

Dear IPART

Re: CITYRAIL FARE REVIEW

Please accept the following as a personal professional submission, which has drawn on University of Wollongong resources with the support of the Rail CRC. However, the views expressed are not necessarily shared by either organization.

I am interested in appearing at a public hearing on this matter.

Yours sincerely,

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17 March 2006

*Submission to the New South Wales Independent Pricing and Regulatory Tribunal
re Review of fares for CityRail in NSW 2006*

Dr Philip Laird, University of Wollongong March 2006

1 Introduction

This submission will draw on research conducted at the University of Wollongong and supported, in part, by the CRC in Railway Engineering and Technologies (Rail CRC). However, it does not necessarily reflect the views of either organisation. The submission draws various publications of the writer and on earlier submissions to the Federal Government, including IPART in its review of Rail Fares in 2003, and to the Productivity Commission in its inquiry into Energy Efficiency.

RailCorp in its submission in summary notes that it is currently of the view that the following changes to the CityRail fare structure are warranted:

- a fare increase of 2.9% to compensate for 2005/2006 inflation, effective from 1 July 2006; and
- reducing the current off-peak discount from 39% to 25%.

No changes are proposed to current concession discount levels. The revenues generated from the additional farebox revenue would be applied to improving cost recovery.

It notes, inter alia, that (p6) the Parry Report "Challenges to Providing a Sustainable Transport System for NSW" (2003) stated, "*CityRail fares should increase modestly in real terms to help fund better services*".

Also (p11) CityRail's patronage volumes have stagnated over the last three years but are forecast to grow on average by 1.4% in the medium term. The CityRail network currently carries over 270 million passenger journeys per annum, with about one million passenger journeys each weekday.

It concedes (p12) CityRail's performance has been poor in recent years; however, a consistently improving trend can now be seen. It is also noted that the last fare rise took place in August 2003.

2 Brief response

The increases requested are very modest and should be approved with the proviso (as per the Parry Report as cited above) that the additional revenue will be invested to improve customer service. This includes an improvement in transit times from the current timetable. The tendency to slow trains down is like having trains running on valium.

Moreover, the NSW Government should revisit the recommendations of the 2003 Parry Report. In addition, RailCorp, whilst continuing to improve services to the traveling public, should make a stronger case for further fare increases in 2007.

The current Seniors Card concession is too generous, and the interim Parry Report recommendations were a reasonable compromise between discounted travel and improving revenue.

RailCorp remains as a system where much further investment is needed to keep past with Sydney's past growth. The 1998 Action for Transport 2010 proposals should be revisited, along with the 2001-02 report of Mr Ron Christie. Any suggestion that Sydney's rail system will be adequate once Epping - Chatswood is built and the "Clearways" programme is completed should be questioned. The need for improvements from Hornsby to Warnervale (initially promised for 2007) remain. The section of track is now the most congested double track in Australia.

It is noted that the Australian Rail Track Corporation's \$192 million South Sydney Freight Project and related work will improve separation between freight and passenger trains. However, there is a need to look to the next stage. This could well include completion of the Maldon Port Kembla railway to get some freight trains out of the inner west and off the Hurstville - Sutherland (another congested double track section, and with steep grades).

The price of a poorly performing urban rail system is high. It includes increased road vehicle usage, with increased road congestion, air pollution, and road trauma.

Increased oil prices since the last determination, and positioning RailCorp to cater with the likely expected demand if oil prices continue to increase, also require addressing.

3. The need to improve and expand the rail system

In the late 1990s and early part of this decade, Sydney was experiencing strong growth. Its rail system has failed to grow. In 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

East Hills line Quadruplication (to Kingsgrove by 2003)

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

High speed rail link - 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.

Clearly, Stage 1 of a Newcastle to Sydney- High Speed Rail Link completed by 2007 is now out of the question. However, since 1998, the Western Sydney Orbital was planned, constructed and opened in December 2005 ahead of time. Yet planning on these rail projects is yet to proceed to land acquisition and environmental impact assessment.

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 Junction to Maroubra

North West line extension from Castle Hill to Rouse Hill

The need for augmentation of track capacity within and near Sydney would appear to include; 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 (- Sutherland) triplication;
- D. Waterfall – Thirroul new routes (need identified in 1990, reaffirmed *Action for Transport 2010*, detailed planning work still to start) and or Completion of the Maldon Port Kembla Railway
- E. Hornsby – Gosford track straightening.
- F. Quadruplication of the line to East Hills.

As recognized by many submissions to the 2002 AusLink Green Paper, some Federal funds will be needed to improve urban rail systems in Australia. This view was reaffirmed by the Senate Standing Committee on Transport etc in its 2005 report on AusLink, and, the House of Representatives Standing Committee on Environment and Heritage in its 2005 report 'Sustainable cities' (which had 7 recommendations on transport, some of which could be adopted by State Governments).

3.1 Campbelltown - Goulburn

There is a need to improve access between Sydney and the Southern Highlands for CityRail and other services. A direct Menangle to Mittagong route to run alongside the Hume Highway was proposed by Bill Wentworth as far back as 1991. The Wentworth route will shorten point to point rail distance by nearly 20 km and cut time for all trains. The 2001 ARTC Track Audit estimated its cost at \$218 million for single track. Double track is a better option.

The Hume Highway was diverted to its present route as far back as 1980. The railway still winds around hills, instead of cutting through them. The extra distance and slow running forced by steam age alignment encourages people to look to driving cars on roads.

3.2 Short North line

Getting faster trains between Sydney's Central Station and the Hunter region is a major challenge. Although some detailed preliminary work was done for Hornsby-Warnervale track upgrading (with a 2001-02 \$1 million NSW budget allocation for planning), no further work has been done (or communicated to the public).

Failure to complete a Newcastle High Speed Line for 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 to a major distortion in travel 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.

3.3 Maldon Port Kembla Railway

The final report of the State Development Committee in relation to the Inquiry into Port Infrastructure in New South Wales released 17 June 2005 noted, inter alia, comment for and against completion of the Maldon-Port Kembla railway, and the option of tying it in with the "Wentworth" rail deviation from near Menangle to Yanderra or Aylmerton. The NSW Committee made two related recommendations:

Recommendation 12. That following the anticipated transfer of general cargo stevedoring to Port Kembla in 2006, the NSW Government re-examine the freight task out of Port Kembla to ensure that the anticipated increase in freight traffic is supported by the necessary improvements in road and rail infrastructure.

Recommendation 13. That the NSW Government consider the feasibility of expanding rail infrastructure into Port Kembla, including consideration of the Maldon to Dombarton line, in conjunction with the AusLink program.

The NSW Government response to these recommendations was less than positive, however, the need remains to reduce rail congestion with Sydney and to ensure that as Port Kembla expands, the rail system can move increasing freight tonnages. 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.

In considering completion of the Maldon Port Kembla Rail link, the following factors are relevant:

The growing rail congestion in Sydney metropolitan region, with freight train curfews.

The planned expansion of Port Kembla.

It could be used for passenger trains.

The slight risk of potential failure of the Waterfall -Thirroul line.

The somewhat slighter risk of potential failure of the Moss Vale - Robertson line.

The rail project is half completed.

Easier paths for coal and other freight trains.

Support of the Port Kembla Coal Terminal, and (qualified) Illawarra Coal (BHP Billiton)

It would tie in well with the Wentworth Route as outlined in 3.1 above, or parts thereof.

Re coal trains - the Maldon Dombarton Rail Link would provide significant distance savings for Tahmoor Coal to Port Kembla with a rail distance of 72km. This compares with 118km via Moss Vale, or 175km via Enfield.

The movement of coal trains from Lithgow on the Western line proceeding through Enfield is congested and subject to curfews. As well, loaded coal trains bound for Port Kembla have to climb the steep Como bank to Sutherland with a distance of 101km from Granville to Port Kembla. With completion of Maldon - Dombarton, by use of the triangle with the flyover at Granville the distance from Granville to Port Kembla is 109 km. Such movements would be further facilitated by construction by 2009 and now under way of the South Sydney Freight Project by the Australian Rail Track Corporation at a cost of \$192 million.

3.4 NSW Government's Freight 2010 strategy

The report *Action for Transport 2010* noted that "The NSW Government's *Freight 2010* strategy which will follow this Plan sees road and rail as complementary as well as competitive. Despite being prompted by a Legislative Council Committee report in December 2000 calling for release of this Strategy, the promised NSW *Freight 2010* strategy is still to be released. Expanding ports at Newcastle and Port Kembla will place more demands on the rail and road system.

4 Comment on external costs

RailCorp's present submission has a single table and the following brief comment.

4.5.4. Environmental Protection There are additional environmental benefits to the wider community in using rail. For example, if the 180,000 daily rail passenger trips to the CBD were to transfer to car, around 160,000 additional car trips would be required. It is difficult to estimate the additional vehicle effect on an already congested road network, but it could be estimated to cost in the order of \$360m annually for the morning peak 66, and doubled if repeated in the evening. These increased road trips could also be expected to lead to higher road accidents, costing around \$50m annually.

"Furthermore, there would be environmental costs involved in the extra mileage of between \$1m and \$2m annually. Any CityRail fare increase would enable RailCorp to provide better services, increasing the number of passengers over time, with corresponding environmental benefits."

This comment is very limited. The IPART website has Subsidies and the social costs and benefits of public transport - Prepared for IPART by CIE. However, this is dated March 2001. The Bureau of Transport and Regional Economics (BTRE) in a 2005 Working paper *Health Impacts of transport emissions in Australia: Economic costs* gives a mid-range estimate of the annual health related costs from air pollution from motor vehicles in Australia's capital cities at \$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; and, this estimate is appreciably lower than a 2003 BTRE estimate). Following a European approach (Kunzli N, Kaiser R and Medina S, Public health impact of outdoor and traffic related air pollution: a European assessment, *Lancet* Vol 356, Sept 2 2000) the BTRE effectively attributes air pollution costs to PM10 (particulate matter of size less than 10 microns) levels.

In a further 2003 BTRE paper (*Urban pollutant emissions from motor vehicles: Australian trends to 2020*) estimates are given of both PM10 emissions in Australia's capital cities and the kilometres driven for various types of motor vehicles. Analysis of this data shows (Laird, *Revised Land Freight External Costs In Australia*, Australasian Transport Research Forum 2005), in part, that the average health cost of air pollution from operations of cars (and other small passenger vehicles) in Australia's capital cities is 1.3 cents per vehicle kilometre. The average health unit cost for within Sydney is 1.6 cents per vehicle kilometre.

As part of a submission from this writer to the Productivity Commission during 2005 re its inquiry into energy efficiency, the value of electric urban rail services includes reducing road congestion, air pollution in capital cities and conserving imported oil. Take for example, the Sydney City Rail task, reported to be moving over 270 million passengers each

year. Assume that the metropolitan part of this task (over 250 million passengers) is about 5 billion passenger-km (average length of journey being almost 19 km), and that on a hypothetical closure of the service, an extra 4 billion passenger-km of car travel is generated with a higher than usual occupancy rate of 1.25 passengers per car (cf the BTRE's estimate of the average vehicle occupancy rate in Australia of around 1.1 persons cited on page 11 of *Greenhouse policy options for transport 2020* Report 105, 2002). This would result in an extra 3.2 billion car km per year. On an ABS average petrol use of 11.0 litres/100km (ABS SMVU data for 2003, Table 5) this results in an extra 291 million litres of fuel used per year. The increase in external health costs due to the extra air pollution (with the unit cost of 1.6 cents per passenger vehicle km) would be \$51 million per year. There would undoubtedly be an increase in road trauma as well.

More comment re external costs from an earlier submission to IPART appears in Appendix B. It is suggested that *IPART consider recommending to RailCorp that they seek updated estimates on both road and rail passenger external costs in time for the next application for fare increases.*

5 More on pricing

The Bureau of Transport and Regional Economics (BTRE) in its 2002 Report No 105 *Greenhouse policy options for transport 2020* considered land transport, with some 11 groups of measures to reduce vehicle kilometres traveled. Optimal road pricing was held to offer the best way forward.

This view was shared by the Parry Inquiry (NSW Ministry for Transport, 2003) that noted, inter alia (p72) "*The thinking underlying the support for road use pricing is that road access is currently 'too cheap' (as distinct from the general cost of motor vehicle use), as motorists are not directly bearing all of the costs associated with their decision to make a journey. For example, driving a vehicle is associated with costs such as congestion, road wear and tear, pollution and accidents.*"

The Parry Inquiry (loc.cit, p 74) also noted "*Currently, public transport is disadvantaged compared with private transport by a range of taxation (for example, the fringe benefits tax), expenditure and other policies that encourage private transport use. As a separate issue, and irrespective of the decision made regarding road use pricing, those policies that distort decision making in favour of private transport should be reviewed to ensure that public transport is not disadvantaged.*"

Improved road pricing to remove large hidden subsidies from motor vehicle operations (cars in major cities during peak hours and articulated truck operations) is necessary to improve demand management. One approach is given by the Railway Technical Society of Australasia (Submission #186 to the House of Representatives Environment and Heritage Committee's inquiry into Sustainable Cities whose 2005 report

and seven transport recommendations are commended) which proposed a ten point transport pricing plan along the following lines.

- i. Re tolls
 - A. remove toll rebates in Western Sydney, which is a costly scheme to administer.
 - B. reinstate tolls at Berowra and Waterfall, with the proceeds being used to expedite long-overdue improvements of both the Pacific and Princes Highways.
 - C. ensure that the Mitcham - Frankston motorway is built as a toll way.
- ii. Remove the Queensland Fuel Subsidy Scheme, at least from South East Queensland.
- iii. Impose a congestion charge for access to the Sydney and Melbourne CBDs. It works well in London. And/or impose an environmental fuel levy for motor vehicle use in the Greater Metropolitan Areas of state capital cities and Canberra.
- iiii. Restore fuel excise indexation, with the additional revenue going into improved transport infrastructure. To ensure best use of funds, replace road funds (as enjoyed by the NSW Roads and Traffic Authority) by transport funds (as per Western Australia, New Zealand and as proposed under AusLink).
- v. Ensure that the further determinations of heavy vehicle road user charges by the National Transport Commission recovers - at least the populous zone - the full road System costs from heavy articulated trucks, B-Doubles and road trains. At present, these vehicles are cross-subsidised by other road users. Ensure that additional revenue is directed towards not only National Highway System maintenance (to compensate for changes under AusLink), but rail track and improved intermodal facilities.
- vi. Increase annual registration fees for the heavier four wheel drive vehicles.
- vii. Support the recommendation of the Productivity Commission from its 1999 Inquiry into Progress in Rail Reform into an inquiry into road provision, funding and pricing. Also have the Productivity Commission examine urban transport.
- viii. Increase rail fares, with all proceeds going into a better rail system.
- ix. Improved land transport data, with publication of accurate, comprehensive and up-to-date information on all modes of transport, with details of energy use and greenhouse gas emissions.
- x. Ensure that major airports and seaports are not in receipt of hidden subsidies.

6. Airport link services

One area of service where appreciably higher Sydney urban fares are now under trial is travel involving the use of any of the two airport stations and two nearby stations (Mascot and Green Square). The higher fares, coupled with other factors, have resulted in patronage being well below expectations. Other factors include:

- a) The lack of purpose built 'user friendly' rolling stock to operate between the two airport and nearby stations, and, central and city loop stations.

By user friendly rolling stock is meant single decker carriages with luggage platforms near doors.

The use of such trains, together with the option of using regular East Hills/Macarthur trains (albeit packed with people at peak hours) would assist in building patronage. The cost of two or three such four car sets would be small compared with the costs of the new stations.

b) The relatively limited and small signage at both airports be changed to indicate that there is a train option, how good it is, and where it is. How good it is would include guaranteed maximum waiting time (eg. trains every ten minutes or in the case of the Brisbane line, every 15 minutes for much of the day).

c) The limited and small signage at Central and City Loop stations; with lack of active indicator boards at each station that would say:

Re Wynyard station: Do all trains for the airport leave Platform 6 at Wynyard?

The present signage suggests this. However, not all trains leaving Platform 6 at Wynyard go on the Airport Line.

d) At Central, it is suggested that Platform 23 be a dedicated "air train" platform, with special signage and murals. All other suburban platforms including Platform 22 could have signage saying change here for the air train.

e) There is no encouragement for people from the South Coast and Cronulla lines to use the train to the airport, because most trains from these lines do not stop at Wolli Creek.

Pending introduction of measures such as above, and boosting of patronage to the new stations, it is recommended that the fares to the special stations be lowered by at least two dollars, and a publicity campaign be launched to induce:

A) people who have not tried the new service to try it;

B) people who have already tried the present airport line service and been "turned off" it to try again.

7. Summary

This submission suggests that RailCorp's request is a modest one that could well be approved, also urban rail fares and the perceived cost of using cars are too low, and that a quantum increase of investment in urban and intercity rail track is required to maintain a functional rail system.

However, it is also submitted that there should not be a marked increase in fares and road pricing until there is a demonstrated commitment to improve urban public transport and upgrade and extend rail track as well as addressing the important issue of road pricing. IPART could contribute to improving the public's knowledge of road vehicle external costs and lifting the level of debate on road pricing.

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

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 bases 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 widenings 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 vital 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 More on external costs

The StateRail 2002 submission to IPART provided more information than does the 2006 RailCorp submission and 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"*.

"Given that road use pricing does not reflect the full external cost of road use, it is appropriate that the external benefits of rail be reflected in rail pricing".

From this writer's 2002 submission to IPART, 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 (2000a) 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 recent 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 refining of the fuels used in transport, and, external benefits (positive externalities) from road benefit use which are best dealt with by market forces.

The BIC did not recommend a congestion charges at this stage. Instead, the BIC 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 and 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 insurances 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 (CO₂) "*...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 A\$40/tCO₂ 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. 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 National Interstate Track Audit commissioned by the Australian Rail Track Corporation (ARTC - 2001) where Booz•Allen & Hamilton (Appendix A page 24) noted '*...six external cost items of noise pollution, air pollution, greenhouse gas emissions, congestion costs, accident costs, and incremental road damage costs*' and gave a Table of road and rail freight externalities. This table is updated as follows. It would be helpful to have a similar table for road and rail passenger externalities, to supplement the default values given in Volume 2 of the 2004 *AusLink National Guidelines for Transport System Management in Australia*. These values draw in part from the Bureau of Transport and Regional Economics 1999 report *Competitive Neutrality between road and rail*, Rail Studies, 2003, Queensland Transport, the Victorian Department of Infrastructure, the NSW Department of Transport study of grain transport options, 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.

Table B 1 Revised Australian land freight externality costs

Externality Measure	Road (¢/ntk)	Rail (¢/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 of paper Revised Land Freight External Costs In Australia Philip Laird, Australasian Transport Research Forum Paper Sydney September 2005.

APPENDIX C Rail CRC Rail Transport Energy Efficiency and Sustainability

Sources of data re energy use in transport operations in Australia include the Australian Bureau of Statistics (ABS), the Bureau of Transport and Regional Economics (BTRE), the Apelbaum Consulting Group (ACG), the Australasian Railway Association (ARA-Australian Rail Industry Report 2004) and this writer. A common theme is that rail transport is more energy efficient than road transport.

Rail passengers Rail CRC project 24 aggregate data from individual Australian rail passenger operators is given in Table 1. Based on 2001-02 ARA/ ACG FFC estimates, passenger rail had an average energy efficiency of 0.65 passenger (pax) km per Megajoule (MJ) as compared with 0.36 pax km per MJ for passenger road vehicles, 0.71 pax km per MJ for buses and 0.40 pax km per MJ for domestic airlines.

TABLE C 1 RAIL PASSENGER ENERGY EFFICIENCIES
Passenger km per MJ (Full fuel cycle)

	Light Rail	Urban Rail	Non-Urban Rail
2000-01	0.60	0.69	1.09
2001-02	0.60	0.68	1.13
2002-03	0.61	0.64	0.99