Submission re the M5

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This submission (to m5expansion@rta.nsw.gov.au) has drawn on research conducted at the University of Wollongong. However, it does not necessarily reflect the views of the University.

It is the writer's understanding that a submissions report shall be prepared and released by the Roads and Traffic Authority of NSW; also that at this stage, consent is not being sought for any of the proposals.

In background material, it is noted the M5 corridor is the main "freight, commercial and passenger" road with two sections (a 22km toll road and a 10km freeway), and that the road is congested with high numbers of heavy vehicles (road trucks). In addition, significant benefits ($6 billion of travel time savings over 30 years) are claimed for its expansion (http://buildingsydneymotorways.com.au/m5-corridor "The motorway part of the solution", and a three page "Fact Sheet" dated November 2009).

Transport options including more use of rail and/or rail expansion are listed, along with improving the existing road network (e.g. more grade separation), and a little bit about demand management. However, it is quite possible that a combination of all of the various (non new motorway) transport options could well be effective.

The costs of the preferred option involving freeway expansion are large - both in monetary terms and encouraging road vehicle use. A 21+ page "Overview" brochure gives estimate of the cost of the project at $4.5 billion. This brochure has an introduction by the Minister for Transport who notes, inter alia, *"Tough decisions need to be made to deliver transport infrastructure projects that will provide the greatest NSW benefits."*

This submission will call for tough decisions in transport policy but of a different nature to the preferred proposal.

It is submitted that the main proposal should be put on hold until improved road pricing has been introduced and rail infrastructure has been upgraded. By improved road pricing is meant full "user pays" and "polluter pays." This should include congestion pricing in the Sydney CBD and near Sydney airport plus mean-distance pricing for heavier trucks. Both congestion pricing and distance based pricing were noted in the 2004 AusLink White Paper and by the Henry Tax Review. Progress to date on these fronts has been mainly limited to time of day tolls for the Sydney Harbour Crossing.

With regard to ***"polluter pays",*** cars meet some external costs through payment of federal excise at 38.143 cents per litre. However, trucks gain a rebate of 16.443 cents per litre of diesel (www.ato.gov.au) and as of 1 July 2009 pay only a modest 21.7 cents per litre road user charge. As such, there is no offset to external costs.

Freight

Appendix A includes notes on the under-recovery of road system costs for heavy trucks whilst Appendix B deals with external costs. Appendix C notes that health costs associated with air pollution from the operation of articulated trucks – are 19.0 cents per vehicle kilometre (year 2000 term) in Sydney (Laird 2005). This is about 25 cents per vehicle kilometre in 2009 terms (rba.gov.au indices - CPI (1.32)).

A further dimension is that the NSW Government has a target of getting 40 per cent of containers moved via Port Botany onto rail. Further details are given in a **Landside Improvement** section at: www.sydneyports.com.au which in part states (under Increasing the Role of Rail*) "A key element in port freight and logistics planning for metropolitan Sydney is maximising the use of rail. These volumes include export products from regional NSW, and port shuttle movements of exports and imports within metropolitan Sydney. With the NSW Government and Sydney Ports having the shared objective of achieving a 40 per cent mode share for containers transported into and out of Port Botany by rail. This offers industry an alternative system that has a higher level of efficiency, competitive usage costs and lower air and noise emissions."*

Under a subsection "Managing Road Transport Movements" it is noted *"Extensions to the motorway network have improved accessibility between Port Botany and key distribution and industrial areas across Sydney. However since this infrastructure is shared with commuter vehicles, heavy traffic volumes are inevitable during peak periods. An increase in the volume of freight will translate into an increase in the number of trucks using the road system. While the future number of port trucks on the road will continue to represent a low proportion (between 1 and 2 per cent) when compared to total traffic, it is important that this growth can be accommodated on existing infrastructure through better traffic and operational management."*

Data at this website shows container volumes (increasing from 1.37m TEU in 2005-06 to 1.54 m in 2008-09) and the percentage of containers moved by rail varying from 21 per cent in 2005-06 to some 22.9 per cent in 2008-09.

Recommendations

In place of the preferred option, it is recommended that along with improved road pricing and rail infrastructure more attention be given to improving the existing road network and that this be funded by tolling. Tolling options include a toll on the M5 East (varying as to the time of day), a toll for trucks to access the Port Botany area, and a toll for any vehicle to access the airport.

Tolling should be accompanied by **measures to improve rail freight and passenger services**. This would include measures additional to those currently underway by the ARTC to improve rail freight operations, and a marked improvement in the Airport Rail Link passenger services.

In respect of the airport, which is a major traffic generator, improved rail services is one way forward. This could be done on either of two fronts: lowering fares as recommended by the Independent Public Inquiry - Long Term Public Transport Plan in its interim report released in February 2010 by the Sydney Morning Herald and/or a real improvement to the train services. In the short term, this could include provision of luggage friendly trains confined to the airport line and the City Loop.

It is also recommended that before any project approval is given, or funding from the federal or state government is made available, a study should be done on the cost to the wider community for not imposing a toll on the M5 East when it was opened in 2001. This study would include not only the foregone revenue to the NSW government, but also quantify the additional traffic using the M5 East and its external costs. Attention is also needed to the amount of traffic the M5 East has induced to date.

In addition, a study is needed to provide clear estimates on how much traffic would be induced in the future on the M5 road corridor under the various scenarios.

It is also submitted that future studies need to assess future demand under various scenarios. These should include oil pricing at various levels (including the CSIRO $8 per litre). In addition, the impact of port development at Newcastle and Port Kembla on Port Botany on the M5 road corridor should also be assessed.

A question of priorities

Finally, the large cost of $4.5 billion for the preferred option raises questions as to priorities – not only between roads and alternatives to roads, but various road works needing attention. These include the Princes Highway and the Picton Road, which for many years have seen significant traffic growth with only limited upgrading.

APPENDIX A Re road pricing for heavy trucks

i. From the website of the National Transport Commission (NTC) accessed 13 October 2008.

The NTC was directed by the Australian Transport Council (ATC) to update heavy vehicle charges after the Productivity Commission's *Road & Rail Freight Infrastructure Pricing Inquiry* (2007) concluded: *"Substantial increases in road investment in the past couple of years make it likely that heavy vehicle charges would have to rise to maintain cost recovery."*

In April 2007, the Council of Australia Governments' (COAG) endorsed the charges review as the first 'building block' of broader road pricing reform.

Why are large increases proposed for B-doubles? Bigger trucks are currently cross-subsidised by smaller trucks. COAG's pricing principles require those cross-subsidies to be removed.

B-doubles have benefited significantly from higher road spending; particularly improved access around ports, urban arterials, grain silos, sale yards etc. The number of B-doubles has increased by 267% to 9,564 vehicles since 2000.

Governments have little incentive to further extend the B-double (and other high productivity vehicles) network if they don't pay their way. The Business Council of Australia's Infrastructure Roadmap for Reform (September 2007) recently concluded: "We need to ensure that high productivity (that is, larger and longer travelling) trucks are charged appropriately. Not only will this help road/rail neutrality, it will facilitate having B Doubles and B Triples on our roads." - (BCA 2007)

Is the NTC calculation accurate? "The Productivity Commission independently audited and endorsed NTC's charges methodology noting that it is "conservative" by international standards (i.e. resulting in lower charges)."

ii. As noted by the 2006 Productivity Commission Road/rail freight infrastructure pricing report (on page 125), the recent annual subsidy paid for the operation of a 9 axle B - Doubles hauling the 75 th Percentile distance (227 500 km) is $23,000. This was under National Transport Commission (NTC) charges and methodology, based on revenue of $34,200 and an allocated cost of $57,200.

iii. There appears to be three notable broad groups of estimates for road system costs attributable to heavy trucks[1]:

- ***Conservative or NTC*** - as per the National Road Transport Commission (NRTC) first and second determinations and the NTC third determination.

[1] *Road pricing in Australia – too much or too little*, P Laird, Australian Road Summit, February 2007

- ***Intermediate*** - including the former Inter-State Commission findings[2] during the 1980s, the 1990-91 Over-Arching Group (OAG) recommendations and NSW permit fees for heavier semitrailers and all B Doubles in use to 30 June 1996.

- ***High, or "user pays"*** - including the Bureau of Transport and Communications Economics (BTCE) 1988 report[3] noted in the draft report of the Productivity Commission, McDonell's methodology (NSW) (see for example[4]), and ongoing New Zealand Road User Charges.

When announcing the NRTC first generation charges in 1992, the chairman, the late Gordon Amadee, conceded they would not be "user pays" as this would not be tenable[5]. The costs to the NSW Government of implementing the then new NRTC charges (as of 1 July 1996) was over $60 million per year and NSW annual permit and registration fees of $12,650 a year in 1989 for an 8 axle B-Double were slashed to $5500. With Consumer Price Indexation, the 1989 NSW B-Double fee would in 2007 be about $20,775. This is more than two and a half times more than July 2008 NTC charge for an 8 axle B Double of $8041.

Subsidies are one reason why the number of large B-Doubles has grown so rapidly in recent years, as noted in the draft report of the Productivity Commission - up from about 700 in 1997 to more than 6000 now. The difference between road system costs attributable to articulated trucks under the 2005 NTC model and using Macdonell's Methodology is approximately $1.5 billion per year.

iv.. New Zealand has had in successful use, since 1978, a system of mass-distance pricing for heavy trucks. These charges for the heavier articulated trucks hauling long distances are appreciably higher levels than the combined annual registration charges and fuel road user charges that apply in Australia. These were recently increased in July 2008, and for a 9 axle B-Double operating at 62.5 tonnes Gross Vehicle Mass with 22.5 tonnes on the prime mover and 20 tonnes on each of triaxle trailers would amount to $NZ942 per 1000 km (taking the prime mover at the average of charges of $452.03 for 22 tonnes and 523.33 for 23 tonnes plus $227.19 for each trailer to 20 tonnes).

From the above 2006 Productivity Commission report, a 9 axle B - Double hauling the 75 th Percentile distance of 227 500 km) in a year would pay $34,200 and have, under the NTC's 'conservative' methodology, an allocated cost of $57,200. Yet, the same B-Double in New Zealand would pay $NZ214,305 in road user charges. Even allowing for currency conversion, GST, the New Zealand charges being current, and the NTC ones being c2005, there is a large difference. The ratio between New Zealand and Australian road user charges for a heavy 9 axle B-Double hauling long annual distances is at least four to one. For heavily laden semitrailers hauling long annual distances, the ratio between the New Zealand user pays charges and the recent NTC charges are about three to one.

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[2] Inter-State Commission (1986) Cost recovery arrangements for interstate transport, to (1990) Road use charges and vehicle registration: a national scheme Canberra

[3] BTCE (1988) *Review of road cost recovery*, Canberra

[4] Laird PG *Freight transport cost recovery in Australia*, Australasian Transport Research Forum, Gold Coast

[5] Sydney Morning Herald April 13, 1992 "Recession puts truck plan off road."

APPENDIX B Land Freight External Costs

Executive Summary of an Australasian Transport Research Forum Paper *Revised Land Freight External Costs in Australia* Sydney September 2005 Philip Laird, University of Wollongong

This paper outlines some estimates of external costs of land freight transport published in Australia since 1990. The earlier reports include those of the former Inter-State Commission, the National Transport Planning Taskforce, the Victorian Environment Protection Authority and the Bureau of Transport and Regional Economics with its 1999 report *Competitive Neutrality between road and rail.*

With the increasing land freight task and projections for future growth, estimates of external land transport costs have been of increasing interest to government. Recent examples include Queensland Transport, the Victorian Department of Infrastructure, the NSW Department of Transport study of grain transport options, the Australian Transport Council's 2004 *National Guidelines for Transport System Management*, and, the 2003 Austroads report *Valuing Environmental and Other Externalities.* A New Zealand Ministry of Transport *Surface Transport Cost and Charges* study released in 2005 is also of note.

The paper gives particular attention to six external costs of road and rail freight operations in both metro and non-urban areas identified for the Australian Rail Track Corporation's 2001 Track Audit. These external costs are accidents, air pollution, noise pollution, greenhouse gas emissions, congestion, and incremental road damage. The results of two studies conducted for Queensland Transport in 2001 and 2004 that provided updated estimates for each of the Track Audit externalities are discussed. The revised estimates of unit costs include:

1. Australia wide accident costs of 0.6 cents per net tonne kilometre (ntkm) for road freight moved by articulated trucks and 0.03 cents per ntkm for rail freight.

2. An average cost of air pollution in capital cities of 0.65 cents per ntkm for freight moved by articulated trucks and 0.22 cents per ntkm for rail freight moved by diesel electric locomotives. These estimates are based on PM10 emissions as discussed in two BTRE reports *Health Impacts of transport emissions in Australia: Economic costs* (2005) and *Urban pollutant emissions from motor vehicles: Australian trends to 2020* (2003).

3. Noise in capital cities - 0.22 cents per ntkm for road, 0.12 cents per ntkm for rail.

4. A greenhouse gas cost (based on $25 per tonne of carbon dioxide) of 0.18 cents per ntkm for road freight moved by articulated trucks and 0.06 cents per ntkm for rail freight.

5. Road congestion (metro only) 0.10 cents per ntkm for road. -

6. Pending the third determination of road user charges for heavy vehicles of the National Transport Commission, under-recovery of road system costs from articulated trucks at 1.0 cents per ntkm.

Table 1 Recommended revised Australian land freight externality costs

Externality Measure	**Road (c/ntk)**	**Rail (c/ntk)**
Accident Costs	0.60	0.03
Air pollution		
- Metro	0.65	0.22
- Rural	0.13	0.04
Noise pollution		
- Metro	0.22	0.12
- Rural	0.07	0.04
Greenhouse gases	0.18	0.06
Congestion (Metro only)	0.10	-
Increased road maintenance	1.00	
TOTALS		
Metro	**2.75**	**0.43**
Rural	**1.98**	**0.17**

Reference: As per text. Note that road maintenance costs for roads of light construction are higher, also that any rail track subsidies may need to be taken into account.

It may be noted that, excluding unrecovered road system costs, the metro articulated truck road external cost of about 1.75 cents per net tonne km is less than half the approximate value cited in the above Austroads report of some 4 cents per net tonne km.

Lower unit costs are given for air pollution and noise for road and rail haulage in non-urban areas.

Even if the users of land freight transport are not required to meet their full external costs, such costs should be fully accounted for when major infrastructure investment decisions are being made. Based on the information in this report, the values in Table 1 are recommended.

It is also of note that road vehicle operators using petrol pay an appropriate de facto externalities charge through fuel excise without rebates, and the assigned average health costs from car use (1.3 cents per km) in the state capital cities equates to about 12 cents per litre of petrol used.

However, following introduction of the New Tax System in 2000, the operators of heavy vehicles were granted conditional rebates for the use of diesel, which have since been further extended to effectively require no payment of external costs (cf about 20 cents per litre prior to 2000.

APPENDIX C Edited excerpts from the above cited 2005 ATRF paper *Revised Land Freight External Costs in Australia*

3.1.1 Articulated truck movements in urban areas

With these and other caveats, broad estimates are made for the costs of air pollution from articulated truck movements in urban areas. This will be from drawing on two reports of the BTRE (2005, 2003)[6]. The BTRE (2005) Working paper updates BTRE (*The economic consequences of the health effects of transport emissions in Australian capital cities*, paper by J Amoaka et al to the ATRF, Wellington) with the later paper giving a mid-range estimate of the annual health related costs from air pollution from motor vehicles in Australia's capital cities which was $2.33 billion for the year 2000. This comprises $1596 million from the estimated cost of mortality (premature death as a result of air pollution), and $735 million for morbidity (quality of life and/or productive capacity of victims impaired or reduced as a result of air pollution; …

Following Kunzli et al (2000)[7], the BTRE (2003b and 2005) approach in part attributes air pollution costs to PM10 (particulate matter of size less than 10 microns) levels. The BTRE (2003c, Tables 3.9 and 3.116) report notes that the aggregate PM10 emissions from articulated trucks for Australian state capital cities in 2000 was 865 tonnes, and for all vehicles was 13,380 tonnes. This suggests that the health costs from air pollution on a PM10 basis due to the operation of articulated trucks in capital cities of $146.6 million. With articulated trucks hauling 996 million km during 2000 in Australia's state capital cities and having an average load of 22.62 tonnes (see Appendix CA), a unit cost of 0.65 cents per net tonne km results.

It would be possible for articulated truck metro air pollution costs to be allocated on a fuel use basis. However, the use of the values based on PM10 emissions is recommended. As well, as intercity truck loads and bulk haulage loads are generally above average tonnages, metro truck loads are below average. For these two reasons, the estimates in health costs based on fuel use and cited above in cents per net tonne km will be conservative.

We note also that the above $147m estimate is appreciably lower than the BIC annual estimate of $342m, also the Australian Transport Council (2005 Volume 2 Appendix 2) Default Externality Values include air pollution at 0.87 cents per net tonne km in urban areas as against the above 0.65 cents per net tonne km.

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[6] (2005) *Health Impacts of transport emissions in Australia: Economic costs* WP 63 and (2003) *Urban pollutant emissions from motor vehicles: Australian trends to 2020*

[7] Kunzli N Kaiser R and Medina S (2000) Public health impact of outdoor and traffic related air pollution: a European assessment, **Lancet** Vol 356, Sept 2 2000.

Appendix CA Metro vehicle use and health costs - PM 10 basis

This Appendix gives Bureau of Transport and Regional Economics (BTRE, 2003) estimates of vehicle use and PM 10 emissions for the year 2000 in Australia's metro areas from various classes of motor vehicles (cars, Light Commercial Vehicles (LCVs), rigid trucks, articulated trucks, buses and Motorcycles (MCs)) for each capital city. These are summarised in Table A.1. The BTRE (2003) estimates of health costs air pollution costs are given in Table A.2 along with estimates of PM 10 emissions.

Table A.1 Estimates of metro vehicle kilometres
billion vehicle kilometers in the year 2000

City	Cars	LCVs	Rigid Trucks	Artic. Trucks	Buses	MCs	Total
Sydney	28.93	5.73	1.38	0.326	0.250	0.27	36.89
Melbourne	28.09	3.56	1.04	0.293	0.177	0.17	33.33
Brisbane	11.29	2.28	0.47	0.141	0.122	0.17	14.47
Adelaide	8.21	1.16	0.23	0.078	0.077	0.06	9.84
Perth	9.97	2.2	0.41	0.143	0.097	0.07	12.81
Hobart	1.39	0.22	0.08	0.015	0.021	0.01	1.74
Darwin	0.55	0.2	0.05	0.014	0.018	0.01	0.85
Canberra	2.82	0.52	0.06	0.006	0.026	0.03	3.2
All Capitals	91.24	15.88	3.73	1.016	0.788	0.79	113.4

Reference: BTRE (2003c) Tables 1.36 to 1.41 inclusive. LCV = Light commercial vehicle

Table A.2 Estimates of health costs and metro PM10 emissions

City	Health costs ($m)	Thousands of tonnes of PM10 in the year 2000 Cars	LCVs	Rigid Trucks	Artic. Trucks	Buses	TOTAL
Sydney	1036	2.135	0.888	1.048	0.277	0.275	4.64
Melbourne	658	2.078	0.553	0.823	0.249	0.194	3.91
Brisbane	295	0.826	0.349	0.367	0.12	0.134	1.81
Adelaide	162	0.617	0.182	0.191	0.072	0.084	1.15
Perth	153	0.74	0.343	0.314	0.134	0.107	1.64
Hobart	11	0.1	0.033	0.061	0.013	0.022	0.23
Darwin	7	0.039	0.031	0.034	0.013	0.02	0.14
Canberra	8	0.201	0.083	0.046	0.005	0.029	0.36
All Capital Cities	2330	6.737	2.462	2.885	0.883	0.865	13.88

Reference: BTRE (2005) Table 6.10 for health costs, and for PM10 emissions BTRE (2003c) Tables 3.9, 3.53,3.75, 3.97, 3.116 and 3.136

The data in Table A.3 is found by apportioning the health costs on the basis of PM 10 emissions in each State capital city for each class of vehicle in Table A.2 and then dividing by the relevant estimate of vehicle kilometres in Table 1. It is of note that the assigned average cost of health costs from car use in the state capital cities is 1.3 cents per kilometre. At an average fuel use of 11.3 litres of petrol per 100 km in the year 2000 (ABS, 2003), this equates to an external cost equivalent to about 12 cents per litre of petrol.

Table A.4 gives various average load data for road freight vehicles and estimates of metro air pollution costs.

Table A.5 gives estimates of fuel use in Australia and its capital cities for various classes of motor vehicles, also ratios between metro fuel use and PM10 emissions. These are used in Table A.6 to allocate air pollution costs in regional areas.

Table A.3 Estimates of health costs from metro fuel use apportioned by PM 10 emissions

cents per vkm in the year 2000

City	Cars	LCVs	Rigid Trucks	Artic. Trucks	Buses
Sydney	**1.6**	**3.5**	**17.0**	**19.0**	**24.6**
Melbourne	1.2	2.6	13.3	14.3	18.4
Brisbane	1.2	2.5	12.7	13.9	18.0
Adelaide	1.1	2.2	11.7	13.0	15.4
Perth	0.7	1.5	7.1	8.7	10.3
Hobart	0.3	0.7	3.6	4.1	5.3
Average of State Capital Cities	1.3	2.7	13.6	14.7	18.7

Reference: Using Tables A.1 and A.2
