SUSTAINABLE TRANSPORT COALITION of WESTERN AUSTRALIA

STCWA SUBMISSION TO SENATE INQUIRY INTO PUBLIC TRANSPORT

The Sustainable Transport Coalition of Western Australia (STCWA) is a not-for-profit advocacy group for sustainable transport. More information is available at www.stcwa.org.au

Our submission is as follows.

a) Need for integrated approach across road and rail in addressing congestion

1) There is also a need for integration with land use, especially employment and parking
2) In Perth there is a significant concentration of employment is in the CBD and peak travel demand is radial
3) Radial routes, both road and passenger rail, are getting increasingly congested
4) Perth already has freeways along the edges of the CBD so cannot reasonably build more road capacity together with parking capacity to overcome this congestion
5) Efforts to increase employment in areas other than the CBD have had only limited success
6) So the only transport solution to cater for an increasing population is public transport plus better bicycle facilities, especially on the radial routes, including completing the bike paths along the railways and into the CBD
7) But it is not just any public transport. It needs to be focused on where the un-met demand is. For Perth this is in the North East corridor. The planned MAX light rail is to cater for this, which is really a road/rail project because the space needed for the light rail has to be taken from certain roads and this needs to be replaced in some areas. But the present State Government has put this back to an unknown time, because of funding restrictions.
8) Un-met demand also exists on the existing public transport routes in peak periods
9) Additional buses and train carriages are needed in Perth. Some have been ordered but, again, funding restrictions have meant delays
10) Any integrated approach requires careful selection between forms of public transport: heavy rail, medium rail, light rail, bus rapid transit, and conventional buses – see Ref 1.
11) The recent availability of smart phone technology has enabled real time information about, and ordering of, mini-buses at less cost than conventional taxis, mainly due to cost sharing between passengers. This new form of public transport needs to be added to the public transport mix. It could be especially useful in Perth for transporting people from home to rail stations

where we are currently experiencing an ever increasing demand for parking at rail stations, with its attendant costs and inappropriate land use problems.

12) Any integrated approach across road and rail in addressing congestion needs to map congestion on roads compared to congestion (crowding) on public transport. Where overcrowding leads to passengers having to wait for successive buses or trains because the first one is full is equivalent to car drivers being delayed by road congestion.

b) social and environmental benefits of public transport compared to road projects

1) In areas of high travel demand, public transport is a more efficient user of travel space than private cars. Increased use of public transport reduces traffic congestion - see c) below - and improves operating conditions for commercial and freight vehicles.

2) Public transport reduces road traffic deaths and injuries

3) It produces less CO_2 emissions, as long as buses and trains are reasonably well patronized. A bus with less than 5 passengers is typically less fuel efficient than a car with 1.2 passengers (a typical car occupancy rate in Perth)

4) It provides better social equity for those without driver's licenses including the young and some elderly people, and for those who cannot afford a car with its attendant running and parking costs.

5) Obesity can be reduced. A study in USA showed that car drivers who switch to public transport dropped an average of five pounds. Another showed that 60% of residents in a "low-walkable" neighborhood were overweight, compared to 35% in a "high-walkable" neighborhood (Ref 2, page 41). The key point is that **walkability is best for health and public transport encourages walking.**

6) There is also a need to recognize we need good major roads, especially in low density areas that cannot reasonably support frequent public transport, and for efficient freight distribution.

7) The bottom line is that it is not a question of public transport vs roads. It is a **question of balance** between good public transport, walking and cycling facilities in higher density areas vs good major road systems elsewhere.

c) national significance of public transport

1) The majority of Australians live in large urban areas. If you believe that their overall accessibility to work, health, education and recreation are, collectively, of national significance, then you have to believe that public transport plays an important part. This is especially so for people in congested areas, for those without driver's licenses including the young and some elderly people, and for those who cannot afford a car with its attendant running and parking costs. This is the conventional view.

2) A more strategic view is that, in the event of a fuel emergency then public transport, plus walking and cycling, could be the only ways people will continue productive lives during the period of such an emergency.

   An emergency is still likely given recent tensions in significant Middle East oil-producing nations such as Iran, Iraq and Libya- see www.telegraph.co.uk/finance/newsbysector/energy/oilandgas/10274958/Worldwide-loss-of-oil-supply-heightens-Syria-attack-risk.html.)

Lessons from the first and second oil shocks indicate that communities take significant time to adjust to limited supplies of very expensive oil products.

Even in the absence of such an emergency, growth in the demand for oil continues to outstrip supply, leading to price increases and potential scarcity that, progressively, will increase the cost and vulnerability of transport. Public transport provides an effective alternative for much personal travel, reducing the fuel-related pressures on business.

3) While most Australian cities' train and tram networks are fuelled by gas and coal, they will still be swamped given any oil-based fuel emergency. For example, if just 10% of Perth's motorists who currently drive to the CBD every morning tried to migrate to public transport, this would double the current demand for the city's public transport. A recent survey showed that 28% of Australian motorists would consider other modes of transport once petrol reached $1.80 per litre and another 20% if it reached $2 per litre (www.budgetdirect.com.au/about-us/media-releases/2014/petrol-prices.html). The price of unleaded petrol in Perth went over $1.60/litre, for the first time, in the first week of January 2014.

4) Congestion is an economic and productivity issue in its own right. The Federal Government's own Bureau of Transport and Regional Economics estimated the annual avoidable cost of congestion in Australian capital cities to be $9.4 billion in 2005, consisting of:

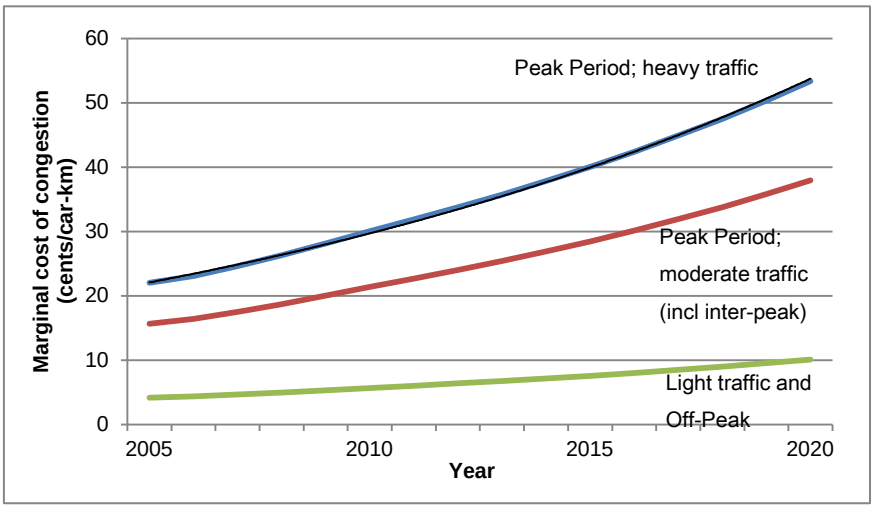
- $3.4 billion in private time costs;
- $3.6 billion in business time costs;
- $1.2 billion in extra vehicle operating costs; and
- $1.1 billion in extra air pollution damage costs (Reference 3, page 12)

The BTRE expected this cost to more than double to $20.4 billion by 2020.

Assuming the extra vehicle operating costs are split between private and business travel in the same proportions as the time costs, Australian business bears 45% of the cost of congestion in Australian capital cities.

5) The nature of congestion is such that additional traffic contributes much more to its cost than traffic already using the roads, especially at peak periods. The BTRE research indicates that peak period marginal cost of congestion for Perth in 2010 was 20-30 cents per car-kilometre in Perth: more than the direct operating cost of the marginal car (less than 20 cents per kilometre).

Marginal congestion costs for Perth (2010 prices)

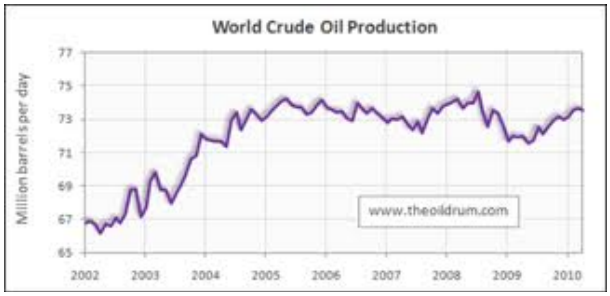


Source: Derived from data for Perth in Bureau of Transport and Regional Economics (Reference 3) and Victorian data in Australian Transport Council (Reference 4)

Public transport is at its most effective at times and places of peak travel demand. Its contribution to reducing the cost of congestion (including the cost to business) is substantially greater than passenger numbers alone might indicate.

6) For most Australians living in urban areas, the price of petrol is an important determinant of their public transport use. The recent draft Department of Transport's Public Transport for Perth in 2031 (www.transport.wa.gov.au/mediaFiles/about-us/ABOUT_P_PT_Plan2031.pdf) highlights the growth in use of public transport in Perth. It said (p14) that "Public transport patronage in Perth grew 67% from 1999 to 2009, at a time when the population grew by 22%." During that decade, the global oil price for west Texas Intermediate crude went from approximately USD$20 per barrel to about $100 per barrel, having peaked at nearly $150 per barrel in July 2008 (http://news.bbc.co.uk/2/hi/business/7501939.stm). Perth petrol prices for unleaded petrol doubled from about 80cents per litre to $1.60 during the same period.

7) The STCWA has gathered significant information on the global production of oil, rising prices and the impact on people migrating from cars to public transport. STC's policy paper Oil: Living with Even Less outlines the implications of the peaking of global conventional crude oil production (www.stcwa.org.au/images/living_with_ev_less_policy.pdf).After having doubled every decade from the 1930s to the 1980s, global oil production has grown less than 10% between 1999-2009, and only about 1% in the eight years since 2005 (see image below).



8) A Scientific American article (www.scientificamerican.com/article.cfm?id=peak-oil-may-keep-catastrophic-climate-change-in-check) described this development: As production of conventional oil, which is far easier to get out of the ground, decreases, companies have turned to unconventional [and more expensive] sources, such as those in deep water, tar sands or tight oil reserves, which have to be released by hydraulic fracturing.

9) Most general-cargo and container ports in Australia are in urban areas, especially the capital cities. A large proportion of the land-side movement of this freight, both within the cities and from ports to regional areas, has no alternative to road transport. Road freight in urban areas is as affected by traffic congestion as passenger movement is. The cost to business of this congestion is increased by the effect of stop-start travel on heavy vehicle operating costs and the inventory cost of goods in transit.

10) Inter-city and trains and buses provide an essential low cost means for Australian and overseas tourists. Capacity to carry bicycles, and pedestrian connectivity with city public transport, are important features. Termini at the Perth Busport, Central and East Perth stations are well designed in this regard. Another feature is affordability and there is scope for WA's bus

services to be made more affordable. In particular, maintaining fares set for direct routes where longer routes sometimes have to be taken.

d) relation between public transport and well-functioning cities

1) By well-functioning cities we understand cities that are highly desirable places to live, work and recreate. The classic models are the European cities such as Paris, Barcelona and Amsterdam. The key to such cities is walkability, including human scale buildings. While walkability benefits from good public transport, good public transport relies absolutely on walkability (Ref 2, page 140).

2) Practically all public transport trips require walk trips at each end. Walkers and cyclists provide many of the ingredients of a great city; such as vitality, interest, eyes on the street, increased personal security, health benefits, and customers for shops.

3) Walkable cities require comprehensive parking policies that include on-street parking, off-street parking, payments by developers in-lieu of on-site parking to be used for collective parking, and residential parking permits. This will also benefit public transport.

4) Simply providing more public transport will not, of itself, lead to a well-functioning city. It is the design of the neighborhood, so that it supports walking, cycling and public transport that is the key. This design has to include density (around 5 to 6 stories), building frontages that are human scale and address the street, plus mixed land use.

5) In summary, the issue is not the relation between public transport and well-functioning cities per se. **The issue is locality design that supports walking and cycling, that will also support public transport that leads to well-functioning cities.**

6) The priority is not Transit Oriented Development, rather Pedestrian Oriented Development that will naturally help public transport.

e) Federal Government not funding public transport

1) Our submission on Issue c), the national significance of public transport, illustrates the importance of public transport. Clearly Federal funding of public transport should be provided, but with conditions. Those conditions should be that the applicants should show they have, or will implement, good neighborhood design – as described in our submission on issue d).

2) Funding the right kind of public transport can have big economic advantages. For example, in Portland, Oregon, they prepared both a streetcar plan and a neighborhood plan that included affordable housing and the removal of a freeway ramp. The streetcar opened in 2001 at a cost of about $US55 million. Since then over $US3.5 billion has sprung up around the trolley line: sixty-four times the initial investment (Ref 2, page 152)

3) The Federal and State Government funding of roads needs to be seen against the background of possible overestimating of future traffic demand.

   A number of recent Australian and international case studies underscore the dangers of over-relying on transport models to decide road investment. The case studies in attachment 1 provide evidence of shortcomings of traffic modeling that resulted in significant overestimation of projected demand for toll roads. This has resulted in a resultant loss to private sector investors and misallocation of society's scarce capital. Recent cultural changes impacting on the travel habits of the younger generation and growing

concerns over the cost and availability of oil-based fuels reinforce these concerns.

f) Impact on road user charges from requiring states to fund public transport

1) Road user charges need to include parking charges to be most effective
2) Road user charges need to be seen as a whole of city strategy because this will be a key to effective congestion management. So road user charges in the form of a tolls to help pay for individual road projects are short sighted in that they distort the potential for a whole of city approach.
3) Location- and time-specific road user charges should be planned for all major cities by State Governments (because Federal Government does not have the legal means to cover all the aspects) as a means of congestion management. Their actual introduction will necessarily be dependent on timing of political and public opinion, and may be introduced in stages. For example, Perth has a central area parking charge that has been used for many years to meet the costs of 'free' CAT (Central Area Transit) buses. This has been successful in reducing central area traffic congestion, and is now being considered for other parts of the Perth Metropolitan Region.

g) Other

1) Fuel efficiency and low CO_2 emissions are increasingly important requirements of transport. There is considerable scope to improve this by:
   - Funding improvements to public transport through increasing fuel taxes (or at least indexing them), levying accident insurance, and adding a carbon price on all transport fuels to make the polluters (drivers) pay for the health and congestion costs of car and truck use.
   - Fitting trains and buses with energy recovery (regenerative) braking systems
   - Using smaller buses where appropriate, particularly on 'feeder services' to railway stations. For example 4 cylinder 4 tonne buses seating 24 passengers cost half as much in depreciation, fuel and maintenance as the 9 tonne 48 passenger units currently used. See also point a) 11) – minibuses using smart phone technology.

Summary

a) The STCWA submits that, not only is there a **need for integrated approach across road and rail in addressing congestion, t**here is also a need for integration with land use, especially employment and parking.

b) The main question is not **the social and environmental benefits of public transport compared to road projects,** rather is a question of balance between good public transport, walking and cycling facilities in higher density areas vs good major road systems elsewhere.

c) The majority of Australians live in large urban areas. If you believe that their overall accessibility to work, health, education and recreation are, collectively, of national significance, then you have to accept the **national significance of public transport.**

d) While there is a **relation between public transport and well-functioning cities,** the key is locality design that supports walking and cycling, that will also support public transport that leads to well-functioning cities.

e) The **Federal Government not funding public transport** is a problem. Federal funding of public transport should be provided, but with conditions. Those conditions should be that the applicants show they have, or will implement, good neighborhood design.

f) The **impact on road user charges from requiring states to fund public transport** is not clear. Location and time specific road user charges should be planned for all major cities by State Governments (because Federal Government does not have the legal means to cover all the aspects) as a means of congestion management. The Federal Government might develop guidelines to support this, possibly tied to the conditions mentioned in e) above.

g) Other: fuel efficiency and reduced CO_2 emissions should be a key aim of the Federal Government.

References

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3. Bureau of Transport and Regional Economics (2007), *Estimating urban traffic and congestion cost trends for Australian cities.* Working Paper No 71, http://www.bitre.gov.au/publications/2007/wp_071.aspx
4. Australian Transport Council of Ministers (2006). *National Guidelines for Transport System Management in Australia: 4 – Urban Transport*, Canberra, Australia. http://www.scoti.gov.au/publications/files/National_Guidelines_Volume4.pdf

We are happy to provide more information on any of these points if you wish.

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Convener STCWA
18 January 2014

Attachment: Case studies in traffic estimating errors

Case studies in traffic estimating errors

A 2011 report prepared by the *Commonwealth Department of Infrastructure and Transport* cites the work undertaken by Bain et al (2005) for Standard and Poor's credit rating agency. The work analyzed the results of modeling on 104 toll roads, bridges and tunnels. On average, traffic was 23% below estimates for the first year of operation, with negligible improvement in predictive performance following the first year of operation. The report also cites the work of Flyvberg et al (2005 and 2006) based on analysis of 183 road projects around the world. This research concluded that for half the projects assessed the estimating error was at least +/- 20% and for quarter of projects the errors were at least +/- 40%.

In Australia the estimating errors have been more pronounced. The 2011 Commonwealth report cites the work of Li and Hensher (2010). The authors found that, of the 14 Australian toll roads included in their study, on average actual traffic volumes were found to be 45% below estimates. Although estimating errors declined over time, in some cases there was still a 19% forecasting error after six years.

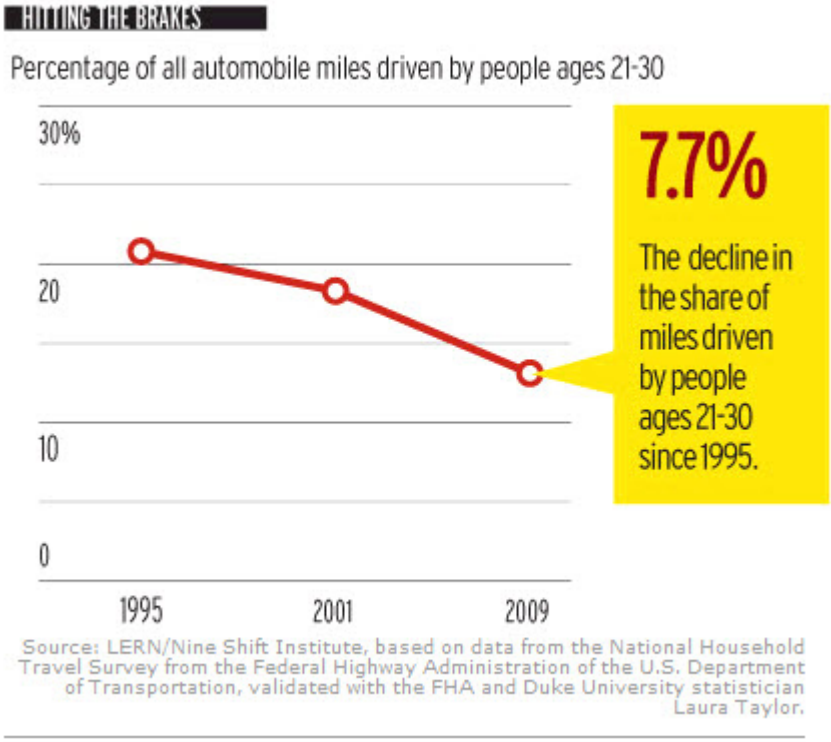
Why the forecasts erred

The Department of Transport's reports notes that estimates can be inaccurate for a number of reasons including the following:

1. Inadequate model structure;
2. Data limitations;
3. Uncertainties in input assumptions;
4. Ramp up risks;
5. Optimism bias/strategic misrepresentation

Other trends that can amplify these problems

Generational cultural trends have recently been cited to the effect that younger people are less inclined to purchase a vehicle than previous generations. In the U.S there has been a 7.7% decline in the share if miles driven by people aged between twenty and thirty according to research prepared by the US Federal Highway Administration (see graph below). According to Davies (2010) there are probably a number of facts at work to account for this phenomena including declining discretionary income, the greater difficulty of obtaining a license, higher car insurance premiums for the young, preference for inner city living and a tendency to defer to family formation. More importantly, Davies contends that early habits are likely to be engrained in this generation as they age. This has obvious implications for road space demand.



Rising fuel costs are also likely to cancel out the effect of improved vehicle mileage. A number of credible projections suggest steeper fuel price hikes due to the peaking of lower cost conventional crude oil supplies.

These types of trends are likely to increase the risk of over-estimates of traffic culminating in over allocation of capital to road infrastructure at the expense of more timely and efficient alternatives.

References

Bain, R. and Polakovic, L. 2005, Traffic Forecasting Risk Study Update 2005: Through Ramp-Up and Beyond, Standard & Poor's, London.

Davies, Alan (2010) "Why is Gen Y Driving Less?" *The Urbanist* Website cited 8th January 2014 http://blogs.crikey.com.au/theurbanist/2010/06/28/why-is-gen-y-driving-less/

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