

## **Submission to the Senate Standing Committees on Rural and Regional Affairs and Transport**

### **Management of the Inland Rail project by the Australian Rail Track Corporation and the Commonwealth Government**

**Philip Laird, University of Wollongong, November 2019**

This submission will address route planning and selection processes along with any other related matters of the Committee Terms of Reference. It will in part update a submission made in June 2014 to the Inland Rail Implementation Group and draws from participation by this writer at Inland Rail conferences held in 2012 and 2018 at Parkes. It will also draw on observations made by the writer in a recent visit (September 2019) to Canada observing both CP and CN rail freight operations. 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 now over one hundred years old, and has been the subject of many papers and studies. Appendix A has a time line about the inland railway.

2. The inland railway is a project that ranks with the Alice Springs - Darwin railway that was finally completed in 2003. The weight of rail for the Northern Territory project was just 50 kg/m (a poor decision in retrospect as 60 kg/m would have been better) and the ruling curvature for most of the 1420 km of track was 1200 metres.

The first Adelaide - Darwin freight train ran 15-17 January 2004 and the first passenger train ran 1-3 February 2004. Freight tonnages have exceeded initial projections and 15 years later, the line continues to carry passengers.

The surveying and protection of the entire Alice Springs to Darwin rail corridor was a major reason why the project, once contractual arrangements were made, could be constructed in the relatively short time of 29 months.

A 2003 booklet "Planning a New Railway: Alice Springs to Darwin" by Des Smith and published by the Railway Technical Society of Australasia gives an definitive account of the survey and planning from 1981 to 1999. This account includes the extensive consultation with Aboriginal people regarding sacred sites, and on occasion moving the proposed line of railway away from sacred sites.

This booklet also has a time line of events for the various lines between Adelaide and Darwin.

3. 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 NSW rail track to Moree.

4. 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 nearly \$3 billion on the North South corridor between Melbourne, Sydney and Brisbane, this corridor performs poorly with a claim that in 2019, rails share of Sydney Melbourne intercapital freight was down to one per cent. The competitiveness of freight services on the North South corridor is limited due to 'steam age' alignment and low clearances.

5. Whilst recognising land holder concerns, it is submitted that construction and completion of an Inland Railway linking Melbourne to Brisbane is in the national interest, and, the new railway should be constructed to modern engineering standards.

6. The House of Representatives Standing Committee on Transport and Regional Services report *The Great Freight Task: Is Australia's transport network up to the challenge?* 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. ”

This should apply to all new sections of the inland railway, with older sections being progressively upgraded to meet modern engineering standards.

7. 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 as opposed to a shorter one identified in revised 2011 Inland Rail Alignment Study (IRAS) for the ARTC.

The IRAS design settled for a ruling curvature of just 800 metres. This is too tight and less than the Queensland standard of 2200 metres. The Queensland Government proposal is a higher standard than the IRAS one with the option of passenger trains to Toowoomba, the corridor is already protected and some land has already been acquired. It is submitted that the Queensland option should be adopted.

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.

8. It is submitted that what Australia needs for its new interstate railway is one built towards North American Class I railroad standards with attention to axle loads, speeds clearances, and length of crossing loops.

In regards to axle loadings, the current ARTC interstate mainline standards are simply too low; and only allow the operation of freight trains with a 23 Tonnes Axle Load (TAL) at speeds up to 80 km/h, or with a 21 TAL at speeds up to 115 km/h. What is required for competitive and productive rail freight operations is to meet the standards of Canadian and United States Class I railroads. Here wagons at 286,000 pounds gross weight, which corresponds to 31.9 TAL are standard on mainlines. Moreover, they can move on some track at speeds of up to 129 km/h (80 mph).

In regards to train length, the writer saw in September 2019 near Lake Louise, a CP grain train 7800 feet long cross a CP intermodal train over two miles in length. The respective lengths, in metric units, are 2377 and 3218 metres. Such trains would not fit into most ARTC crossing loops.

At the July 2019 Parkes Inland Rail conference, the NSW Farmers Association pointed out that it was far cheaper to transport grain from farm to port in Canada than it was here. This is assisted by heavier, longer and faster trains than currently operating in Eastern Australia.

9. Future proofing by the ARTC for the inland railway to 30 TAL is acknowledged, however, the current ARTC mainline standards are suboptimal. Too much emphasis was given in the Inland Rail Implementation Group report to interoperability with a substandard East Coast ARTC network.

The current ARTC crossing loop ruling length is 1800 metres. Class I railroads in Canada are now moving to 3600 metres (12,000 feet). Future proofing to 3600 metres is acknowledged; however, at least 2700 metres should be used on new construction for an Inland Railway. In addition, in as far as possible, all new track should have no level crossings.

In regards to transit time, this was addressed at the July 2018 Inland Rail Conference at Parkes where Woolworths chief supply chain officer 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. James Dixon from Australia Post said 21 hours would be “fantastic”.

The CEO of Inland Rail at ARTC, Richard Wankmuller, noted that if Australia does not build Inland Rail, there will be a “huge increase” in road freight and with support from government, the private sector and communities, Inland Rail “will be delivered.” It has to be “very straight and very flat” and the transit time will be “down to 22 hours.”

However, this will not be possible with tight radius curves down to 800 metres or even 400 metres. It is submitted that ideally, the Queensland standard of a minimum curve radius of 2200 metres should be adopted for all new construction.

At the very least, a minimum curve radius of 1200 metres should be adopted. This is the standard used for almost all of the Alice Springs to Darwin railway.

For sections of the line from Stockingbingal and Forbes that were completed in two sections 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, the ARTC should be able to have a minimum curve radius 1200 metres and certainly do better than 800 metres for minimum curve radii.

10. Although the current inland railway envisages use of the Melbourne Albury Junee rail corridor, the proposals of the National Trunk Railway (NTR and formerly known as the Great Australian Trunk Rail System (GATR)) to have an inland railway via Shepparton rather than Albury are of note. the Queensland Government tunnel option under the Toowoomba Ranges). The NTR proposal would be 1595 km long on a better alignment than the IRAS option and offer 19 hour transit times with the prospect of 15 hour rail express services.

11. Whichever alignment is finally adopted, a corridor will need to be identified and protected. As demonstrated by the road agencies in their highway upgrades, detailed advanced planning including environmental impact assessment and land acquisition does take time.

As noted in 2005 (Track and Signal, Oct-Nov-Dec, page 77) by the then Queensland Transport Minister, Hon Paul Lucas MP, there is a need to “...reserve rail corridor land before it becomes a costly issue.”

12. An inland rail route would reduce road freight on the Newell Highway. 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 the NSW sections of the Newell Highway. This is about 52 per cent of all Newell Highway fatalities.

13. External costs are important. 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 are 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 2025, an inland route could be expected to reduce Melbourne Brisbane inter-capital city land freight external costs by about \$200m per annum.

14. Energy savings would also result from completion of an inland route, broadly estimated to be in the order of 100m litres of diesel per annum.

This would result in a reduction in emissions (CO2 equivalent) from Melbourne Brisbane inter-capital city in the order of 270,000 tonnes per annum.

15. Unresolved questions include the fact that Queensland is yet to sign an intergovernmental agreement with the Australian Government, details of the public-private partnership for the Toowoomba range tunnel, long term financing, and connections of Inland Rail with the ports of Brisbane and Melbourne.

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

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

An inland railway completed by 2025 would confer significant national benefits. These benefits include:

Lower transport costs to users including exporters,

Reduced rail congestion in Sydney,

Safer roads,

Lower higher maintenance and construction costs,

Less external costs (about \$200m per annum),

Less diesel use (about 100m litres per annum), and,

Less emissions (about 0.27m tonnes per annum).

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## **APPENDIX A A time line for the Melbourne - Brisbane inland railway**

1902 (or before) Proposals for a Melbourne - Queensland - Darwin railway.

1915 Andrew Fisher, Prime Minister proposes a railway from the Riverina to Queensland.

1979 Ken Thomas (founder of TNT) "*Making our railways pay*" Sydney Morning Herald on 10 May proposes an inland route from Melbourne to Brisbane with links including Brisbane - Wallangarra - Orange - Albury - Melbourne - Adelaide as well as Sydney - Orange - Perth. The aim was to provide an "inland rail system" to link the five mainland State capitals (which then housed 60 per cent of Australia's population) with provision of an "80 knot" speed capability. This is 148 km/h approaching a modern target of 160 km/h.

1984 Queensland Government proposal (The Australian and Courier Mail 9 October) to construct a new rail tunnel under the Toowoomba Range to service coal exports.

1986 Ian MacFarlane in commenting on above Queensland Government proposal: make it wide enough for standard gauge and high enough for double stacked containers (see Laird P, 1986

*Australian Freight Railways*, 11th Australasian Transport Research Forum (ATRF), Proceedings, Vol 1, p.215-239, Darwin).

1992 An ATRF paper by Rimmer and Dick, *Synthesising Australia; national integration in a dynamic Asia - Pacific Economy* pp 287-306 who noted, inter alia, that "... an inland Brisbane-Melbourne rail link could be achieved at moderate cost...

1994 Two further papers: Davidson K (1994) *A minimum cost proposal for an inland standard gauge rail link between Melbourne and Brisbane*, Progressive Rail Association, and, Endersbee L (1994) *The Asian express, a proposed fast freight service to Asia*, Australian Academy of Technological Sciences and Engineering.

1995 The National Transport Planning Taskforce noted [p11]: "*The road length between Melbourne and Brisbane is 1570 km, a distance over which rail should be competitive. However, rail only carries 21 per cent of the long-distance freight. Rail traffic has to pass over more difficult terrain than road, through Sydney, and over a distance 24 per cent longer than road. Road traffic [covers...] the door-to-door distance in 22 hours, compared with rail which requires 37 hours from terminal to terminal.*"

1996 Bureau of Transport and Regional Economics, report, *Economic effects of a Brisbane - Melbourne inland railway*.

1998 May FCL opened an intermodal terminal at Parkes.

1998 An ATRF paper Laird, Michell and Adorni-Braccesi, 1998, *Melbourne -Brisbane rail upgrading options - Inland or Coastal*, Sydney, Vol 22, p 243-258), notes, inter alia, that an inland route could reduce Melbourne-Parkes-Brisbane transit time to 21 hours

1999 A rail triangle at Parkes was opened to facilitate train movements from Cootamundra to Goobang Junction and then to Broken Hill (and hence Adelaide or Perth).

1999 Federal \$300,000 pre-feasibility study into a Melbourne - Brisbane inland railway proposed as part of a Melbourne - Darwin link by an Australian Transport and Energy Corridor Pty Ltd (ATEC).

2000 This study reviewed by the BTRE with an economic analysis of an option which envisaged use of much of the existing track between Melbourne and Brisbane.

2001 An inland route was further reviewed as part of the 2001 ARTC Track Audit.

2001 Two papers given at the 13 th International Rail Track Conference in Canberra. Bagget K *Australian Inland Rail Expressway-Melbourne to Brisbane; matching infrastructure to operational needs*, and, Laird, Michell and Adorni-Braccesi, 2001, *Melbourne - Brisbane existing track and inland route simulated train performance*

2004 After studies and community consultation going back to 1996, the Queensland Government protects a new Grandchester-Gowrie rail corridor with provision for a 6 km tunnel with new track having a ruling curvature of 2200 metres.

2006 Intermodal facilities opened near Goobang Junction by SCT.

2006 North-South Rail Corridor Study identifies four possible corridors for the inland railway. It concluded that the most cost-effective option - needed by 2019 - was what it called the 'far western sub-corridor', which would involve building the railway through Parkes and western New South Wales.

2007 A Melbourne - Brisbane AusLink draft corridor strategy noted Melbourne - Brisbane intercity freight rising from 4.5 million tonnes per annum (mtpa) in 2004 (mostly by road) to 12 mtpa by 2029.

2008 ARTC's first commissioned report on the inland rail - taken to task for perceived deficiencies.

2010 Final Inland Rail Alignment Study report completed.

2012 June 21-22 Parkes Shire Council with the NSW Local Government and Shires Association hosts the "Melbourne to Brisbane Inland Rail Symposium" Bipartisan support is expressed for completion of an inland railway, with \$300m allocated in forward estimates. A debate takes place as to construction standards, with a communiqué 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."

2013 New Coalition government commits to completion of an inland railway.

2014 An Inland Rail Implementation Group formed. Their report is released later in 2015 with a business case for Inland Rail was prepared by Price Waterhouse Cooper. This was subsequently assessed by Infrastructure Australia and placed on their list of priority projects in 2016.

2014 July An article *The Inland Railway - for better or worse* by Max Michell appears in Railway Digest (p32-38).

2017 May The federal budget commits \$8.4 billion to build the Melbourne to Brisbane Inland Rail, the Commonwealth's biggest rail project in 100 years, that will build a dedicated high productivity rail freight corridor. A \$10 billion National Rail Program for urban and regional passenger rail projects that reduce travel times is also announced.

2017 September After a review of four options, the preferred section of the Melbourne to Brisbane Inland Rail corridor between Yelarbon and Gowrie has been determined to run through Pittsworth, Brookstead and the Wellcamp-Charlton industrial precinct.

2017 Intermodal facilities opened at Beaudesert by SCT for their Melbourne Brisbane trains

2018 March agreement signed between the Federal Government and Victorian Government regarding Inland Rail and the North East Rail Line in Victoria.

2018 July The Federal and New South Wales Governments sign a Bilateral Agreement with a commitment to negotiate a new long-term lease with the ARTC and protect the rail corridor and guidelines for the delivery of new sections of Inland Rail within NSW, including the 307 km corridor of new rail between Narromine and Narrabri.

2018 July ALC/ARA Inland Rail conference held at Parkes, attended by 400

2019 March Release of a CSIRO report *Inland Rail Supply Chain mapping*

2019 March Expressions of Interest invited to design, build, finance and maintain the section from Gowrie outside Toowoomba to Kagaru near Beaudesert.

2019 August A well attended (450) Inland Rail conference held at Toowoomba

2019 August Trackwork near Parkes to form link between Inland Rail and the interstate east-west line from Sydney to Perth is completed.

2019 October Intermodal facilities opened near Goobang Junction by Pacific National.

