



AUSTRALASIAN RAILWAY ASSOCIATION INC

Liveable, Sustainable Cities

ARA/LI-DCN Urban Rail

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Presentation by David Hill, ARA Research Officer

Introduction

Good morning ladies and gentlemen. It's a pleasure to be here speaking at this conference on a very topical issue *Liveable, Sustainable Cities* - one of the ARA's key strategies four years. Increased market share of urban rail is a key to that strategy.

Sydney's high capacity CityRail urban rail network was instrumental to the success of the 'best Olympic Games ever'. CityRail demonstrated to hundreds of thousands of people the overwhelming benefits of urban rail services. The Olympics 'Super Friday, Saturday and Sunday' was an outstanding success because CityRail carried nearly 600,000 people to and from the Olympic precinct on each day.

An efficient urban rail system combined with road demand management showed that people will abandon their cars and use public transport, contrary to the views of road planners.

Governments have an opportunity to build on that success by investing more infrastructure dollars in urban rail networks as a sustainable solution to road congestion and increasing costs of road transport from air pollution, road trauma, noise, greenhouse gas emissions and land use.

High petrol prices provide the ideal impetus for governments to start developing integrated transport planning policies with increased emphasis on rail.

Road transport alone cannot meet the expectations of future travel demand. Overseas experience has shown that bigger and wider roads are not a sustainable solution to traffic congestion.

Urban rail and tram/light rail services are vital to urban transport systems. Urban rail patronage in Australia has increased 15% in the past decade. The 600 million passengers carried on Australia's urban rail services each year keep 500 million cars off city streets saving over 3 million tonnes of greenhouse gases per year.

These benefits are often overlooked because transport planning is undertaken like driving a car in reverse looking in the mirror - we have no idea where we are going or how we will get there!

Benefits of Urban Rail

Urban rail is a cost-effective partner for roads. Increased investment in urban rail significantly improves urban amenity by reducing pressure for more roads and car parks, reducing travel delays and reducing the costs of road transport including congestion, pollution, noise and accidents.

One third of our cities is roads and car parks. This is a major contributor to urban sprawl and inefficient transport energy use. Urban rail services free up land for housing, parkland or other community or commercial purposes.

Rail transport can be competitive with road. Perth's Northern Suburbs Railway (NSR), for example, has been extremely successful in attracting commuters out of their cars. The NSR carries 12 million passengers per year, 40% of Perth's urban rail patronage. One of the keys to the line's success is provision of safe, reliable, fast, frequent services. NSR services operate at 110 kph, easily overtaking cars on the parallel freeway, and operate at 5 minute headways in peak periods. Limited stop peak rail services cover the line's 30 kilometres in just over 20 minutes.

Urban rail has many advantages over urban freeways:

A suburban train carrying 1,000 people keeps 800 cars off the road - equivalent to a line of cars 5 kilometres long
 A double track railway can easily move over 20,000 people per hour, over four times the capacity of a 6-lane freeway

A double track-railway- requires only 2.5 hectares per kilometre compared with 10 hectares per kilometre for a 6-lane freeway

A double track railway costs less than a six lane freeway to build and maintain

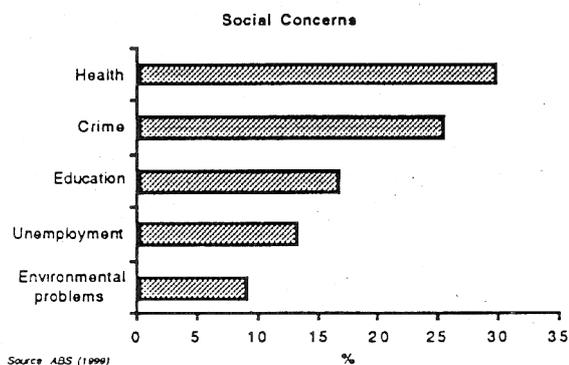
Urban rail uses only 1/4 of the land to move four times as many people over twice as fast as a congested freeway

The ability of rail services to absorb traffic growth is demonstrated by GO Transit in Toronto. GO Transit operates commuter trains to Toronto's outer suburbs and rural commuting areas. According to Metro Toronto's Central Area Transportation Review, almost all of the growth in peak-period trips to the Central Area since 1975 has been absorbed by GO Transit rail services. Automobile trips to Toronto's Central Area remain at 1960s levels.

Expanding and improving urban rail systems in Australia to help reduce road congestion is consistent with the hundreds of other cities throughout the world in the past 15 years that have determined that rail services are a more cost-effective solution to road congestion than additional road space.

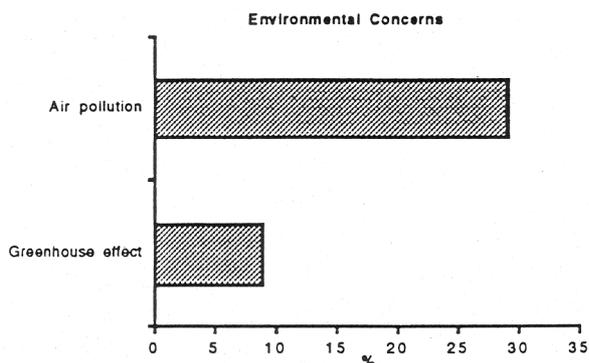
Climate Change

According to the Australian Bureau of Statistics, environmental issues are rated people's fifth most important social concern.



Air pollution and greenhouse gas emissions are both in the top ten environmental concerns. Air pollution is the most significant environmental concern while the greenhouse effect is tenth.

People are clearly concerned about the air they breathe and the impact of global warming.



These concerns were reflected in the November 2000 report of the Australian Senate into global warming, *The Heat Is On: Australia's Greenhouse Future*. The Committee commented:

Increasing funding, development and utilisation of public transport must be central to a national effort to reduce emissions from transport

Australia ranks sixteenth among major greenhouse gas producing nations, but has the highest emissions per capita in the world and has the third highest greenhouse gas emissions per capita from transport in the-world, after the US and Canada. It is higher than the OECD average. This is because of Australia's excessive reliance on road transport.

Australia's economy is one of the most fossil fuel dependent in the world. It is no coincidence that Australia has the third lowest petrol prices in the world, after the US and Canada. The level of taxation on fuel is one of the lowest in the world. The price of petrol is cheaper than milk and about the third the price of beer.

The United Nation's Intergovernmental Panel on Climate Change predicts that world temperatures will increase by up to 6 degrees Celsius over the next 100 years. Australia is facing higher temperatures, longer droughts, more floods and worse bushfires slashing rural production within 50 years.

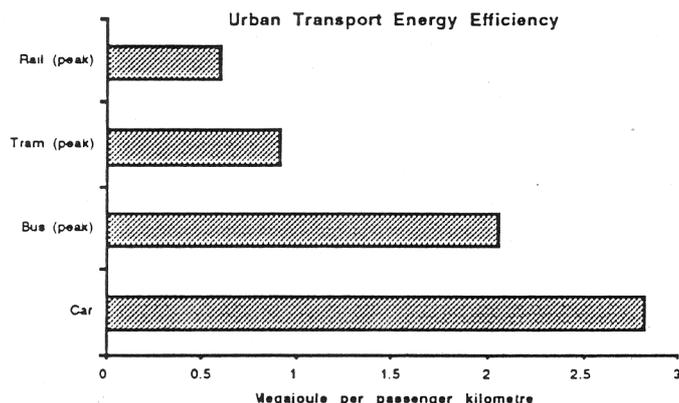
So what is Australia doing about it? Absolutely nothing! In fact the Australian Government is moving in the opposite direction by recently lowering the cost of fuel and is on the verge of withdrawing from the Kyoto Protocol on greenhouse gas emissions. This is environmental vandalism on an unprecedented scale and will ensure that Australia remains an old economy based on excessive resource consumption.

The Kyoto protocol requires Australia to reduce its greenhouse gas emissions to no more than 8% above its 1990 levels by 2012. However, Australia's greenhouse gas emissions are already 17% above its 1990 levels. **Transport now comprises 16% of Australia's greenhouse gas emissions, - an increase of 18% over its 1990 level (the same as the increase in road transport emissions).**

Reducing Australia's reliance on road transport, particularly cars in urban areas, will significantly reduce greenhouse gas emissions in the energy sector. Road transport causes 89% of the nation's transport greenhouse gas emissions: urban motorists cause 50% of road transport greenhouse gas emissions and 7% of Australia's total greenhouse gas emissions.

In contrast, the contribution of urban rail transport to Australia's transport greenhouse gas emissions is negligible, including power generated for electric services and diesel powered services.

Urban rail services are up to 5 times more energy efficient than cars.



The Bureau of Transport Economics has predicted that Australia's domestic transport greenhouse gas emissions will increase by 48% between 1990 and 2015. Road transport emissions are predicted to increase by 45% with emissions from urban motorists predicted to increase 26%.

Urban motorists are also responsible for:

- 85% of carbon monoxide that causes heart ailments
- 97% of air-borne lead that causes brain damage, particularly in young children
- 63% of nitrogen oxides that contribute to asthma;
- ozone and other particulates that cause smog

The adverse effects of exposure to urban air pollution are apparent from a Swedish study of 3,500 Stockholm men over a 30 year period. The study, released in July 1999, found that 10% of the men who were exposed to heavy traffic fumes had a 40% higher chance of developing lung cancer.

Increased investment in urban rail will help reduce the adverse effects of urban road transport.

The Real Cost of Roads

According to the Bureau of Transport Economics, the former Industry Commission and the National Road Transport Commission the costs of road transport in Australia due to air pollution, congestion, noise, accidents and road damage are over \$30 billion per year, 6% of Australia's GDP. Other than road damage, there is no sign from governments that road users should pay these costs: they are externalities for which all society pays.

Revenue from road users is \$15 billion per year - half the external costs of road transport.

In other words, every \$1 Australian governments collect from road users costs the community \$2 in adverse social and health effects.

Australian governments also spend \$7 billion on roads each year: that means every \$1 spent on roads costs the community \$4 in external costs not paid by road users.

| Transport Externality | %GDP | Cost | Government Action |
|-----------------------|-------------|-----------------------|--|
| Congestion | 2.6 | \$12.75 billion | More \$\$ sunk in road construction, rather than invested in improved public transport |
| Air pollution | 0.25 | \$1.25 billion | Improve fuels rather than reduce emissions through fewer vehicles |
| Noise | 0.1 | \$500 million | Millions spent on noise barriers to contain the symptom (noise) rather than reduce the cause (amount of traffic) |
| Accidents | 3 | \$15 billion | Improve driver behaviour rather than provide and promote safer alternatives |
| Road damage | 0.3 | \$1.3 billion | Build stronger roads rather than get trucks off roads |
| Total | 6.25 | \$30.8 billion | |

A 21st century approach to transport planning would place increased emphasis on rail to solve these problems rather than 20th century road based technology.

The Bureau of Transport Economics predicts the cost of congestion in Australia's capital cities will more than double by 2015 to \$30 billion. Road congestion contributes 13 million tonnes of greenhouse gas emissions per year and this will also increase unless measures are taken to restrain motor vehicle use in urban areas.

More recent analysis on the cost of transport externalities in Western Europe undertaken by the University of Karlsruhe indicates that these costs in Europe are in the order of 7.8% of GDP, excluding congestion costs, but including the cost of the impact on climate change. This is approximately 25% higher than the estimate of the cost of road transport externalities in Australia.

In addition, there are other costs of road transport such as vehicle contaminants including runoff from roads and petrol stations etc and the contribution of transport to landfill and waste recycling.

By any objective measure, road users are not paying their way, particularly for the adverse health effects of excessive car use in urban areas.

While road funding grants continue to be provided from governments without any rigorous economic assessment or thorough appraisal of alternative modes, transport efficiency will be undermined because roads will continue to be over provided and over used.

Melbourne's proposed \$1 billion Scoresby Freeway epitomises this approach. Professor Rodger Eade, the Chair of the panel that examined the freeway recently commented:

There was no recognition of the strategic element of what was proposed. The easiest approach seems to have been to treat the proposal as a series of transport options, rather than subjected to analysis at the metropolitan or state level.

- Urban Policy and Research, Vol 18, No.4, pp 523&524

Lack of investment in rail services reduces consumer choice and leads to one mode of transport - road. This is a real problem in Australia's major cities where rail has not kept pace with urban development.

Rail planning is of equal importance in the current debate of infrastructure in growth areas

David Turnbull, Director of Planning and Development, City of Whittlesea, Age 31.3.01, p14

Continuing to build roads in outer urban areas where public transport options are limited reinforces the cycle of car dependency in these areas. The Federal Government's recent \$4.2 billion subsidy to motorists in reduced fuel excise and increased road funding will further entrench this dependency - a dependency that costs Australians 16% of their household budgets, an increase of nearly 30% since the early 1990s. Expenditure on transport is now similar to the amount spent on housing and food.

New subdivisions in our cities are built with little or no consideration of public transport, especially urban rail services.

The US State of Maryland has legislated to provide 50% corporate income tax credit for employer provided public transport benefits of up to \$30 per employee per month.

The American Public Transit Association estimates that public transport use increases an average of 23% among employees offered tax incentives to leave their cars at home.

The Canadian Urban Transit Association estimates that public transport friendly tax benefits induce an overall 3-5% shift of employees to public transport.

To give Australian commuters a real choice between cars and public transport, taxation policy should:

zero-rate public transport or at least reduce FBT on public transport tickets to the same level applying to cars

increase FBT liability on company cars with increased kilometres travelled rather than the current system where tax liability decreases as the kilometres increase.

Reducing the FBT rate applying to salary packaged public transport tickets would generate revenue for the Federal Government because it would encourage employers to provide salary packaged public transport tickets.

Federal Funding for Urban Rail

The federal government argues that urban public transport provision is a state issue and that it is prevented constitutionally from funding it.

However, there is no constitutional impediment to the federal government providing funding assistance to the states for urban public transport.

Section 51 of the Constitution states:

The Parliament shall, subject to this constitution, have power to make laws with respect to ... railway construction and extension in any state with the consent of that state

Far from there being any legislative impediment to federal funding of urban public transport, there is a legislative imperative for it to do so.

The Australian Land Transport Development Act (the one that caused John Anderson some grief not long ago!) allows, under Sections 20 and 21, for funds allocated to state arterial roads to be reallocated to rail projects 'having regard to the policies of the Commonwealth in relation to land transport.'

More importantly, Section 7c of the Land Transport Development Amendment Act (1993) states:

If the Minister is satisfied that a project by way of capital expenditure in a state is likely to result in the reduction of the traffic on, or the wear and tear affecting, any road (including a national arterial road or a State arterial road) in an urban area, or is likely to provide environmentally or socially innovative measures to facilitate public transport, the Minister may declare the project to be an urban public transport project for the purposes of this Act

Our urban rail systems are starting to creak. Sydney's is at capacity and urgently in need of massive infrastructure expansion, the networks in Melbourne and Brisbane will be at capacity in the near future, Perth is in urgent need of more rolling stock and Adelaide's network needs upgrading and extending.

Reallocation of federal funds for urban freeways to urban railways would significantly improve the liveability of our cities by providing a long term, sustainable solution to urban traffic congestion and the costs of road transport.

It is pleasing to see local governments now also seeking federal involvement in urban issues:

We really need state and federal governments to recognise that growth areas are contributing to a national need and that is accommodation for metropolitan areas

Don Welsh, CEO, Shire of Cardinia, Age, 31.3.01, p14

Public Opinion

Certainly the Australian public would like to see increased investment in urban rail as an alternative to increased road provision.

A survey undertaken in 1999 by the Western Australian Department of Transport found that:

96% of respondents recognised the need for increased public transport usage over cars; and

87% supported diverting funds from new roads to public transport, cycling and walking

They're living on the outskirts where there is no public transport; so there is a lot more private car movement

Don Welsh, CEO, Shire of Cardinia, Age, 31.3.01, p 14

As well as the financial cost of car dependency, there are also significant health costs. Over 50% of adult Australians are obese. The major reason for this is lack of exercise, primarily caused by people driving too much.

In new suburbs, local shopping strips that people walk to do not exist - they have been replaced by shopping centres that people drive to. **In new subdivisions it can be hazardous to walk as footpaths** are inadequate or not provided. People no longer walk to the corner store or to the park. New homes come with garages for two or more cars. In many new suburbs people walking or those without a car are viewed as outcasts. Modern sedentary lifestyles often mean that there are few steps taken each day other than between the home, driveway and office.

Even in our city centres, pedestrians are treated as second class citizens and nuisances. Traffic light sequences are usually set to streamline traffic flow rather than catering for movement of pedestrians. Try crossing many of our major city centre streets before the lights change - it's a sure **bet you won't win!**

We need to refocus urban planning towards pedestrians, bikes and public transport. Cars should only be accommodated if they fit. This is the way it's being done in modern European cities. Unfortunately here planning is for cars, cars, cars and ... more cars!

There needs to be far greater coordination between government departments - health and transport, for example - to ensure that urban development enhances our lifestyles, not detracts from them.

We need to create transport choices by thinking beyond cars - urban mobility is about moving people not vehicles.

Tax Reform

The federal government continues to fail to recognise the link between taxation policy and the environment.

The New Tax System has applied the full GST to public transport, increasing fares by up to 10%. Simultaneously, new car prices have declined by 6%. These price effects combined with businesses being able to claim a 7 cents per litre tax credit on petrol used for business purposes are regressive measures that send the wrong signals about transport choices.

In contrast to Australia (and New Zealand), most European countries recognise public transport's economic, social and environmental benefits and apply either a zero rate of GST to public transport or a reduced rate.

Thankfully, realistic petrol prices that are starting to reflect the adverse environmental effects of excessive consumption have negated the effect of increased public transport fares on patronage. But we have OPEC to thank for that, not our shortsighted federal government.

Fringe Benefits Tax (FBT) inequities favouring car use over public transport still await reform.

FBT applying to motor cars as part of salary packages is approximately 10% of the vehicle's purchase price. The FBT applying to a public transport ticket is approximately 95% of the ticket price. This policy creates a significant disincentive for companies to include public transport fares in salary packages and encourages greater use of company cars for commuter use.

Company and government cars presently comprise only 16.5 % of new car sales, but cause 40% of peak hour traffic and 20% of all traffic, a significant contribution to urban road congestion and road demand.

In contrast to Australia, the USA has a number of taxation initiatives to promote employee public transport use:

Option 1 allows up to A\$1 100 per year of an employees' gross income to be used for public transport or car-pool expenses. Employers benefit from this scheme by saving on payroll taxes and other costs they are required to pay on money set aside by their employees. The money for this option comes from the employee's salary before tax.

Option 2 allows employers to supply commuters with up to A\$ 100 per month for travel vouchers or public transport passes. This will increase to A\$170 per month in 2001

Option 3 allows employees who receive free or subsidised parking the option of 'cashing-out' this benefit. for the equivalent in taxable income or exchanging it for a tax-free public transport pass or reimbursement of car-pooling expenses.

These results are supported by research undertaken by the Warren Centre at the University of Sydney. The Centre studied community values as part of its Sustainable Cities project and found:

85% were opposed to the idea of spending on roads at the expense of public transport 73% felt that not enough money was being invested in Sydney's public transport

71 % considered that transport planning should focus on public transport rather than toll roads 70% favoured public transport improvements being funded from the roads budget 64% of respondents favoured road demand management instead of more freeways The study also measured decision makers' views on these matters and what decision makers thought the public view was on these matters. Interestingly, but not surprisingly, what decision makers think the public wants - more roads - is not what the public wants.

It is time decision makers started taking note of the improved public transport services the public wants rather than continuing to inflict 1960s road based solutions on them because that's **what they think they** need.

Conclusion

The Vice-President of the World Bank, Mr Ismael Serageldin, said in 1993 that Australia and the US have become too dependent on private cars and have neglected public transport. At the Kyoto greenhouse summit in 1997, two key groups - the International Tourism Alliance and the International Automobile Federation - representing 130 motoring organisations around the world claimed that reductions in government spending on public transport systems have led to increased car use in industrialised countries.

Increased car dependency is not just attributable to 'market forces'. Car dependency has led to increased:

- transport energy consumption
- greenhouse gas emissions and air pollution
- traffic congestion
- road accidents
- transport land use.

Trends toward increased road use can be reversed by implementing the following measures:

- having a common transport fund, not a road fund that results in other modes begging for leftovers

- evaluating road and rail projects according to the same criteria taking into account social, economic, financial and environmental considerations including greenhouse gas emissions

- developing integrated land use and transport planning policies that consider a range of options, not just roads

- governments taking increased responsibility for funding improvements and expansions of the rail network just as they do with most roads

- implementing motor vehicle demand management measures in urban areas

It is inequitable that roads are publicly funded by government while provision of rail infrastructure dependent on private sector input. This different approach is inconsistent and illogical. Road and rail infrastructure should be funded on the same basis. Either both should be fully publicly funded or both should be subject to public/private sector partnerships. Urban rail services provide immense benefits to our cities each year by reducing the amount of pollution, congestion, accidents, noise, land use and greenhouse gases attributable to motor cars. These are benefits that flow through to the whole community, not just public transport users. Expenditure on public transport is an investment not a subsidy. As the CEO of the Singapore Land Transport Authority said at an Asia Pacific Rail Conference in March this year:

We can't solve congestion by building more roads or expressways

Our cities can no longer afford 1960s road based transport solutions.