

Rail Futures Institute

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Submission to inquiry into National Freight and Supply Chain Priorities

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This paper has been prepared by Rail Futures Incorporated in the public interest. Rail Futures Institute is an independent non-partisan group formed to advocate cost-effective rail and intermodal solutions for public transport and freight problems based on sound commercial, economic and social reasoning. Rail Futures members include experienced rail professionals, engineers and economists.

Secretary:
Dr E W Russell,
PO Box 1257, Carlton Vic 3053.

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Submission to the Inquiry into National Freight and Supply Chain priorities

Introduction

Efficient, low cost supply chains are critical to Australia's export competitiveness and the nation's growing freight task. The freight task increased 50% in the ten years to 2016 and is predicted to increase by a further 26% in the next 10 years¹. Transporting this export and domestic freight task will require increased supply chain infrastructure and capacity.

Supply chain efficiency supports economic efficiency and jobs growth. According to the Australian Logistics Council, each 1% increase in logistics productivity is estimated to increase the nation's Gross Domestic Product by \$2 billion². Australia's supply chain sector employs 1.2 million people and accounts for 8.6% of Gross Domestic Product, adding \$131.6 billion to Australia's economy in 2013³.

Efficient supply chains are especially critical to Australia's food and fibre industries particularly with growing opportunities in Asian markets. In Victoria, for example, the food fibre sector comprises 30% of exports of goods and services⁴ and employs 191,700 people⁵. Victoria has the highest value of national food and fibre exports worth \$11.9 billion or 26% of the national total (Queensland is second at \$8.5 billion or 19%)⁶. Supply chain costs average 18% of Australian food production costs⁷ and 30% of grain production costs⁸ (40% in Canada⁹). Similarly, Australian Paper, Gippsland's largest employer in Victoria's south-east, relies on efficient low-cost supply chains to compete with imported paper products and to compete in international markets.

Rail freight is an integral component of these and many other domestic and export supply chains supporting primary and secondary industries throughout Australia. Major logistics companies such as Linfox, TNT, Toll, DB Schenker, CEVA, Qube and SCT Logistics are significant users of Australia's interstate rail freight network for low cost, efficient domestic freight transport. Policies which support rail's role in the nation's freight transport task will improve overall supply chain efficiency by providing an alternative to trucks for transport of large volumes of goods.

The National Freight and Supply Chain Strategy needs to address the following key issues:

- Continued investment in rail network capacity and condition for freight
- Regulatory reform including road pricing and simplified regulations applying to rail freight
- The impact of bigger trucks on rail freight and overall supply chain efficiency
- Metropolitan port rail shuttles
- Protection of existing and proposed rail freight corridors and intermodal terminal sites
- Support for the uptake and application of new technology and processes, particularly those that will improve connectivity between freight train operators and their customers , to reduce costs and improve operational efficiency

¹ *Who operates where*, National Transport Commission, 2016, pxx

² *Ibid*, pi

³ *The Economic Significance of the Australian Logistics Industry*, Australian Logistics Council 2014, p1

⁴ *Australia's Trade by State and Territory 2013-14*, Department of Foreign Affairs and Trade, , pp32

⁵ *Food and Fibre discussion paper -July 2015*, Victoria's Future Industries, , p4

⁶ *Victoria's Food and Fibre Export Performance 2015-16*, Department of Economic Development, Jobs, Transport and Resources, , p4

⁷ *Transport Costs for Australian Agriculture*, Australian Farm Institute 2011, p26

⁸ *The Cost of Australia's Bulk Grain Export Supply Chain*, Australian Export Grains Innovation Centre 2014, p33

⁹ *Canada challenges Australia's grain supply chains*, Australian Export Grains Innovation Centre 2015, p36

Role of rail freight in supply chains

Rail freight is inherently the lowest cost form of land transport. In practice while rail handles the majority of high volume and bulk freight it does poorly in most cases in the general freight market. There are many reasons for this, but particularly the relocation of producers and manufacturers from proximity to rail freight facilities and the concurrent dis-connect of rail from the true generators of freight (the customers of the organisations which are the customers of rail).

However, rail freight requires significant modernization and catch-up infrastructure investment so it can have an increased role in the nation's growing freight task to reduce the economic, social and environmental costs of freight transport. In some supply chains, such as interstate east coast general freight, rail freight is significantly underutilized compared to its potential.

"Freight rail will need to play a growing role in the movement of goods."

- Infrastructure Australia Audit Report, May 2015, p8

In order to maximize the benefits of rail freight to national and regional supply chains governments need to provide a supportive transport environment for rail freight customers and operators. This requires investment in track upgrades and ongoing maintenance so that rail freight operators can provide the services their existing and potential customers need and from which Australia's economy will benefit as the freight task grows.

A priority of the national freight and supply chain strategy should be investment in new and upgraded open access intermodal terminals by governments and the private sector to handle freight more efficiently. Terminals are the interface where freight is aggregated into train loads (or part loads) or disaggregated into customer loads. No amount of 'on time' train running will be of value to a customer if terminals are not run on the same service oriented basis. Customers require reliable (highly predictable) end to end freight haulage, not just on time train running. Terminals have the ability to convert an efficient rail freight operation into 'non-service' as far as the customer is concerned. The on-time availability of freight to rail customers is highly dependent on the structural, operating and interface arrangements of rail freight terminals. No amount of quality train running will overcome an inefficient terminal.

The rail industry also needs to implement more new technology to improve customer service and operations, particularly to address rail freight's declining non-bulk freight market share. Freight train operators are essentially wholesalers of line haul freight, but should be more involved with their customers' customers, loosely described as 'first and last kilometre' transactions.

Rail freight is also important to supply chains over relatively short distances.

"There are numerous short-haul urban and regional rail flows in Australia and overseas that lie well below this conventional 1,000 kilometres, indeed to under 30 kilometres."¹⁰

- Bureau of Industry, Transport and Regional Economics

Various freight trains in Australia fall into what is termed 'short-haul rail', traversing distances much less than the 'conventional' view that rail freight is only viable over distances 1,000 kilometres or greater. These 'short-haul' freight trains have an important role in supply chains – for example, transporting stone 65 kilometres from Kilmore East in Victoria to facilities in Melbourne, cement 20 kilometres from Railton to Devonport in Tasmania, woodchips a similar distance to the Port of Albany in Western Australia or the many 'short haul' regional container trains which operate on the east coast including in Tasmania.

¹⁰ Why short-haul intermodal rail services succeed, Bureau of Industry, Transport and Regional Economics, Research Report 139, 2016, p1

Benefits of rail freight investment

“Using rail to transport containers between the hinterland and ports can reduce road congestion, noise and air pollution.”¹¹

- Bureau of Industry, Transport and Regional Economics

Underinvestment in rural and regional rail freight services leads to increased use of trucks. This increases the cost of transport to rural communities by increasing road wear and tear on lightly constructed rural roads and bridges, causing more road accidents and using three times more fuel than rail transport. The cost of repairing roads damaged by heavy trucks is a major issue for local government in both urban and regional areas, which at this stage is not covered by any effective form of user cost recovery. An efficient rail freight network is critical to regional development by lowering line haul transport costs for regional producers. Victoria’s western grain lines demonstrate the benefits of upgrading rail lines to reduce road maintenance costs and improve road safety.

When the rail line between Melbourne and Adelaide was converted from broad gauge to standard gauge in 1995, it isolated three broad gauge western grain lines including to the Port of Portland. The Victorian government had to decide whether to move all the previous rail hauled grain by road (typically around 870,000 tonnes per year) or to convert the three lines to standard gauge to enable rail haulage of grain to Portland to continue.

Analysis of the options undertaken by the Victorian Department of Transport¹² concluded that the most cost-effective method of transporting grain in western Victoria was by converting the three lines to standard gauge for \$20 million. This provided the greatest benefit to the (then) Grain Elevators Board, the Port of Portland, local councils and other industry groups including growers.

The one-off \$20 million cost of converting the western grain lines to standard gauge was significantly less than the \$30 million cost of upgrading the region’s road network and the additional \$7.5 million per annum in road maintenance costs that would have been required to transport the grain by road. This investment greatly improved road safety and reduced road damage by keeping 22,000 grain truck trips off the region’s roads each year.

A study undertaken for TasRail, Tasmania’s rail freight operator, found that the state’s rail freight network provides annual benefits of \$26 million to the Tasmanian economy¹³. TasRail transports 2.6 million tonnes of freight per year and 50% of contestable freight between rail and road on transport corridors served by rail.

The study found that TasRail’s annual benefits comprised \$7 million savings in road crash costs, environmental savings of \$1 million, \$9 million in road maintenance costs and \$9 million in transport cost savings to business and industry. The study estimated that these annual savings will increase so that by 2019 TasRail’s value to the Tasmanian economy will be worth \$159 million over five years.

Similarly a 2010 report by the UK’s Network Rail, ‘The Value and Importance of Rail Freight’, found that UK rail freight boosted the economy by 870 million pounds annually (A\$1.6 billion). The social benefits from reduced congestion, noise, road crashes and pollution were estimated to be 376 million pounds (A\$700 million).

These examples clearly show the economic, social and environmental benefits of investment in rail freight as a key component of Australia’s supply chains to meet the nation’s increasing freight task.

¹¹ BITRE op cit, pv

¹² Review of Grain Transport in Western Victoria, Victorian Department of Transport (1993)

¹³ Tasrail – Delivering value for Tasmania 2015

Safety

A primary focus of national supply chain priorities should be to improve road safety by reducing the amount of freight transported by trucks. Increased investment in rail freight can reduce the number trucks on roads and the number of road crashes involving trucks.

“Reducing the number of trucks will make our rural roads safer.”¹⁴

– Brett Hosking, Victorian Farmers Federation Grains Group president

The social cost of road crashes in Australia is estimated to be \$33.16 billion per annum¹⁵. To put this in context, over 200,000 Australians were killed in road crashes in the 20th century¹⁶, more than double the 90,000 Australians killed in World Wars I and II and the Korean and Vietnam Wars.

For every 100,000 people in Australia there are 5.07 road deaths compared with just 0.03 involving rail transport¹⁸. Heavy trucks account for only 2.4% of vehicle registrations and 7% of vehicle kilometres, but are involved in 16% of road crash fatalities¹⁹. The percentage of people killed in crashes involving articulated trucks since 2007 has remained constant at around 10% of all road fatalities²⁰ despite the overall decrease in total road deaths over that time. At a cost per road fatality of \$7.8 million²¹, the cost of road fatalities involving articulated trucks is nearly \$1 billion per annum.

Life insurance industry research has found that the trucking industry is one of the most dangerous occupations in Australia²². According to the industry’s research, truck drivers are ten times more likely to die at work than any other occupation. A road safety operation by police in northern Victoria in early 2013 found that 80% of trucks inspected had major safety defects²³. Another road blitz by Victorian police in March 2017 found that 3% of truck drivers tested positive to driving under the influence of drugs, nearly double the national average²⁴.

The Transport Workers Union informed a 2015 Senate road safety inquiry, *Aspects of Road Safety*²⁵, that low-cost contracts given by major retailers to trucking industry sub-contractors forced drivers to skip breaks and drive in a stressed and tired state with over-loaded vehicles:

“Drivers are killed and blamed for taking risks to meet the demands of companies like Coles. Until we address the top of the supply chain the carnage will continue.”²⁶

The retail industry is responsible for 40% of freight movement in Australia with Coles and Woolworths having 80% of that task²⁷. An audit of three transport operators at the Coles Distribution Centre at Eastern Creek in NSW found 126 breaches of National Heavy Vehicle Regulations. These included drivers being forced to log loading and unloading time as rest time and drivers being denied rest time after 11 hours driving²⁸.

In 2017 the Transport Workers Union provided further evidence to the same Senate inquiry:

“In the past year deaths from articulated trucks are up 7.2% and deaths from rigid heavy vehicles are up 4.1%.”

¹⁴ Swan Hill Guardian, 11/4/16, p2

¹⁵ *The Cost of Road Crashes in Australia 2016: An Overview of Safety Strategies*, Australian National University,

¹⁶ *Information Sheet 38 - Road Deaths in Australia 1925-2008*, BITRE,

¹⁸ *Australian Infrastructure Statistics*, BITRE 2016 p129

¹⁹ *Information Sheet 78: Heavy Truck Safety: crash analysis and trends*, BITRE 2016

²⁰ *Fatal heavy vehicle crashes Australia Jan-Mar 2017 and Road deaths Australia March 2017*, BITRE

²¹ Australian national University, op cit

²² *Life Insurance Finder* 20/10/14

²³ Police heavy vehicle inspections as reported in Bendigo Advertiser 6/2/13 and Swan Hill Guardian 8/2/13

²⁴ *The Age*, 23/3/17

²⁵ *Aspects of Road Safety 2015*, Senate Standing Committees on Rural and Regional Affairs and Transport inquiry

²⁶ *Seymour Telegraph*, 15 July 2015, p14

²⁷ Senate Standing Committees on Rural and Regional Affairs and Transport inquiry, op cit

²⁸ *Ibid*

A 2016 truck survey by the National Heavy Vehicle Regulator²⁹ found that 23% of heavy vehicles surveyed (7,130) had major non-conformities. Brakes had the highest rate of major non-conformities (11% of vehicles) followed by steering and suspension issues (4% of vehicles). These types of heavy vehicle defects clearly present a significant road safety risk to other road users.

Official data and truck accident levels show that truck driver non-compliance with regulations involving drugs, over-loading, speeding, log book entries, truck roadworthiness and other regulations continues to be a serious problem. Roadside weighbridges for trucks are rarely open.

“There is a considerable difference between rail operators and road transport companies in terms of safety systems with rail operators being at best practice.”

- Australian Transport Safety Bureau³⁰

Sample statistics from National Transport Insurance’s 2017 crash report³¹, due for release in August this year, show that fatigue related truck crash rates are the worst since 2007 at 12.2%. In non-fatal multi-vehicle collisions – the heavy vehicle was found at fault 60% of the time.

Improvements to roads, truck driver training and truck maintenance processes may contribute to fewer road crashes involving trucks. There is also an argument that bigger trucks, such as B-triples, have a lower road crash rate than smaller trucks such as standard semi-trailers³². However, AustRoads³³ notes that bigger trucks are generally regulated to freeways or other suitable roads where the crash rate for all vehicles is lower than for other roads. AustRoads also commented that these vehicles have more experienced drivers and closer management attention.

A more cost effective way of reducing the annual \$33 billion cost of road crashes is greater use of rail freight. A 2,000 tonne freight train, for example, keeps 50 B-double trucks off roads. In Victoria alone, rail freight services transport 13 million tonnes of freight each year safely and efficiently keeping half a million truck trips off the state’s roads annually or 1500 truck trips per day.

Rail freight cannot transport everything, but more use of rail freight, where necessary integrated with local road freight tripping, would help reduce the number of road crashes involving trucks.

Energy efficiency and greenhouse gas emissions

Reducing the environmental impact of freight transport should be integral to supply chain priorities. Increased use of rail freight can reduce Australia’s greenhouse gas emissions from supply chains.

Transport contributed 18% of Australia’s greenhouse gas emissions in 2016³⁴. Transport emissions were 52% higher in 2016 than in 1990³⁵. Road transport causes 84% of transport emissions (road freight 21%) compared with 3.5% for rail transport³⁶. Australia’s greenhouse gas emissions from transport are the eighth highest in the world because of the nation’s high use of road transport³⁷.

Rail freight is over three times more fuel efficient than road freight. Rail freight uses only 0.30 Megajoules of fuel for each tonne kilometre of freight transported compared with 0.95 Megajoules of fuel used per tonne kilometre by trucks³⁸.

²⁹ National Roadworthiness Baseline Survey National Heavy Vehicle Regulator 2017

³⁰ Rungoo level crossing inquiry, Australian Transport Safety Bureau report QT 2459, 2008 (Qld), p99

³¹ Australasian Transport News

³² Moving More with Less, VicRoads 2014, p3

³³ Quantifying the Benefits of High Productivity Vehicles, AustRoads 2014, pp 18&22

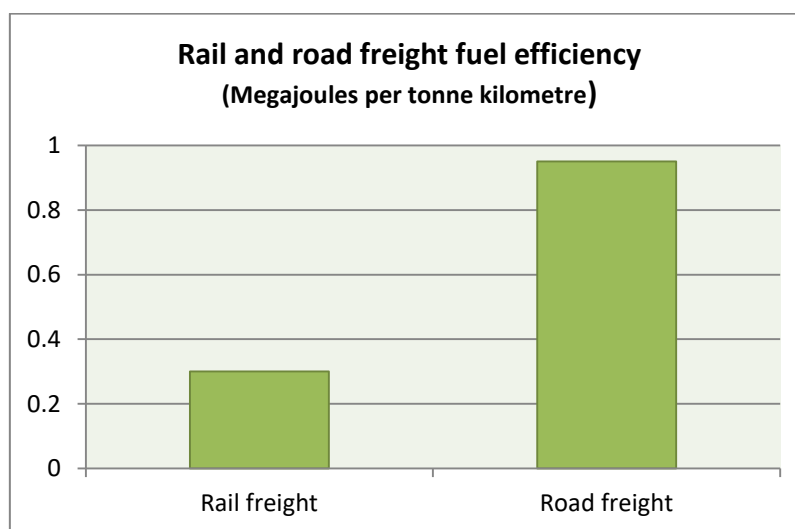
³⁴ Quarterly Update June 2016, Australian National Greenhouse Accounts, p8

³⁵ Ibid, p8

³⁶ Australian Infrastructure Statistics 2016 BITRE, p156157

³⁷ CO2 Emissions from Fuel Combustion 2009, International Energy Agency, p69

³⁸ Victorian Transport Facts 2011, pp181&185



Rail freight is still twice as energy efficient as road freight even after the ‘full fuel’ cycle is considered. This takes into account fuel use from all aspects of the transport task including line haul, road pickup and delivery, energy production and distribution, manufacture of transport equipment and construction of roads and railway lines (the ‘full fuel’ cycle)³⁹.

Impacts of increased freight demand

“The freight task is going to grow and we won’t have enough trucks to carry it. We need rail and we need the rail network to develop.”

- Peter Anderson, CEO Victorian Transport Association⁴⁰

Increased use of rail freight as the nation’s freight task grows has significant economic benefits:

- fewer road deaths and injuries from crashes involving trucks
- reduced road damage and road maintenance costs - these are already a significant cost burden for local councils
- improved amenity and health issues through reduced congestion, noise, dust etc. from trucks
- decreased fuel use and greenhouse gas emissions
- retention of jobs in regional areas from the operation of intermodal freight terminals and rail freight services
- reduced costs to regional producers
- less road congestion in and around ports and on inner suburban roads.

Rail freight also supports regional development. For example, a direct rail link to Melbourne from the Murrumbidgee Irrigation Area (MIA) could increase rail freight market share from the area from 40% now to over 70% as well as increasing overall market growth. This includes products such as cotton and tree nuts, which are starting to be developed in the MIA, but which need lower cost transport in order to fully develop their market potential.

The alternative to rail having a bigger role in Australia’s future freight task is increased number of trucks on the state’s roads and the consequent negative effect of that on road funding and maintenance costs, road safety and other amenity issues.

³⁹ Research Report ARR 318, ARRB Transport Research 1998, p50

⁴⁰ Ballarat Courier 13 May 2015, p10

Neglecting rail freight as the freight task grows would cause

- increased road deaths and injuries from crashes involving trucks
- increased road damage and road maintenance costs - these are already a significant cost burden for local councils
- amenity and health issues (congestion, noise, dust) from increased truck use
- increased fuel use and emissions causing pollution and climate change
- job losses in regional areas from closure of intermodal freight terminals and withdrawal of rail freight services
- increased costs to regional producers
- increased transport land take from wider roads
- increased road congestion in and around ports and on inner suburban roads

From a local government perspective the increasing size and volume of trucks on local roads is a major maintenance cost issue with flow-on effects to the economic viability of small communities.

“Upgrading the rail network would reduce the proportion of council budgets deployed for road infrastructure, enabling those funds to be used for much needed community and social infrastructure and services to benefit the community more widely”

- Rural Councils of Victoria submission to Switchpoint, August 2007

Inland Railway

The Federal Government’s \$8.7 billion investment in the Melbourne to Brisbane Inland Railway is an extremely welcome investment which will greatly improve Australia’s east coast supply chains. There is presently 11 million tonnes of land freight transported annually in both directions between Melbourne and Brisbane of which rail’s share is no more than 25%⁴¹ and possibly much less. By 2030 it is estimated that this freight task will be 32 million tonnes. The Inland Rail link is predicted to increase rail mode share in the corridor to over 60%⁴². This will significantly reduce growth in the number of trucks traversing that corridor with the consequent positive effects on road safety, road maintenance, fuel use and town amenity.

The Inland Rail project will:

- avoid the congested Sydney rail network and the slow and winding north coast NSW rail line
- enable faster and more reliable freight train transit times of around 24 hours terminal to terminal, which is close to city to city truck times
- make the Newell Highway safer by reducing the growth in truck transport
- provide significant benefits for regional producers in western/northern NSW wanting to get containerised agricultural products to port more quickly and cheaply than now (choice of Brisbane, Newcastle, Port Botany, Port Kembla, Melbourne or Geelong)
- enable Melbourne -Brisbane freight trains to have access to part of Australia’s richest farming land in NSW and Queensland
- reduce train operating costs and allow better equipment utilisation which will lower rail freight costs and enable more competitive rail freight rates on the corridor
- enable double stack freight trains to operate between Melbourne and Brisbane (although this requires significant investment in a new interstate rail terminal in Melbourne’s outer west or north to avoid height constraints of the Bunbury Street tunnel under Footscray in the inner west)
- a link at Parkes in western NSW for interchange of rail freight between the north-south and east-west corridors
- improved rail access for export agricultural products from inland NSW to Melbourne or Brisbane

⁴¹ *Interstate freight in Australia*, BITRE Research Report 120, 2010, p79

⁴² *The Case for Inland Rail*, Australian Rail Track Corporation 2017, p14

- potential removal of thousands of truck trips off the north-south freight corridor each year with consequent savings in road construction, road damage, road crash costs and freight transport fuel use and emissions

The main issue with the proposed inland rail line is the choice of route and construction standards. There are two main options – the Government/Australian Rail Track Corporation (ARTC) route and a largely private consortium route under the banner of National Trunk Rail (NTR). Both options between Parkes and Toowoomba differ primarily in detail, but between Toowoomba and Brisbane there are some quite significant differences in potential capacity which will be important to the line as a whole as well as to the Queensland Government in terms of its regional development. Between Melbourne and Parkes there are also significant differences - routing via Albury (ARTC) or via Shepparton (NTR).

The Australian Rail Track Corporation (ARTC), which manages most of the existing Melbourne to Brisbane coastal corridor, prefers the proposed Inland Rail alignment using its existing Albury, Cootamundra and Parkes corridors because of the investment that has been made in it and the revenue it will derive from it. This option is a minimalist approach which requires little more than creation of height clearances to suit double stacking along with track remediation which has and continues to be an ongoing issue, and which will retain many grades and curves that constrain train capacity and speed.

The alternative NTR route would follow a completely different alignment between Mangalore (Vic) and near Parkes (NSW). It would be constructed along existing operational and moribund rail corridors as well as having a significant stretch of new alignment. It would be through much flatter and more productive regions and would have no constricting curves or grades.

The ARTC option overlooks the substantial benefits which would arise from an inland rail link alignment between Melbourne and Parkes via Shepparton. The benefits of this alignment are:

- improved rail access (heavier axle loads, faster speeds, and shorter distances) to existing and potential rail customers in the Shepparton, Tocumwal, Narrandera, Leeton and Griffith areas
- direct access for customers of the proposed Goulburn Valley Link intermodal hub near Shepparton to major intercapital markets
- 170 kilometres shorter with more direct rail access between Melbourne and the Murrumbidgee Irrigation Area (MIA) in southern NSW from which 40,000 containers per year of agricultural products are already railed 700 kilometres to the Port of Melbourne via Junee and Albury
- potential access to 1.5 million tonnes of newly contestable freight from the Goulburn Valley and MIA as well as a much smaller volume (0.2 million tonnes) of potential freight from the Albury – Wagga region. The ARTC railway would only provide access to potential Albury – Wagga freight, while the NTR railway would access all the 1.7 million tonnes of freight.
- a route between Seymour and south of Parkes 51 kilometres shorter than via Albury, resulting in train running time reductions of up to 73 minutes as well as significant fuel savings of over 700 litres per train
- access to prime grain growing country between Parkes and northern Victoria: the ARTC route would largely skirt the eastern fringe
- alternative rail routes all the way between Brisbane and Melbourne except for relatively short sections near each capital. The ARTC proposal would retain 500 kilometres of existing track with no redundancy of route. A major cause of unreliability on the existing route is track works for maintenance or closures due to accidents or weather related events

The NTR Shepparton option has strong regional support from industry and local government who recognise the value of its benefits to the overall project. Melbourne, and particularly the Port of Melbourne, is very supportive of the NTR route because of its significant potential to improve the logistics flow for domestic production and export routing.

Given the significant benefits of the Shepparton alignment compared with the Albury alignment this should be the preferred option for the Inland Rail line.

Comparable rail-road pricing

The Henry Review of Taxation, the Productivity Commission inquiry into Public Infrastructure⁴³ and the Federal Government's Competition Policy Review⁴⁴ have all found present road funding and pricing to be deficient. According to the Competition Review, "Lack of proper road pricing leads to inefficient road investment and distorts freight transport choices between road and rail freight."⁴⁵

A fully loaded B-double truck causes the same amount of road damage as 20,000 cars. However, truck owners do not pay for the full extent of this damage.⁴⁶ One year after the widespread introduction of B-double trucks in Victoria in 1995, bridge maintenance costs increased 150% from \$7 million per annum to \$18 million per annum.⁴⁷

The Federal Government's Competition Policy Review commented:

*"Lack of proper road pricing distorts choices between road and rail freight."*⁴⁸

Road funding reform is strongly supported by the Premier of South Australia, Jay Weatherill. In July 2015, Premier Weatherill said:⁴⁹

"South Australia would be willing to trial a national scheme where federal and state based fuel excise and registration fees for trucks would be replaced by a charging system based on mass, distance and location which reflects actual road use."

This is comparable to the mass-distance based rail access pricing principles which apply to Australia's interstate and regional rail networks. It would provide a more accurate measurement of road damage costs arising from heavy vehicles than the present system based on average vehicle mass.

This view is supported by the Australian Logistics Council:⁵⁰

"Premier Weatherill's proposal to establish a more transparent pricing mechanism to more closely link road charges with road investment is an important step in the debate and worthy of consideration by all levels of government"

*- Michael Kilgariff, Australian Logistics Council Managing Director*⁵¹

The Productivity Commission's inquiry into Public Infrastructure found that 'current governance, taxation and institutional arrangements for road provision and funding are presenting challenges for long-term planning and investment in road infrastructure and are ultimately unsustainable.'⁵²

Funding decisions are often based on inadequate information and assessment of the costs and benefits of road projects as well as political pressures⁵³.

Similarly the Federal Government's Competition Policy Review (March 2015) commented that 'roads are the least reformed of all infrastructure sectors with institutional arrangements around funding and provision much the same as they were 20 years ago.'⁵⁴ According to the Review 'Lack of proper road pricing leads to inefficient road investment and distorts choices between transport modes particularly between road and rail freight.'⁵⁵ The Competition Review commented that road funding reform holds 'the greatest prospect for efficiency improvements which are important for productivity and amenity'.

"Everyone can see that the current approach to funding roads is broken and the problem will worsen."

⁴³ *Inquiry into Public Infrastructure*, Productivity Commission May 2014, p303

⁴⁴ *Competition Policy Review*, 2015, p88

⁴⁵ *Ibid* p38

⁴⁶ *Road Access Charges in Queensland under National Competition Policy*, PLI McInnes Van (1997), p10

⁴⁷ Boxcar Logistics, Rail Privatisation Conference, May 1997

⁴⁸ *Competition Policy Review* 2015 p88

⁴⁹ Speech to National Press Club, 8/7/15

⁵⁰ Press release 29/5/15

⁵¹ Australian Logistics Council press release 8/7/15

⁵² *Inquiry into Public Infrastructure*, Productivity Commission May 2014, p303

⁵³ *Ibid*, p303

⁵⁴ *Competition Policy Review*, 2015, p88

⁵⁵ *Ibid* p38

The Productivity Commission noted that existing road user charges for heavy vehicles – fuel excise and registration fees based on the average vehicle mass in each vehicle class – are deficient⁵⁶ because heavily loaded vehicles travelling long distances are undercharged while trucks travelling shorter distances are overcharged. Trucks competing with rail freight are being subsidised by trucks delivering to rail freight terminals. The Competition Policy Review concurred with the Productivity Commission commenting that ‘The current heavy vehicle charging regime does not reflect the actual cost to the road network of an individual vehicle.’⁵⁷

Reform of road pricing should be a priority. Both The Competition Policy Review and the Productivity Commission both commented that technologies are available which allow for road user charging based on location, time of day, distance travelled and type of road. Road user charges for heavy vehicles would also take account of the load being carried – this would provide a more accurate measurement of road damage costs arising from heavy vehicles than the present system based on average vehicle mass.

Bigger trucks

National supply chain priorities also need to consider the impact of bigger trucks on rail freight. Bigger trucks may mean fewer trucks in areas where there is no rail competition such as for containers being moved around the Port of Melbourne precinct, many metropolitan freight tasks or where there is no rail line such as in some regional areas. However, where a rail freight alternative exists then bigger trucks may result in more trucks because mode share is not fixed.

The Bureau of Transport and Regional Economics found that increased truck size and weights causes a mode shift to road counteracting any reduction in truck numbers from higher payloads.⁵⁸ A 1996 report for Queensland Rail examined the effects of B-triple trucks – 36.5 metre long, 90.5 tonne vehicles – on the Queensland road network. The study found that widespread use of such trucks would result in a 160% increase in truck traffic which would all be B-triple trucks transporting freight previously on rail.⁵⁹ A 2008 report for the UK Department of Transport⁶⁰ found that the introduction of trucks heavier than the existing 44 tonne semi-trailers would lead to mode shift from rail causing increased road damage, increased road crashes and increased transport emissions.

Similarly a 2008 report for the European based International Union of Railways *Mega-trucks versus Rail Freight* concluded that increased truck size and weights beyond a basic 40 tonnes semi-trailer would trigger a dynamic process whereby freight would shift from rail to road (p8).

According to ARRB Transport Research allowable gross truck loads have increased 0.45 tonnes per year since 1950⁶¹. If this trend continues then the allowable gross mass for a six axle semi-trailer will be 50-53 tonnes by 2020 compared with 42 tonnes now. In contrast there has not been a commensurate increase in rail freight productivity over that timeframe on the interstate and regional rail freight networks.

There is increasing pressure from the trucking industry and sections of the supply chain sector to allow increased use of a variety of large truck combinations such as B-triples, A-doubles, Super B-doubles etc. However, federal and state governments should assess the merits of allowing widespread operation of such vehicles because of their unfunded impact on road networks, their impact on road safety and community amenity and their impact on rail freight market share.

Regulatory decisions regarding the introduction of bigger and heavier trucks need to be undertaken after considering their impact on all aspects of the supply chain, including freight precincts and road network capability, rather than reacting to lobbying pressure from the trucking industry as presently occurs.

⁵⁶ Productivity Commission, op cit, p147

⁵⁷ Competition Policy Review, op cit, p213

⁵⁸ *Adequacy of Transport Infrastructure Multimodal*, BTRE Working Paper 14.6, 1995, p17

⁵⁹ *Effect of B-triples and B-doubles on the Queensland Road Network*, PLI McInnes Van 1996, pp i, 15 and 16

⁶⁰ *A study of the effects of longer and heavier goods vehicles*, TRL Consultants

⁶¹ *Emerging Trends in the Australian Transport Industry (2000 – 2015)*, ARRB Transport Research 2001, pvi

Metropolitan port rail shuttles

Development of port rail shuttles, particularly in Melbourne, should be a key priority for a national freight and supply chain strategy.

“As Melbourne’s roads become more congested, rail is the logical solution. It’s illogical that it is not happening.”

- Clarenzo Perna, Austrak National Development Manager, The Age 6/8/14, p34

The Port of Melbourne’s container throughput generates over two million truck trips each year and truck traffic through the Port could possibly double in the next 30 years. Consequently, it is critically important to develop transport arrangements which minimise the impact of Port related truck traffic on road congestion as well as health and amenity effects in suburbs affected by this traffic. A metropolitan port rail shuttle from ‘inland ports’ is a cost effective way to address this problem.

However, QUBE Logistics Managing Director, Maurice James, commented that Melbourne is at risk of losing its status as Australia’s number one container port to Port Botany in Sydney because of its lack of efficient port rail links and suburban port rail shuttles. Mr James commented that because Melbourne has not made a serious push for modal shift to rail, “We are not wasting any more time on that in Melbourne.”⁶²

Similarly Simon Ormsby, the ATRC’s Executive General Manager - Strategy also pointed out:

“Melbourne is a long way behind Sydney in terms of utilising port rail connections.”⁶³

In NSW, QUBE Logistics operates port container shuttle trains to and from its terminals at Minto, in Sydney’s south, and Yennora, in Sydney’s west transporting 300,000 containers to and from Port Botany each year. In a more recent development in July 2015 Toll Group and DP World announced a 50/50 joint venture, starting in 2017, which will connect a dedicated container staging port at Port Botany to an intermodal terminal in Villawood, 25 kilometres west of Sydney. The joint venture could transport 180,000 containers per year by rail shuttle trains keeping 100,000 truck trips off Sydney’s roads each year.⁶⁴

Similarly the Moorebank intermodal terminal in Sydney’s inner south-west, presently being developed, will have provision for 500,000 interstate containers per year and up to 1.05 million containers railed to and from Port Botany each year. This will significantly ease road congestion in and around Port Botany which is predicted to be handling 19,000 containers per day by 2030. The Moorebank terminal is planned to be opened progressively between 2017 and 2019. The federal government and QUBE Logistics are investing \$1 billion in developing the terminal.

Sydney’s third stevedore, Hutchison, is planning to develop a new inland intermodal terminal at Enfield in Sydney’s south west, to service the new container terminal at Port Botany. Enfield has a direct dedicated rail freight link to Port Botany and is presently used by Aurizon for port rail shuttles (in addition to the company’s port shuttle trains between Newcastle and Port Botany, reducing the need for trucks and easing traffic congestion in the areas surrounding the port.

SCT Logistics operates container trains of export wine for Treasury Wines from its Penfield intermodal terminal 20 kilometres north of Adelaide to the Port of Adelaide. This is an excellent example of an integrated logistics supply chain with Treasury Wines having its distribution centre located at SCT’s terminal along with other companies.

In Western Australia the state government provided financial support of \$15.5 million from 2013 until 2016-17 for containers to be railed between the Port of Fremantle and Kewdale. These trains are operated by SCT Logistics twice daily five days per week transporting 98,000 containers per year keeping 75,000 truck trips off Perth’s roads each year.⁶⁵

⁶² Maurice James, QUBE Logistics Managing Director, Sydney Morning Herald, 19/8/15

⁶³ Alliance of Councils for Rail Freight Development, Melbourne conference, 7/10/15

⁶⁴ Toll/DP World media release 28/7/15

⁶⁵ *Truck Productivity Study*, Fremantle Ports 2014, p13

SCT Logistics presently operates port shuttle trains, as part of a regional container train, between its Altona terminal and DP World at the Port of Melbourne. However, much more can be done for port rail shuttles in Melbourne to increase rail's share of Port container traffic from its present very low 8%. In that regard, the Port of Melbourne's development of a Rail Access Strategy as part of its sale legislation is a welcome initiative which should significantly increase rail mode share to the port.

The Victorian and federal governments allocated \$58 million (\$20 million State and \$38 million Federal) in their 2014 and prior budgets to develop a Port Rail Shuttle system (PRS). Use of this money for the purpose for which it was allocated would facilitate the start of regular port rail shuttles in Melbourne. These shuttles could remove up to one-third of port-related truck movements per day from Melbourne's road network through using intermodal terminals in Altona, Somerton and Lyndhurst. The Somerton PRS terminal is at an existing rail served industrial estate. Major companies such as Coles and SDA have their national distribution centres located in this estate which provides a major opportunity for rail freight to form part of their logistics solutions. Salta is also developing a 180ha industrial estate at Lyndhurst, south-east of Dandenong. Bunnings hardware is its main tenant with a 4.5ha distribution centre.

Neither the Altona nor Lyndhurst industrial estates have rail connections, but planning has been undertaken for them to be connected to the rail network. Development of an intermodal terminal at Altona commenced in July 2014 with the opening of a 5ha container terminal by Maersk shipping at the Nexus Industrial Estate in Altona. The 40ha industrial estate is owned by Salta Properties and has enabled Maersk to relocate its container facility from Yarraville where there is increasing concern about truck traffic.

However, a major disincentive to use rail to/from the Port of Melbourne is that stevedores charge a substantial fee per rail container compared with no charge for trucks.⁶⁶ This charging regime has no demonstrated rational basis and undermines the use of port rail shuttles.

Development of a PRS will also be further challenged by the City Link - Monash Freeway widening, the City Link - Tullamarine Freeway widening and the Western Distributor tollway. These projects will increase road capacity to/from the Port of Melbourne, further entrenching truck transport of Port containers. Transurban's Victorian group general manager has said:

"The Western Distributor will provide direct freeway-standard access in and out of the country's busiest container port and one of Victoria's most important economic assets."⁶⁷

In particular, the Westgate Tunnel Project and its connecting roads are being designed for 160 tonne gross mass trucks which has the potential to undermine the proposed Port Rail Shuttle system and its benefits to road safety and general community amenity.

Regulation

Rail safety regulations are far more onerous and rigorously enforced than regulations applying to trucks. This does not come without cost to rail operators and has the perverse effect of inducing modal shift from trains to trucks, a far less safe mode of transport. Improved competitiveness between modes demands a much higher safety threshold for heavy road vehicles operating on public roads, with an accreditation process for truck owners, their vehicles and drivers based on similar principles to the co-regulatory system applied to Australia's rail networks.

Truck road worthiness checks, truck load weights, truck driver training, compliance with drug and alcohol laws and general compliance with road rules are of a much lower standard with much lower level of enforcement than comparable requirements applying to freight train operations. Safety Management Systems applying to railways have no such requirement in the road freight sector, which significantly adds to the cost and complexity of rail freight operations. These Systems are imposed to minimise the risk of an accident even though rail systems are inherently safe with low risk of a serious accident occurring. This is very different to the inherently unsafe road freight sector which operates in an 'open'

⁶⁶ Ironhorse Intermodal, pers comm, March 2017

⁶⁷ *The Australian*, 18/9/15, p4

system with other road users. Ironically, nowadays, the highest accident risk for rail operations is that of a collision between a train and a heavy road vehicle at a level crossing.

Harmonisation of all aspects of rail safety laws between states also needs to be progressed to reduce the cost of compliance for rail freight operators on the interstate standard gauge rail network.

The National Rail Safety Regulator (NRSR) was introduced in January 2013 and was designed to provide a single point of accreditation and registration for rail operators in place of the multiple accreditations previously required under separate State and Territory systems. However, this has yet to fully occur and some State based rail safety regulations still apply. Interstate rail operators still require State based rolling stock accreditation and recognition of staff training and qualifications in some states despite the creation of the NRSR which is yet to fully resolve these problems. In contrast, a truck driver's licence and a truck's registration have national recognition.

The cost and complexity of rail safety regulations can also militate against flexibility and innovation in rail freight operations such as the operation of 'short lines', as occurs in North America where short and regional rail lines have evolved. These have demonstrated an ability to develop close alliances with local customers to create and retain rail business. Something like 25% of the less than train load business on rail in North America is reported to have some involvement with a short or regional railroad. Short Lines are based on small local rail operations, closely aligned to local shippers, and take the role of handling the first and/or last kilometre of any journey leaving the line haul component to 'big rail' operators via suitable managed interchanges.

An Australian short line concept would need to deal with rail freight operations at a very local level, and develop alliances with main line carriers for interchange. Regulatory issues would require a different approach to 'the one size fits all' approach of current regulation and allow acquisition of surplus or second hand resources from main line railways (as an alternative to scrapping or export of surplus locomotives and wagons as currently applies).

The issue of short lines (or an Australian equivalent) is important if rail is to make inroads into less than train load traffic, as well as being important to the economics of decentralising industry away from capital cities. The close relationship that North American short lines have with their communities is part of how they function and is a significant reason for their success.

A priority of the national freight and supply chain strategy should be 'rail made easy' through simplification of rail freight regulations. This would enable freight train operators to increase their role in transporting Australia's growing freight task.

Land use planning

Industrial land availability and proximity to rail and road networks is essential to supply chain efficiency – companies need good access to transport networks and space for expansion. Freight 'places' (intermodal terminals, distribution centres, ports) need to be protected from inappropriate nearby land uses which can potentially affect operations because of complaints about amenity issues such as noise, traffic and emissions. Existing and proposed rail freight corridors need to be given planning scheme protection to ensure they are not affected by incompatible land uses. Rail Futures Institute fully endorses the recent Infrastructure Australia paper *Corridor Protection: Planning and Investing for the long term*, July 2017.

Land use planning also needs to support preservation of rail corridors which could provide sidings to customers' premises. Such sidings were once quite common, but in recent times these have gradually disappeared as the operating philosophy of major freight train operators has changed away from shunting and wagon load traffic. The reality is that sidings, properly set up and located, can be a useful cornerstone for rail freight. A variation on the siding concept is that of industrial hubs and parks – provision of large industrial areas well served with rail connections and available to a multiplicity of shippers, which can draw producers and shippers together into a small area such that rail is able to efficiently serve all their needs. Industrial parks are a natural fit for 'short line' type rail freight operations.

A significant issue with sidings is that the up-front cost of new construction is relatively high, unlike road links which are commonly provided from the public purse. Despite this the ongoing benefits in terms of shipper access and reduced shipping costs would normally more than justify their provision over time. There is a case to be made for support for construction of sidings and local terminal infrastructure by government as a way of encouraging freight toward rail from a position of a level playing field. Similar generic support for Short line facilities and industrial parks can be justified on the same grounds – up front funding support for infrastructure that has long term service and community economic benefits. Notably this sort of generic support is quite common in North America, the home of capitalism, where there is never-the-less significant government support (federal, state and provincial) for short line infrastructure in recognition of the critical part that they play in generating freight on rail and consequently reigning in burgeoning capital and maintenance costs of the parallel road network.

Rail freight corridors must also be protected from curfews preventing 24/7 operation. Freight trains operate 24 hours per day, seven days per week in accordance with customer requirements. Any restrictions on freight train operations (other than due to other rail operations) must be avoided as such restrictions will increase rail freight transport costs and may divert freight to trucks.

The Victorian Government needs to reserve a rail freight corridor to Webb Dock through the proposed Fishermen's Bend redevelopment project to ensure that rail freight access can be provided to Webb Dock. Otherwise Webb Dock will be completely reliant on trucks for its land transport requirements with the consequent adverse amenity and safety aspects associated with truck transport of 1 million containers per annum to/from Webb Dock.

If all containers are transported to and from Webb dock by truck, in the short term nearly 8,000 truck trips per day (2.9 million truck trips per year) will be added to roads serving the Dock, the West Gate Freeway and roads serving container parks in Melbourne's west⁶⁸. The vibration, noise and pollution from nearly 3 million trucks per travelling to and from Webb Dock will significantly adversely affect the amenity of the Fishermans Bend renewal precinct.

Another issue affecting land use planning is public transport access to industrial areas. This needs to be significantly improved in all major cities as poor access to these areas hinders the ability of employees, particularly apprentices, to get to work which affects their career prospects and companies' ability to attract staff.

Technology

The application of smart technology to rail networks can increase capacity without building new infrastructure. For example:

- the Victorian government is proposing to trial new high capacity signalling on the South Morang railway line to improve capacity, safety and reliability
- the Australian Rail Track Corporation is trialling advanced, high capacity signalling to improve network capacity and safety between Port Augusta and Whyalla on its network in South Australia with a view to more widespread application of this technology across its network and is planning to install it on the Inland Railway by the time that it is completed in 2024
- Rio Tinto is working towards having driverless trains on its iron ore rail network in Western Australia's Pilbara region with the trains managed from a control room at Perth airport

Governments should facilitate these sorts of technological advances in Australia's rail industry through incentives which will assist the rail industry increase its ability to play a greater role in supply chains through improved operating practices consistent with overseas innovations.

⁶⁸ Port of Melbourne Capacity Enhancement Project – Traffic Management Fact Sheet 2014

Conclusion

Australia's rail freight networks have a major role in many supply chains. Whether it is transporting export mineral traffic, containerised export agricultural products or general freight for domestic consumption Australian rail freight services are an integral part of the supply chain for many primary and secondary industries. However, rail freight has significant potential to play a larger role in improving the efficiency of the nation's export and domestic supply chains.

"With Australia's freight task projected to grow 80 per cent, between 2010 and 2030, there is clearly a need for more freight to be moved by rail between our major capitals, ports and regions."

- Michael Kilgariff, Australian Logistics Council Managing Director⁶⁹

Much of Australia's rail freight system is now grossly under-utilised compared with its potential. It is in need of significant modernisation and catch-up investment, particularly on regional grain lines. Under-investment in rail freight infrastructure, a regulatory and institutional environment which is not supportive of rail freight and changes in the freight transport sector have led to a significant decline in Australian regional and interstate rail freight volumes over the past 30 years. This requires major policy reform at all levels of government to assist the revitalisation of Australian rail freight. It is currently far more difficult to invest in and operate freight trains than trucks.

Federal, state and local governments all have a role to play in ensuring that rail freight is an integral part of a national supply chain strategy. The cost of developing and maintaining regional and rural roads and the cost of road crashes involving trucks will continue to increase unless more freight is transported by train.

Investment in rail freight is an investment in providing efficient, low-cost supply chains. It is an investment that will ensure the nation's growing freight task can be transported safely and efficiently at least economic, social and environmental cost to society.

⁶⁹ Australian Logistics Council press release 11/6/15

Recommendations

The priorities for the National Freight and Supply Chain Strategy should be:

1. Accelerate government and public funding for common infrastructure especially the Melbourne to Brisbane inland rail line making use of historically inexpensive debt whilst avoiding expensive PPP funding that will increase rail access fees and fragment the rail network.
2. Continue to provide annual maintenance funding for the Australian Rail Track Corporations interstate network as well as funds for more and longer passing loops, eventually achieving track duplication in each direction where justified.
3. Provide adequate maintenance funding for regional rail networks to support efficient and reliable supply chains at reduced cost.
4. Introduce mass-distance access pricing for trucks
5. Restrict the operation of larger and heavier trucks to port precincts or on specified urban and regional roads serving intermodal freight transport hubs
6. Ensure truck operators have comparable taxes, safety compliance and enforcement regimes as those which apply to freight train operators
7. Continue improvements to rail safety regulation to simplify accreditation and registration of rail freight operation requirements between states as well as facilitate 'short line' type rail freight operations
8. Identify opportunities to upgrade interstate and regional rail infrastructure to higher standards to reduce supply chain costs
9. Support improvements to rail freight operations network capacity through new technology or minor infrastructure works
10. Use triple bottom line evaluations of transport investments, policy and projects
11. Ensure the federal and state governments work together to accelerate development of the Port Rail Shuttle systems to reduce port truck traffic on inner suburban roads instead of further upgrading roads and road bridges
12. Ensure highways and local roads facilitate truck access to rail-road intermodal terminals
13. Protect existing and future intermodal hubs, rail freight corridors and industrial precincts from residential encroachment or other inappropriate land uses.
14. Protect local roads and bridges from damage caused by trucks through measures which support transferring freight from trucks to trains including road load limit signage and enforcement
15. Ensure that consideration of urban development issues recognizes the importance of competitive freight train systems and rail-road intermodal terminals and their contribution to sustainability, liveability and reducing the impacts of climate change
16. Provide incentives for freight forwarders and freight train operators to co-invest with government in rail freight projects
17. Facilitate the development of sidings and common user terminals to enable a shift from road to rail (and for start-up freight train operations) as in the UK and in some European countries (e.g. Switzerland)
18. Identify ways to improve public transport access to industrial areas for employees without access to a car.