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The Secretary  
Standing Committee on State Development  
Legislative Council,  
Macquarie Street  
SYDNEY NSW 2000

Dear Secretary,

**Re Inquiry into Port Infrastructure in New South Wales**

Would you please accept this letter as a brief submission to the inquiry in respect of the fourth term of reference dealing with the current and future infrastructure needs and social impacts including with respect to the adequacy of existing road and rail infrastructure.

**INTRODUCTION**

The Railway Technical Society of Australasia (RTSA) is a technical society of the Engineers, Australia. The RTSA now has over 800 members and hosted a major Conference on Railway Engineering in November 2002 at Wollongong with over 400 participants. The present submission outlines member concerns and draws on submissions to various Federal and State transport inquiries (including in 2000 to the Legislative Council General Purpose Standing Committee No 4 re Privatisation of Freight Corp and in 2003 to the Federal Government in response to its AusLink Green Paper and the NSW Ministerial Inquiry into Public Transport).

The RTSA has also prepared several brochures including 'Fix the rails - NSW', 'Getting Sydney Back on Track', and 'Rail for sustainable cities'.

We understand that the present Inquiry is likely to consider the adequacy of the existing road and rail links between Newcastle and Sydney, and Port Kembla and Sydney.

Sydney is Australia's largest city and is experiencing strong growth. To quote from the NSW Department of Planning, in 2002 the Sydney Region housed 4.2 million people (including 300,000 in the Central Coast) with an additional 770,000 in the Lower Hunter and Illawarra (making up a Greater Metropolitan Region of 4.9 million people). *"The Sydney Region population has been growing recently at an average of just over 1% or 48,000 each year. The Sydney Region is likely to reach 4.5 million somewhere between 2006 and 2011 while the Greater Metropolitan Region as a whole will top 5.3 million."*

The Society recognises that most passenger movements within Sydney are by cars, and notes that car use is growing. Moreover, all road vehicles travelled about 31.2 billion kilometres (bkm) within Sydney

in the 12 months ended 31 October 2001 as against some 25 bkm in 1991 (ABS SMVU cat.no 9208.0) - up about 25 per cent within a decade. This leads to increasing road congestion, and increasing costs for urban road freight delivery.

### 1.1 Sydney's Urban Rail System

On February 25 2002, the Sydney Morning Herald's front page started with an article ***Exposed: fast track to rail chaos***

*"Sydney's rail system is perilously close to 'strangulation' because of soaring passenger numbers and recurring track and train faults, confidential reports warn.*

*"The findings, kept secret for more than a year, say "operational paralysis" can be avoided only by adding new lines and up to 80 stations, buying 770 carriages worth \$2.2 billion and spending at least \$20 billion in the next decade on urgent maintenance.*

*"The State Government has suppressed the documents, written last year by its former rail supremo Ron Christie, because of their explosive revelations about the deteriorating network, CBD congestion and safety concerns. ..."*

As a former senior rail executive and NSW Roads and Traffic Authority (RTA) Chief Executive, Mr Ron Christie is well qualified to comment on Sydney's future transport needs. He was also saying what many people had been thinking for some time.

As an extension to the Infrastructure Report Card published in July 2001 by Engineers, Australia, a RTSA Forward Vision Task Force (at [www.rtsa.com.au](http://www.rtsa.com.au)) gave the **Sydney City Rail System a C - rating** in its 2002 Report 'Rail in the next decade - where to and how ? (see Daily Telegraph, 21 May 2003). This rating indicates that major changes are required, and is a long way behind Perth's A- rating.

We attach as Appendix A the covering letter from Mr Christie to the Long-term Strategic Plan for Rail. This was released to the Legislative Council in May 2002.

### 1.2 Greater metropolitan region rail track upgrading and expansion

Along with an Olympic Park overpass, opening of the Airport line in 2000, completion of Dapto - Kiama electrification in 2001, quadruplication of Turrella to Kingsgrove (Airport and East Hills Lines) tracks - and the long awaited Millennium train, the 1998 NSW Government statement *Action for Transport 2010* lists a number of rail projects for completion by 2010. These include:

Parramatta Rail Link by 2006

Newcastle to Sydney - High Speed Rail Link; Stage 1 Hornsby to Warnervale by 2007

High speed rail link; Waterfall - Thirroul tunnel prior to 2010

Completion of Maldon Port Kembla railway (subject to some Federal/private funding)

Epping to Castle Hill rail by 2010 (underground - 7 km - \$350 million)

Priority freight line from Macarthur to Chullora and to Cowan.

*Action for Transport 2010* notes studies to be undertaken for a Fassifern - Hexham rail bypass, and a rail tunnel under the Little Liverpool Ranges. The 1998 document has little or nothing about the proposed Inland Route from Melbourne via Parkes to Brisbane, where a pre-feasibility study received a Federal grant of \$300,000 in mid 1998.

Clearly, it is now most unlikely that Stage 1 of a Newcastle to Sydney High Speed Rail Link can be completed by 2007 - which is now only four years away. Detailed planning has yet to advance to land acquisition and environmental impact assessment. At the present rate of progress, the Western Orbital will be built before construction on these rail projects is advanced. One reason for this major road proceeding is that the May 2000 Federal Government budget gave \$10 million for planning on Sydney's Western Orbital, and in January 2001 promised \$350 million towards its construction. The same Federal Government gives little or nothing for rail and public transport within NSW. In contrast, about 20 per cent of United States Federal funding of land transport goes to mass transit.

In addition, *Action for Transport 2010* notes plans for new rail lines between 2010 and 2020 as follows:

Complete Stage 2 Hornsby to Newcastle rail upgrade

Complete the Hurstville to Strathfield line

Northern Beaches line from Chatswood to Dee Why

Southern Beaches line from Bondi Jn to Maroubra

North West line extension from Castle Hill to Rouse Hill

The need to upgrade tracks and signal systems is recognised by the NSW Government in earlier statements. However, much of this track and signal work has been deferred from earlier years.

The replacement of the Parramatta – Chatswood railway by a 15.5km Epping – Chatswood railway at \$800 million for completion by 2008 – two years later than indicated in *Action for Transport 2010* - also indicates a need for more funds to upgrade track.

The need for augmentation of track capacity within and near Sydney would appear to include consideration of; in addition to those items listed above:

- A. Chatswood – Wynyard quadruplication; involving taking over two lanes on the Eastern side of the Sydney Harbour Bridge.
- B. A Sydney rail freight bypass;
- C. Hurstville – Mortdale triplication;
- D. Completion of the Maldon Port Kembla Railway
- E. Hornsby – Gosford track straightening.
- F. Quadruplication of the line to East Hills.

These items are not an 'engineers wish list', but reflect the need to extend the system to cater for future growth as per reports including *Action for Transport 2010*.

In addition, it is in the interests of both freight and passenger train operators that there be a much improved separation of trains in the Sydney area.

### **1.3 The NSW Infrastructure Report Card**

The NSW Infrastructure Report Card was launched on 4 August 2003 by the Sydney Division of Engineers Australia. Rail was given a D rating with the comment:

*While there have been a number of recent initiatives which are reforming rail management and increasing investment, the future of NSW rail remains uncertain. Inadequate funding and capacity problems of the Metropolitan Network are major issues.*

*The delay in resolution of the ARTC proposal and the consequential delay in improving the Sydney-*

*Melbourne interstate line is of concern. The provision of public transport infrastructure to service NSW's growth areas remains unresolved.*

As noted by the media, the D rating shows room for improvement (eg AFR 'NSW rail found to be inadequate' 5 Aug and the AFR Editorial 8 Aug 'Rail and other roads to ruin' see below). As well, at the launch, the point was made about present generations living off the work of earlier generations.

#### **1.4 Newcastle to Sydney: The Short North line**

Getting high-speed trains between Sydney's Central Station and the Hunter region is a major challenge. So also is moving freight trains between Newcastle and Sydney. Although detailed preliminary work underway for Hornsby-Warnervale track upgrading (with a 2001-02 \$1 million and a 2002-03 \$2 million NSW budget allocation for planning), it is now all but impossible to meet the initial completion year of 2007. Failure to complete a Newcastle High Speed Line for rail freight and passengers will result in increasing pressures to augment the Sydney - Newcastle freeway from 4 to 6 lanes (and, in another decade, from 6 to 8 lanes). Clearly, full Federal funding of the Sydney - Newcastle freeway with the absence of road tolls, and no Federal funding for the Sydney - Newcastle railway, has resulted, over time in a major distortion in travel mode choice.

The nature of track upgrading between Hornsby and Hexham will have implications for improving both Sydney - Gosford - Newcastle CityTrain services and high speed intercity rail services. With increasing traffic density, it is desirable to make provision for future separation of freight and passenger trains between Hornsby and Gosford. In this case, on the Cowan bank, it would be possible to construct a passenger line with steeper ruling gradients at much less cost than a passenger line with easier gradients that is likely to require extensive tunnelling.

The construction of a Fassifern – Hexham bypass would also improve future separation of freight and passenger trains near Newcastle.

Recent Government proposals to establish a container port at Newcastle call into question the adequacy of the road and rail links between Newcastle and Sydney. We note that the present road is basically a four lane road (in contrast to the Gold Coast to South Brisbane road which is eight lanes), and there is a case for expedited capacity expansion facilitated by congestion tolling to assist in both revenue raising and vehicle demand management.

However much the existing road is upgraded, the existing rail track is barely adequate for existing freight and passenger train services.

#### **1.5 Port Kembla to Sydney**

The present line between Waterfall and Thirroul presents challenges to both train operators and track maintainers, with a fatal train accident south of Waterfall subject to a Royal Commission for much of 2003. Much of this section of track, including the Stanwell Park Viaduct, was rebuilt in the early 1920s. The track passes through an area with geotechnical demands and the Waterfall - Thirroul section was identified in the 1998 report *Action for Transport 2010* as in need of replacement by 2010 with a long tunnel. At the present rate of funding of NSW rail capital works, this does not seem probable.

As above, the Sutherland to Hurstville track will eventually need triplication.

Recently, Port Kembla has been identified as a potential container port, and questions have been raised about both the long term future of the Stanwell Park Viaduct and the commitment of the NSW

Government to complete a new Waterfall - Thirroul railway by 2010. It is appropriate then to consider the benefits and costs of completing the Maldon-Port Kembla railway.

### **1.6 Maldon - Port Kembla link**

The Maldon-Dombarton rail link is a 35 kilometre partly completed link. It was started, with enabling legislation, in 1983 by the Wran Government to improve rail access to Port Kembla. During the 1980s, the following work was done:

- a. Environmental impact assessment plus design and documentation.
- b. Construction and ballasting of over 25 kilometres of right of way from west portal to the boundary of Water Catchment near Wilton.
- c. Construction of approach viaducts in 1984-85 to Nepean River Rail Bridge.
- d. Installation of plant and site works, environmental control measures, start of tunneling at Avon tunnel on east portal and construction of west face of portal. The Avon tunnel contract was cancelled by the Greiner Government in mid 1988 (with \$4.5 million compensation to the contractors and contrary to pre-election promises to complete the line by 1991).

In addition, the 15 km Dombarton-Port Kembla section was upgraded and duplicated, with erection of masts from Port Kembla to Dombarton for high voltage electrification for the entire Maldon Port Kembla project.

The sunk cost (dollars of the day) for the work done on the Maldon-Dombarton section was noted by Freight Rail (at the Port Kembla Coal Terminal Inquiry, 1993) as \$42 million, and the work done on upgrading and duplication of the Dombarton - Port Kembla section as \$57 million (the latter also as part of upgrading the Moss Vale - Unanderra line to support export grain, limestone and steel traffic). The following work to complete the Maldon Dombarton rail link remains (with costings provided by Freight Rail to the PKCT Inquiry, 1993):

- a. Boring of the Avon tunnel (\$30 million), and bridges (\$18 million) - completion of the main span of the bridge over the Nepean River, a new bridge over the Cordeaux River and four road overbridges near Wilton.
- b. Grading of right of way from near Wilton to near Maldon (about 9 km- \$ 4 million).
- c. Laying of sleepers and track (\$20 million) with crossing loops at Avon, Cordeaux, Wilton and at the Maldon Triangle.
- d. Signalling and communications (\$15 million).
- e. AC (25,000 volts) Electrification (\$37 million).

The cost of this work (\$124 million), plus say 12 dual voltage locomotives, was broadly estimated in 1993 at \$150 million.

Completion of the Maldon Port Kembla Railway could be combined with the "Wentworth route" and would also give an Illawarra - Macarthur rail link.

### **1.7 The Wentworth route**

The "Wentworth" rail deviation was proposed by the Hon Bill Wentworth in 1991 to the Industry Commission's rail inquiry (see also Sydney Morning Herald, 26 Sept. 1992). A recent version was for about 40 km of new track running from near Menangle to north of Mittagong, which could be used by freight trains

for most of its length, with heavier south bound freight trains being diverted to the old track near Mittagong. The ARTC Track Audit [MMPL, p64] gave an estimated cost of \$218 million (for single track) reducing route length by 19.6 km, saving an average of 19 minutes. It is difficult to see why single track was even considered and the RTSA requests that any new study obtains a more accurate costing for double track (which we suggest should not exceed \$250 million).

The "Wentworth Route", or a suitable variation, combined with improved rail access between Central and south of Campbelltown (which may require track amplification) would appreciably improve rail travel between the Southern Tablelands of NSW and Sydney. This in turn, would reduce pressure for upgrading the Hume Highway between Sydney and Mittagong from four to six lanes.

## **2 FUNDING OPTIONS**

A SRA submission notes that the NSW Government pays for most of the difference between the cost of running the suburban rail network and the fare box revenue. *"This cost \$1.3 billion in 2001-02 and is forecast to grow to \$1.5 billion in 2002-03. In 1999-00 fares paid for 26.7 per cent of the costs of running the suburban rail system. Last year that had fallen to 24.0% and is forecast to fall further this year to 21.7%. In the past year service quality throughout StateRail has improved."*

The RTSA supports a move towards service quality improvements, and increasing fare box revenue with a view to generating more funding for long overdue infrastructure upgrades. Thus, we have given qualified support to the interim findings of the Ministerial Inquiry into Public Transport. The Society also has supported the Ministerial Inquiry addressing problems caused by current low road pricing.

Declining rail service levels have given rise to proposals such as those of the Sydney Morning Herald in its Blueprint Series of 12 March 2003 of adding an additional \$1 to each fare, with less for concession fares. With 276.4 million passengers in 2001-2002 (as per CityRail's 2002 Annual Report), this would give a welcome boost to CityRail's capital works budget. The New South Wales budget amount of \$402.6 million in 2003-04 (with \$119.4 million towards the Parramatta Rail Link project) is clearly inadequate, and also compares unfavourably with Queensland Rail's forecast capital expenditure for 2003-04 of \$614.8 million that includes track infrastructure works of \$412.5 million

### **2.1 Other revenue sources**

While there are many proposals to physically improve the rail system there is a need to develop funding arrangements which will provide resources to enable rail development. There is a need to think outside the square of current government funding arrangements. The present inquiry is invited to consider recommending to government that it examine alternate means of funding the expansion and upgrading of the rail links between Newcastle and Sydney, and Port Kembla and Sydney. This is in addition to improving rail within the Sydney region.

## **3 ENHANCING OPTIMAL RAIL USE**

In all Australian capital cities, passenger vehicle use increased from about 67 billion kilometres (bkm) in 1991 to about 85 bkm in 2001 – an increase of some 27 per cent. A further such increase over the next decade would severely impact on Sydney's amenity. Already, as outlined below and in Appendix B, the use of motor vehicles in Australia's capital cities is causing major problems. Hence the development of

initiatives by State Governments to promote alternatives to road vehicle use.

Action for Transport 2010 as released by the NSW Government in 1998 was a step to improve rail and public transport. However, five years later, it is obvious that more measures are required. These measures will need to include better track infrastructure along with road pricing, with particular attention to congestion pricing and mass-distance charges for heavy trucks.

#### 4 COMMENTS RE ROAD PRICING OF HEAVY TRUCKS

4.1 The RTSA supports the recommendation of a 1998 House of Representatives Committee report 'Tracking Australia' *"... that the Commonwealth develops a more consistent, equitable approach to transport infrastructure charges to ensure competitive neutrality between modes."*

As stated by the Bureau of Transport Economics 1999 Working Paper No 40 'Competitive neutrality between road and rail' on page xi, *"Under the current road user charging system, trucks overall are undercharged for their use of the road system. Moreover, larger more heavily laden vehicles and those travelling larger distances are charged the least (per tonne kilometre) while smaller, less heavily laden vehicles and those travelling shorter distances cross-subsidise them."*

4.2 Along with a fuel 'tax' component, some form of mass distance charge, or increased annual charges for the heavier trucks running longer distances, is needed to redress this imbalance. The RTSA notes a detailed 2001 submission to the Fuel Taxation Inquiry from the Bus Industry Confederation (BIC) which in part states that *"...the main transport external costs are those of road damage, congestion, accidents and environmental damage, especially air pollution, noise and climate change (greenhouse gas emissions) and the major origin of these costs is road use."*

BIC did not give estimates of under-recovery of road system costs for heavy vehicles but proposed *"...that the Australian Transport Council should ... direct the NRTC to report on implementation of a mass-distance based charging system for heavy vehicles, to replace the current NRTC charging system."*

The RTSA supports this approach along with the Fuel Taxation Inquiry recommendation of an inquiry into external environmental costs of road vehicle usage.

4.3 **More consideration needs to be given to the social and environmental costs of road freight than that given by governments to date.** These include the cost of road crashes involving heavy trucks along with the costs of noise and air pollution in urban areas. It is recognised that rail freight also incurs external costs. The ARTC National Track Audit has a Table which gives some estimates of these costs. This data is given, along with revised estimates, in Table 1 below.

**TABLE 1 : REVISED (AND TRACK AUDIT) EXTERNALITY COSTS**

Externality		Road (c/ntk)		Rail (c/ntk)	
		BTE	(TA)	BTE	(TA)
Noise pollution	Rural	0.003	(0.003)	-	-
	Metro	0.006	(0.006)	0.004	(0.04)

Air pollution	Rural	-	-	-	-
	Metro	0.11	(0.11)	0.03	(0.03)
Greenhouse gases	Rural	0.17	(0.16)	0.064	(0.01)
	Metro	0.20	(0.16)	0.064	(0.01)
Congestion costs	Rural	-	-	-	-
	Metro	0.09	(0.09)	-	-
Accident Costs		0.50	(0.32)	0.03	(0.03)
Increased road maintenance		1.00	(0.64)	-	-
<b>TOTALS</b>	<b>Rural</b>	<b>1.673</b>	<b>(1.123)</b>	<b>0.094</b>	<b>(0.04)</b>
	<b>Metro</b>	<b>1.906</b>	<b>(1.326)</b>	<b>0.128</b>	<b>(0.074)</b>

Reference: Booz-Allen & Hamilton Appendix A, page 24, and text

The Booz-Allen & Hamilton estimates, which in most cases, refer to work done by the Bureau of Transport Economics in its 1999 report cited above (and in turn the former Inter-State Commission in a 1990 report for environmental externalities which refers to US work of the early 1980s). Based on more recent BTE and other work\*, estimates for road system costs and road accident costs appear to be conservative as discussed below. As well the greenhouse gas estimates appear to be in error. Revised and recommended costs are also given in Table 1.

4.4 As well as the 1999 report of the Bureau of Transport Economics 1999 '*Competitive Neutrality between Road and Rail*', a series of Government reports since the 1970s have acknowledged under-recovery of road system costs from the heavy truck operations.

The Society notes that for roads of light construction, as previously recommended by the NSW Roads and Traffic Authority in 1990 (see Industry Commission 1991 report on rail, p116) an amount of 3 cents per net tonne km would be appropriate as an additional road user charge when significant tonnages are involved that cause damage to local roads.

Support for the view that Local Government should be able to recover road pavement costs and other externalities is also given by the Industry Commission, which in their final 1991 report on Rail Transport recommended, inter alia:

*"... that State and Territory laws be amended to provide local governments with effective capacity to impose specific pavement damage and externality charges on heavy vehicles. Such charges should be levied the principals for whom the road haulage is provided. A process of appeal should be set up to settle disputes between the local authority and the principles responsible for the pavement damage or externalities."* (Vol I, p117).

After 12 years, progress is yet to be made with this recommendation.

Moreover, the Industry Commission in its 1991-92 Annual Report (p197-198) noted, inter alia: *"Annual fixed charges are not efficient because costs vary with the distance travelled and the mass of the vehicle. The result is that some vehicles - the heaviest travelling long annual distances - will meet less than*

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\*Ausrail Plus 2003 Paper *External costs and evaluation of major track upgrading projects*, Laird P, Michell, M and Adorni-Braccesi G who thank Queensland Transport, the CRC for Railway Engineering and Technologies and the Rail Infrastructure Corporation of NSW (RIC) for valued assistance. However, the research outcomes and views expressed in this paper remain those of the authors and are not necessarily shared by any of the above organisations.

*20 per cent of their attributed costs. Charges for heavy vehicles that reflect costs they impose are essential to ensure best use is made of the nation's road and rail infrastructure, and that industry location decisions are appropriate in terms of minimising the overall cost of economic activity. Differences between the recommended charges and road-related costs are greatest for vehicles competing with rail. The charges, as recommended, will therefore potentially distort the long-haul freight market as rail reforms take effect."*

The Society trusts that the 'third generation' of charges to be implemented by the National Transport Commission in 2005 will address some of these concerns.

In regards to quantifying under-recovery of road system costs from articulated trucks, a book *Back on Track: Rethinking transport policy in Australia and New Zealand* by Laird, Newman, Bachels and Kenworthy (2001 UNSW Press) notes aggregate under-recovery of road system costs from articulated truck operations at about \$1.2 billion in 1997-98 and an average hidden subsidy for road freight moved by articulated trucks at 1.25 cents per net tonne km (net tkm using Australian Bureau of Statistics (ABS - 2000) data).

This estimate of under-recovered road system costs at an average of 1.25 cents per net tkm for articulated trucks is appreciably higher than the BA&H estimate of 0.64 cents per net tkm. The amount of under-recovery depends on many factors, including the nature of the public roads used for a given road transport task. It is suggested that the BA&H estimate of 0.64 cents per net tonne km for haulage by articulated trucks is too low, and could be replaced by 1.00 cents per net tonne on main roads.

4.6 In regards to road and rail freight accident costs, based on the Queensland Transport (QT) study cited in the AusRail Plus 2003 paper, the BTE 2000 report *The cost of road crashes* estimates and the BTRE report, *Rail accident costs in Australia* (2003) the average cost of road crashes involving articulated an average cost of 0.5 cents per net tonne - km is suggested (as opposed to 0.32 cents per ntkm) whilst for rail, the earlier estimate of 0.03 cents per tonne-km for rail freight in Australia be maintained.

4.7 Re Greenhouse gas emission costs, based on the QT study cited in the AusRail Plus 2003 paper, if a value of \$25 per tonne is taken for carbon dioxide, then greenhouse emission costs are as follows: urban road freight at 0.20 cents per net tonne km, non- urban road freight at 0.17 cents per net tonne km and rail freight at 0.064 cents per net tonne km.

4.8 It is appreciated that such estimates are assumption sensitive and subject to data limitations. However, RTSA agrees with the Track Audit findings that the road external costs would warrant a charge of **least** 1.12 cents per net tonne kilometre (non-urban). Based on average fuel use by articulated trucks and their freight output in the late 1990s of about 36 tonne km per litre, this equates, on average, to a hidden road transport subsidy of about 40 cents per litre. Prior to 30 June 2000, when road diesel excise fell from about 43 cents a litre to just 20 cents a litre as part of the New Tax System, some external costs were recovered by the Federal Government.

Rail external costs are much lower at about 0.04 cents per tonne km (non -urban). Based on typical rail freight output of 120 tonne km per litre, an externality charge of at about 5 cents per litre is warranted for rail. Higher amounts are warranted for road and rail freight movements within urban areas, and higher amounts would result for both urban and non-urban haulage using the recommended and revised costs.

4.9 To summarize, the recommended levels of **total external costs per net tonne kilometre for road and rail follow.**

<b>TOTALS</b>	<b>Rural</b>	<b>1.673</b>	<b>0.094</b>
	<b>Metro</b>	<b>1.906</b>	<b>0.128</b>
		<b>Road</b>	<b>Rail</b>

Using these estimates, we can calculate the external costs of moving a 40 foot container weighing say 30 tonnes by road from Newcastle to Sydney, assuming a total distance of 160 kilometres of which say 60 km is on urban roads, and 100 km is by freeway.

Tonne kms Metro 1800 = \$34.31 Tonne kms non urban freeway 3000 = \$50.19

Total external cost for road line haul and delivery is then \$84.50.

For a rail line haul of say 150 km from the Port of Newcastle, of which say 80 km is in urban areas, followed by an urban road delivery in Sydney of say 20 km, the external costs are:

Rail line haul (metro 2400 tkm = \$3-07, non urban 2100 tkm = \$1-97) sub total = \$5.04

Road delivery in Sydney (urban 600 tkm) \$11-44

Total intermodal transfer external cost is then about \$16-50.

The difference is then \$68.

In a similar way, the cost of moving a 40 foot container weighing 30 tonnes by road from Port Kembla to Sydney, assuming a total distance of 80 kilometres of which say 40 km is on urban roads, and 40 km is by freeway, is calculated at about \$43. The intermodal option of say a rail line haul of say 80 km from Port Kembla, of which say 40 km is in urban areas, followed by an urban road delivery in Sydney of say 20 km has external costs of about \$14. The difference is then \$29.

It is important that such external costs are taken into account in both pricing and infrastructure planning. Simply to ignore high external road freight costs is a recipe of putting more and more heavy trucks onto increasingly congested roads with severe adverse economic, social and environmental impacts. These impacts are appreciable higher in urban areas.

## **5 INTERCITY RAIL TRACK UPGRADING**

New South Wales is very much a crossroads of the nation. With the exception of freight moving between Melbourne - Adelaide and Perth, most freight starting or ending in a mainland capital city will cross NSW at one point.

There are economic imperatives to improve rail freight services between Australia's three largest cities of Melbourne, Sydney and Brisbane. As established by several Federal Government and Parliamentary inquiries (Neville, 1998 and 2001, Prime Ministers Task Force, 1999, and the Productivity Commission, 1999) significant investment in mainline interstate track is needed to remove adverse speed-weight restrictions for intermodal freight trains. As well, an inquiry conducted by the Public Works Committee of the NSW Legislative Assembly during 1998 found a case for mainline track upgrading within NSW prior to the introduction of tilt trains.

In May 2001, the Australian Rail Track Corporation (ARTC) released a detailed National Track Audit. This Track Audit includes a summary and final report with appendices by Booz.Allen & Hamilton, and a report on the Melbourne - Sydney and Sydney - Brisbane corridors by Maunsell McIntyre Pty Ltd (MMPL).

In brief, the Track Audit examined minimum freight market improvements (the S1 scenario) and significant track improvements (the S2 "stretch" target scenario). Following economic analysis, the Track Audit recommended optimised investment of \$507 million with a combined benefit cost ratio of 3.2.

Most of the proposed optimal investment was recommended for works within NSW. This includes \$146 million for Stage 1 of a Sydney Freight Priority Project, \$73 million for Main South rail track deviations, \$63 million for crossing loops, \$30 million for a Southern Control optimisation project, and \$16 million to replace the 1880 bridge over the Murrumbidgee River near Wagga Wagga.

In July 2002, the Federal Government accepted, without funding, that ARTC should invest over \$800 million within NSW to address rail infrastructure deficiencies including improved separation of freight and passenger trains in the Sydney region. The necessary investment is on hold pending a formal agreement between the NSW Government and the ARTC.

### 5.3 Tilt trains

Intercity trains perform a valuable role in moving passengers in Britain, Europe and Japan. With the introduction of 'tilt' trains travelling up to 170 km/h, intercity rail travel is also gaining popularity in Queensland.

The Federal Government's East Cost Very High Speed Train study has effectively ruled out a future in Australia for a Speedrail type train or a Maglev train. However, as argued by the Warren Centre at Sydney University (in July 2002), NSW should again look at fast trains linking Newcastle, Sydney and Canberra.

The RTSA has proposed 'The Queensland Option' of tilt trains operating on upgraded existing mainline tracks from Sydney. As demonstrated by Queensland, this option is both affordable and highly successful. The Queensland tilt trains operate between Brisbane and Rockhampton on tracks upgraded at a cost of less than \$500 million for faster and heavier freight trains. Since it was introduced in 1998, this service has carried more than one million passengers and given a boost to the towns it serves.

Victoria has also made a \$550 million commitment to **Regional Fast Rail**.

To run trains successfully between Newcastle, Sydney and Canberra/Albury, some track straightening and upgrading is needed. The RTSA has proposed a combination of official 1998 NSW 'Action for Transport 2010' track upgrading commitments, a "T-Line" to link North Canberra to the NSW Main South line, and proposals identified in the ARTC Track Audit including a major rail deviation between Bowning and near Cootamundra.

The estimated cost of the full track straightening and upgrading is less than \$2 billion. This is far less than the \$50 billion order of cost cited by the Federal Government as a reason for not proceeding with a TGV or Maglev.

The RTSA believes that long standing proposals of mainline track straightening and upgrading for faster and heavier freight trains, plus the use of fast passenger trains now warrant the attention of Government at all levels. A full report is at '[www.rtsa.com.au](http://www.rtsa.com.au)' The proposed track upgrade and tilt train operations have the potential to attract private sector interest and be eligible for Federal Government

assistance under its proposed new AusLink integrated transport proposals.

## 6 OTHER COMMENTS

Clearly, a new approach to land transport within New South Wales is needed. Many inquiries conducted during the 1990s and now the 2000s for the New South Wales and Federal Government have shown the way. It is now quite clear that 'business as usual' with land transport is simply not good enough for Sydney to remain internationally competitive as a major Asia/Pacific City.

The Sydney Morning Herald editorial 'To put Sydney back on the rails' for 27 February 2002 notes, inter alia, a need for higher fares and to 'move positively in the direction of private funding'. After noting a 'dire picture' the editorial suggested that *"...the neglect that has brought the Sydney rail network to this parlous state has been grave. The urgency is to face the problems laid bare by Mr Christie's thorough and detailed reports and to deal with them. First and foremost, the cost - \$20 billion over the next decade - is not optional."*

**It is hard to how see such issues can be overlooked in considering rail and road pricing.**

### 6.1 Auslink

A potentially new dimension in Australian land transport policy is the initiative of the Federal Government in producing the AusLink Green Paper. The approach adopted by AusLink is consistent with the findings and recommendations of the 1998 report 'Tracking Australia' from the House of Representatives Standing Committee on Transport etc (the Neville Committee), the 1999 'Smorgon' report on revitalising rail, and the final report of the Productivity Commission's inquiry 'Progress in Rail Reform'.

However, RTSA joins all State Transport Ministers in their reservations about the proposed absence of funds for urban public transport. To meet these concerns RTSA proposes **AusLink Plus** retain many of the Green Paper proposals, and include congestion pricing plus mass distance pricing for heavy trucks.

As recommended by the Fuel Taxation Inquiry that reported in 2002, the question of fuel excise indexation needs addressing.

RTSA has suggested in response to the AusLink Green paper that use of Public Private Partnerships (PPP) in project delivery has to be done carefully. Australia's record is mixed, with situations such as Sydney's Airport Rail Link showing a need for caution. PPP should not be seen as getting public debt off the government balance sheets or 'finding a market response' to funding requirements. Lumbering future generations with inappropriate debt – unable to generate returns, should be guarded against.

The RTSA submission to the AusLink Green paper (at [rtsa.com.au](http://rtsa.com.au)) addresses various land transport infrastructure issues including urban public transport, along with regional rail projects including rail haulage of wheat and interstate mainline track straightening to replace current sections with 'steam age' alignment. In regards to urban transport, as clearly shown by the 1999 report of the Institution of Engineers, Australia, "Sustainable Transport: Responding to the challenges," we have major road traffic problems in our major cities. These problems should be adequately addressed by AusLink.

Like other Australian major cities, Sydney needs measures to overcome excessive 'automobile dependence'. The Sydney Greater Metropolitan Region is now home to about 25 per cent of Australia's

population. This region needs about \$20 billion of rail “catch up” investment this decade. A National Transport Plan simply cannot ignore this requirement.

In the United States, over 20 per cent of Federal land transport funds are applied to urban public transport. In addition, in New York about \$800 million a year of vehicle tolls are used to assist New York City Transit’s \$11.5 billion five year capital works programme.

Appendix C includes some comments on some AusLink related issues

## **6.2 New Zealand Land Transport Package**

Recent initiatives of the New Zealand government in urban land transport are also relevant. On 28 February 2002, the New Zealand Government announced a \$227 million Land Transport Package. The innovative package, called Moving Forward, uses funds raised from increasing petrol and diesel tax by 4.7 cents per litre. Along with generating an extra \$94 million for roads over the next 16 months, the package also includes \$66 million for alternatives to roads, including improved rail connections to ports.

The aim of the package is to try to replace present transport problems, by a transport system that is 'affordable, integrated, safe, responsive and sustainable.' A current National Road Fund will be replaced by a National Land Transport Fund. Further measures were adopted in December 2002 and during 2003. For more information, see

<http://www.transport.govt.nz/html/15news/land-transport-package>

In addition, the New Zealand Ministry of Transport released in 2002 a report showing, inter alia, that the "invisible road toll" exceeded the "visible road toll".

## **CONCLUSIONS**

The efficient working of any major port needs good rail and road access. As identified by numerous reports, the present rail and road links between Newcastle, Sydney and Port Kembla have severe constraints, and need significant investment to be 'fit for purpose' for existing demands, let alone an expanded role for Newcastle Port and Port Kembla. The use of large numbers of heavy trucks to service ports has severe adverse economic, social and environmental impacts with significant external costs.

**APPENDIX A** Letter from Mr Ron Christie – Coordinator General of Rail, Office of the Coordinator General of Rail to the Hon Carl Scully, MP Minister for Transport, Long-term Strategic Plan for Rail: Greater Sydney metropolitan region, Overview report, June 2001, as released to the NSW Legislative Council in May 2002.

## ***A pragmatic and integrated plan***

**The Long-Term Strategic Plan for Rail is long overdue.**

In contrast to the attention paid to road network development needs in recent years, there had not been a detailed and comprehensive examination of the needs of the greater metropolitan rail system since the former State Rail Authority was split up in 1996. As a result, planning was undertaken on an independent basis by Rail Access Corporation (now part of Rail Infrastructure Corporation) and the State Rail Authority, rather than in unison.

Further, it is generally acknowledged that by its very nature the Government’s 1998 transport strategy *Action for Transport 2010* was not able to “drill down” to the level of detail required to fully analyse

what was (and is) needed to achieve an efficient and effective metropolitan rail system.

The *Long-Term Strategic Plan for Rail* seeks to redress these deficiencies by **setting out, with expressly acknowledged assumptions and clearly argued justifications, a comprehensive programme of short-term, medium-term and long-term operational, infrastructure and rolling stock changes to the metropolitan rail system.**

In doing so, it should be regarded not as “the final word” but rather as the *starting* point for ongoing strategic planning. For example, the timeframes for individual projects are based on the best advice on likely future patronage growth patterns available at present, but will need to be continually reassessed in the light of (for example) changes in land-use and employment patterns and changes in the economic climate.

The *Long-Term Strategic Plan for Rail* recognises **the importance of State Rail’s taking a more proactive role than in the past in indicating its requirements for the future** – both as the sole operator of suburban and intercity passenger services in the metropolitan region and as the organisation now legally responsible for the timetabling and control of all passenger and freight train movements on the metropolitan rail network. With State Rail providing the necessary guidance, initially through this *Long-Term Strategic Plan for Rail*, Rail Infrastructure Corporation will no longer be left to “second guess” what its future requirements are.

Similarly, the development of the *Long-Term Strategic Plan for Rail* provides **an opportunity for the Government to guide the private sector in more productive directions**, by making it clear what the overall requirements for the metropolitan rail system are. In this regard, valuable lessons have been learnt in the late 1990s concerning the importance of ensuring private sector projects deliver what is actually required for an efficient and effective rail system, rather than being developed almost in isolation from these requirements. If a summary of the rail system requirements and responses set out in the *Long-Term Strategic Plan for Rail* were publicly released, private sector organisations submitting ideas for new rail infrastructure etc would be much better placed to put forward proposals that are likely to prove acceptable and attractive to the Government and the rail agencies.

### ***Some changes in priorities***

As already indicated, the starting basis for the *Long-Term Strategic Plan for Rail* is *Action for Transport 2010*. The *Long-Term Strategic Plan for Rail* builds on this foundation by specifically addressing:

- The best ways of achieving the regional and corridor transport objectives established by *Action for Transport*, and
- Issues which were largely beyond the scope of *Action for Transport*, including, in particular, rail safety and reliability issues and the rail system’s critical capacity constraints.

In some instances the new analyses, using a range of projections for the most likely growth in rail patronage on different rail corridors, now point to **a reordering of priorities, with a greater emphasis on reliability and capacity improvements before some (but not all) of the more ambitious projects proceed.**

For example, the original objectives of several *Action for Transport* projects will simply not be able to be achieved unless capacity-enhancement projects in other areas already subject to severe congestion, especially the inner city, are completed first.

### ***A longer-term conceptual framework***

At the same time, the new analyses have permitted the development of **a more coherent long-term view** of a possible “ultimate” form of a greater metropolitan rail system, serving the multiple social, economic, employment and educational access and other transport needs of a metropolis of (perhaps) six million people.

This provides an essential long-term but non-prescriptive context for all rail development proposals, in much the same way as long-term regional and corridor plans have guided road network development over the last 55 years.

Just as vital road corridors have been reserved in the past, there is now **an urgent need to take action to protect future rail corridors**, and especially the corridors identified in alignment studies for new rail lines required in the next 10-20 years, through planning controls, land acquisitions and other measures.

### ***Choosing the most appropriate mode of public transport***

The *Long-Term Strategic Plan for Rail* focuses heavily on the transport tasks most suited to heavy rail – for passenger transport, the movement of large numbers of people at comparatively high speeds.

In doing so, however, the *Long-Term Strategic Plan for Rail* expressly recognises that **in many situations other public transport modes, including road and “transitway”-based buses and light rail, are more suitable**, especially when relatively small numbers of people are involved.

For example, in the case of several of the possible new longer-term rail corridors in suburban Sydney the *Long-Term Strategic Plan for Rail* suggests that other modes should probably be used at the outset, with rail modes being adopted for a corridor only if and when the much higher speeds and capacities of heavy rail become important or when constraint such as road congestion prevent buses from fulfilling their transport tasks.

In sort, transitways and other “feeder” bus services will serve a vital role *in combination with* heavy rail.

The *Long-Term Strategic Plan for Rail* also expressly recognises **the importance of easy inter-modal and rail-rail inter-changing**. As the metropolis develops, the amount of interchanging required will inevitably increase, although rail operation studies suggest that even in the long term rail-rail interchanging should be able to be minimised for the most heavily trafficked routes.

### ***Innovative approaches***

A range of “**non-traditional**” options for enhancing the capacity, performance and safety of the metropolitan rail system have also been examined.

With the *Long-Term Strategic Plan for Rail* makes it clear that there are no “magic-bullet” solutions, as has sometimes been claimed, a series of investigations and pilot installations are recommended, and several of the options, including communications-based signalling and new “metro”-style railway lines operating independently of the existing rail network, are identified as having potentially important benefits, especially in the medium to longer term.

### ***The critical issue of capacity constraints***

**Probably the most important single aspect of the *Long-Term Strategic Plan for Rail*, however, is its clear identification of the seriousness of the looming problem of severe capacity constraints on the metropolitan rail network.**

This problem reflects the fact that in the last 50 years there have been almost no track amplifications – the equivalent of road widening to provide extra traffic lanes – on the metropolitan rail network.

This means all types of services – fast and slow, and to and from a wide variety of locations via a

wide variety of routes – are forced to share the same overcrowded tracks, with few if any overtaking opportunities and with major congestion at the routes' numerous junctions.

**The system is rapidly approaching gridlock.** This is already manifest in the extreme day-to-day sensitivity of CityRail services to even the most minor of disruptive incidents.

The *Long-Term Strategic Plan for Rail* sets out a detailed program of changes in rail operating patterns and essential capacity – enhancing works for the next decade, with another prime objective being to restore the physical separation of different types of CityRail services in order to improve on-time running.

This program of works is essential *regardless* of whether a communications-based signalling system – sometimes presented as an “alternative” – is adopted.

But the *Long-Term Strategic Plan for Rail* also makes it clear that **by between about 2011 and about 2015 the relief provided by these corridor-based enhancements will be effectively exhausted and a new rail route** through the inner city and the CBD, between Eveleigh and St Leonards, will be essential. Again, this conclusion applies *regardless* of whether a communications-based signalling system is adopted.

In essence the situation now is analogous to that before the Eastern Suburbs Railway was built in the 1970s. By providing a new route through the inner city and CBD, the Eastern Suburbs Railway provided vial relief for the City Circle and the North Shore lines through the CBD, but this capacity relief will shortly be completely used up, even with all the capacity augmentations proposed for the next ten years, and another additional route through the CBD will once again be required.

Initial investigations into the new route are now underway. Once the route and staging options and their operational implications have been identified, a relatively early decision will need to be made by the Government, as a lead time of at least ten years is likely to be required before construction of even the first stage or stages could be completed.

**Because of the complexity of almost all aspects of this project, it will be essential to start serious planning for this new line immediately.**

## **APPENDIX B Further comment on State Rail's estimates of external costs**

The 2002 State Rail submission to IPART noted in part " Rail travel in Sydney provides the following external benefits:

- *Road congestion* – The Centre for International Economics (2000, *The Economic Benefits and Costs of CityRail to the Community* p30) estimates that CityRail operations reduce congestion costs to existing car

and bus users in Sydney by at least \$188 million per annum. This cost relates to the time spent in traffic delays.

- *Road accidents* – With greater car usage there are more accidents with associated loss of life, serious and slight injuries and property damage. The Centre for International Economics estimates that if CityRail services were removed, the economic cost of accidents would increase by around \$37 million per year.
- *Air pollution* – Increased car usage would result in higher air pollution from car emissions, which in turn would impact on health, damage property and have a negative visual impact (smog). It would also damage crops and forests, and contribute to global warming. It is estimated that this impact would be nine times greater than the effect of emissions from coal generated electricity used to run CityRail trains.
- *Noise pollution* – It is estimated that without a rail system, the additional noise pollution from increased car dependence would outweigh the current noise impact of rail transport. This has been valued as delivering a net economic benefit of \$3 million pa. (Milthorpe, Hensher and Zhu (1994), “Valuing the benefits the community derives from CityRail services”)

"As rail transport produces less pollutants and fewer accidents per person journey than road travel and because it reduces congestion costs to road users, it reduces externalities that road transport imposes on the community which are not at present priced into road travel. One solution to addressing this price distortion is to price road use directly, thereby internalising the social costs of vehicle use into road use decisions. However, as noted by IPART (2001), ***“the real world experience of road pricing is of continual non implementation”***.

As per a submission to IPART in 2002 by Dr Philip Laird, estimates given by State Rail of external costs to IPART in 2002 appear low, and certainly the 1994 noise estimate is in need of updating. In 1999, the Federal Bureau of Transport Economics in Canberra published - (1999b) *Urban transport - looking ahead* which notes a 1995 congestion cost estimate of \$6 billion. The estimate of at least \$188 million per annum is about 3 per cent of all Sydney's congestion cost. It would appear that 3 per cent is unduly low for sustained withdrawal of all city rail services.

The estimate of the economic cost of road accidents increasing by around \$37 million per year if city rail services were withdrawn also seems low. In May 2000, the Bureau of Transport Economics published *Road crash costs in Australia*. As seen by Laird, Newman et al (2001, *Back on Track, Rethinking transport policy in Australia and New Zealand*, UNSW Press).

"The numbers of persons killed on Australian roads, coupled with serious injuries and other injuries, plus loss of earnings, pain and suffering, and vehicle damage was estimated by the Bureau of Transport Economics (BTE - 1995b) to be costing Australia some \$6135 million in 1993. This estimate for road accidents far outweighed BTE (1995b) estimates for aviation accidents at \$75 million, rail accidents at \$69 million and maritime accidents at \$316 million. However, this very conservative estimate for the cost of road crashes was later revised by the BTE (2000) to be \$14 980 million in 1996. The marked increase from \$6 billion reflects inclusion of an estimated cost of \$2 billion for long term care, and, a more realistic estimate of nearly \$1.5 billion of the costs of traffic delays resulting from road crashes. This is an almost daily phenomenon on freeways in any major city. ...Even so, the new BTE estimate of the cost of road crashes of some \$15 billion is considered to be conservative by the Australian Transport Council (2000). ..."

The book Back on Track also discusses estimates of noise and air pollution, as does the Bus Industry Confederation (BIC) in a 2001 submission to the Fuel Taxation Inquiry. This BIC submission notes that *"...the main transport external costs are those of road damage, congestion, accidents and environmental damage, especially air pollution, noise and climate change (greenhouse gas emissions) and the major origin of these costs is road use."* The submission also notes that there are external costs associated with the emissions from the refining of the fuels used in transport, and external benefits (positive externalities) from road use which are best dealt with by market forces.

The BIC did not recommend congestion charges. Instead, it recommended more attention be given to congestion in road pricing, and an annual program of \$100 million nationally over a five year period, funded by a charge of about 1c/L on fuel consumed in capital cities for measures to try to reduce road congestion.

BIC proposed that a fuel charge of 4c/L on diesel and 8c/L on petrol be imposed to recover part of the external costs of road accidents, and that the Australian Transport Council initiate measures to increase the liability of those causing accidents for associated accident costs and to more closely align transport accident insurance with relevant risk factors. BIC further proposed that BTE extend its recent accident cost research to produce external cost estimates by vehicle type, as a precursor to specific user charges.

In regards to air pollution from motor vehicles in Australia, BIC estimated an annual cost of about \$4.3 billion. This comprises \$3.7 billion of costs imposed in capital cities, with about \$0.6 billion in other urban areas. The cost of air pollution in all urban areas due to articulated truck movements was estimated at \$342 million, and the BIC proposed that the base air pollution charge for 50 ppm sulfur diesel should be set at about 7 cents per litre, with higher charges for diesel containing a higher sulfur content, whilst rural fuel use should be rebated this charge.

For greenhouse gas emissions, after consideration, the BIC considered the value of \$A40 per tonne of carbon dioxide (CO<sub>2</sub>) *"...to be the current optimal level for carbon taxation. It is stressed this value is only relevant for the short-term; costs will increase dramatically in future years."* The use of the value of \$A40/tCO<sub>2</sub> gives a relevant charge level (carbon tax) of 10.7 cents per litre of diesel.

Estimates of the cost of noise from all motor vehicles in urban areas was given in a range of \$0.7 to \$1.9 billion per annum, with the cost of articulated truck movements in a range of \$82 to \$126 million per annum. BIC considered that the average noise costs from urban road traffic are about 7c/L of fuel consumed in urban road use.

Other recent Australian work on transport externalities includes that of a 2001 National Interstate Track Audit commissioned by the Australian Rail Track Corporation.

#### **APPENDIX C AusLink related issues**

1. The AusLink Green Paper released November 2002 recognises the value of information and notes that improved data is needed. The long awaited White Paper (due May 2003) should outline the steps that will be taken to improve land transport data.

2. RTSA encourages the NSW Government to develop measures that will reduce vehicle kilometres travelled, improving energy efficiency and road pricing as per the BTRE's 2002 report "Greenhouse Policy options for transport", and the National Strategy for Lowering Emissions from Urban Traffic approved by the Australian Transport Council in Aug 2002.

3. The education and training of rail staff is important. Running a large railway is a complex business and requires a diversity of skills, trades and professions (including accountants, engineers, and now lawyers). This requires a significant number of both skilled rail engineers and technically competent managers. The present indications show that in some areas there will be a serious shortage of qualified railway engineers. The issue of education, training and research was examined in a 1999 IE Aust report, 'Engineering for rail sector growth' and revisited by a RTSA Rail Forward Vision Task Force, in a November 2002 report 'Rail in the next decade; where to and how'. The rail industry has initiated the establishment of a Rail Cooperative Research Centre (CRC) which officially commenced on 1 July 2001 with six research themes including Industry Skills Development (Industry and Training).

4. The challenge of attracting younger people with talent who can make a contribution is not unique to the rail industry, and indeed is faced by the road freight industry as well. The White Paper needs to recognise the increase in skills, understanding, knowledge and innovation necessary for the transport sector. AusLink must take a lead in motivating and co-coordinating the provision of training, education and R & D within transport and storage. **Clearly there is a market failure (and Government failure to date) in both up skilling and education attainment within transport that is constraining Australia's future productivity and international competitiveness.**

6. There is a need to ensure that rail has sufficient funding for advanced planning to allow rail to catch up with the forward planning of major National Highway System projects. This includes an allocation in the 2000-01 Federal Budget of \$10 million for planning of the Western Sydney Orbital.

7. **Will Sydney ever get a Western Rail Orbital?** In planning for the Western Sydney Orbital, it was

a lost opportunity to make provision for future rail links between Castle Hill, the Richmond Line, the Great Western Line and a link from near St Mary's to the Main South Line.