Rail Futures Institute

Submission to Review of the National Freight and Supply Chain Strategy – September 2023

This submission has been prepared by Rail Futures Institute Inc 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, urban planners and economists.

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2. Introduction

The Rail Futures Institute (RFI) welcomes the bringing forward by one year the review of the 2019 National Freight and Supply Chain Strategy (NFSCS). We support the urgent need, as recognised in the discussion paper, to address decarbonisation and supply chain resilience; also to examine where the 2019 Strategy can be improved in the national interest.

It is appreciated that all freight industry sectors have seen unprecedented challenges imposed by the impacts of climate change (bushfires in 2019-20 followed by flood events in 2021 and 2022) along with COVID. The likelihood of more extreme weather event impacts is a further reason for bringing forward the review and for changing some of the present policies.

Bringing forward the review also provides an opportunity to make earlier improvements to the strategy. It is submitted that the 2019 NFSCS placed undue emphasis on increasing truck productivity through ever larger trucks and this has led to more 'loads on roads' and less freight on rail. This includes the approvals given in 2021 by Victoria and NSW to allow 36 metre A Doubles that can carry two 40-foot containers. This issue is dealt with in a subsequent section of the submission.

Rail is ideal for transporting bulk commodities and containerised cargoes, especially between regional terminals and ports. Less than 20 freight trains, each of 50 wagons, can fill a 50,000 tonne grain ship compared with at least 1,000 trucks.

Freight trains save fuel, reduce road damage, emissions and road crashes. They also reduce residential amenity impacts and other environmental effects. Increased use of rail freight as the freight task grows has significant economic benefits, including reduced supply chain costs. Most trucking organisations also support greater use of rail. *"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 Association,13 May 2015).

This submission addresses the challenge of transport decarbonisation in the context of more freight on rail and achievement of improved rail productivity, competitiveness and energy efficiency. It explains the significance of selective investment in improved rail infrastructure as a key enabler of more efficient rail. In the Melbourne-Sydney context, if adopted, our proposals will materially alter the competitive dynamics of rail and trucking between Australia's two largest cities.

The submission also addresses the ongoing lack of transport task and emissions data and, to this end, proposes a range of KPIs essential for quantification, both of benefits and costs, including comparative external costs of emissions from rail and road freight transport.

3. Decarbonisation and energy efficiency

An effective response to climate change is a matter of concern for increasing numbers of Australians. In this regard, *'The annual Ipsos Climate Change Report 2022 shows the majority of Australians are concerned about climate change (83%) and 70% consider that Australia is already being affected by climate change, primarily with more frequent and extreme natural disaster events, which is a steady increase in concern and up from 56% in 2011.'* Ipsos, https://www.ipsos.com/en-au/8-10-australians-are-concerned-about-climate-change, 26 January 2023.

Responsibility for the environment has become a significant factor in the electoral behaviour of Australians. People are looking to governments for action. Governments are looking for options.

Such concern has been reflected in legislation passed in 2022 by the Australian Government to reduce emissions by 2030 to 43% of their 2005 levels, with net zero emissions by 2050. The Victorian Government has made even stronger commitments to net zero emissions by 2045 and that "*By 2035, all sectors of Victoria's economy will be on their way to net zero emissions."*

Transport, whose emissions in Australia have been trending upwards for some decades, is an essential target for change. However, this will require much more than the uptake of more electric vehicles.

In our 2017 submission to the consultation process preceding formation of a NFSCS, it was noted that *"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 trucks."*

The Australian Government has also noted that rail freight uses one-third the fuel needed by road freight to do the same work with consequently much lower carbon emissions (Australian Government response to the Senate Rural and Regional Affairs and Transport References Committee report, *Management of the Inland Rail Project* by the Australian Rail Track Corporation and the Commonwealth Government, 2021).

Using less fuel also means less dependence on imported oil supplies.

The actual ratio for energy efficiency between rail and road depends on the freight task. To reduce emissions in land freight transport, there are two ways forward that will make a meaningful difference:

A. Encourage road freight that is contestable by rail, back to rail; and

B. Improve the energy efficiency of rail freight.

Our 2017 submission also noted that "Transport contributed 18% of Australia's greenhouse gas emissions in 2016. Transport emissions were 52% higher in 2016 than in 1990. Road transport causes 84% of all transport emissions (road freight 21%) compared with 3.5% for rail transport.

However, "*Australia's emissions projections 2022*", Department of Climate Change, Energy, the Environment and Water, Canberra, notes that, despite the impacts of COVID, transport contributed 19% of Australia's greenhouse gas emissions in 2020. As noted by the International Energy Agency, *CO2 Emissions from Fuel Combustion*

2009, p69, Australia's greenhouse gas emissions from transport are the eighth highest in the world because of the nation's high use of road transport.

It is of note that the 2022 International Energy Efficiency Scorecard prepared by the American Council for an Energy-Efficient Economy shows how far Australia has fallen behind. Although Australia ranked 18th out of 25 of the world's largest energy users overall, it had a damning rating of just 23rd for transport.

On five of the nine criteria for assessing transport, Australia scored zero points. These were:

- no 2025 fuel economy standards;
- poor on light vehicle average fuel economy;
- low electric vehicle sales share;
- no heavy vehicle fuel economy standard; and
- no smart freight programs.

Indeed, without the very high energy efficiency of the Pilbara iron ore rail operations, and the massive freight task they perform, Australia would have rated even more poorly. A smart freight program will encompass the benefits of efficient rail.

With a sustained investment in upgrading roads and relaxation of truck mass and dimension limits and other factors, the road freight industry has been able to increase its productivity and efficiency, and for some freight tasks, to reduce its emissions.

It is of concern that BITRE in its Australian aggregate freight forecasts – 2022 update (Summary), includes a projection that road freight is expected to grow by some 77 per cent from 2020 to 2050, whilst rail freight is expected to grow by just 6 per cent over this time. This has serious implications, not only for increasing transport emissions, but also road congestion, road damage and road safety.

Rail freight is generally contestable for many bulk commodities and much containerised freight (including some surprisingly short hauls), even when requiring a road pick up to the rail terminal or loading point. However, for rail to successfully compete for business which can also be satisfactorily handled by road, it needs to meet customer service requirements at a competitive price. For genuinely contestable freight, that can only occur when rail service is efficient and reliable.

Rail's ability to deliver under these conditions largely depends on an appropriate mix of suitable rolling stock (operator responsibility) and fit for purpose infrastructure, much of the latter provided through capital funding from government.

Rail Futures Institute contends that the greatest impact on rail productivity, competitiveness and energy efficiency will come from selective investment in upgraded infrastructure to modern standards. Long neglected opportunities which address these deficiencies are described in the following section.

Rail Futures Institute recommends that the new NFSCS include a smart freight program with selected rail infrastructure improvement measures that have a positive impact on rail productivity, energy efficiency and competitiveness, incentivising more freight on rail.

4. Improving interstate rail freight productivity and competitiveness through selective infrastructure investment

Rail should be moving more interstate freight, but it needs to improve its productivity and efficiency towards that of the Canadian and US Class 1 railroads, without necessarily adopting North American operating practices which are often unsuitable for Australian conditions.

Much of the Australian interstate rail network still fails to meet the short-term goals set out in 1997 at a meeting of the Australian Transport Council (ATC). This called for a commitment for the interstate network to provide a minimum level of service by 2002 including:

- less than 2% of track subject to temporary speed restrictions;
- up to 21 tonne axle load (TAL) average speeds of 80 km/h; and
- between 21 and 25 TAL average speeds of 60 km/h.

The ATC also agreed to longer-term "stretch" goals to deliver an improved level of service on the interstate network, including:

- up to 21 TAL average speeds of 100 km/h;
- between 21 and 25 TAL average speeds of 80km/h; and
- increased clearances to allow double stacking of containers.

The problem is particularly acute on the Melbourne-Sydney rail corridor. As observed by former NSW State Rail CEO Len Harper, the track is *"inadequate for current and future needs".* This was despite the extensive remedial work done on the track by the Australian Rail Track Corporation (ARTC) after taking up a long-term track lease from the NSW Government in 2004.

Today, the average speed of freight trains between the respective terminals in Melbourne and Sydney is around 68 km/h, largely constrained by the legacy meandering rail infrastructure in New South Wales.

The volume of Melbourne-Sydney rail freight had fallen to <5% of market share by 2020. However, with the recent introduction of new rail freight services in the corridor coupled with the National Intermodal Corporation's major new terminal investments at Moorebank (Sydney) and (pending) at Beveridge (near Melbourne), the potential for rail to claw back market share is significant. This is largely dependent on the wide benefits to be gained from bypassing the corridor's steam-age rail alignment in key sections between Menangle in Sydney's outer south and Cootamundra.

Given that Inland Rail between Melbourne and Brisbane has been delayed to the 2030s, there is a case for a start in this decade on the three major deviations in the Melbourne-Sydney corridor identified in ARTC's 2001 *Interstate Track Audit*:

- Wentworth (Menangle-Mittagong);
- Centennial (Goulburn-Yass); and
- Hoare (Bowning-Cootamundra).

With other minor works, the three deviations would replace 260km of steam-age alignment with 200km of new track built to modern standards. Freight train transit times would fall by two hours with further passenger train time savings along with reduced crew costs, fuel usage and emissions. It will reduce to 30 km the distance by which the rail corridor length exceeds that of the Hume Freeway from 90 km currently.

For the first of these deviations, an urgent need exists to secure the 48 km corridor between Menangle and Mittagong (the Wentworth deviation) in the face of rapid urban encroachment around Appin and Wilton. This deviation will benefit all rail users, freight and passenger, between Sydney, Melbourne, Canberra and the Southern Highlands.

The scope and cost of these deviations pale into insignificance when compared with today's equivalent of $20 billion for total reconstruction of the Hume Highway to modern engineering standards by 2013 and the subsequent $20 billion for near complete reconstruction of the Pacific Highway.by 2020.

These efficiencies and consequent improvement in rail service delivery will materially alter the competitive dynamics of rail and trucking between Australia's two largest cities.

Commitment to these works will provide a clear demonstration to freight generators and rail operators that the government is serious about getting freight back on rail.

Rail Futures Institute recommends priority for specific long overdue interstate rail corridor upgrading projects which will have a strong impact on rail productivity, energy efficiency and competitiveness. First up should be the Wentworth deviation on the Sydney-Albury corridor (Menangle to Mittagong), including urgent action to protect the corridor from encroaching urban development.

5. Bigger, heavier trucks and rail competitiveness

Bigger trucks may result in fewer trucks where there is no rail competition such as for many metropolitan freight tasks. However, where a rail freight alternative exists, such as in regional Victoria, bigger trucks tend to increase overall truck numbers because mode share is not fixed. Bigger trucks induce mode shift from rail unless rail freight can also adapt to transport heavier loads and do so more efficiently. As trucks get bigger their unit costs decrease making them more competitive with rail freight.

While rail linehaul is often cheaper than road transport, the additional pickup and delivery cost of transporting containers to and from rail terminals can make the total cost higher. Increases in permissible truck gross weight exacerbates this problem by further reducing truck unit costs to the extent that linehaul rates often become cheaper than rail, particularly over the shorter haul distances that apply in Victoria such as from Warrnambool and Tocumwal to the Port of Melbourne.

The introduction of A-double and B-triple trucks onto Victorian and NSW roads has enabled trucks to also be more competitive with rail for the transport of grain, for example, over distances of 250-300km from port that were previously favourable to rail freight. A-double trucks are highly competitive with rail as they can transport two loaded forty-foot containers at a similar or cheaper rate than rail freight.

This was at a time when most jurisdictions had policies to increase freight on rail and specifically to increase the percentage of containers on rail to and from the Port of Melbourne and Sydney's Port Botany.

As observed by the Australian Competition and Consumer Commission (ACCC) in its container stevedoring monitoring report 2020–21, rail's share of containers at the Port of Melbourne was a paltry 6.1 per cent.

For Port Botany in Sydney, whilst the NSW government had planned to increase containers moving by rail to and from the port to 28 per cent by 2021, the NSW Auditor General in a 2021 report *Rail Freight and Greater Sydney* found that only 16 per cent that year would be carried by rail.

The ACCC Container stevedoring monitoring report 2021-22 notes that, apart from the Port of Fremantle, rail's share of containers to and from each of the other container ports has been falling. This, in part, has been due to approvals to use larger trucks.

The outcome is a significant increase in overall truck numbers resulting from a large mode shift away from rail for these medium length hauls. This may have been an unintended consequence however the result has been rapid deterioration in the condition of local and main roads and some highways in much of regional Victoria and parts of NSW, an increase in deaths from accidents involving heavy vehicles and overall increased diesel emissions.

The use of very large trucks in South Australia led to the cessation of grain rail freight operations on the Eyre Peninsula. In May 2019, Viterra moved to a truck-based option using A-B triples and B-doubles. The result was 800,000 tonnes per annum of grain, rail's former 40% market share, transferring to road with increased road damage, emissions and road safety issues on the Eyre Peninsula, a region well used by tourists. It is paradoxical that Viterra and new rail operator Aurizon have recently proposed a return to rail haulage but with a much more efficient rail operation than previously.

A further consideration which bears on the external costs of road and rail freight transport (see later section of this submission) is the marked difference in safety systems of each mode. Rail systems have strictly enforced safety regimes with costly complex regulatory and administrative processes for freight train operators. *"There is a considerable difference between rail operators and road transport companies in terms of safety systems with rail operators being at best practice."*[1]

In contrast, truck accident levels indicate that truck driver compliance with regulations involving drugs, overloading, speeding, logbook entries, roadworthiness and other regulations continues to be a serious problem. Roadside weighbridges for trucks are often closed. While truck safety has been improving in recent years, *"the flipside is that the number of truck drivers dying in road accidents has remained stable at around 35 per year over the past decade"*[2]. Increased use of rail freight services can help reduce the national $18 billon annual cost of road crashes.

These factors point toward the need for sustainable rail solutions that will significantly reduce emissions, reduce road damage and improve road safety while reducing line haul costs to users. This requires rail to operate within different metrics – principally increased axle loads, longer trains in most cases and faster turnarounds at terminals. In most cases, this requires infrastructure enhancement, allowing rail operations and systems to regain competitiveness with modern heavy road vehicles.

Increased permissible axle loads and higher capacity rail wagons provide a major productivity gain because empty wagon tare weights do not increase proportionately with the gross weight of loaded wagons. For example, at permitted 19 TAL (typical of many Victorian lines), gross weight for a typical bogie wagon is limited to 76 tonnes comprising around 20 tonnes tare, hence 56 tonnes wagon contents. By contrast, where 23 TAL is permitted, larger wagons can load to 92 tonnes gross comprising around 22 tonnes tare and 70 tonnes contents – a considerable efficiency improvement with a 10% tare increase yielding 25% contents increase.

Apart from grain loading facilities on ARTC's main Melbourne-Adelaide line, there are no grain lines in Victoria that can accommodate 23 TAL, with most still limited to 19 TAL. Upgrading to 23 TAL often requires heavier rail, also bridge strengthening in some cases to comply with strict engineering and safety standards.

Longer trains also reduce unit train operating costs in most cases. However, extended times for loading and discharge need to be offset by more efficient terminals. They also require longer sidings at terminals and extended crossing loops on single track main lines. The combination of these enhancements are the elements that rail needs to become highly competitive and reclaim traffic it previously handled.

In a competitive environment, wherever viable private sector rail operators will always seek to maximise train operating efficiency through their own "above rail" investments in motive power and wagons. Some will also provide required terminal facilities. However, inadequate "below rail" infrastructure almost always sets limits on what rail can achieve and therefore its practical ability to compete with trucks.

Governments, state and Commonwealth, thus have a major role in influencing the extent of rail competitiveness through infrastructure ownership or long-term leases

[1] Australian Transport Safety Bureau report QT 2459, *Rungoo level crossing inquiry 2008* (Qld), p99

[2] National Truck Accident Research Centre, Major Crash Investigation 2022 Report

and, in most cases, direct operational control. Access charges imposed on rail operators already contribute significantly to infrastructure maintenance costs, arguably in greater measure than heavy road vehicle owners, particularly those covering long distances, currently contribute to their attributable road maintenance costs.

However, neither mode can fund major capital improvements as typified by major highway upgrades undertaken over many years. These generally involve a direct call on government funds, Commonwealth, state or combination thereof. Specific rail infrastructure improvement projects which demonstrate net economic benefits need new capital investment. Outcomes will be significant productivity gains, environmental sustainability and better customer service with resultant market share gain and reduced supply chain costs.

Selective investment in improved rail infrastructure (especially on grain lines) is key to enhanced rail efficiency and competitiveness, the outcome being reduced emissions, less road damage, increased road safety and reduced supply chain costs.

6. External Costs

Reducing the external costs of land freight transport deserves a lot more attention in the revised NFSCS than it receives in the present strategy.

The former Inter-State Commission (ISC–1990, *Road Use Charges and Vehicle Registration: A National Scheme,* p89) noted that road external costs are *"...costs imposed outside market transactions and they fall on a number of individuals or groups - road users other than those individuals who give rise to the costs, individuals other than road users (such as those who live in proximity to roads), or society as a whole."* The ISC (loc.cit.) notes some external costs associated with road use as including *"crash costs, congestion costs, noise pollution costs, and atmospheric pollution costs."* Such external costs may also be imposed by rail freight.

The Bureau of Transport Economics (BTE–1999, *Competitive neutrality between road and rail*) also addressed external costs. As part of a National Interstate Track Audit commissioned by the Australian Rail Track Corporation (ARTC - 2001), Booz•Allen and Hamilton (Appendix A, page 24) noted *"...six external cost items of noise pollution, air pollution, greenhouse gas emissions, congestion costs, accident costs, and incremental road damage costs"* and gave a Table of road and rail freight externalities.

External costs were revisited by the Independent Pricing and Regulatory Tribunal (IPART) of New South Wales in its 2012 Review of Access Pricing for the NSW Grain Line Network. This report noted, inter alia, the 2001 ARTC Track Audit estimates and the accident cost of road freight are some 0.60 cents per net tonne kilometre (cents per ntkm) for road freight as against 0.03 cents per ntkm for rail freight. This is a ratio of 20 to one.

IPART noted[3], inter alia, unrecovered road system costs from long standing road user charges for heavy trucks are 1.0 cents per net tonne km. It also gave average values for external costs for road and rail freight in both urban and non-urban areas. These included estimates with an allowance for unrecovered road system costs from trucks (of 1 cent per net tonne km), accident costs, air pollution, noise, emissions and road congestion, in cents per net tonne kilometre (tkm), as follows. [CPI adjusted to March 2023 as per https://www.rba.gov.au/calculator]:

2.75 cents per ntkm for road haulage in urban areas [3.63 cents per ntkm]

1.98 cents per ntkm for road haulage in non-urban areas .. [2.62 cents per ntkm]

0.43 cents per ntkm for rail haulage in urban areas [0.57 cents per ntkm]

0.17 cents per ntkm for rail haulage in non-urban areas [0.22 cents per ntkm]

By 2023, these 2012 IPART costs have likely increased by more than CPI.

[3] This is because in Australia, road user charges for heavy trucks based on annual registration fees and discounted fuel excise are arguably too low for the heavier trucks travelling large distances each year. If one accepts that the long-standing New Zealand mass distance charges for heavy trucks are a proper reflection of user pays, the annual hidden subsidy to the operations of six axle articulated trucks and B Doubles in Australia amounts to over $2 billion per year. This works out to a hidden subsidy of about one cent per net tonne kilometre.

6.1 An application of external costs

By way of example, we now seek to demonstrate the benefits for rail to be moving, in a good Victorian harvest, the share of grain that it did around 2007, when the Fischer "Switchpoint" review of the grain rail network was underway.

We estimate that it would be possible for rail, in a good harvest, to move an additional 3 million tonnes of grain. This would still leave work for the road freight industry.

We now quantify the benefits in terms of reduced carbon emissions and reduced external costs including reduced road maintenance costs, improved road safety, and reduced road congestion. To do this, we use some assumptions.

Firstly, we assume the average length of haul of the 3 million tonnes of grain is 240 km, the same whether it is for rail or road. This gives a 720 million tonne-km freight task. This length of haul is an average and we note that some grain from the north of Victoria may move over 400 km to a port at Geelong or Melbourne.

For emissions, we use the fact that on average, for freight tasks moving grain to port, rail freight has one-third the emissions of road freight, with (ABS SMVU 2019-20) articulated trucks consuming 4,342 million litres of diesel to perform a 173.2 billion tonne-kilometre freight task. This is an average of 39.9 net tonne-km per litre so a 720 million tkm road freight task would use about 18 million litres of diesel.

If the same task was done by rail, it would use about 6 million litres of diesel. As combustion per litre of diesel produces about 2.7 kg of carbon dioxide, the reduction in emissions from switching from road to rail could be some 32,400 tonnes of CO2-e.

Secondly, to achieve credible estimates of external costs, we use those based on the 2012 IPART, as outlined above. Using these estimates, assuming a 240 km haul and (say) 40 km of haulage through urban areas (so 200 km in non-urban areas) the external cost for haulage by road is about $6.70 per tonne.

The external costs by rail are about $0.67. This is a ratio of ten to one.

In this example, the difference between the external costs of road and rail haulage of grain is about $6 per tonne. If three million tonnes of grain per annum haulage to a port could revert from road to rail, the reduction in external costs would be about $19 million per annum.

The difference includes a reduction in unrecovered road maintenance costs of $7.2 million per annum. This alone would warrant retention and extension of Victoria's current Mode Shift Incentive Scheme to include grain.

A reduction in road crash costs exceeds $4m million per annum. This, coupled with a reduction of carbon emissions from grain transport, is a further reason for transferring grain that was once on rail and is currently on road, back to rail.

Rail Futures Institute recommends that policies designed to reduce the external costs of land freight transport, including emissions, deserve a lot more attention in the revised NFSCS than they get in the present strategy.

7. Freight Task and Emissions - Data Deficiencies and KPIs

Despite establishment of a National Freight Data Hub (NFDH), successive editions of BITRE's Trainline have been unable to provide an estimate of the overall rail freight task for Australia.

Data limitations in Australia prevent measurement of estimated volumes of freight moved by rail in tonnes and in billion net tonne kilometres (btkm). BITRE's 2022 Trainline 9 [p5] notes that "*Due to an ongoing data shortage Trainline is unable to report the national 'above-rail' freight task beyond 2015–16."* This report gives 2015-16 estimates of the bulk rail freight task as about 381 btkm and the non–bulk rail freight task at some 32.4 btkm.

Trainline 10 released in 2023 in Figure 1 gives estimated Australian freight volumes by transport mode based on data in BITRE's Australian Infrastructure and Transport Statistics – Yearbook 2022. This indicated overall road, rail, coastal shipping and air freight tasks as respectively: 234.65 460.32 100.00 and 0.27 billion tonne-kilometres.

However, there is no readily available data on various rail freight tasks such as bulk freight, non-bulk freight and interstate rail freight, either by corridor or in aggregate. Such data was freely available up to the 1990s. The data limitations are mostly due to a failure of governments to require adequate reporting of freight data as part of the rail privatisation process.

In 2007, the House of Representatives Standing Committee on Transport and Regional Services 350-page report, *The Great Freight Task: Is Australia's transport network up to the challenge?* outlined Australia's growing land freight task.

The first two of 25 recommendations addressed data deficiencies.

Recommendation 1
"The Committee recommends that the Minister for Transport and Regional Services require the Australian Transport Commission and the Bureau of Transport and Regional Economics to undertake the establishment of a national transport database."

Recommendation 2
"The Committee recommends that the Minister for Transport and Regional Services urgently initiate legislation requiring transport industry operatives to supply essential information for the proposed transport database."

The Committee noted that the Productivity Commission had called attention to data issues in its 1999 report *Progress in Rail Reform* and had noted that, "*There is a lack of up-to-date transport data in Australia, impeding public debate and sound policy formation".*

The Committee also found that in June 2006, BITRE (then BTRE) had noted that the problem still existed. *"There is no single comprehensive source of time series data on freight transport movements in Australia. Time series of Australian freight movements must be derived from a range of different sources together with a range of assumptions…... The issue of rail data is perhaps the most vexing…. After 1997, the recently privatised railways have declined to permit public release of City-to-City data. Furthermore, since 2001, they have not allowed any origin–destination data – even State to State – to be released. This raises severe difficulties for future estimates of*

rail flows on any of the corridors…"

In 2007, the Parliamentary Committee considered that, "*this problem should be dealt with immediately and that commercial interests should be required by law to provide the essential information the Australian and State Governments need to plan the long-term development of transport infrastructure".*

Some 17 years later, we still wait. If any progress is going to be made on decarbonisation, freight tasks will need to be accurately measured and disclosed.

In addition, the emissions generated by various freight activities must be measured, and where possible reduced.

Rail Futures Institute submits that at the very least, Australia needs to collect, analyse and make publicly available in a timely manner the following KPIs:

- Average rail freight emissions per tonne-kilometre for each of bulk freight and non-bulk freight.
- Average road freight emissions for each of articulated trucks, rigid trucks and light commercial vehicles.

Rail Futures Institute recommends that legislation be initiated requiring transport industry operatives to supply essential information to allow for collection of data relating to rail and road freight tasks, including differentiation between non-bulk and bulk freight tasks, as well as between interstate and intrastate freight tasks.

Rail Futures Institute further recommends, in addition to actual road and rail freight task data, that associated energy use and emissions data be collected, analysed and disclosed in an accessible manner.

8. Counting road and rail freight to Ports

The Auditor General of NSW in his 2021 *Rail Freight and Greater Sydney* report noted that, *"Transport agencies do not have strategies or targets in place to improve the efficiency or capacity of the metropolitan shared rail network for freight. The transport agencies acknowledge that they do not have sufficient information to achieve the most efficient freight outcomes and they do not know how to use the shared rail network to maximise freight capacity without compromising passenger rail services."*

The NSW Freight and Ports Plan 2018-2023 contains a single target for rail freight: to increase its market share at Port Botany to 28 per cent by 2021. However, Transport for NSW (TfNSW)'s data indicates this target will not be met.

Sydney Trains records data on train movements and collects some data on delays and incidents. TfNSW collects data for the construction of the Standard Working Timetable and third-party contracts. However, a lack of clarity around what data is gathered and who has ownership of the data makes data sharing difficult and limits its analysis and reporting.

The Freight and Ports Plan 2018-2023 includes the goal of 'Reducing avoidable rail freight delays', but the transport agencies do not have any definition of an avoidable delay and, as a result, do not measure or report them."

Similar issues apply in Melbourne where three infrastructure operators (Metro Trains, V/Line and ARTC) and several "above rail" train operators all have some reporting responsibility for train movements to and from the Port precinct. Only some of this data, together with road movements, is compiled by the Port operator.

Rail Futures Institute submits that the revised National Freight Strategy should provide a mechanism to capture road and rail data for freight movements to and from principal ports.

9. Intrastate rail infrastructure issues

There are serious deficiencies with the Victorian rail freight network due to multiple gauges and some degraded track.

Until 1962, Victoria was a single gauge state (broad gauge), although it did have three 'border' stations on the north side of the Murray River where there were physical connections with the standard gauge NSW system. Since then, standard gauge has slowly crept in, initially in 1962 and then in 1995 as interstate connections, but progressively also on regional Victorian lines. The two-gauge system is an ongoing deterrent to rail freight business within Victoria.

In 2023, the Victorian regional rail network is a dysfunctional mix of broad gauge and standard gauge lines as shown in Fig 1 below. The gauge split – according to BITRE (May 2023) is 1849 km of standard gauge and 2439 km of broad gauge. Rail freight operators are increasingly finding they cannot afford to have multiple fleets in Victoria where the broad-gauge component has relatively poor utilisation and no relevance or usefulness in the national context. Gauge standardisation of the balance of Victorian freight lines is critical for network resilience, ready access to modern rolling stock, enhanced connectivity to ports and to the national interstate network.

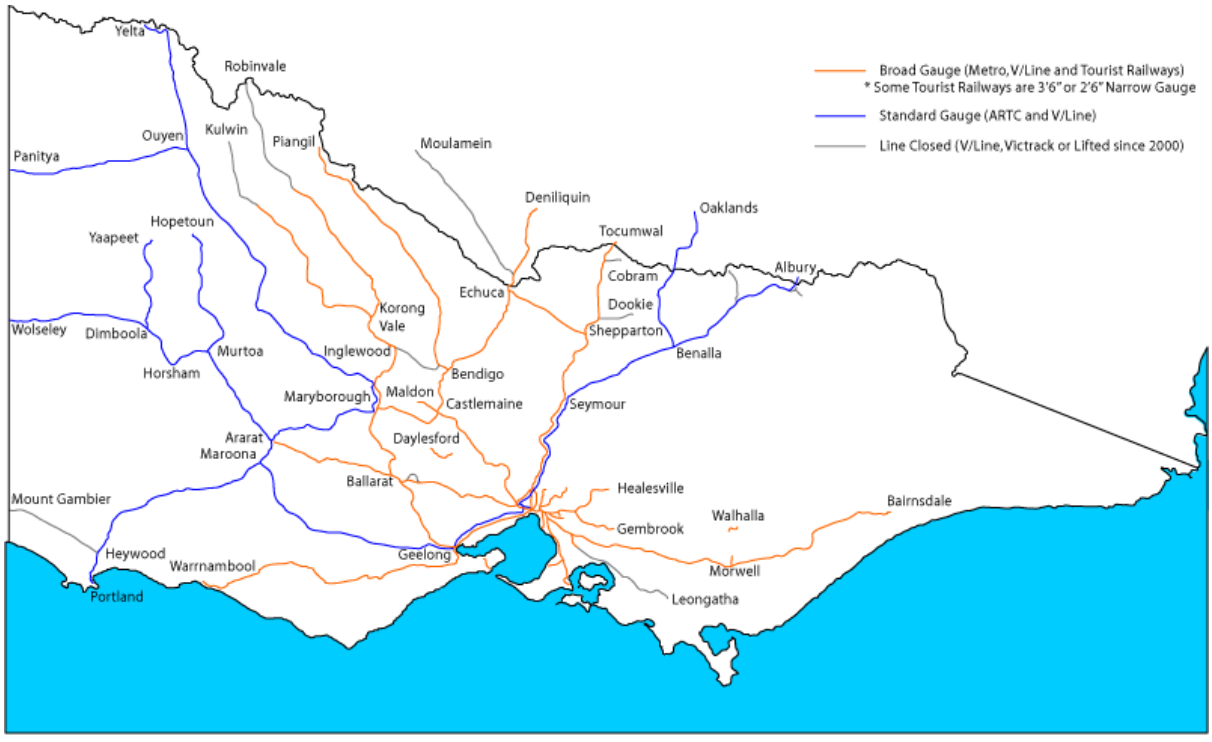

Figure 1: Victoria's regional rail system – it is not a network – showing the mix of standard gauge (1435 mm) and broad gauge (1600 mm) lines.

The recent Murray Basin Project (jointly funded by the Commonwealth and State) to convert Mildura/Yelta, Murrayville, Sea Lake and Manangatang lines and connecting links to standard gauge ran into problems and was not completed. The consequence is a significant additional fracture in the freight network and a notable degradation in freight productivity – a complete reverse of the outcome that justified the project in the first place. Leaving this project half completed will only prolong the 'agony' for rail

freight in this state and may well have a much more serious long-term implication for all ‘freight only’ rail lines.

In addition, sections of the Victorian rail freight network have degraded with too many temporary and permanent speed restrictions. The most significant of these is the 172 km line between Maroona and the Port of Portland which has had its maximum speed reduced from 80km/h to 40 km/h due to degraded track. The line is of critical importance to one of Victoria’s three export ports. The Portland line is restricted to 19 TAL whereas trains to Geelong or Melbourne are permitted 23 TAL. This had put the Port of Portland at a serious competitive disadvantage for exports (particularly grain and mineral sands) relative to the Ports of Geelong and Melbourne. This is causing freight clients to consider road transport for tasks that would normally be ideal for rail.

Portland line maintenance is the responsibility of the Australian Rail Track Corporation under the terms of its 60-year lease from the Victorian Government. However, it has been apparent for some time that ARTC is reluctant to fund the required catch-up maintenance on this line because there is little short term prospect of the cost being offset by access revenue from the line’s limited traffic, notwithstanding medium-term potential for significant movements for export of minerals, grain and timber products.

This poses an important dilemma because the line is of significant economic and strategic importance to Victoria and the Commonwealth. It calls into question the ARTC’s charter which requires it to operate on a commercial basis. It also raises the question as to whether it is still appropriate for ARTC to be the custodian and maintainer of secondary lines which provide a net economic benefit but are often not financially viable. A preferred option may be for it (and possibly others) to be returned to State control similarly to other branch lines linked to (in this case) the main Melbourne to Adelaide corridor.

In the specific case of the Maroona-Portland line, it is ARTC which has allowed this important line to deteriorate over a decade or more to the point where it is now barely operable due to slow speed, extended crew time and effects on equipment utilisation. The solution we propose involves a cooperative ‘win-win’ agreement between Victoria and Commonwealth whereby the Commonwealth funds rectification of the maintenance backlog on a “one-off” basis after which the line’s lease is terminated by mutual agreement and responsibility for all future custodianship and maintenance reverts to the State.

Rail Futures Institute submits that an updated National Freight and Supply Chain Strategy would identify unresolved gauge and track condition issues such as those in Victoria and incentivise the relevant parties to actively seek ‘win-win’ agreements that overcome the negative impacts on rail freight demand.

10. Should Short Lines have a role in Australia?

For decades, both Canada and the United States have permitted, and in some cases, governments have given financial and legislative support for the operation of short lines. This was addressed in the 2007 Commonwealth Parliamentary report *The Great Freight Task* which states that "*the concept of local businesses and authorities arranging to take over the short regional lines, with some help from the State or Australian governments, could be a useful way of keeping the [rail] infrastructure available".*

As noted by Gray, Laird and Montague in a December 2016 Railway Digest article, *The prospects for short line operations in New South Wales,* the North American short line system demonstrates how low traffic branch lines can be made viable. Following extensive abandonment of branch lines by Class 1 railroads, sufficient of them have been retained and prospered to now supply around 25 per cent of Class 1 main line traffic. Since rail deregulation in 1980 in the United States allowed the Class 1s to cease operations on low density lines, some 550 minor lines have been abandoned by the big companies but have either continued or revived as relatively autonomous regional and 'short lines'.

In general, survival has been achieved through local management raising traffic density through local community support and knowledge. In many situations, the short lines enable door-to-door, origin to destination service, thereby avoiding transhipment costs. To use terminology often applied by advocates for road upgrades, these are 'last mile' railways.

The North American short line system is aided by the Class 1's retention of carload service. An equivalent to carload, or at least less than trainload, service is possible and can occur in Australia, with or without containerisation.

Vertical integration of railways in North America and a more flexible regulatory environment than in Australia helps short lines.

There are some aspects of Australia's rail freight system which should simplify and facilitate short line development. Most of the relevant rail infrastructure is in government ownership and all state governments are equipped with railway administrative apparatus. In Canada and the Unites States, when abandonment has been proposed, local and provincial/state governments have often become involved in rail freight issues where they had no responsibilities in the past. In Australia, this occurs for roads with local government having engineering expertise, but not for rail.

Rail Futures Institute submits that the new NFSCS should include consideration of the potential benefits of Short Lines in the Australian rail context and whether their emergence should be facilitated.

11. Conclusions

Rail Futures Institute 2015 submission to the NFSC noted that Australia's rail freight networks have a major role in many supply chains. Whether transporting export mineral traffic, containerised export agricultural commodities 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.

In 2015 we also observed that much of Australia's rail freight system is now grossly under-utilised compared with its potential. Today it remains in need of significant modernisation and catch-up investment, particularly on the Melbourne-Sydney corridor and some 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. It is a situation that the current National Freight and Supply Chain strategy has failed to effectively address.

The freight challenges facing Australia today not only include a need to reduce transport emissions, but also to accommodate extreme weather events. This in turn requires investment to improve the resilience of rail and road networks.

Increasing the amount of freight moving by rail will not only make our roads safer and reduce maintenance costs, it makes environmental sense as rail freight produces one-third the emissions of road freight.

Rail Futures Institute submits that a new strategy should give much more attention to improving the efficiency and competitiveness of rail freight. The outcome will be reduced supply chain costs and more freight on rail. Investment by government in specific infrastructure upgrading projects is the principal pre-requisite to achieving these outcomes. Removal of steam-age alignments on the Melbourne-Sydney corridor will have the greatest impact in this regard.

Rail Futures Institute submits Australia also needs to put effort and resources into collecting, analysing, and making publicly available in a timely manner rail and road freight task data. This would allow production of KPIs that would assist in driving down emissions in land freight.