Submission - The role of transport connectivity on stimulating development and economic activity to the House of Representatives Standing Committee on Infrastructure, Transport and Cities

from Philip Laird, University of Wollongong, February 2016

This submission shall offer some comments on value capture along with transport planning and pricing. It shall also address what is regarded as a substantial deficit in rail infrastructure and shall draw on research conducted at the University of Wollongong. However, the submission does not necessarily reflect the views the University.

1. General Comment

In the past up to World War II, a working railway station was often regarded as essential to ensure the prosperity of a country town, or the growth of a city suburb (unless served by a tram route). More recently, Victoria's Regional Fast Rail completed 2006 was followed by strong patronage growth and gave a boost to Bendigo and Ballarat, and has helped Geelong as it loses manufacturing jobs.

As well, the 72 km Perth-Mandurah railway line opened in 2007, has attracted strong patronage with now over 20 million journeys per annum. Some of these journeys are due to people who have been attracted by a good rail service to choose to live near a rail station and then commute to work by rail.

In Post World War II, the development of roads and expansion of rail has allowed new car dependent suburbs to grow on the edges of cities. A caution is expressed later in this submission (section 6) on some major current road works and proposals.

In May 2015, Infrastructure Australia released a draft National Infrastructure Audit. The report highlights the need for Australia to respond to a growing population with increasing road congestion.

On medium level projections, Australia's population is projected to grow from 22.3 million in 2011 to 30.8m in 2031 - an increase of 36.5 per cent. (At 4 pm 11 February 2016, it was about 23.996 m). Most of this population growth (72pc) is projected to be in the four largest cities of Sydney, Melbourne, Brisbane and Perth - to a total of 18.6m people "This growth will impose additional demands on urban infrastructure already subject to high levels of demand."

The cost of road congestion in Australia's capital cities was estimated by the Bureau of Infrastructure Transport and Regional Economics (BITRE) to be $9.4 billion in 2005 and to rise to $20.4b by 2020. The 2015 infrastructure audit has estimated that the cost of delays on urban roads was $13.7b in 2011 and expects "in the absence of any new transport network capacity, the cost of congestion on urban roads is projected to grow to $53.3b in 2031… also, …"In some cases, travel times could more than double."

As observed by Infrastructure Australia chairman Mark Birrell: “Investment in infrastructure is required to address these issues and allow new economic and social opportunities to be realised. Funding constraints therefore present a core challenge.”

2. Value capture and transport pricing

Value capture offers one way forward. It works in other countries, and has worked in Australia in the past, notably, helping to construct the Sydney Harbour Bridge. As noted by the Australasian Railway Association in a 2014 submission, "Role of public transport in delivering productivity outcomes", … "one third of the construction of the Sydney Harbour Bridge was funded through a betterment tax imposed on landowners north and south of the harbour who were recognised as beneficiaries of linking the city and Sydney’s North Shore. The levy was imposed for 15 years at 0.2 per cent on the unimproved capital value of the lands. "

The flip side of this approach is dramatically demonstrated by the extensive development of apartment buildings near Wolli Creek station in Sydney since it was opened in the year 2000 as part of a new airport railway. In the past 16 years, this new railway station has generated much transit orientated development, and continues to do so, with no fewer than four new apartment buildings currently under construction.

Unless the New South Wales Government or its Rail agencies have an interest in the land, the developers have done well over the years from the station. As indicated (Aust. Fin Review 29th Jan 2016 "lobby groups warn value capture a property tax" citing the Shopping Centre Council of Australia, and, the Property Council of Australia, many developers would like the status quo to continue.

Value capture is just one way of raising revenue for much needed infrastructure. It is respectfully suggested that more attention is needed to true ‘user pays’ and ‘polluter pays’ pricing for roads and rail. The issues re transport pricing were well addressed in 2003 in an official report on Sustainable Transport for the NSW Government. However, the recommendations on fares and road pricing in this report by Mr Tom Parry were rejected by the government of the day. Governments at a federal and state level could do well to revisit the 2003 Parry report.

In 2004, an AusLink White Paper raised the options of congestion pricing in major cities and mass distance location for the heavier trucks. The latter issue was revisited by the Productivity Commission in 2006; ten years on, the need for reform on heavy truck road pricing is growing.

Here, some guidance may be found across the Tasman Sea where New Zealand has had mass distance pricing for trucks for more than 35 years now and petrol excise now exceeds 50 cents per litre, with funds diverted to rail as well as road.

In a similar way, there is scope for reform in pricing of urban rail transport. This could well include getting more people to use rail to access the domestic and international terminals at Sydney Airport. This was outlined in a 2014 report "Removing or reducing station Access fees at Sydney airport" by General Purpose Standing Committee No 3 of the NSW Legislative Council.

3. NSW Rail infrastructure deficit

Australia has a large infrastructure deficit and this will require significant funding to remedy. In particular, NSW has a current overall shortage of 'fit for purpose' rail infrastructure to serve a growing population. Whilst this in part is being addressed by construction of the North West Metro by 2019 to be followed by a Sydney Metro-City (with a harbour tunnel crossing) and Metro-South West to be operational by 2024, and a new light rail down George St and out to UNSW, many rail deficiencies remain.

With regards to rail, the 2010 Engineers Australia Infrastructure Report Card notes:
"Rail has been given a D+ rating. Rail infrastructure includes metropolitan passenger networks, freight and regional passenger services, grain lines, the interstate networks and private railways. The low rating has been given on the basis that urban rail networks cannot cope with demand. There is a need for a high speed rail network along the eastern coast of Australia to ease airport congestion and to reverse the trend of declining regional rail utilisation, which is resulting in more road traffic. The interstate network and Pilbara railways in particular are in a good condition.

"Improving the efficiency and productivity of existing rail networks is a challenge in many jurisdictions. For instance, increasing train length, load capacity, operating speed and turnaround time will require considerable improvements in rolling stock, below-rail infrastructure, and port-rail connections and intermodal hubs. The investment to achieve improvements will require substantial investment over at least a decade."

The result for rail was a set back from a C- in 2005 to D + in 2010. Sydney comes in for particular mention, including its population predicted to increase by 550,000 people by 2021 and that transit times need reducing to the neighbouring centres of Wollongong, the Blue Mountains and Newcastle are. In several cases, these times are slower than in the past.

Examples are cited, including from a 2009 paper *On the Right Track: Why NSW Needs Business Class Rail*, by Buckingham and Hartwich from The Centre for Independent Studies.

The 2010 EA Infrastructure Report considers that it is "essential to increase rail freight to accommodate the greater freight task…" and to this end, it is necessary to improve the interstate and regional freight lines, plus develop multi-use intermodal terminals. Improved separation of freight and passenger trains is "particularly needed in Sydney and Brisbane". The relative low pricing of road freight is noted and ensuring 'user pays' is an issue (p19) *"that will need to be addressed sooner rather than later."*

Attention is also drawn to a 2012 report *Can we afford to get our cities back on the rails?* of the Grattan Institute. The paper looks back to the 19th Century, and towards the end, after reviewing a number of potentially valuable projects, and possible measures of part funding them, concludes:

> None of these measures are politically easy but there is evidence that voters have a big appetite for change in urban transport. In a 2011 survey for the National

Transport Commission close to half the population agreed they would - like to be able to drive less - and more than four in five agreed that the government should develop more public transport services to give people a realistic alternative to driving. With political leadership and a clearer linking of costs and benefits, new urban rail lines might yet have a place in our future transport mix.

Perhaps the most obvious lesson of history is that urban passenger rail is a long-lived asset that can benefit a city more than a century after it is built. As J.J.C Bradfield wrote about the Sydney Harbour Bridge: ―Future generations will judge our generation by our works.

2.1 Completion of the Maldon Dombarton rail line

During 2013, the issue of the adequacy of the existing South Coast railway came up when Boral, as operators of a quarry at Dunmore, in Shellharbour, applied to put an extra 500,000 tonnes of quarry products on main roads to Sydney. Despite current NSW Government planning statements supporting more bulk freight being moved by rail, the NSW Department of Planning in February 2014 gave approval to Boral to increase road haulage of quarry products from its Dunmore quarry. The relevant Director General's report noted that *"Boral is unable to increase the amount of product supplied by rail to its other rail terminal at St Peters beyond that terminal's capacity to receive 1 Mtpa, as it is unable to gain access to additional rail paths or utilise longer trains;…"*

In April 2014, NSW Ports Consortium, which leased the Port Botany along with Port Kembla for 99 years from the NSW government in 2013 for $5.1 billion, announced it was seeking NSW Government approval to handle 16 million tonnes of bulk cargo a year through Port Kembla. This was up from a previously approved 4.25 million tonnes at its multipurpose cargo wharf. Incredibly, the claim was made that "All additional bulk cargo volumes (16 million tonnes per annum) would be transported by rail. " This was greeted with some skepticism.

In late 2014, the NSW Government invited expressions of interest from the private sector to complete this line. Two submissions were received by April 2015, were reviewed, and neither was taken up by the NSW Government. It is likely that some government funding will be required to facilitate this rail link.

The constraints on existing roads and railways and the ongoing expansion of Port Kembla mean that the case for completing the 35 km Maldon - Dombarton link is now stronger than it was in 1988 when worked on it was suspended. Completion of the rail link will bring benefits in separating freight and passenger trains, not only to Wollongong and Port Kembla, but also Sydney and other parts of New South Wales.

2.2. Parramatta-Epping rail link/ Sydney Second Airport

In 1998, an official NSW Government statement *Action for Transport 2010* listed a number of rail projects for completion. These included the 28 km Parramatta Rail Link by 2006 at an estimated cost of $1.4 billion. Instead, the 12.5 km Epping to Chatswood section opened on 23 February 2009, at a cost of about $2.3 billion.

A Parramatta-Epping rail link, and/or a rail connection to Sydney's proposed second airport, would deliver more long term benefits.

2.3 Regional considerations

We start with the largest regional cities of New South Wales. "As Newcastle and Wollongong grow in size and importance to the NSW economy, they need faster and more efficient links to Sydney" (Transport for NSW 2012, Draft Transport Master Plan as noted by the 2012 State Infrastructure Strategy of NSW) Infrastructure NSW.

This report "assesses how faster rail journeys from the Illawarra and Central Coast to Sydney would help enable this integration and support these regions." … also, this 2012 report on page 107, notes "An incremental program to accelerate the intercity routes is proposed, with a target of one hour journey times to Sydney from both Gosford and Wollongong, and a two hour journey time from Newcastle. The focus of the program will be operational improvements supported by targeted capital works to reduce journey times."

2.3.1 Faster trains to Newcastle

Faster trains between Sydney and Newcastle were promised in 1998 in the official NSW *Action for Transport* Statement to be delivered in two stages, the first stage by c2007.

The worst aligned sections of track linking Hornsby and Newcastle are now overdue for realignment. This section is now one of the most congested sections of double track in Australia, albeit more from frequent passenger trains rather than from commercial freight activity.

One simple strategy would be to revert to the alignment in place in the late 19 th Century. This would save about 3 km of point to point distance. Grade and curve easing of the original alignment would give further benefits.

Other ways of speeding up Newcastle Sydney trains include higher speed turnouts at various locations, easing of tight radius curves, and the use of new higher powered trains. To achieve the two hours transit time, work will be needed on several fronts.

2.3.2 Wollongong to Central Station in one hour by train ?

Faster trains between Sydney and Wollongong were promised in 1998 in the official NSW *Action for Transport* Statement to be delivered by 2010. This envisaged a new Waterfall-Thirroul Route to reduce train transit times by 15 minutes.

The length of the existing Wollongong - Central track is about 83km. As noted by Oakes CJ, 2003, *Sydney's forgotten Illawarra Railways*, ARHS (NSW), the present track is the result of two deviations; Helensburgh (in sections, completed 1915), and Stanwell Park (completed 1920).

The two deviations were built as double track at easy ruling grades to replace single track on steep 1 in 40 ruling gradients. However, the cost included an additional 5km

of distance, and many tight radius curves.

Wollongong station is some 83km from Central. From Thirroul to Central, the distance is about 70km. The current average speed of about 55 km per hour for the fastest Wollongong -Central trains is too slow. Perth Mandurah and Geelong Melbourne trains average 85 km per hour.

2.3.3 Sydney to Canberra

A Sydney Canberra Higher Speed Train could be developed on an incremental basis.
Stage 1 could be for a new, improved alignment between Goulburn and Yass with a spur line from Yass to North Canberra.
Stage 2 could be for track upgrades from Mittagong to Goulburn amd for a Wentworth route between Menangle and Mittagong that could tie in with the Maldon Dombarton line.
Stage 3 Could be further upgrades to Campbelltown to Sydney, which has recently been upgraded.
All stages would require planning, legislation and environmental impact assessment.
Where possible, new construction should be to Higher Speed Rail standards of 160 to 240 km/hr standards. An indicative cost is $3.5 billion (2014 Michell M Martin S and Laird *Building a railway for the 21st century: bringing high speed rail a step closer,* Conference on Railway Excellence, Adelaide Proceedings p 612 -621).

A Sydney Canberra Higher Speed Train operating by 2020 at speeds up to 200 km/h on deviations and taking less than two and a half hours is quite feasible. This could be followed by more new HSR track and faster trains to get down to the former Speedrail target of 84 minutes, and later down to the 2013 Phase 2 HSR time of 64 minutes (which had an estimated cost of $23 billion).

2.3.4 Maitland to Brisbane

There is considerable scope for improvement here, on top of the work done by the ARTC in recent years. A case study of a major deviation between Hexham and Stroud Road was noted in a 2007 Federal Parliamentary Committee report (The Great Freight Task: Is Australia's transport network up to the challenge? page 116). Here, the construction of 67 km of new track would replace a substandard 91 km section to halve transit times and reduce fuel use by 40 per cent. A Hexham to Fassifern link (see Infrastructure NSW 2012 report) would also give good benefits.

2.4 An inland railway

The commitment to an Inland Railway between Melbourne and Brisbane via Parkes is a positive step forward that has bipartisan support at a federal level. In September 2015 an Implementation Group report was released by the government along with a detailed business case prepared by the ARTC. The estimated cost is about $10 billion (without a new connection to the Port of Brisbane) "but not building it will cost us more," according to Minister Truss.

However, it is now up to Government to accept the recommendations to proceed to completion by 2025, or if expedited, by 2023.

It is to be preferred that new construction be built to Canadian and US Class I Railroad standards rather than existing Australian standards. Both the East-West and North-South rail corridors in Australia have long standing restrictions on axle weights. The current standard in Class I railways in Canada and the United States is for wagons with 286 000 lb (gross weight) which corresponds to axle loads of 31.8 tonnes. This requires track with good formation and heavy rails etc.

In short, the mainline track of Canadian and US Class I Railroads allows for "FAST AND HEAVY" freight trains moving at 100 km/h with 25 tonne or more axle loads. However, the Australian standard over much of the ARTC network (excluding the Hunter Valley coal lines in NSW) is restricted to 23 tonne axle load (TAL) limit for wagons moving no faster than 80 km per hour, or a 21 TAL limit for wagons moving no faster than 115 km per hour.

2.5 Other rail in regional New South Wales

Grain line condition NSW after some deterioration is now being recently addressed. The title of an article in *The Land*, 11 August 2011 says a lot of the state of these lines in 2011: *"Call this a rail system? - 'Third world' branch lines driving freight onto roads."*

As of 2009, more oil has been put onto road tankers, and NSW has subsequently had to deal with some road tanker safety issues. In 2009, the Cowra lines were closed, they now could usefully be reopened. In 2014 the NSW Government invited private sector proponents to submit tenders on how they would restore, operate and maintain the Cowra Lines on a commercially sustainable basis with an expectation that "that the successful bidder will fully fund restoration and recurrent capital works

The tender process was completed in April 2015. However, no tender was selected. As noted by TfNSW and RailExpress, an estimated investment of more than $30 million would be required to restore the infrastructure, with further ongoing maintenance costs estimated at more than $2 million each year. Again, the question has to be asked, is money better spent on more Sydney roads such as WestConnex rather then on rehabilitating rail in regional NSW.

3. Victoria

Melbourne's new 9 km underground metro with five stations will bring many benefits to a fast growing city with construction due to start in 2018. It is a good question as to how much federal funding the project may secure, but in any event, any additional funds that can be secured with value capturing will be helpful.

Melbourne also has an ongoing programme of replacing level crossings. There is also scope for further gauge standardization of freight lines in Victoria.

In addition, it is worthwhile ensuring that sufficient funds are available to do new track work, and track upgrades, to a good standard. For example, the commendable Regional Fast Rail project completed c2006 was compromised by downgrading some double track between Sunshine and Bendigo to single track, with a failure to install gauge convertiable sleepers when new concrete sleepers were being laid.

Regional Rail Link was also compromised by building sharp reverse curves, not only of the North Melbourne flyover itself, but also for the whole section leading from platforms 1-8 at Southern Cross through a Spion Kop Junction. Further west, a failure to build a grade separated intersection (flyover) and in its place a flat junction will require future remediation.

4. Queensland

Brisbane now needs a Cross River rail tunnel with connections to the existing lines.

A draft Queensland infrastructure plan on exhibition in late 2015 gives priority to upgrading the Beerburrum - Nambour track. This track is probably the most congested section of single rail track in Australia and was recognised as congested as long ago as 1994 in the BTCE report of the National Transport Planning Taskforce. The congestion is shown by freight train curfews in peak hours, expanding the Brisbane Rockhampton electric tilt train transit time from 7 hrs to now about 7 hr 30 min, and, ongoing use of the Caboolture - Nambour 'railway' bus.

However, there is a need to further upgrade Queensland's North Coast Line (NCL). As recognized in the c 2007 AusLink Brisbane Cairns Corridor Study (page 17), some rail deviations have been constructed as part of NCL upgrades. In fact, this rail corridor had track straightening undertaken during the late 1980s and the early 1990s. However, as noted (page 17 again) "… *the horizontal alignments and vertical grades between Nambour and Bundaberg remain poor and are a major impediment to attaining any further improvement in transit times and train length."*

Along with duplication and deviations of the Caboolture - Landsborough - Nambour section, other desirable Queensland North Coast line deviations could be identified for planning, land acquisition and construction on a policy to include two approaches:

A. Where old wooden or steel bridges that are situated on or near tight radius curves are being replaced, then the new bridge be constructed on an improved alignment to allow for faster freight and passenger trains.

B. A policy be adopted that any section of track with curves that requires trains to slow down to 80 km per hour or less be replaced by a rail deviation built to modern engineering standards (such as 2200 minimum radius curve as used for much of MLU in the 1990s).

One case in point that meets each of the above two criteria is an old wooden bridge at Cabbage Tree Creek, at about 419.5 km (from Roma St) just north of Berajondo. It has a tight radius curve at about 419 km that requires trains to slow down to 50 km/h. Combined with steep grades (1 in 50) nearby, it makes train driving harder and pushes up costs to both train operators and the track owner. This curve was the site of the diesel tilt train derailment in 2004.

On the same Cabbage Tree Creek, as noted in a media release dated 26 November 2015 from the Deputy PM et al *Bruce Highway pavement widening upgrade south of Cabbage Tree Creek completed* about $1m was found for the road bridge. Some federal funds could well be put to good use for a good upgrade of the rail bridge.

5. Energy - an International View

Australia's road vehicles use about 32 billion litres of liquid fuels per annum (*Survey of Motor Vehicle Usage for 12 months ended 31 October 2014).*

In 2004, oil prices were rising, and by mid 2008, oil prices had peaked at about $146 per barrel. Following the global recession, oil prices have since receded and so petrol prices have been restrained. They are currently about $30 a barrel. However, they may be expected to increase over the next decade.

A mid 2014 United States report has examined energy efficiency in 16 OECD countries on the four fronts of national efforts, buildings, industry and transport. The 2014 ACEEE International Energy Scorecard (via http://www.aceee.org) is based on points awarded for 31 key metrics using OECD, International Energy Agency and other independent data. On a combined policy and performance basis, Germany was ranked first, Australia tenth and Mexico last at 16th. Regretfully, (page 16) *"One country in which a clear backward trend exists is Australia."*

Moreover, in the transport sector, Australia was ranked last (16th) with just 7 points out of 25. Of the 8 key metrics, Australia scored zero points for each of three metrics: Fuel economy of passenger vehicles on both performance and the setting of future standards, and, for having no fuel efficiency standards for heavy trucks.

For each of four metrics including the use of public transit, and, investment in rail transit versus roads, Australia scored just one point each. Only in the metric "energy intensity of freight transport" did Australia get full marks. This score was assisted by the very high energy efficiency of the iron ore railways in the Pilbara region of WA. Such a low ranking for transport energy efficiency policy and performance should act as an incentive for Australia to do better.

6. Some Australian views on transport policy

One reason for transport reform is the sheer amount of money spent on road transport. In the early 1990s, research commissioned by the Australian Automobile Association found that the total cost of road vehicle operations, including the fuel they use, buying and maintaining the vehicles, road works, road crashes and external costs was about 11 per cent of GDP. In 2013-14 terms, this is some $173 billion (http://www.rba.gov.au/inflation/measurescpi. html Due to fuel costs and road outlays increasing faster than inflation over the past 20 years, and growing road congestion, this estimate is conservative.

There are numerous hidden costs of road vehicle use, but not including road congestion, leading to leading to a "road deficit" of about 1 per cent of GDP. Road congestion costs add a further 1 per cent or so of GDP. These costs simply cannot be reduced by building more roads.

A consultant's report prepared for Infrastructure Australia "Spend more, waste more. Australia's roads in 2014: moving beyond gambling prepared for Infrastructure Australia" noted, inter alia, that Australia's three levels of government and the private sector are now spending more than $20b a year on road construction and

maintenance and, “between 2008-09 and 2011-12, over $4.5 billion more was spent on roads than was raised in almost all road taxes and charges”.

After noting the need for reform in road pricing, including mass distance location for the heavier trucks, the 2014 report considers that the big annual outlay of roads, which is set to grow even larger at the expense of federal funding of urban rail, is a "road spend [that] can only be described as hideously inefficient."

Accordingly, the review by the Victorian Government of the former East West motorway proposal leading to its cancellation is or merit. Lessons may be learnt from the recent reports of the Australian National Audit Office and the Victorian Auditor General. These raise the valid questions as to what will be the total cost of the 33 km WestConnex (currently $16.8 billion) and whether the money would be better spent on other roads, and rail projects.

It is worth recalling that 20 years ago, a National Transport Planning Taskforce report - Building for the job: A strategy for Australia’s transport network - had 16 pertinent recommendations to improve transparency (including better data), regulation and investment. Twenty years later most of these recommendations are still valid. Yet, as noted then by the taskforce there is a need for “… work to be vigorously pursued to ensure the best transport solutions for Australia into the twenty first centur…Perpetuation of existing arrangements will condemn the nation to ineffective results.”

We are now well into the 21st century and with few exceptions since the mid 1990s for land freight (including formation of the Australian Rail Track Corporation and the completion of the Alice Springs Darwin railway), there has been an over-reliance on “existing arrangements” in Australia.

Yet as the then secretary of the Treasury, Dr Ken Henry, put it in 2002 to a BITRE hosted forum, the projected increases in urban traffic and interstate road freight raised “important issues”; also “Not dealing with these issues now amounts to passing a very challenging set of problems to future generations.”

7. Conclusions

By 2020, the cost of road congestion will rise to more than one per cent of GDP. By 2031, Australia's population will reach about 31 million people. Now, more than ever, Australia needs to change its outmoded transport policies.

There is clearly a need to upgrade rail infrastructure within Australia. There is also a need to address road and rail pricing, as well as value capture. In addition, oil vulnerability needs reducing, and not increasing.

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