Submission to the NSW Dept of Planning re the the EIS for Inland Rail, Narromine to Narribri

Philip Laird, University of Wollongong, February 2021

This submission is based on research conducted at the University of Wollongong. However, the views and research findings are the responsibility of the writer.

1. The inland railway is a concept that is now over one hundred years old and has been the subject of many papers and studies. After much consideration, it was decided that an inland route from Melbourne to Brisbane would proceed through Albury, Junee, Parkes and Moree and that it will involve a rail tunnel under the Toowoomba Range.

2. The inland route is a project that ranks with the Alice Springs - Darwin railway that was finally completed in 2003.

The first Adelaide - Darwin freight train ran in January 2004 and the first passenger train ran in February 2004. After 17 years of operations, freight tonnages have significantly exceeded initial projections. The line continues to carry passengers.

3. In May 1998, FCL opened an intermodal terminal at Parkes. In 1999, a rail triangle at Parkes was opened. This was to facilitate train movements from Cootamundra to Goobang Junction and then to Broken Hill (and hence Adelaide or Perth). Further intermodal facilities have since been built at Parkes and another rail triangle was recently completed.

4. In 2004, the Australian Rail Track Corporation (ARTC) took a 60 year lease over the NSW interstate mainlines and Hunter Valley coal lines. This lease was later extended to include rail track to Moree. The ARTC was given in 2016 the responsibility of overseeing the construction of new track for the Inland Railway, including and Calvert to Kagaru in Queensland to be delivered by a PPP; all up about 600 km of new track. The ARTC is also overseeing the upgrading of some 1100 km of existing track.

5. The ARTC has had some success with Hunter Valley coal lines and the East - West rail corridor linking Melbourne, Adelaide and Perth.

However, despite an outlay of about $3 billion by the ARTC on the North South corridor between Melbourne, Sydney and Brisbane, this corridor performs poorly. The competitiveness of freight services on the North South corridor is limited due to 'steam age' alignment and low clearances. Both corridors have lower axle loads and restricted train lengths when compared with mainlines of the Class I railroads in Canada and the United States.

6. Central to the success of any Melbourne - Parkes - Brisbane railway is completion of a tunnel under the Toowoomba Ranges. After studies and extensive community consultation going back to 1996 by Queensland Rail, a route between Grandchester and Gowrie was protected by Queensland Transport in 2004. This included a tunnel of length 6 km.

It is appropriate that the Queensland option has been adopted. The results of the PPP process are awaited.

7. If an inland rail link from Melbourne to Brisbane through Parkes is to succeed, it will have to be built to a much higher standard than much of the North-South corridor in terms of key performance indicators.

These indicators include axle loads, average speeds, ability of carry double stacked containers, length of crossing loops and the number of temporary speed restrictions (the fewer the better). The speed-weight capabilities depend on the track quality in terms of formation, weight of rail, sleepers as well as alignment (both gradient and curvature).

Further information is given in two independent 2014 Conference on Railway Excellence papers: *Productivity goals – the next steps* by Phillip Imrie and *A competitive interstate rail freight and passenger network* by Philip Laird.

Attention is drawn to a communique of a 2012 "Melbourne to Brisbane Inland Rail Symposium" hosted by the Parkes Shire Council together with the NSW Local Government and Shires Association. At this event, bipartisan support was expressed for completion of an inland railway. A debate took place as to construction standards, with a communiqué (at www.inlandrail.com.au), inter alia, calling for *"... a*

modern, high standard railway from Melbourne to Brisbane that will be able to transport freight in a highly efficient way. A railway built to "future-standards" will serve the nation for centuries."

Further comment on standards follows in Appendices A and B.

8. It is submitted that what Australia needs for its new interstate railway is one built to North American Class I railroad standards with attention to axle loads, speeds (where the Queensland standard of a minimum curve radius of 2200 metres should be adopted for all new construction), clearances, and length of crossing loops.

9. It is desirable that the ARTC "service offering" of 24 hours transit time for freight trains between Melbourne and Brisbane be reduced to 22 hours, or even 21 hours.

This question was canvassed at the Inland Rail conference held in July 2018 at Parkes, where Woolworths chief supply chain officer Mr Paul Graham said Inland Rail had been a long time coming and to get produce to market as fresh as possible he would like to see a transit time of 22 hours. Mr James Dixon from Australia Post said 21 hours would be "fantastic".

At this conference, the CEO of Inland Rail at ARTC, Mr Richard Wankmuller, noted that if Australia did not build Inland Rail there would be a "huge increase" in road freight and said the transit time had to be brought "down to 22 hours or less" and it had to be "very straight and very flat" as well as very reliable.

The question of transit times was also taken up in 2020 by members of Senate Rural and Regional Affairs and Transport References Committee in their inquiry into the Management of the Inland Rail project by the Australian Rail Track Corporation and the Commonwealth Government. The Committee's report from this inquiry is awaited.

10. In respect to transit times, this in part depends on curvature. It is noted the 2010 Inland Rail Alignment Study completed for ARTC suggests a ruling curvature of 800 metres should suffice. However, the MainLine Upgrade program of Queensland Rail, and for the Toowomba range tunnel and approaches, a standard of a minimum of 2200 metres was adopted for curves.

For sections of the line from Stockingbingal and Forbes that were completed during World War I, for most curves, a standard minimum radius of 60 chains was adopted. This is about 1200 metres. One hundred years later, with modern earthmoving machinery, Australia should be able to do better than 1200 metres and much better than 800 metres for minimum curve radii.

Curvature not only impacts on transit times, but also fuel use, and maintenance costs for both the track and the rolling stock. The existing North South line from Melbourne to Brisbane to Sydney is clearly substandard in terms of excessive tight radius curvature.

It is surely worthwhile ensuring that the new sections of the inland railway are constructed to a higher standard.

The ARTC Inland Rail history 2006-2019 notes, inter alia, on page 19 that **"**Adopting a route that is as direct as possible has been a critical consideration in route selection. The length of the route and overall transit time between Melbourne and Brisbane drive key economic benefits that underpin the Inland Rail Business Case."

Also **"**Reduced transit time drives lower labour costs (as faster services lower the hourly crew requirements) and improves rolling stock utilisation (meaning a smaller rolling stock fleet can service the total demand), significantly reducing the unit cost per tonne of freight transported.

"Reduced distance also directly reduces fuel consumption and rolling stock maintenance, which together constitute around 30% of rail operating costs."

Page 20 notes three factors as to why transit time and distance are critical to route selection:

Lower transit time is critical for improved reliability,

Lower transit time improves availability; and,

Shorter distance encourages a greater volume of freight to rail.

11. The current proposed length of the N2N section is 306 km. It is noted that the track will bypass each of Coonamble, and Gilgandra, and this is considered appropriate for reducing distance and transit time.

It is also noted that the now proposed route between Narromine and Narribri is not the most direct route that could be adopted, and it appears to have grown in length by some 6 km from the approximate 300

km that in the Narromine to Narrabri Options Report considered at a Community Information Meeting in December 2017.

A quick look at the Map book shows

On Map 16, a curve North of Narromine turning 90 degrees, on a radius that appears to be about 1200 metres. Hopefully this curve is no tighter than 1200 metres, if it could be eased a bit more, that would be helpful to train operations.

On Map 53, and there appears to be a reverse curve. Reverse curves do not assist rail operations at all, and add to increased stress with wear and tear, not only on the wheels and other parts of the train, but also the track. If there is any chance that this could be eliminated, that would help. At the very least, please ensure a minimum curve radius of 1200 metres, with appropriate transition curves between main curves.

On Map 58, and there appears to be another reverse curve. Comments as above.

On Map 95, south of Narrabri, where the track is close to the Newell highway there is a curve. As above, this curve should be no tighter than 1200 metres, if it could be eased a bit more, that would be helpful to train operations.

12. In regards to axle loadings, it is noted that the weight of rail to be used is to be 60 kg per metre. This is commended, as is the capacity for the new railway to move double stacked containers.

The current ARTC crossing loop ruling length is 1800 metres. Class I railroads I in Canada are now moving to 3600 metres (12,000 feet). It is submitted that at least 2700 metres for crossing loop lengths should be used on new construction for an Inland Railway including N2N.

13. It is submitted that all sections of new track, except for minor local roads, should have no level crossings.

14. An inland rail route would reduce road freight on the Newell Highway and so improve road safety. During the 5 years to 31 December 2010, Transport for NSW data shows that 32 lives were lost in road crashes involving articulated trucks on all sections the NSW sections of

the Newell Highway. This was about 52 per cent of all Newell Highway fatalities.

One would have expected a more detailed treatment in the EIS than is given in Section B.11 Traffic and Transport. Five-year crash history data (2013 to 2018) for key roads in the study area is provided in Table B11.5. This raises some pertinent questions:

- is 2018 included in this data (five years starting with 2013 takes one to 2017) ?

-for what sections of the Newell Highway did the 17 fatal crashes occur over the five years – the study area or all NSW sections of the Newell Highway ?

- what was the extent of loss of life ?

- of the fatal crashes, how many involved articulated trucks ?

15. External costs are important. It is submitted that the environmental impact statement could have give non trivial consideration of the external costs for projected freight tonnages under two main scenarios:

A. No completion of an inland railway, and continued reliance on high levels of road freight.

B. Completion of an inland railway to the ARTC proposed standards.

Yet, neither the Executive Summary nor Section B.11 Traffic and Transport bothers to mention external costs.

The NSW Independent Pricing and Regulatory Tribunal of New South Wales in its 2012 Review of Access Pricing for the NSW Grain Line Network gave two sets of values for external costs for road and rail freight in non-urban areas - with each IPART unit value higher than those used by the IRAS. The higher value unit costs (that include an allowance for unrecovered road system costs from articulated trucks of one cent per net tonne kilometre (c/tkm) are, in non-urban areas: road freight 2.79 c/tkm - rail freight 0.24 c/tkm.

The 2009-10 external costs of Melbourne Brisbane land freight could then estimated as: For road freight (3.6 mt) $159m (including $48m for the cost of road crashes on the Newell and other highways) and for rail freight (1.5 mt) $7m

By 2020, assuming inflation at 3% pa the unit external costs would have been: For road freight 3.75 c/tkm and for rail freight 0.32 c/tkm

With no inland route and rail holding a 30 per cent market share, the aggregate external costs are: road freight (5 mt) $294m and rail freight (2.1 mt) $13m

With an inland route constructed to good standards and rail gaining 80 per cent of market share, the aggregate external costs are road freight (1.4 mt) $82m and rail freight (5.7 mt) $29m.

A good quality inland route, on this older data, would accordingly reduce land freight external costs by an estimated $196m per annum.

Estimates of estimated external costs for the two scenarios A and B above in the year 2025 (and also 2030) would be helpful.

16. Energy savings will clearly result from an enhanced inland route. One estimate for diesel use for road freight from Melbourne to Sydney is 35 l/t. With an estimated 5.7 mt of road freight, 49 m litres would be used - for rail freight (5.7 mt at 11.5 l/t) 66 m litres.Without an inland route, diesel use is estimated as: For road freight (5 mt at 35 l/t) 175 m l and for rail freight (2.1 mt at 15 l/t) 32 m l. An inland route reduces diesel use by 92m litres per annum. This would result in a reduction in emissions (CO_2 equivalent) of about 250,000 tonnes per annum.

This must be regarded as a very conservative estimate.

Page 5 of the Exec. Summary of the EIS notes in part: **Improved sustainability**: moving freight by rail is four times more fuel efficient than moving freight by road. Carbon emissions will be reduced by 750,000 tonnes per year and truck volumes will be reduced in more than 20 of our regional towns (based on a 2050 estimate).

This writer would suggest a rail using a factor of about one third rather than one quarter of the diesel fuel than a truck would use. In this case, the 750,000 tonnes per annum of reduced emissions may be high.

However, the shorter and straighter the track is, the higher the rail freight energy efficiency.

17. In conclusion, a Melbourne Parkes Brisbane inland railway has been long proposed and much studied. The time is now right to advance quickly to a start of construction.

Where new construction is undertaken, it should be to North American Class I railroad standards. Like the Alice Springs to Darwin railway, it should be capable of conveying passengers.

An inland rail track completed from Melbourne via Parkes to Brisbane and built to modern engineering standards by 2025 would confer national benefits. These benefits include:
Lower transport costs to users including exporters;
Reduced rail congestion in Sydney;
Safer roads;
Lower road maintenance and construction costs;
Less external costs (over $200m per annum);
Less diesel use (in the order of 100m litres per annum); and,
Less emissions (over 0.25m tonnes per annum).

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29 January 2021

APPENDIX A

In 2007, the House of Representatives Standing Committee on Transport and Regional Services released a report *The Great Freight Task: Is Australia's transport network up to the challenge?* This report noted a need to*"...move beyond the steam age era and build modern railways to cope with the 21 st Century demands."*

This is opposed to a continuation of Australia *"...doing too much patching"*. In short, the Committee set the challenge *"to raise Australia's rail transport to world's best practice"* and considered *"... that it is time that Australia made a national commitment to sharply raising the standard of the rail network to provide a fast, modern, flexible and efficient system. "*

APPENDIX B

In evidence given to an inquiry held on19 November 2020 by the Senate Rural and Regional Affairs and Transport References Committee in their inquiry into the Management of the Inland Rail project by the Australian Rail Track Corporation and the Commonwealth Government, the General Manager of Parkes Shire Council made the following pertinent comment.

Unfortunately the rail network in regional New South Wales is very similar to what it was back […many years ago]. That's definitely a competitive disadvantage for us. From our perspective, if the investment

cycle is 100 years, we need to make sure we plan this railway for the next 100 years. That's very important. It's the tyranny of distance for inland New South Wales that creates a major competitive disadvantage for us.

Our fuel is more expensive, our fertiliser is more expensive, and it's more expensive to get our freight out. We currently have short trains travelling at low speeds with low axle capacity and congested networks and, as a consequence, very high freight costs.

Yet we're competing with the likes of Canada, where they have faster trains, higher axle loadings and much lower costs. That's why we now have a predominance of trucks on our network. Trains in Canada carry up to 10,000 tonnes with highly efficient balloon loop loading compared with trains on our network, which run at a fraction of that.

Through Parkes, for example, we have a truck a minute, 24 hours a day, 365 days a year, and that's set to double. That's just unsustainable. We really need to do something to drive that modal shift.

Parkes has been advocating for a shorter, faster, flatter railway for well over 20 years, firstly as part of the Australian Trunk Rail Group, which later changed to the Great Australian Trunk Rail Group. We were on that initially. Then in 2006 we led the first rail symposium, from which was formed the Melbourne to Brisbane Inland Rail Alliance. …

We held the second Inland Rail symposium in 2012, and again the outputs of that symposium were strong. We need fast, flat railways to be competitive. …

We certainly experienced a major lift during the $300 million Parkes to Narromine section. We're not going to get the advantage of this railway line until it's actually installed, and that's what we're really pushing for. It's imperative, in our view, that the railway be delivered as soon as it possibly can be, and we support the Prime Minister's release that it will be accelerated. That's where the real benefits are from our perspective. This is part of the backbone of the Australia rail network, and it's very important that it be efficient. To drive that modal shift, to get the trucks off the road, we need a railway that's short, fast, flat, and more reliable than trucks.