has been so delayed. A 'positive as possible' response from the Australian Government to the Committee's report is now long overdue.

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[7] Institution of Engineers, Australia (IE Aust -1999) *Sustainable transport: responding to the challenges*. See also related IE Aust 2001 reports re Sustainable energy use and sustainable energy innovation in the commercial building sector.

[8] BTRE (2002) *Greenhouse policy options for transport - Australian trends to 2020* Report No 105

In regards to transport, this Committee made seven recommendations. These reflected the need for a new approach which is appropriate as the high costs of a 'business as usual' in urban transport policy continue to increase. They include (part # 6) that *"the Australian Government significantly boost its funding commitment for public transport systems, particularly light and heavy rail, in the major cities:* also that (# 8) *The committee recommends that the Australian Government review the current FBT concessions for car use with a view to removing incentives for greater car use and extending incentives to other modes of transport."*

To these seven recommendations must be added the complementary five transport recommendations (6 to 10 inclusive) of the Final Report of the Senate Inquiry into Australia's Oil Supplies released on 7 February 2007. These recommendations again received bipartisan support.

Meantime, generous tax concessions continue to be given for the operation of motor vehicles. This is at a time the Federal Government has frozen fuel excise indexation for eight years now and is now allocating record funding to roads.

19. Several papers were presented at the September 2007 Australasian Transport Research Forum in Melbourne that outlined measures to reduce GHG emissions in urban transport. Firstly, keynote speaker Professor Elizabeth Deakin of the University of California, Berkeley in her paper “California Futures: Towards a Workable Transport – Greenhouse Policy”, noted that although the US as a nation was [then] not carrying its weight, many states are making an effort. This included California where state wide enforced reductions of GHG require year 2000 levels by 2010 (as opposed to an 11 per cent growth under business as usual (bau) and a further reduction to 1990 levels by 2020 (cf 25 per cent below bau).

Secondly, an award winning paper "Moving More with Less: Integrated transportation demand management at the University of British Columbia" (UBC) Carole Jolly from Vancouver, Canada, outlined that although UBC student numbers were up 28 per cent since 1997, car kilometers were down 22 per cent, and transit was dominant with a reduction of 16,000 tonnes of GHG per year. This was mainly due to the students, via a referendum, agreeing to an increase in fees in exchange for all students getting a ‘free’ bus pass in 2003. It was helped along by targets being set with carefully monitoring. The scheme, which has precedents in the US (Washington State, and Boulder) has since been extended to a satellite UBC campus. It was also put into effect in September 2007 at the University of Alberta in Edmonton, Canada, for transit including light rail to the main campus as well as buses.

Thirdly, in a joint paper "Reducing VKT, Reducing emissions: a long road ahead" Anne Percy of the Auckland Regional Transport Authority referred to two initiatives. Further cuts are expected as urban rail upgrading and electrification proceeds in Auckland.

20. Strong Federal government measures are now necessary to reduce oil use (and hence greenhouse gas emissions) from moving people within major cities, and, between major cities and regional centres. These measures include investments in urban public transport in Australia's major cities, and to improve transport links between major cities and regional centres.

APPENDIX A FEDERAL FUNDING OF RAIL/ URBAN PUBLIC TRANSPORT

The following is in two parts. The first part is from edited excerpts, with updates, from Rail and urban public transport: Commonwealth funding and policy issues P G Laird, Research Paper No. 12, 1994 Department of the Parliamentary Library, Parliament of the Commonwealth of Australia.

Federal funding of public transport - the Whitlam initiative

Like roads, there is no specific provision made for urban public transport in the Australian Constitution. Commonwealth funding of roads commenced in 1922. However, there was no Commonwealth funding of Urban Public Transport except within the Australian Capital Territory and the Northern Territory until 1974.

The *States Grants (Urban Public Transport) Act 1974* ratified an agreement between the Commonwealth and the States to upgrade urban public transport in major studies for the Commonwealth to provide two-thirds of the cost of approved projects. Under this Act, a total of $188.3 million in current dollars was paid over four years. This program had been preceded by a report on urban public transport prepared in 1972 by the Bureau of Transport Economics (BTE - *Economic Evaluation of Capital Investment in Urban Public Transport*, which identified no fewer than 24 projects estimated to cost an estimated $300 million. Other BTE reports included *Urban Transport: Capital Requirements 1977-78 to 1979-80*, 1977) at the request of the Australian Transport Advisory Council (comprising Commonwealth and State Transport Ministers). '

The actual decision for the Commonwealth to enter this field was a land transport initiative of the Whitlam Government. Here the Prime Minister's December 1972 policy speech had noted (Australian Transport, 1973-74 Annual Report of the Department of Transport, p3) a *"...recognition of the need for national Government to accept a share of responsibility for the public transport systems of Australian cities. This was essential if the serious deterioration in our urban environment attributable to over-reliance on the motor car as a means of transport was to be overcome."*

Federal funding of public transport under Fraser, Hawke and Keating

The *States Grants (Urban Public Transport) Act 1978* provided for expenditure of $300 million in current terms from 1978-79 to 1983-84. However, this program was terminated in 1981 when only $125 million had been paid out (current dollars). Despite the States receiving compensation of an extra $50 million in 1981 in general purpose grants, the termination of the Urban Public Transport program was objected to by all of the States except South Australia (as per letters from all State Transport Ministers in 1981-82 to the former Community Transport Concern Association).

By way of compensation, the *Australian Bicentennial Trust Fund Act 1982* provided that part (initially up to 25 per cent) of funds provided for Urban Arterials could be used for approved capital works for Urban Public Transport. In this way, $185 million was allocated until the close of the ABRD trust program in December 1988.

The Hawke Government continued similar provisions under the *Australian Centennial Roads Development Act 1988.* At the request of a State Government, funding

of urban public transport, could be made in place of funding of urban arterial roads. Under the Australian Land Transport Development program, an amount of $200 million was committed for Urban Public Transport over three years to June 1993, with $221.6 million apparently expended. Since then, no funding, at least for new projects (as opposed to studies) has been provided for urban public transport programs administered by the Commonwealth Department of Transport.

In the first seven years where Commonwealth tied funding was provided to the States for urban public transport, some $236 million (about 75 per cent) was provided for rail based projects (Holthuyzen, F. *The finances and performances of Australia's railways*, 12th Australian Transport Research Forum, Proceedings, Vol 1, p 17-42, Brisbane. 1987). These projects included new rail rolling stock for Sydney, Melbourne, Brisbane and Adelaide, and modern high voltage electrification of Brisbane suburban lines (25,000 volts AC as opposed to 1500 volts DC used in Melbourne and Sydney). The trend to favour rail based projects continued through the 1980s under the ABRD program. The allocations from 1990 to 1993 included support for extension of rail electrification in Sydney and the Illawarra, and duplication of a Brisbane line along with modal interchanges, bus projects, and bicycle paths, with some emphasis being given (Department of Transport and Communications, Annual Report, 1993-94, p106) to *"...outer urban areas which historically have been poorly served by public transport"*.

Commonwealth funding of urban rail transport assisted in an increase in urban passenger transport patronage during the 1980s.

The provision of urban public transport was further assisted by the Commonwealth through its 'Building Better Cities' program. This program, as announced in the August 1991 budget, provided grants to the States totalling $816 million over five years by a number of 'area strategies' to improve land use and transport in certain urban areas. One project was the Brisbane - Gold Coast high speed rail corridor that received $73.9 million over five years whilst Victoria received $64 million to assist public transport. The main NSW allocation of $154.3 million was for the Transit West Area Strategy which includes rail works allowing direct Liverpool - Parramatta trains, bus priority measures and a new interchange.

Urban transport policy issues

In this Section, we examine why the Commonwealth may choose to continue to support selective urban public transport capital works. Issues of reform in urban public transport have also been addressed by the Industry Commission (*Rail Transport*, 1991 and *Urban Transport,* 1994) that has repeatedly recommended that rail authorities increase urban fares.

Many Governments accept subsidies for the provision of urban public transport, and make investments for expansion of services. Typical of the reasons advanced (Australian Land Transport Development Program, Review of Operations, Vol 2, 1991-92, 1993, p63). are that *"...Public transport can generate numerous economic and social benefits, ..."* and meet national objectives including *"..social justice and the environment."*

The main problems facing provision of urban public transport services, along with low housing density and urban sprawl, is basically the high convenience and percieved low cost of owning and operating a private or company car. Raising of the price of petrol in the late seventies to then world parity prices, and a further increase in the late eighties, appears to have had little long term effect on car usage in Australia. Although some people restricted their highway driving in the late 1970s for a while (Department of Transport Annual Report 1979-80, Section on Energy and Transport, 1980, p16), and sufficient numbers of smaller and/or more fuel efficient cars where sold to improve the average car fuel efficiency in Australia, the demand for car travel has continued to increase. As a single measure, moderately higher petrol prices will do little to suppress demand for car use. As seen by the Senate Standing Commitee on Industry, Science and Technology (*Rescue The Future: Reducing the Impact of the Greenhouse Effect*, Canberra, AGPS, 1991) *" ... an effective public transport system is essential to any strategy to reduce transport sector carbon dioxide. It is unreasonable to expect people to reduce car use and use public transport more unless public transport systems are improved significantly."*

In regards to people moving, the situation was well summarised in evidence presented in 1990 to a United Kingdom Parliamentary Transport Committee by the Automobile Association : *"It is quite clear that the growth in car ownership and use which is forecast to occur over the next 25 years cannot be accommodated on the existing road network, particularly in urban and suburban areas. The demand for travel will, nevertheless, continue to grow in line with the real rate of growth of the economy and the consequent increase in the real average standard of living. It is essential therefore that people are provided with an alternative - either to use private cars, but pay high parking charges and suffer the problems and costs of congestion, or to use a reliable, efficient and inexpensive public transport system which is also safe and clean".* The Automobile Association also stated that in some areas, Light Rapid Transit (LRT) systems can provide a suitable alternative to car use.

By European, Asian and North American standards, Australia's larger cities are behind in the development of LRT systems. At present levels of petrol prices, there is little incentive for private investment in LRT systems or heavy rail. It is desirable that more funding could be raised for urban public transport by petrol taxes raised at either a national, state or regional level. Newman, P., Kenworthy, J., Lyons, T., Transport Energy Conservation Policies for Australian Cities, Murdoch University, 1990 (p. xi) suggest that *"A decade of emphasis on rail funding is required after a decade of emphasis on road funding which has shifted out cities towards an excessive dependence on the automobile . .."*

The Railway Industry Council (*Rail into the 21 st Century*, A.G.P.S. Canberra, 1990) assessed an "Urban Rail Expansion" scenario and found that although this would increase deficits in real terms, the economic costs of extending and increasing urban public transport services are less than the estimated economic savings associated with the reduced road use. There would also be substantial net savings in fuel consumption and fuel importation (about 11% in all cities). There would also be positive budgetary impacts as expenditure on road construction and maintenance along with reduced demands for health services. Given these findings, and the experience of the adverse effects of air pollution from motor vehicles in Sydney, it is not surprising that the New South Wales Government would prefer (letter to this writer) the Commonwealth to provide a structured program of Urban Public Transport funding administered by the Commonwealth

Department of Transport: moreover, such a program would be *"...wholly consistent with Commonwealth Government policies relating to economic efficiency, social equity and environmental sustainability"*. Similar such views were expressed by the Minister for Transport in Western Australia and Minister for Transport and Works in Tasmania.

Conclusions re public transport

In respect of urban public transport, Commonwealth funding to the States in programs administered by the Department of Transport that commenced in 1974 has been characterised by no fewer than two interruptions in funding in 1981-82 and 1989-90 with funding having ceased in 1993. ***A period of further investment over a decade at a level of at least $100 million per year in a structured program is also warranted, with consideration given to the money being raised from petrol taxes.***

The second part of this appendix is taken from parts of APPENDIX C of *Back on Track: Rethinking Transport Policy in Australia and New Zealand* P Laird, P Newman, M Bachels and J Kenworthy UNSW Press, 240 pp ISBN 086840411X

The total Federal outlay in grants for roads and the maintenance and enhancement of roads, including the NHS, along with rail funding, is given in Table 1. Table 2 indicates that the total Federal expenditure on the NHS from 1 July 1974 to 30 June 1999 was approximately $17.9 billion in constant 1998-89 prices. Of the $17.9 billion, a broadly estimated $3.9 billion has been expended on the reconstruction and maintenance of the Hume Highway. The result has been to change a deficient two lane road to a modern four lane highway throughout its entire length in Victoria and two thirds of its length in New South Wales.

Commonwealth outlays on roads are complemented by State and Local Government expenditure on roads, with the respective 1995-96 allocations being approximately $1.6 billion, $3.0 billion, and $1.7 billion (HORSCTCMR, 1997, p48). It is also of note that the Commonwealth funding on roads is now appreciably less than Federal component of fuel excise which was $8.9 billion in 1995-96 (HORSCTCMR, 1997, p62). Given that the Australian Constitution does not mention roads at all, one may question the significant Federal outlay on roads, which with untied grants, amounting to nearly $43 billion over 25 years in todays terms.

Both Table 1 and Table 2 exclude outlays under various Urban Public Transport programs administered by the Department of Transport, which are given in Table 5, as a total of some $1.5 billion.

The total of Federal allocations for rail capital works plus National Rail equity. from 1 July 1974 to 30 June 1999 in constant 1998-99 dollars was approximately $1.2 billion (excluding AN revenue supplements). These outlays have partly been offset by Commonwealth revenue from loan repayments and interest to the Commonwealth.

In summary, the Commonwealth is a big spender on roads, at the expense of rail and urban public transport.

Table COMMONWEALTH EXPENDITURE ON URBAN PUBLIC TRANSPORT

($million - current dollars) ($million - constant 1998-98 dollars)

YEAR	Total UPT	Product Deflator	Index	
1974-75	45	277	4.357	196.1
1975-76	33.9	323	3.737	126.7
1976-77	58.4	360	3.353	195.8
1977-78	51	390	3.095	157.8
1978-79	40	416	2.901	116.1
1979-80	40	456	2.647	105.9
1980-81	45	505	2.390	107.6
1981-82	0	562	2.148	0.0
1982-83	2.5	624	1.934	4.8
1983-84	19.9	666	1.812	36.1
1984-85	24.6	706	1.710	42.1
1985-86	31.7	756	1.597	50.6
1986-87	35	812	1.486	52.0
1987-88	49.2	867	1.392	68.5
1988-89	22.4	939	1.285	28.8
1989-90	0	1000	1.207	0.0
1990-91	42.2	1044	1.156	48.8
1991-92	86.2	1063	1.135	97.9
1992-93	93.2	1078	1.120	104.4
1993-94	0	1088	1.109	0.0
1994-95	0	1099	1.098	0.0
1995-96	0	1131	1.067	0.0
1996-97	0	1155	1.045	0.0
1997-98	0	1172	1.030	0.0
1998-99	0	1207	1.000	0.0
	720.2			1539.8

Reference. Annual Reports of the Department of Transport
See Laird (1994) for more details.
Note These amounts exclude Commonwealth allocations under the Better Cities programs.

APPENDIX B SOME GOVERNMENT INQUIRIES AND REPORTS RELEVANT TO REDUCING OIL USE AND GREENHOUSE GAS EMISSIONS IN TRANSPORT (including improving road pricing)

During the 1970s

1979 Australian Transport Advisory Council *Transport and Energy Overview*

During the 1980s

1980 Sydney - Melbourne rail electrification study
1984 National Road Freight Industry Inquiry
1986 Federal Department of Energy, Inter-State Commission
1987 Inter-State Commission

During the 1990s

1991 Senate Standing Committee on Industry, Science and Technology *Rescue the Future: reducing the impact of the greenhouse effect*
1991 Industry Commission Rail Transport, and Greenhouse Gases (two inquiries)
1991 Ecologically Sustainable Development (ESD) Working Group on Transport
1994 Industry Commission Urban Transport
1994 National Transport Planning Taskforce
1996 Bureau of Transport and Communications Economics in its 2002 Report No 105 *Greenhouse policy options for transport 2020*
1997 Australian Academy of Technological Sciences and Engineering re urban air pollution
1997 House of Representatives Standing Committee on Communications, Transport and Microeconomic Reform (the Neville Committee) Planning not patching
1998 The Neville Committee Tracking Australia
1999 Productivity Commission Progress in rail reform
1999 Prime Ministers Rail Projects Task Force 'Revitalising Rail'

During the present decade

2000 Senate Environment, Communications, Information Technology and the Arts Reference Committee *The heat is on: Australia's greenhouse future*
2001 Australian Rail Track Corporation Interstate Track Audit
2001 Fuel taxation inquiry commences
2002 Fuel taxation inquiry report (is rejected by Federal Government)
2002 Bureau of Transport and Regional Economics in its 2002 Report No 105 *Greenhouse policy options for transport 2020*
2002 AusLink Green Paper
2003 Many submissions to AusLink Green Paper supporting transport reform
2003 Parry Inquiry (NSW Ministry for Transport) Sustainable Transport
2004 AusLink White Paper
2005 House of Representatives Standing Committee on Environment and Heritage Sustainable Cities
2005 Senate Rural and Regional Affairs and Transport Legislation Committee re AusLink
2007 Senate Rural and Regional Affairs and Transport Legislation Committee re Inquiry into Australia's future oil supply and alternative transport fuels
2007 House of Representatives Standing Committee on Transport and Regional Services The Great Freight Task: Is Australia’s transport network up to the challenge?

APPENDIX C SOME OVERSEAS PERSPECTIVES

New Zealand

Australia's trans - Tasman neighbour continues to take both climate change and potential oil price problems seriously. The New Zealand Parliament approved in February 2002 a Land Transport Package called Moving Forward. Along with increasing petrol tax by 4.7 cents per litre in 2002 and a further 5 cents per litre in 2005 with proceeds going to alternatives to roads and replacing of road funds with transport funds, the package aims for a transport system that *is 'affordable, integrated, safe, responsive and sustainable*.'

Of note is a speech given by the Prime Minister Rt. Hon Helen Clark MP on 26 July 2007 to a conference 'Transport - the Next 50 years' held late July at Christchurch New Zealand. Limited excerpts from the address follow.

> *"One thing is for sure: the era when transport planning focused excessively on building infrastructure to service the private motor-car is coming to an end. Today the focus is shifting to how to plan integrated and diversified transport systems, in which many modes play their part.*
>
> *"....I believe that the sustainability challenge is a defining issue for the twenty first century. ... Sustainability is a term most commonly applied to the need for sound environmental policies. But it is a concept I believe we also need to apply across economic, social, and cultural policies too. Those are the four pillars of a sustainable nation.*
>
> *"The four pillars are mutually reinforcing: we cannot build a strong economy on a society where too many are left to fail, and where we plunder the natural environment for short term gain.*
>
> *"Conversely we cannot build a strong society on an economy which fails to generate the wealth required to fund opportunity and security for our people, protect our environment, and develop our culture.*
>
> *"Once you take a broader view of sustainability, it becomes clear that we have a once in a generation opportunity to improve our way of life, our standard of living, and the state of our environment by putting sustainability at the heart of our thinking and decision making – as we must do with transport policy."*

To update re New Zealand transport, in December 2007, the New Zealand Government released "Sustainable Transport", a discussion document to update the 2002 New Zealand Transport Strategy. To quote from Minister Annette King's speech in launching the paper: *"Transport in the future will be more sustainable. There will be more hybrid and full electric vehicles. More freight will be carried by rail and sea. More people will walk, cycle, and use public transport. There will be lower CO2 emissions as travel behaviour changes and the use of electric vehicles becomes more widespread.*

The 2007 discussion paper also proposes an expanded role for Coastal Shipping and notes targets for other objectives including *"...increasing public transport use, increasing rail and shipping's share of freight movement and reducing carbon dioxide emissions from*

the vehicle fleet. Each of them is challenging and none of them will be achieved without acceptance that change is necessary and a willingness to make different transport choices."

Not surprisingly, the Automobile Association (AA) in a submission, as seen by Minister King in a March 2008 speech to the AA, *"felt the Sustainable Transport document focused too heavily on environmental sustainability and set lofty transport targets."*

However, in a March 2008 speech to the AA, the Minister reiterated the need for change: *The creation of a truly sustainable transport system – one that delivers on our economic, social and environmental needs – is not optional. We cannot carry on with 'business as usual'. Reducing transport's contribution to greenhouse gas emissions is vital. It is non-negotiable for the success of our transport system and for our position as a responsible international citizen."*

In August 2008, the New Zealand Transport Strategy was updated with stronger measures, including monitoring. These include the goal to halve by 2040 per capita domestic greenhouse gas transport emissions from 2007 levels.

Canada

To quote from the Government of Canada's ecoTRANSPORT Strategy initiatives announced to 2007 (http://www.ecoaction.gc.ca/ecotransport) include:

- The ecoAUTO Program encourages Canadians to buy fuel-efficient vehicles by offering rebates ranging from $1,000 to $2,000 towards the purchase of more fuel-efficient vehicles that meet the required criteria.

- The ecoMOBILITY Program will help municipalities reduce urban passenger transportation emissions by increasing transit ridership and the use of other sustainable transportation options.

- The ecoTECHNOLOGY for Vehicles Program will involve purchasing and testing a range of advanced technologies and showcasing them at public events across Canada.

- The ecoFREIGHT Program is aimed at reducing the environmental and health effects of freight transportation through the use of technology.

- ecoENERGY for Fleets – Benefiting trucking companies and other commercial fleet operations by helping them cut fuel costs and reduce harmful emissions. The ecoEnergy for Fleets Initiative will emphasize information-sharing, workshops and training to help fleets increase their fuel efficiency.

- ecoENERGY for Personal Vehicles – Provides Canadian motorists with helpful tips on buying, driving and maintaining their vehicles to reduce fuel consumption and greenhouse gas emissions that contribute to climate change. Reducing fuel consumption means saving money and, more importantly, helping the environment.

The fact that Canada is prepared to subsidize the purchase of fuel-efficient vehicles stands in contrast to Australia's effective subsidization of four wheel drive vehicles with lower tariffs. The 4WD subsidy was addressed by the House of Representatives Standing Committee on Environment and Heritage in its 2005 report 'Sustainable Cities': where, inter alia, *The committee recommends* (#9) *that the Australian Government review the tariff policy on four wheel drive vehicles with a view to increasing the tariff rate on four wheel drive vehicles, except for primary producers and others who have a legitimate need for four wheel drive capability.*

Japan/global

On 14 December 2007 the "**International Symposium-Climate Change and Transport Strategy** " was held at Nagoya with a total of approximately 350 experts in attendance from Japan and around the world, who specialize in climate change, transportation and the economy. The Symposium's Keynote Speaker was Lord Nicholas Stern, Professor at the London School of Economics who spoke on "Climate Change, Economics of a Global Deal and the Role of Transport". What follows is edited from an account at the website http://ecotransport.jp/en/eventreport.html

- Unless action is taken now to reduce greenhouse gases (GHG), there is positive scientific evidence that a major disaster will result.
- Targets must be established to prompt action now to reduce CO2e (CO2 equivalent)throughout the world by 50% (80% in developed nations). For example, targets achievable by 2020 need to be set.
- There is no specific remedy, but a combination of mitigating mechanisms are required, including a pricing system (taxes, ETS), regulations, infrastructure investment, public transportation systems, and technology.
- Transport is a principal source of GHG emissions, and thus one major cause of climate change
- Such emissions account for 13～14% of CO2e and 23～24% of CO2 emissions (30% in OECD nations)
- On the per passenger-kilometer basis, railways have a much smaller impact on the environment and climate change than aircraft or automobiles.
- The demand for aircraft and airports is continuing its rapid increase (5% annually on a global scale). Airports and aircraft management systems are directly confronting a serious problem of capacity.
- It was reported that the development of high-speed railways on high-density urban lines can alleviate problems of congestion as well as automobile and aircraft transport capacity, in addition to being consistent with appropriate climate change policies.

In brief summary, "***delaying climate change mitigation is dangerous and costly***" and when we consider passenger transportation from the perspective of the global environment, it is necessary to increase the traffic share allocated to railways.

APPENDIX D MORE COMMENT RE URBAN RAIL

The following is taken from a 2008 book "The Railway Technical Society of Australasia - The First Ten Years" by P Laird and published by the RTSA in Canberra. It extends to heavy rail (which conveyed 529 million passengers in 2006-07), and light rail (137 million passengers). In 2007-08, the combined patronage was expected to be over 700 million passengers.

D.1 (Section 4.6) Perth's rail renaissance

Following the closure of the Perth-Fremantle passenger service in 1979, there were some 48 route km of urban passenger railways in Perth. By 1981, there were less than 7 million passengers per year using the rail service which was destined for closure and replacement by buses. However, a change in Government in 1983 led to the reinstatement of the Perth-Fremantle passenger service. This was followed later in the decade by electrification at 25,000 volts AC and construction of the Northern Suburbs Railway (NSR) that became fully operational in March 1993. Most of the new railway made use of the median of the Mitchell Freeway. In 2004, the NSR was extended by 6 km.

With the completion of the Southern Suburbs Railway between Perth and Mandurah in December 2007 at a cost of some $1.6 billion, Perth's urban railways extended to 172 route km. In 2006-07, there were nearly 36 million passengers. By March 2008, assisted by a world-class service, patronage on the new line was 80 per cent above projections. During the weekday peaks, there are six trains an hour each way on the 71 km Perth-Mandurah line travelling at speeds up to 130 km/h, with some taking as little as 48 minutes. This compares favourably with a 70-minute journey time by car.

The major expansion of rail services is a remarkable change in a heavily car dependent city. However, it was not all smooth sailing. To quote PTA Project Director Peter Martinovich (2007):

> "*Even after the decision to electrify the rail network in 1985, in mid-1988 transport planners recommended to the State Government ...a bus system to serve the northern suburbs. And then, despite electrification of the existing railway and building of the Northern Suburbs Railway (NSR), initial proposals in the early 1990s for a mass transit mode to serve coastal suburbs south of Perth ...heavily favoured buses. It was only the assertive efforts of rail planners in support of the State's Department of Planning and Urban Development in 1992-94 that resulted in government acceptance of a rail route from Perth to Mandurah.*"

Critical decisions determined the final form of the Perth - Mandurah line. One that was strongly supported by the Minister for Planning and Infrastructure (the Hon. Allanah MacTiernan MLA) was the final route alteration of the Perth to Mandurah railway late in 2002 to give the most direct access to the CBD from the southern suburbs.

In the process of building the Perth-Mandurah line, Perth gained two new underground stations (William Street and the Esplanade) that were commissioned in October 2007. This was followed by opening of the line to Mandurah on 23 December 2007. Like other major rail projects, signalling caused some delays to the opening.

At the time the project was in full swing, Minister Allanah MacTiernan told the AusRail 2005 conference:

> "*The big picture plan is designed to future-proof Perth delivering a sustainable and exciting city for the 21st Century. We need to build resilience into our city if we are to manage growth and deal with/withstand the global challenges of climate change and oil depletion.… While buses will always be an important part of our public transport system, the evidence is that rail services have the greatest ability to attract commuters who have a choice. If we are to get people out of their cars and onto public transport, rail is a much better bet.*"

The Minister also noted that the Perth-Mandurah railway is expected to take an estimated 25,000 cars off the freeway every day; and importantly save around 15 megalitres of fuel and 67,000 tonnes of greenhouse gases each year.

The renaissance of Perth's urban railways and its future prospects are well summarised by Peter Newman, Professor of Sustainability at Curtin University.

Rail and the Future of our City by Peter Newman

In 1979 Sir Charles Court's government closed the Fremantle railway in order to build a freeway along the coastal suburbs. His Minister for Transport said it was 'futile' to oppose this decision. Perth was a modern car-based city and there was no place for old-fashioned trains.

As an academic and a Fremantle Councillor who had seen the effects of the first oil price shock in 1973, I started the 'Friends of the Railways' to lobby for the reinstatement and upgrading of the railway. The public came out in large numbers in support of our campaign for building a state of the art rail system.

In 1983 the ALP Government was elected with a mandate to re-open the railway and examine options for upgrading. In 1991 the system was electrified and in 1993 the Northern Line was opened – with strong public support although many transport experts were opposed. The rail system grew dramatically from less than 7 million passengers a year to over 35 million, a story that reverberated around the world and brought people from all over to have a look. The Northern Line was an astonishing success carrying the equivalent of eight lanes of traffic in just a few years.

By 2001, there was bi-partisan support for building a New Southern Railway. Later Allanah MacTiernan took on the job of implementing this policy and we all watched as she battled cynical opponents of the railway until 23 December 2007 when no opponent seemed to be left standing. Those who have flocked to the new train have experienced a first class urban rail service. The predictions for the whole network in five years are around 100 million passengers a year. Meantime, every train is full at peak hour and events like the football just couldn't happen without the train.

It is a remarkable turnaround. It is also a source of great hope when we look at issues like global warming and peak oil to see that public movements can help set the long term agenda for a better future of our city.

D.2 (Section 4.7) Rail in other capital cities

Rail's recovery in moving urban passengers in Australia's major cities from a low point of about 310 million passengers in the late 1970s to more than 560 million in 2006-07 has been in part assisted by expanding capacity. Having considered Perth we now look at the cities of Sydney, Melbourne and Brisbane that have electric trains.

In June 2008, the SA Government announced a major public transport initiative. The rail elements includes completing a concrete resleepering program, gauge standardisation and electrification (as 25,000 volts AC) on the main corridors to Noarlunga, Outer Harbor and Gawler, Funds were also allocated for continuing the extending the Noarlunga Centre Line rail corridor to Aldinga.

Sydney
Each weekday, there are over 900,000 passenger movements on the CityRail system which extends to 3236 route km of track and has 300 stations (plus four on the Airport Line). In 2006-07 there were 281 million passenger journeys.

On 23 June 1979, Sydney finally gained its Eastern Suburbs Railway (ESR). As NSW Premier Neville Wran remarked at the official opening, it took some 100 years to build, similar to the time taken to build the Great Pyramid of Cheops. The new double-track railway was mostly built in tunnels with underground platforms in seven stations (three existing and expanded, four new). The line was terminated at Bondi Junction instead of continuing on. Of interest is that patronage projections made for the new railway were too low and were then exceeded by about 40 per cent in the first year. In addition, with the new line came Australia's first use of an automatic fare collection system using magnetically encoded tickets. Nearly thirty years on, it is hard now to imagine Sydney without the ESR.

In 1988, Sydney gained an extension between East Hills and Glenfield and in 1998 a 6-km loop line was opened from Lidcombe to the Olympic site at Homebush Bay. This line and a special station (Olympic Park) that was designed to facilitate the movement of large crowds, helped City Rail put on a 'Gold Medal' performance for the 2000 Sydney Olympics. In 1999, a cross-city 'Y-link' between Merrylands and Harris Park was completed (funded by the Keating Government's 'Building Better Cities' program). In early 2000 an underground-double track line with five new stations between Central and the East Hills line opened, providing more rail capacity, assisting in the urban renewal of the inner south-eastern suburbs and serving the domestic and international airport terminals. Unlike the ESR, four new stations for the new airport line were built as a Public Private Partnership (PPP). There is one publicly-owned station at Wolli Creek. In further contrast to the ESR, the patronage projections were altogether too high with actual patronage reaching only 25% of expectations. In November 2000, the PPP company went into receivership after failing to draw expected passenger numbers and revenue. The four stations are now operated by a private company.

In late 2008, a further underground railway is due to open – the 12.5 km Epping-Chatswood Rail Link (ECRL) at a cost of about $2.2 billion. Like the ESR, the new railway started as part of a larger promised project: a Parramatta-Chatswood railway. However, in 2003 the scope was restricted to the ECRL. This decision, during a period of extensive freeway and tollway building within Sydney led to one comment that in the

present decade, ‘Sydney has only succeeded in building half a dozen motorways and just half a railway’. However, a wide ranging ‘Rail Clearways’ programme, costing about $1.8 billion is also underway.

Melbourne

In 2006-07, the Melbourne urban rail system moved 179 million passengers, an increase of some 34 per cent from 2001-02 and double the 89 million passengers carried in 1978-79. The increase in patronage is in part driven by growth in Melbourne’s population and CBD employment along with higher petrol prices. The doubling of passengers has been largely achieved on the same suburban network of 30 years ago, with the addition of the City Loop and extensions to electrification.

The City Loop has a long history, going back to 1929. Enabling legislation was passed in 1960 and the Melbourne Underground Rail Loop Authority was established in 1971 to build the City Loop and three new stations. The first station to be opened was Museum (now called Melbourne Central) in 1981, followed by Parliament in 1983 and Flagstaff in 1985. Particular care was taken to reducing noise and vibration under the CBD with use of a ’double sleeper‘ floating track structure. As Robert Lee (2007:192) states:

> “*Melbourne’s loop has some of the best designed and quietest underground stations in the world, far superior to any of Sydney’s stations in these respects*.”

The City Loop has four tracks, with entry portals at Jolimont (Clifton Hill group of lines), North Melbourne (Northern group), and two more portals between Richmond and Flinders Street stations for the Caulfield and Burnley groups. An interesting operational feature of the City Loop is the change of direction of train running in the middle of the day.

Along with the procurement of new trains to meet the strong increase in urban rail patronage, a program of upgrades to the network is currently planned or underway including duplication between Clifton Hill and Westgarth, triplications on the Dandenong and Sunshine lines, and a new interchange at North Melbourne station. The Victorian Government's 2006 *Meeting our Transport Challenges* plan notes an investment on the rail network of more than $2 billion over 10 years to meet current and future demand.

Brisbane

The Brisbane urban rail system has also seen strong growth, up 28 per cent over the five years to 2006-07 to 57 million passengers. This is more than double the 26 million passengers carried in 1978-79. Revitalisation of Brisbane’s urban railways has proceeded on many fronts in addition to electrification starting in 1979. Major projects include the opening in 1978 of a new rail bridge (double-track/dual gauge) over the Brisbane River and during the 1990s the development of a new Roma Street station and quadruplication between Roma Street and Brunswick Street.

Other Brisbane rail projects (in addition to ongoing augmentation of track capacity) include the re-construction of a railway to the Gold Coast (another ‘Building Better Cities’ project) and an Airport rail link. The South East Queensland Infrastructure State Plan includes an investment of $6.6 billion in rail infrastructure (SEQIPRAIL) to deliver 144km of new track in 28 rail projects. This investment in the future of rail includes an impressive scope of work of extensions and track amplifications.

D.3 (Section 4.8) Trams and light rail

Trams were widely used in Australian cities for the first half of the twentieth Century and in 1950 tramways could be found in all state capitals and seven other cities. Australia's trams were moving during the mid-1940s over one billion passengers per year. In 1950, Sydney's tram network was about 245 route km as against Melbourne's 210 route km. However, by 1970, trams ran only in Melbourne and Adelaide.

Melbourne
In keeping its trams, Melbourne was favoured with wider streets, a relatively 'young' electric tram system and the remarkable Major-General Sir Robert Risson, who as Chairman of the Melbourne and Metropolitan Tramways Board from 1949 to 1970 argued forcefully for their retention. By 1980, patronage had fallen to about 100 million passengers per year. In 2006-07, it had surged to 155 million passengers.

Having made the decision to retain trams, the system was extended over time. Following conversion of the former suburban railway lines to St Kilda and Port Melbourne to 'light rail' routes in 1987, the next major extensions took place in the mid-1990s, including extensions to East Burwood. Two more tram extensions were partly funded by the Federal Government as part of the *Building Better Cities* program. A 'City Circle tram loop' opened in 1994, while the last of three extensions to Bundoora opened in 1995. In the last decade, the tram network was further extended to Box Hill (2003), Docklands and Vermont South (2005).

Other improvements have included the construction of 'platform' tram stops across the network and the purchase of 95 low-floor trams. Melbourne's tram network now extends to about 250 route km operated by some 500 trams and is now one of the largest in the world. Melbourne's trams also assisted in moving hundreds of thousands of people to the 2006 Commonwealth Games and help to service other major events.

Adelaide
After the closing of the rest of its tram network, Adelaide retained a solitary line from Glenelg (venue for CORE2000) to Victoria Square. This line was Australia's first 'light rail' conversion of a heavy rail line, being converted from broad to standard gauge and electrified in 1929. In 2004, new trams were purchased and track upgraded on the Glenelg line after 'years of neglect'. In 2005, the Rann Government decided to extend the tramline down King William Street to the western end of North Terrace. On 14 October 2007, the 1.6 km extension (costing $31 million) was opened.

Although the extension generated some noisy opposition, it has been well received by both the traveling public (albeit with free down town rides, replacing a previous free city bus) and business. Within six months, ticketed tram patronage in Adelaide had increased about 15 per cent since the city extension was opened. As well (*Australian Financial Review* 24 April 2008), the Property Council of Australia had noted the tram extension:

> "*has opened the city right up ... [and] had created a significant interest in property development" in the West End of the Adelaide CBD and favoured extending the tramline to Port Adelaide. This would be facilitated by the concrete gauge convertible sleepers installed in 2002 to Outer Harbour.*"

On 5 June 2008, the SA Government announced connection of the tramway onto the Outer

Harbor railway for operation with hybrid vehicles, tramway branchline extensions to Semaphore via Port Adelaide and West Lakes,

Sydney

The removal of the Sydney tram system took place between 1950 (when trams from Watsons Bay were removed and then reinstated) and 1961. On some routes, when the last trams had run, by the next day the overhead wiring had been removed and the tracks tarred over to prevent their reintroduction.

In August 1997, a light rail service commenced between the old tram concourse at Sydney's Central Station and Wentworth Park with an intermediate stop at Sydney's Casino using 'Variotram' light rail vehicles built by ABB at Dandenong in Victoria. The route has a mixture of street and off-street running, with the majority of the line using the old Darling Harbour goods line. In August 2000, the line was extended to Lilyfield making a total length of 7.2 km.

The $65 million cost of the first section was augmented by $21 million from the Federal Government's 'Building Better Cities' programme, whilst the second stage received $16 million of NSW Government funding. The Sydney light rail is operated by Metro Transport Sydney who also operates the Sydney Monorail (opened in 1988). Recent combined patronage was over 7.5 million passengers per year, which is an increase of some 22 per cent over the past five years.

There has been no shortage of ideas for extending light rail in Sydney. One was an Inner West Stage 2 to continue along the former Rozelle Goods line. There have also been suggestions of a CBD loop, either to Park Street or Circular Quay, and extending light rail to the University of NSW main campus at Kensington.

In 2005 (*Sydney Morning Herald* 21 February) a report commissioned by the City of Sydney recommended the building of five tramlines between the CBD and each of Bondi Beach, Maroubra and Mascot, with two lines through the inner west to Burwood. As the Sydney Lord Mayor Cr Clover Moore MLA said: "*...the time is right for light rail after the NSW Government has spent billions of dollars on road tunnels and toll roads - and further entrenching our dependence on road transport.*"

By 2008 (*Daily Telegraph* 6 April), the NSW Government was considering building a 4.1 km, $135m light rail service running from Circular Quay to Central Station via The Rocks by 2011. This was to provide direct access to a redeveloped East Darling Harbour project (Barangaroo) as opposed to running trams down George Street. Also under consideration was a long-proposed extension of the existing light rail system from Lilyfield to Summer Hill along a former section of the Metropolitan Goods Line.

Other Australian cities

Just as proposals to extend Sydney's light rail are yet to proceed, official proposals made in 1999 to bring light rail to Brisbane have been abandoned in favour of more motorways and busways. This may also happen in Queensland's Gold Coast, while light rail proposals for Canberra have not proceeded beyond the concept stage. However, light rail is increasingly finding favour in Canada, the United States and Europe.

APPENDIX E SHOULD ROAD PRICING BE INCREASED ?

During the 1990s, it was common for motoring organisations and road transport interest groups to claim that aggregate vehicle related payments to Government exceeded road outlays by Government. Often, in their more extreme forms, propositions were advanced along the lines that motorists are ripped off and trucks more than pay their way. A good account of the question as to whether motorists pay too much was given in a 1999 booklet by Howard Pender[10]. This study was sponsored by the Australian Automobile Association and addressed three questions. First, are motorists lightly or heavily taxed? Secondly, should they be heavily taxed? Thirdly, what is the appropriate balance between taxes on vehicle ownership and use?

In 2001, Prof Peter Newman and myself argued (loc. cit. footnote 4) that hidden subsidies to road vehicle use, even when excluding congestion costs and not making any allowance for greenhouse gas emissions, resulted in the late 1990s of a 'road deficit' of $8 billion per annum. This estimate has since been updated (footnote ref 5) and including an annual $0.8 bn non-tariff automobile industry assistance programme; an estimated increased health cost of lack of physical activity due to excessive car use of about $0.8 bn per annum in Australia (Mason 2003)[10] and greenhouse gas emissions at $25 per tonne, a case can now be made that there is a 'road deficit' of around $13 billion per annum.

The two largest items were road crash costs not met by insurance of some $5.5 billion as a cost to the wider community plus an estimate of net taxation refunds for motor vehicle use of $4.8 billion in 2003-04. The removal of indexation in 2001 of fuel excise has resulted in a higher 'road deficit'.

In regards to estimates for the costs of greenhouse gas emissions, a value of $25 per tonne of carbon dioxide equivalent (CO2e) may be regarded as either too low, or too high. A BIC[11](2001) recommendation was for a tax using $40 per tonne of CO2e. There is a case for imposing modest carbon tax in Australia on transport activity and applying the proceeds to improved transport infrastructure.

Of this $13 billion per annum, approximately $3 billion can be attributed under one set of assumptions to articulated trucks being under-recovered road system costs (about $1.5 billion) plus external costs (a further $1.5 billion).[13] It is appreciated that there are also appreciable subsidies to rail passengers that have increased in recent years, plus subsidies to rail freight that have decreased in recent years. Rail freight external costs (excluding the iron ore railways) were estimated at $215 million.

[10] *Taxing cars -fleecing the fleet or subsidising smog ?* Australian Tax Research Foundation, Research Study No 33

[11] Mason, C (2003) Personal communication, also *Transport and health: en route to a healthier Australia?* Medical Journal of Australia Vol 172, 6 March 2000 pp 230-232)

[12] Bus Industry Confederation (2001) *Getting the Prices Right: Policy for More Sustainable Fuel Taxation for Road Transport in Australia* Submission (by Mr John Stanley) to the Commonwealth Fuel Taxation Inquiry.

[13] Laird P (2006) *Freight transport cost recovery in Australia*, Australasian Transport Research Forum, Gold Coast