

Infrastructure South Australia 20 Year Infrastructure Plan

Submission
from

RAIL FUTURES INSTITUTE (INC)

A - 0059839B

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1. EXECUTIVE SUMMARY

Thank you for the opportunity to provide this submission in response to the Infrastructure SA 20 Year Infrastructure Discussion Paper.

The Rail Futures Institute (Inc) was registered on 25th August 2013, in compliance with the Associations Incorporation Reform Regulations 2012, Victoria as:

The Rail Futures Institute Inc No A0059839B, and registered by the Australian Charities and Not-for Profits Commission as a non - fund raising entity on 28 August 2013 – **ABN 77 808 559 618**

Further details of our members, executive management team and advocacy efforts over the last decade are contained in a pdf attachment – ***“What is the Rail Futures Institute?”***

Our submission covers the following topics:

- Commentary on the current and projected future rail freight task in South Australia
- Future potential enhancements to the South Australian regional and Interstate rail networks
- Investment in South Australian and Interstate rail freight projects
- and concludes with four (4) specific recommendations relating to RAIL FREIGHT.

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2. SOUTH AUSTRALIAN FREIGHT ISSUES :

2.1 Rail Freight in South Australia – Current and Projected

The 20 Year SA Infrastructure Plan Discussion paper comments on the existing freight task including “the bulk of our freight movements occurring by road (>80%)” and that “The national freight task is forecast to grow by 26% to 2050, with road freight forecast to grow by 77% from 2020 volumes.”

Table 1 below supports those values.

	Tonnes (000)					Percentage
	Road	Rail	Air	Sea	Total	
International	-	-	32	27,988	28,020	12%
Domestic	175,150	11,662	27	11,472	198,311	88%
Total	175,150	11,662	59	39,460	226,331	
Percentage	77.39%	5.15%	0.03%	17.43%		

Freight volumes by mode
Source: AECOM

Table 1

The freight task however should be considered in terms of tonne kilometres as this relates directly to transport cost, asset maintenance, safety and environmental impacts.

The Bureau of Infrastructure and Transport Research¹ has estimated that roads in SA carried **15.248 billion** net tonne kilometres in **2021** and will carry **20.197 billion** tonne kilometres by **2040**.

The Bureau of Infrastructure and Transport Research² also estimates the gross tonnes carried by each sector on the interstate railway network for Intermodal and Steel freight and other bulk freight.

The tonne kilometres for South Australia are estimated by multiplying those tonnages by the corridor distance and converting the tonnage from gross to net. This results in an estimate of around **10 billion** tonne kilometres in 2021.

Under the medium case, East–West non-bulk rail freight is projected to increase by 68 per cent over 2021 levels by 2050 or by 2.2% per annum.

¹Table E5 - Australian interstate, intrastate and capital city road freight forecasts –2022 update, November 2022

² Trainline 10 - 10 May 2023

Table 2 – below summarises the results with a mode share estimate of 60% road and 40% rail.

SOUTH AUSTRALIA - ESTIMATED LAND FREIGHT TASK					
(Expressed as Freight Tonne Kilometres)					
	2021	2040	Increase over 2021	Modal Split	
				2021	2040
East - West Rail	10.0 billion	14.1 billion	41%	39%	41%
Road	15.7 billion	20.2 billion	29%	61%	59%
TOTAL TASK	25.7 billion	34.3 billion	33%	100%	100%

Table 2

This does not include additional rail freight from Liberty Steel at Whyalla and Arrium at Thevenard.

2.2 East - West Interstate Rail Network

The East West Interstate rail network is a key logistics network in both South Australia and nationally.

Ongoing investment in the network will be essential to ensure that resource costs per tonne kilometre are as low as practicable. There are however some specific issues requiring attention:

2.3 Train Lengths

Train lengths on the majority of the East - West rail network in South Australia are 1,800 metres, however the Australian Rail Track Corporation has applied a restricted category for trains longer than 1,500 metres on the Adelaide to Melbourne corridor.

It is understood that there are train length limitations at the Dynon Intermodal terminal (Melbourne) limiting the number of 1,800 metre trains that can be operated in the Melbourne – Adelaide corridor, however new intermodal developments in Melbourne³ should enable more longer trains to operate between Melbourne and Adelaide in the medium term.

In South Australia around nine of 15 key crossing loops between Mile End and Wolseley have been extended to 1800 metres or are new loops of 1800 metre length but there still appears to be six loops that are only 1550 metres in length⁵.

Extension of these shorter crossing loops to allow unrestricted operation of 1,800 metre trains should be a priority.

2.4 Axle Loads

Axle loads are restricted by multiple factors including strength of bridges, sleeper type and rail weight.

Following the Federal Government’s investment in re-railing key parts of the Australian Rail Track Corporations (ARTC) network, from Adelaide to Whyalla, Tarcoola and Broken Hill there are three sections

³ The Age, 18 October, Proposed Little River Freight Terminal

⁴ Premier of Victoria - Start of Major Works at Somerton Freight Terminal – July 2023

⁵ Australian Rail Track Corporation Network Information Books

remaining that still have lighter weight rail which impose lower axle load limits and are understood to have higher rail breakage rates.

The line sections involved within South Australia still to be re-railed with heavier rail are:

- Adelaide to the Victorian Border
- 100 kilometres of the Tarcoola to Alice Springs railway (an obligation under the Alice Springs to Darwin Railway Concession Deed)
- Tarcoola to the Western Australian border

Re-railing not only results in achievement of higher rail axle loads and reliability but also offers further benefits in:

- Supporting Liberty Steel at Whyalla
- Releasing rail for potential re-use on other projects that may require rail including re-activation of the existing freight railway between Glenburnie (SA) and Heywood (Victoria) and between Taillem Bend and Pinnaroo (SA) which are discussed further below.

2.5 Cubic Freight Capacity

With the projected completion of the Inland Rail project in the early 2030's the ability to operate trains up to 6.5 metres in height (with double stack container clearance) will have been significantly improved but limited to operating on the Melbourne-Albury-Parkes corridor from/to terminals in Melbourne's North at Somerton and Beveridge. Therefore, double stacked trains will still be unable to operate between Melbourne and Adelaide. It is anticipated that, for this reason, some Melbourne-Perth trains will be re-routed to operate via Parkes and Broken Hill.

Figure 1 below, shows the remaining single stacked sections in blue after the completion of Inland Rail.

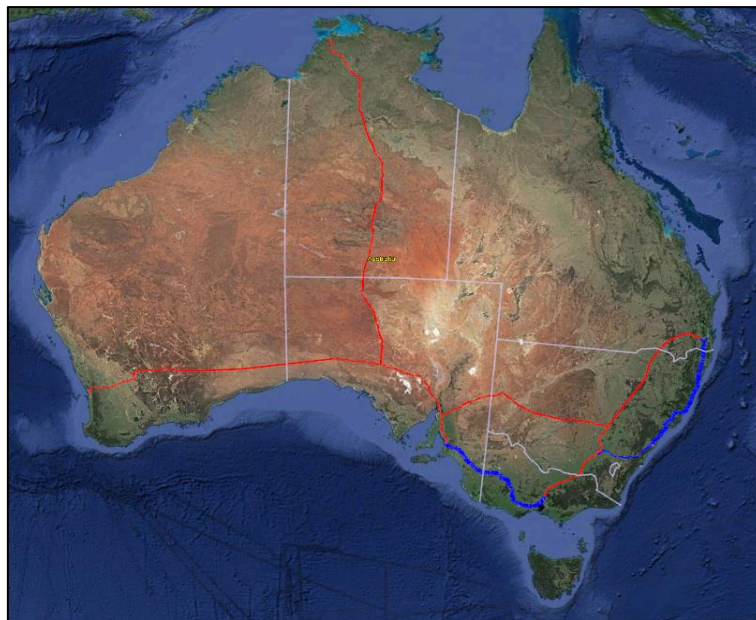


Figure 1

There are several challenges to achieving double stacking of container trains between Adelaide and Melbourne including tunnels in the Adelaide Hills and within the Melbourne Metropolitan Area.

The Victorian Government proposes to construct a new Outer Metropolitan Rail Corridor that would allow double stacked container trains to operate to/from the Adelaide and Sydney corridors with new Intermodal terminals at Little River and Truganina. This however is a longer term project and any double stacking operations which utilise these terminals may not be possible until the second half of the 20 year plan timescale (2034 to 2044).

2.6 Adelaide Intermodal Terminals

One of the significant costs of rail intermodal freight is the transfer of freight between trains, road transport and logistics facilities.

The CSIRO⁶ estimates that to transfer a 40 foot container costs \$80. In a round trip this occurs four times incurring a total cost around \$320 in transporting each container.

The location of Intermodal terminals to their clients is key as the cost of road transport for the short distance can be relatively high, the optimal solution being integrated rail / road logistics facilities on site enabling rail to become much more competitive with long road haulage routes.

Significant investment is underway on automated logistics facilities such as Moorebank in Sydney and Somerton⁷ in Melbourne with proposals for additional Intermodal terminals in Melbourne at Beveridge⁸ and Little River⁹ (by early 2030's) and Truganina¹⁰ (longer term).

It is recommended that in conjunction with the Private sector, the Australian Rail Track Corporation, National Intermodal Corporation and State Government investigate the opportunity for the type and location of potential intermodal and integrated logistics facilities, in particular to ensuring relevant land use planning policies are in place and suitable road access and other supporting infrastructure are planned.

2.7 Potential Economic Benefits

The potential benefits of the combination of longer trains and double stacking add up significantly.

Using the **Australian Transport Assessment and Planning Guidelines** it is estimated that the potential savings in resource costs could be in the order of 30% for Intermodal trains operating between Melbourne and Adelaide.

Over 50 years at a growth rate of 2.2 % p.a. the resultant economic benefits (50 years at 7% discount rate) could be in the order of **\$1 to \$2 billion** dependent on assumptions around any mode shift.

2.8 Re-connecting Regional South Australia to the ARTC Network

There are railway lines in the South East and Southern Mallee regions of South Australia that currently do not operate any train services.

Figure 2 below shows the railway lines from Mount Gambier to Heywood in Victoria (**Light Green**) and from Tailem Bend to Murrayville in Victoria (**Pink and Red**).

⁶ Inland Rail Supply Chain Mapping Project: Reference Case Modelling – Page 60

⁷ Premier of Victoria - Start of Major Works at Somerton Freight Terminal – July 2023

⁸ National Intermodal completes acquisition of land for the Beveridge intermodal precinct – June 2023

⁹ The Age, 18 October, Proposed Little River Freight Terminal

¹⁰ Herald Sun, October 5 2023, Untangling the Freeway Chaos, Outer Metropolitan Road and Rail Corridor



Figure 2

If works were undertaken to standardize and upgrade two of the highest priority railways in co-ordination with the Victorian Government facilitating similar works on their side of the border, this would enable the connection of those regions to the East - West and North - South Interstate rail networks.

Both proposals are likely to involve investment from the private sector, South Australian, Victorian and Federal Governments and consequently will require cross border negotiations.

The recent appointment of a Cross Border Commissioner by the South Australian Government should help in expediting such negotiations.

2.8.1 Glenburnie (South Australia) to Heywood (Victoria) and Glenburnie Intermodal Terminal

Following rail gauge standardization in 1995, the Mid and Lower South East region was left without an operational railway to access the East-West and North-South interstate rail networks. Recently three events have occurred which indicate that re-instating rail access has become more economically viable:

- In 2020 the CSIRO in a report commissioned by Regional Development Australia Limestone Coast¹¹ (using the CSIRO’s TraNSIT dashboard) identified that an Intermodal terminal at Glenburnie and combined re-activation / standardization of the 81 kilometre rail line to Heywood in Victoria appeared to have the highest potential freight cost savings of multiple options considered, one of

¹¹ Rail corridor and freight analysis for the Limestone Coast and South West Victoria

which was alternatively re-activation and standardization of the dormant broad gauge rail line between Mount Gambier and Wolseley.

- The Green Triangle Forest Industries Hub¹² has identified significant opportunities to increase the value of wood products produced in the Green Triangle Region. The impact of this would be many more tonne kilometres of freight being generated in supplying value-adding end users in Australia than has been the case in the past with export of relatively low-value woodchips and logs from the Port of Portland to overseas buyers.
- The District Council of Grant (South Australia) is undertaking a review of land use planning policies across the council including a proposal to establish an industrial estate at the Glenburnie Saleyards, which could logically be complemented by an adjacent Rail / Road Intermodal terminal.

Shown below - location of the proposed Glenburnie Intermodal Terminal and in green rail line to be re-instated.

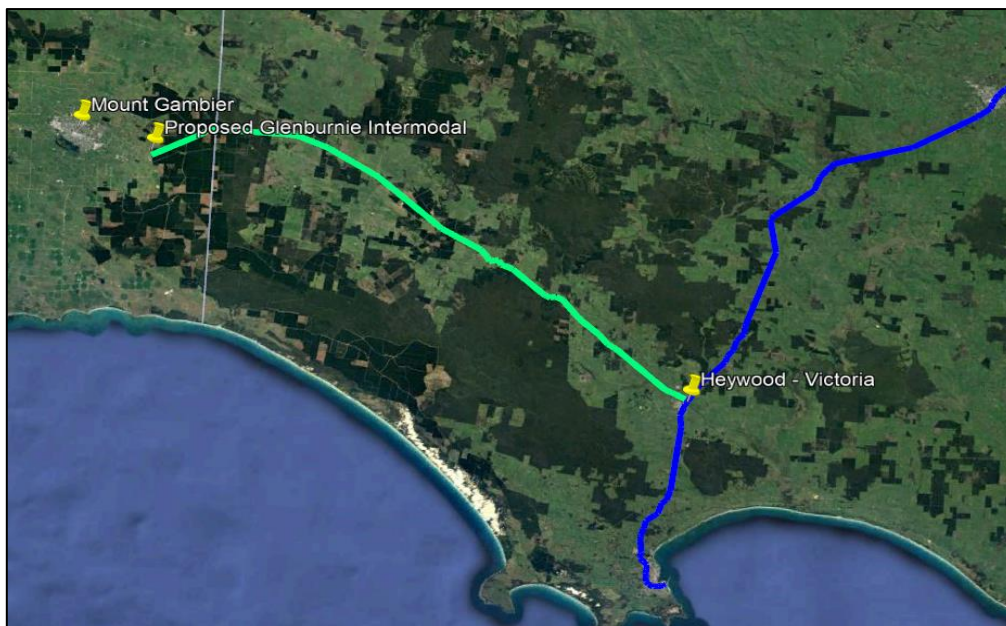


Figure 3

Use of rail will result in lower transport resource costs for industry, plus significant community benefits in terms of enhanced road safety, less road damage and maintenance issues. There are also significant environmental benefits through reduced GHG emissions, air pollution and noise nuisance in restoring rail freight services between Glenburnie and the ARTC network at Heywood (Victoria).

For the transport industry, reducing damage to trucks and addressing a critical shortage of qualified truck drivers are added advantages of transferring more freight from road to rail.

It is understood that there is strong cross-border support for this project from Regional Development Australia Limestone Coast, the City of Mount Gambier, District Council of Grant, Regional Development Australia Barwon South West, the Shire of Glenelg and Port of Portland Authority. There is still a need to refine the business case, determine industry's willingness for rail to be part of their logistics solution and to determine how such a project would be funded and delivered.

¹² Building the Nation: Growing the Green Triangle's Contribution to Australia's Future

A key step in this process would be to have the project listed on the Commonwealth Government's 20 Year Infrastructure Plan. This would be a catalyst for further consideration of the proposal by industry and the Federal, Victorian and South Australian governments.

2.8.2 Pinnaroo Line

Prior to 1995 the Tailem Bend and the Murray Basin in Victoria were connected by a broad gauge rail link through Lameroo and Pinnaroo to Ouyen in Victoria.

Historically, before 1995, grain was transported from Victoria to Adelaide for export along this railway line.

Following gauge standardization in 1995 the railways from Tailem Bend to Pinnaroo and to Loxton were also standardized with funding provided by the South Australian Government in the late 1990's but rail freight operations ceased on both lines in 2015.

In 2020 the railway line from Ouyen (Victoria) to Murrayville was converted to standard gauge and upgraded as part of the Victorian and Commonwealth Government's Murray Basin rail standardization project¹³.

There however remains 20 kilometres of broad gauge track between the Grain Flow bulk grain receival site on the South Australian side of the border and Murrayville in Victoria, this requiring standardization to allow through train operations to resume between Ouyen (Victoria) and Tailem Bend (SA).

Combined with any necessary upgrading of the rail line between Tailem Bend and the Victorian Border by the rail asset owner Aurizon, this would then enable rail freight to flow between the East - West interstate rail line at Tailem Bend and the Victorian Mallee region.

Figure – 4 below shows the extent of the three railway elements.

- Tailem Bend to Pinnaroo – standard gauge but no train services currently (Pink)
- Pinnaroo to Murrayville – broad gauge, requires upgrading and standardization (Red)
- Murrayville to Ouyen – recently upgraded and converted to standard gauge (Blue)

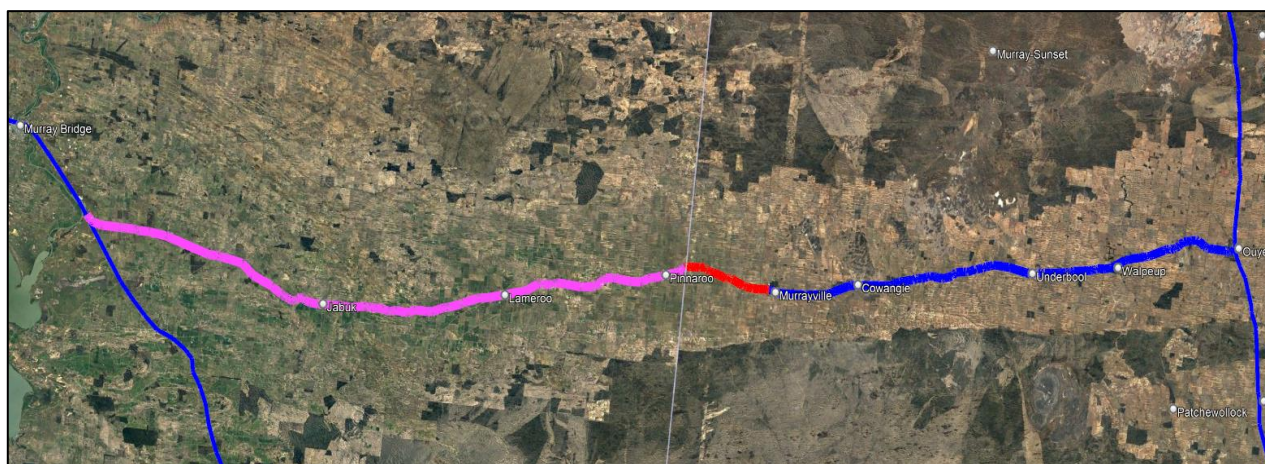


Figure 4 – below, shows the reduction in bulk freight transported since cessation of rail freight services in 2015¹⁴.

¹³ Premier of Victoria, Progressing with The Murray Basin Rail Project, July 2022

¹⁴ Trainline 10

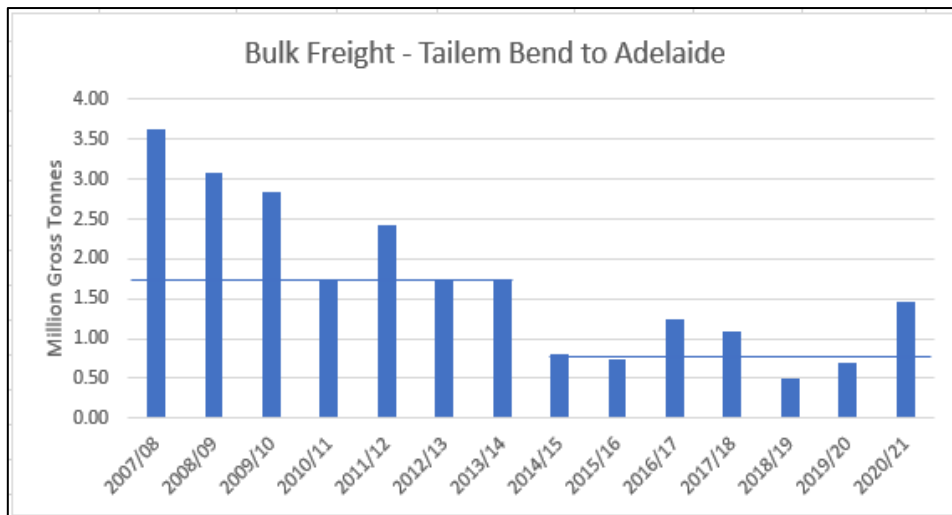


Figure 4

As there is now also the potential of other freight commodities to and from the Murray Basin this is a project recommended for more detailed investigation in conjunction with Victoria. There is still a need to determine the potential freight flows and how such a project would be funded and delivered.

A key step in this process would be to have the project listed on the Commonwealth Government’s 20 Year Infrastructure Plan. This would be a catalyst for further consideration of the proposal by Industry and both South Australian and Victorian Governments.

2.8.3 Other Rail South Australian Regional Lines

Any assessments of the viability of re-activating the remaining non-operational broad gauge railways from Mount Gambier to Wolseley and Millicent, and between Tailem Bend and Loxton should not be undertaken until such time as the higher priority Glenburnie to Heywood and Tailem Bend to Murrayville projects have progressed.

The Rail Futures Institute (Inc) also supports resumption of rail freight train operations on the South Australian Eyre Peninsula (narrow gauge) and Leigh Creek (standard gauge) rail lines.

3. RECOMMENDATIONS:

3.1 That a table showing the estimated tonne kilometre land freight task in South Australia of 25.7 billion tonne kilometres in 2021 and increasing by 33% to 34.3 billion tonne kilometres by 2040 be included in the 20 Year SA Infrastructure Plan.

With modal shares remaining constant at Road 60%. Rail 40%.

(2021 - Road 15.7 billion tonne kms, Rail 10.0 billion tonne kms;

2040 - Road 20.2 billion tonne kms, Rail 14.1 billion tonne kms.)

3.2 That the Australian Rail Track Corporation (ARTC) continues to invest in upgrading of the rail infrastructure in the Melbourne – Adelaide corridor including replacement of

lightweight rail between Adelaide (SA) and Serviceton (Victoria) and extension of all crossing loops to allow un-restricted operation of 1800 metre long freight trains.

3.3 The Private sector, Australian Rail Track Corporation (ARTC), the National Intermodal Corporation, and South Australian Government plan and invest in high efficiency intermodal facilities connecting to both road and rail networks.

3.4 Restore and enhance freight access to the standard gauge Interstate and Victorian rail networks from South East South Australia (Glenburnie to Heywood, Victoria) and from Taillem Bend (SA) to Murrayville (Victoria).