



**Australasian
Railway
Association**

Victorian Freight Policy Submission

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ABN: 64 217 302 489

**FREIGHT
ON RAIL
GROUP** 

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Executive summary

The Australasian Railway Association (ARA) is the peak body for the rail sector in Australia and New Zealand, and advocates for more than 240 member organisations across the industry. This submission has also been developed with the Freight on Rail Group (FORG) of Australia, a freight rail industry group representing nine major rail freight businesses.

This submission has been prepared to inform the current review of the Victorian Government's freight strategy. The rail freight sector is optimistic about the opportunity this review represents to realise the environmental, community, safety and transport benefits that rail freight can deliver for Victoria and Australia.

The benefits of securing a greater proportion of freight on rail are well documented and understood – see pages 11-13. What has been less well understood over time are the challenges which undermine the reliability, cycle time, price and overall efficiency which informs freight customer decision-making. Independently and comprehensively investigating these challenges and solutions to address them was the focus of the industry-led [2023 Future of Freight Report](#), from which this submission draws extensively.

Relying on this contemporary analysis of problems and solutions, the recommendations advanced below primarily focus on addressing the underlying causes of low rail freight mode share in contestable freight.

There is a significant opportunity to drive down freight emissions immediately and help the State of Victoria meet their ambition emissions reduction targets through a shift of freight from road to rail. There has been limited success to date of measures intended to incentivise or encourage mode shift. This submission seeks to advance a number of recommendations which would address the core drivers of the lack of efficiency, reliability and productivity which see freight customers continuing to prefer road freight to meet their needs.

Summary of recommendations

Noting the extensive and detailed discussion paper, for what we see as such a critical policy to the future of Victoria, this detailed submission has been developed drawing on industry intelligence and consultation, contemporary research from the industry-led [2023 Future of Freight Report](#) and case studies.

To make the output more accessible, an overview which focuses on the key actions being recommended by the rail freight sector has been prepared, with more extensive supporting evidence attached.

The following table provides an overview of the recommendations which the rail freight industry believes, if implemented, will directly contribute to achieving a higher rail mode share across Victoria, support the efficiency, productivity and competitiveness of rail freight services, help position rail to thrive as an important part of Victorian and national supply chains, and help mitigate risks which could impact the rail freight sector over coming years. Each recommendation is supported by considered evidence, commentary and case studies in the sections attached.

Given the market conditions and prevailing economic climate impacting Australian governments, the recommendations seek to focus on opportunities to improve the quality, resilience and connectedness

of Victoria and national supply chains through policy and coordination wherever possible, before considering the need for major infrastructure investments.

Although all the recommendations in the table are important, we propose that the following key recommendations should be given the highest priority:

- 1. Assess long term network capacity requirements and development of a 10-15 year Network Investment Strategy;**
- 2. Strategic Governance under an empowered Freight Victoria;**
- 3. Freight Service-Level Agreements on the MRN;**
- 4. Network resilience planning and improvement aimed to improving the reliability of rail freight;**
- 5. Further improvements to level crossing safety across all Victorian networks;**
- 6. Intra-state interoperability to enable more efficient reliable operations across rail networks, aligned with national interoperability priorities; and**
- 7. Incentive or pilot programs to facilitate decarbonisation.**

Further details about these key recommendations are contained in the table below.

Rail freight in Australia is considerably constrained by the differences which exist between jurisdictions and intra-state networks. A lack of interoperability across the country is the single most significant drain on productivity for the rail freight sector, directly contributes to the cost of operating rail freight services, reduces operational efficiency and flexibility, dampens the uptake of new technology and pace of innovation, and ultimately hampers the ability to compete with other transport modes. Many of the challenges which could be classed as ‘interoperability’ challenges can be addressed without significant outlay of resources through better alignment and coordination of Victoria state agencies and contracted service providers.

The table below seeks to provide an indication of the relative expense to the Victorian Government for a given recommendation, as well as a rating the likely contribution to increasing rail mode share.¹

Recommendation	Page #	Cost implications	Impact on rail freight mode share
Coordination Power - Empower Freight Victoria by elevating representation to Deputy Secretary level with DTP with a whole-of-government mandate and appropriate resourcing to oversee and coordinate Victorian Government agencies to implement the refreshed state freight policy, including powers to compel	19	\$	High

¹ Note – in cases where the impact rating has been assessed as low, we are advancing this recommendation due to the obvious safety, environmental or other social benefits.

coordination and transparent public reporting to Minister for Freight and Ports 6-monthly on actions, network outcomes and performance.			
Contract Updates - The new metropolitan operating franchise contracts should be updated to reflect the role of the metropolitan network operator in facilitating, planning for, and engaging with freight customers.	19	\$\$	High
Assess long-term network capacity requirements - Consistent with the 2019 National Rail Action Plan, the Victorian Government should lead action amongst state and federal peers to coordinate assessment of long-term network capacity requirements, and the extent to which this may require additional rail corridors (including freight only corridors in urban areas) beyond those for which corridor preservation is complete or underway.	29	\$\$	High
Terminal investment fund - Establish a terminal investment fund to support suitable initiatives to achieve network connectivity for new terminals or terminal upgrades with industry co-investment.	41	\$\$	High
Re-consider road-user charging policy - Policymakers should re-consider the benefits of Mass Distance Charging in relation to setting road user prices on a basis that are able to better reflect full cost recovery, including sunk capital and externalities.	29	\$\$	Medium
Infrastructure priorities – Consider the table of freight infrastructure priorities proposed by industry.	34	-	-
New CBA framework - Infrastructure Victoria develop a new standard template for the development of Cost Benefit Analysis (CBA) framework for road and rail infrastructure proposals which appropriately accounts for externalities to be used across Victorian agencies.	41	\$	Medium
Managing the impacts of disruption and uncertainty			
Strategy governance - Leadership of Freight Victoria manage and maintain a regular forum attended by all RIMs, all operators, Freight Victoria, Freight Branch and industry representatives to establish executive-level focus on the implementation of the forthcoming state freight policy, managing operational difficulties and advancing harmonisation initiatives recommended throughout this submission, including production of 6 monthly reports to Ministers and published online against strategy KPIs.	18	\$	High
Rail freight service coordination - Commission an investigation into the most effective rail freight coordination model to optimise the efficient movement of rail freight across the multiple rail networks in Victoria.	24	\$	High
Freight SLAs on the MRN - Review passenger priority access arrangements to resolve a more flexible and transparent	24	\$	High

approach to managing network access across passenger and freight services, supported by the signing of Service Level Agreements.			
Freight Impact Assessment - Require major project proponents to complete a 'Freight Impact Assessment' when planning works which will have network impacts to increase the transparency of disruptions to commercial freight activity, assign an economic value to the disruptions and encourage better planning practices to mitigate impacts.	40	\$	Medium
Track Possession Reporting Mechanism - The Victorian Government to develop a consolidated reporting mechanism or process to advise operators of upcoming track possessions; whilst also considering the impact of freight on track possessions, not just on passenger operations.	41	\$	Medium
Network resilience planning - The rail freight sector urges the Victorian Government to invest in similar hydrological modelling and network planning to identify key vulnerabilities and provide funding for upgrades and opportunities to 'build-back-better' to RIMs outside of BAU revenue streams and network maintenance.	43	\$\$	High
Level crossing safety compliance - Align priorities of regional highway patrol authorities to treat level crossing risks seriously, and create a dedicated reporting mechanism for rail freight operators to report incidents and near misses for compliance action. This should be complemented by greater use of mobile technologies for enforcement, reducing the burden on police.	44	\$	Low
Inactive LX signage - Fund Rail Infrastructure Managers to invest in a proactive program to replace all signage at level crossings on closed rail lines with fit-for-purpose signage, and develop a streamlined process for the formal and public closure of crossings not in use.	44	\$	Low
Consider LXs in PBS approvals - Review local, state and national roads which can appropriately accommodate heavy vehicles of different types (based on weight and stopping speed primarily) considering the number and type of level crossings to inform the NHVR PBS approvals and permits.	44	\$	Low
Data and monitoring supply chain performance			
Rail freight target – Develop a Victorian Government goal for 30% of contestable freight volumes being moved throughout the state on rail, as a total proportion of volume in transit, as a feature of the updated policy and develop specific actions to achieve it.	13	\$	High
Data sharing - Rail Infrastructure Managers (with the support of rail operators) should commit to regularly provide BITRE and the National Freight Data Hub with rail freight datasets, that are relevant to informing transport policy decisions, including freight	14	\$	Medium

volumes, freight types (to the extent ascertainable) and origin-destination (with the recent Memorandum of Understanding between BITRE and ARTC providing a template for this data collection).			
Public reporting on rail freight performance - Require all Victorian agencies (including the Environmental Protection Agency) impacting rail freight policy to report every 6-months to Ministers and publish reports on freight performance metrics and how it has supported the delivery of the renewed freight strategy.	22	\$	High
Performance reporting - To better understand and monitor the reasons for late running of trains, RIMs and rail operators, DTP Vic/Freight Victoria should develop standard reporting metrics to monitor network and fleet performance and proactively agree strategies to address challenges identified.	34	\$	High
Public rail investment pipeline - In the absence of a national coordinating body, state governments should regularly re-view and re-publish their rail investment pipelines, as well as committing to the priority project recommendations of Infrastructure Australia.	38	\$	Low
Land use planning			
Land zoning - Retain existing industrial land and expand supply through rezoning and servicing of additional land. Existing industrial land (including in urban areas) should not be rezoned for other uses.	28	\$	Low
Division of industrial lands - Prevent the subdivision of large parcels of industrial land into small lots unsuitable for freight, logistics and industrial activities and encourage the consolidation of small industrial lots into larger land parcels.	28	\$	Medium
Planning policies to support freight - Optimise the use of industrial lands and avoid constraints from urban encroachment by improving the planning approvals process; improving design standards of residential developments in urban areas; and creating buffer zones to minimise impacts on communities.	28	\$\$	Medium
Planning for further urbanisation - The Victorian Government must consider how the competing demands of passenger and freight rail will be provided for over time, and how the state can successfully balance urban densification with the need to increase transport capacity for both freight and passenger services of all modes in urban areas while protecting rail freight capacity on the shared network.	28	\$\$	Medium
Planning Approval Priority Alignment - A working group comprised of Commonwealth & State representatives should be established to ensure alignment of priorities and ensure strategies are being implemented that are focused on alleviating planning impacts on project budgets and delivery timelines. Beveridge Intermodal Precinct is currently awaiting planning	28	\$	Medium

approval so is a highly relevant current project that will benefit from a planning working group and can be used as a test case.			
Freight Impact - With the progress of Victoria's Big Build and major projects across Victoria, greater understanding, and consideration of the impact on freight must be considered and factored into decision making processes. To optimise conditions for rail freight, priority must be given to gauge standardisation of the regional rail network, in particular, rapid completion of the Murray Basin Rail Project.	28	\$\$\$	High
Major Infrastructure Approvals - Develop a 'case management' model for planning approvals for major infrastructure projects.	28	\$\$	Medium
Harmonisation			
Freight Access Alignment - Victorian Government ensure alignment of public infrastructure managers with the port rail task including establishing a Freight Level of Service (FLOS) for the shared freight and passenger network, and development of a clear and transparent definition of "passenger priority".	22	\$	Medium
Intra-state interoperability and coordination - Prioritise the introduction of centralised guidance across all Victorian agencies (and in line with progress to achieve this nationally) that promote safety and productivity gains through operational harmonisation and work to identify the specific actions required to address high priority harmonisation related constraints, including actions agreed to under the National Rail Action Plan and other regulatory reviews.	22	\$	High
Reform rail type approval - Conclude the trial of standardised type approval underway in partnership with TfNSW, share learnings with industry, and consider ways to accelerate progress on type approval harmonisation within Victoria, and across jurisdictions and RIMs.	30	\$	Medium
Adopt national local content policies - Adopt a holistic, national approach to the application of local content policies in procurement requirements, evaluation, compliance, and auditing processes.	31	\$	Low
Support a national pre-qualification scheme - Support the expansion of the Austroads national pre-qualification scheme to incorporate rail infrastructure projects and participate in the develop and roll out of the expanded scheme supported by a national online portal.	32	\$	Low
Implement Project iTRACE - Implement Project iTRACE by preparing, sharing and maintaining material master data in a digital format, and ensuring you and your suppliers are marking components with GS1 barcode standards.	32	\$	Medium

Signalling harmonisation - DTP Vic prioritise work with ARTC and across local RIMs to develop a harmonised signalling and train control environment with single driver interface as per National Cabinet prioritisation and in coordination with the NTC.	34	\$\$\$	High
Integrated automated scheduling - Commitment by all Victorian RIMs and ARTC to the development of an integrated automated scheduling system across the entire intermodal network, including development of a technical solution to interface between individual RIM automated scheduling systems and capturing regional networks significantly interacting with the interstate network.	34	\$\$	High
Bogie exchange model investigation - Investigate models to facilitate bogie-exchanges for rollingstock conversion to increase fleet flexibility and responsiveness to seasonal grain market fluctuations.	41	\$	Low
Network Investment Strategy - Require V/Line to develop a 10-15 year network investment strategy in collaboration with freight customers and operators which includes transparent consideration of strategic standardisation and connectivity opportunities and establishes performance goals across the network (including consideration of benefits of further gauge standardisation, axle load and speed improvements, increases, train length increases etc.).	41	\$\$	Medium
Developing the freight workforce			
Industry/TAFE partnership - Work with Victorian TAFE and the ARA to develop an industry partnership model with the TAFE sector to play a greater ongoing role in training the rail workforce of tomorrow and providing pathways to enter the industry for candidates not already employed in industry.	46	\$\$	Medium
Rail Safety Roles National Recognition - All Rail safety roles must hold nationally recognised units of competence, skill sets and/or whole qualifications. The curriculum for these qualifications must be generic as is the case for all other occupations.	46	\$	Medium
Domain specific competence - Domain specific competence needs to be defined for all accredited rail operators rail safety workers such as drivers and mapped to the operator's risk register. Domain specific training must be risk rated following an RBTNA process and ONRSR needs a mechanism (appropriate resources) to support industry in understanding and achieving the necessary ASQA/WHS standards to ensure reliable, robust network level assessment.	47	\$	Low
Reform ANZCO codes - Support reform of ANZSCO codes, used to identify critical skills shortages and align Commonwealth policy, to include more rail jobs, including freight driver as a 6-digit occupation.	47	\$	Low

Influencing the direction of freight transport decarbonisation

<p>National decarbonisation planning - Victoria contributes to the development of a shared national approach for governments and industry to support the decarbonisation of rail freight operations.</p>	48	\$\$	High
<p>Renewable energy access for rail - Victoria explores opportunities to develop renewable energy infrastructure along rail freight corridors to ensure certainty of supply for the industry and deliver co-benefits to communities.</p>	49	\$\$\$	Medium
<p>Optimal Mode Choice - A whole-of-systems approach should be taken to ensure the optimal use of all modes as part of a sustainable freight network in the long-term.</p>	50	\$	Low
<p>Harmonise environmental regulation - Consider opportunities to advance harmonisation of environmental regulation as it relates to rail freight across jurisdictions, ensure it is adequately informed by expert knowledge of the rail freight industry and appropriately considers the negative externalities of regulatory responses to poor performance.</p>	51	\$	Low
<p>Incentive Programs - Alongside improved efficiency, decarbonisation and infrastructure resilience, incentivisation programs should consider measures that support a reduction in environmental externalities (e.g. clean air and noise).</p>	51	\$	Medium

EVIDENCE

Background

Industry representation

The Australasian Railway Association (ARA) is the peak body for the rail sector in Australia and New Zealand, and advocates for more than 240 member organisations across the industry. The ARA's freight membership encompasses rail freight operators, rail infrastructure managers (RIMs), ports, terminal operators and other businesses in the sector. Freight member organisations include OneRail Australia, Pacific National, Australian Rail Track Corporation (ARTC), Arc Infrastructure, Queensland Rail, TasRail, National Intermodal Company, Victrack, VLine, NSW Transport Asset Holding Entity (TAHE), Port of Brisbane, Port of Melbourne, NSW Ports, Manildra Group, Rail First Asset Management, Queensland Transport and Logistics Council, as well as state transport departments.

This submission has also been developed with the Freight on Rail Group (FORG) of Australia, a freight rail industry group representing nine major rail freight businesses: Pacific National, ARTC, One Rail Australia, Aurizon, Qube Holdings, SCT Logistics, Arc Infrastructure, Watco Australia and Southern Shorthaul Railroad (SSR). This collaboration ensures that the following submission represents the view of the collective rail freight industry.

This submission has been prepared to inform the current review of the Victorian Government's freight strategy. The current strategy, "Delivering the Goods – Creating Victorian Jobs" developed in 2018, sought to position the state as a leader in freight and logistics. However, the past five years have not seen substantial progress towards the goals and objectives in the plan.

The rail freight sector is optimistic about the opportunity this review represents to realise the environmental, community, safety and transport benefits that rail freight can deliver for Victoria and Australia.

Why rail freight

The Victorian Government, along with the federal and other state governments, have previously held an explicit public policy objective to increase the share of the large and rapidly growing freight task which is transported by rail. However, strategies intended to achieve this were often not supported by meaningful actions, policies and incentives, and those which were committed to over recent years have either failed to be delivered or to drive significant change to outcomes.

Rail freight is critical for the Australian economy, directly contributing \$5.28 billion to the economy in 2019 and enabling the smooth running of modern supply chains. Rail freight carries the majority of Australia's freight task by net tonne kilometres (tkm) and does so while being the lowest emitting freight mode per tonne in CO2 equivalent and PM10. However, rail freight in Australia is predominately made up of bulk commodities such as coal, grain and in particular iron ore.

In practice, prices paid by individual freight transporters do not necessarily reflect the actual costs incurred by freight activities. These unpaid costs or externalities are usually paid for by society. The data presented below are drawn from the [ARA Value of Rail 2020 report](#).

Environmental benefits - Rail accounts for over half of land-based freight transport. Even though road moves less goods by tkm, at the time of last analysis in 2019, road freight

generated almost nine times as much CO2 equivalent emissions as rail freight.² When directly compared, rail freight produces 16 times less carbon pollution than road freight per tkm travelled. A 1% modal shift away from road to rail, this would result in reduction in emissions nationally of 330,150 tonnes of CO2 equivalent.

More detailed information is also offered below on the ambitious work underway within Australia, and with global partners, to move away from reliance on diesel and decarbonise above rail freight operations using alternative fuel types including batteries, electrification, hydrogen and ammonia.

Safety benefits - Road accident costs are 20 times higher than rail for every tkm of freight moved. Based on ARA analysis, the annual total crash costs for road freight in Australia is estimated to cost over \$3,000 million compared to the \$282 million for rail freight.³ A 1% shift away from road to rail would reduce accident costs nationally by \$28.6 million per year.

Further, Victoria has a road safety strategy that aims to halve deaths by 2030 and eliminate all road related deaths by 2050; yet the instances of road trauma are increasing. The opportunity to transfer volume to rail could help address the increasing number of heavy vehicle incidents which appear to continue to be rising in line with the growth in heavy vehicle permits, despite the arguments made about the introduction of new and higher-productivity vehicles being predicated on safety.

Health benefits - Transport is one of the main contributors to air pollution in dense cities, resulting in negative health outcomes. Particulate matter causes breathing difficulties and exacerbates respiratory diseases, ultimately this leads to lower quality of life and reduced lifespans. Rail freight generates 92 per cent less PM10 than road freight for each tkm of freight moved.⁴ A 1% modal shift away from road would result in reduction in health costs caused by PM10 emissions nationally by \$20.5 million annually.

² Value of Rail 2020, ARA, <https://ara.net.au/wp-content/uploads/REPORT-ValueofRail2020-1.pdf>, P.50.

³ P.52.

⁴ P.54.

Rail Safety

The rail industry is proud to have a reputation as maintaining extremely high safety standards for employees, passengers and the public. When thinking about freight specifically, rail compares very favourably to road-based freight transport. Physical separation from the public in a well-controlled corridor eliminates many of the risks present when navigating public roads.

The co-regulatory model used to manage risk in the rail sector has been successful at engendering a culture of continuous improvement and fostered innovative solutions to be developed for risks and hazards at a local level. The creation of the Rail Safety National Law (RSNL) was a significant step forward towards building a truly national rail sector and provides a platform to drive harmonisation which has the potential to deliver considerable benefits to industry efficiency, productivity, and workforce.

Rail businesses demonstrate a strong ongoing commitment to investment in technology, processes and systems, and incident reviews and investigations to improve the overall safety of operations. Overall, we have seen consistent effort applied to removal of people from areas of high risk over recent decades, with technology facilitating remote operations for key aspects of equipment, maintenance and control, from a few metres away to many hundreds of kilometres. Automation and data intelligence is creating new opportunities to reduce risk to human safety and build systems that respond to changes in real time.

The one key challenge for industry posed by the co-regulatory model, is the latitude it has provided for RIMs in particular, but also other key players in the sector, to develop bespoke solutions and management approaches to risk which do not necessarily align with neighbouring networks. This has exacerbated the challenges created by network fragmentation and we have yet to see success from efforts towards voluntary harmonisation to date.

Encouragingly, a current review of the RSNL underway by the National Transport Commission (NTC) presents an opportunity to amend the law to strengthen the link between safety and productivity and drive interoperability and harmonisation. The rail freight sector is extremely supportive of an expanded scope for the Office of the Nation Rail Safety Regulator (ONRSR) in this regard.

It is for all these reasons that we argue that the Victorian Government and its agencies should not adopt a 'mode agnostic' position, but instead openly pursue measures to achieve a much greater proportion of the future freight task being managed on rail. It is also important to note, that when considering end-to-end freight journeys, rail can rarely provide door-to-door solutions and so road transport providers are critical partners.

Recommendation: Develop a Victorian Government goal for 30% of contestable freight volumes being moved throughout the state on rail, as a total proportion of volume in transit, as a feature of the updated policy and develop specific actions to achieve it.

Current rail freight mode share

The current scale of rail freight's contribution to the Victorian (and national) freight task is not well understood.⁵ This is largely due to fragmented information sources which are not regularly aggregated and analysed as well as reluctance to provide detailed operational data by freight operators who compete in a highly concentrated national market. Resolving these commercial constraints is the subject of work being led by the ARA with rail freight operators and key stakeholders. However, sources of intelligence already held by the Victorian Government through its agencies and contracted RIMs should be better utilised in a systematic way to engender a better understanding of the scope, scale, and challenges of rail freight operations.

Recommendation: Rail Infrastructure Managers (with the support of rail operators) should commit to regularly provide BITRE and the National Freight Data Hub with rail freight datasets, that are relevant to informing transport policy decisions, including freight volumes, freight types (to the extent ascertainable) and origin-destination (with the recent Memorandum of Understanding between BITRE and ARTC providing a template for this data collection).

Having identified the challenging landscape for rail freight data in Victoria, we offer the below national insights.

Formulating public policy which can positively impact the mode share of rail freight has been made more difficult by the lack of:

- high-quality, evidence-based information available on the current state of the Australian rail freight sector;
- a comprehensive assessment of the challenges which constrain the effectiveness, competitiveness and productivity of rail freight operations; and
- industry consensus on the solutions to these barriers.

To address this, the ARA, FORG and Australian Department of Infrastructure, Transport, Regional Development, Communications and the Arts (DITRDCA) invested in a comprehensive piece of research managed by the Australian Centre for Rail Innovation (ACRI, now part of the National Transport Research Organisation (NTRO)) and conducted by Synergies Economic Consulting. The final report was publicly released with the support of the Hon Minister for Transport and Infrastructure, Catherine King and key industry leaders in November 2023.

The resulting [Future of Freight report](#) represents a comprehensive analysis of the causes of constraints on rail freight effectiveness, competitiveness and productivity and makes significant recommendations on how industry and government can work together to support a stronger rail freight network and harness the significant benefits rail freight has to offer for the economy and community.

The first section of the report considering [mode share](#) offers detailed information based on contemporary data on the structural conditions influencing mode share on key freight corridors (intermodal and bulk routes) of significance to national supply chains. The relevant findings are summarised below.

⁵ See pages 14-17 of Mode Share workstream Executive Summary, Future of Freight for detailed analysis of information gaps re rail freight, <https://ara.net.au/wp-content/uploads/Future-of-Freight-Improving-modal-share-1.pdf>.

Rail is a vital part of the freight network and facilitates 56 per cent of the national freight task. While rail is a significant contributor to the transport of bulk commodities that require large volumes to be moved over long distances, its mode share is lower on key interstate freight routes, especially between Melbourne, Sydney and Brisbane.

This research revealed that rail's share of freight is only 11 per cent across the eastern seaboard, and as little as two per cent on Australia's busiest freight corridor between Melbourne and Sydney. Rail freight dominates from East to West compared to other modes and represents an average of seventy per cent of freight from Melbourne to Perth. Estimates of current mode share for the freight routes included in this study are set out in the following table. Those corridors where rail dominates are highlighted in green; those corridors where road dominates are highlighted in blue.

Table 1 Mode share (%) by corridor (2020)

CORRIDOR	HEADHAUL			BACKHAUL		
	Rail	Road	Sea	Rail	Road	Sea
Intermodal						
East West	65%	17%	18%	77%	22%	1%
Adelaide – Perth	56%	42%	3%	63%	37%	-
Brisbane – Perth	45%	31%	24%	56%	44%	-
Sydney – Perth	68%	8%	24%	88%	11%	1%
Melbourne – Perth	70%	9%	17%	87%	11%	2%
North South	11%	88%	1%	7%	93%	-
Melbourne – Sydney	2%	98%	-	4%	96%	-
Sydney – Brisbane	3%	96%	-	2%	98%	-
Melbourne – Brisbane	28%	69%	2%	17%	83%	-
North Coast Line	53%	47%	-	42%	58%	-
Brisbane – Cairns	64%	36%	-	42%	58%	-
Brisbane – Tville	83%	17%	-	66%	34%	-
Brisbane – Mackay	38%	62%	-	21%	79%	-
Brisbane – Glad/Rock	12%	88%	-	24%	76%	-

Source: Synergies

Figure 1 - From [Future of Freight mode share workstream](#), page 3.

On the north-south corridor, with shorter haulage distances, rail faces significant challenges to capturing mode share.

- Road is the dominant mode in both directions for all origin-destinations pairs. Over time, road has successfully entrenched itself to capture around 88% of the headhaul task and around 93% of the backhaul task. Rail's modal share has declined significantly since 1995, but has generally stabilised over the last 15 years. This has occurred against the backdrop of sustained government investment in upgrades to the Hume and Pacific Highways, and granting of access to high-productivity vehicles, whilst during the same time, there have no productivity benefits passed to rail freight operators.
- Rail's modal share is strongest in the long-distance Melbourne-Brisbane leg. Synergies estimates that rail achieves 28% of volumes in the headhaul direction and 17% for the backhaul (total corridor basis). However, on the shorter Melbourne-Sydney and Sydney-Brisbane legs, rail achieves a mode share of under 3%.

- There is some degree of uncertainty about road freight volumes by line segment on the north-south corridor due to the assumptions made about the geographic zone for each origin-destination pair. However, Synergies' estimates of total road freight volumes along the north-south corridor have been internally reviewed against other available information provided on a confidential basis by BITRE.

Rail's service quality (in terms of reliability, frequency and transit time) is generally poorer than for road. For rail to be competitive against road, the total cost to the customer for rail freight (including terminal and pick-up and delivery (PUD) costs) will usually need to be well below the total cost to the customer of alternative road freight services. Rail is subject to regular disruptions from track possession, which are often not aligned between RIMs.

Track possessions including track maintenance occupations do not consider the impact on freight operations as they target peak freight periods such as nights and harvest times. This impacts commercial viability especially Early Week Night Occupations (new EWNOs). This issue also arises with level crossing removal projects, freight is not considered in either the construction or operation phase of the removal project with operators estimating they lose ¼ of all capacity annual to occupations for projects.

There is no evidence that suggests an increase in track possessions has resulted in a material improvement in track condition, network reliability or resilience. We acknowledge that the level crossing removal projects do improve the performance of the network overall, however coordination of track outages, rarely appropriate consider the impact on freight and are always optimized for passenger performance. This suggests that networks need to be more accountable for justifying the possessions.

However, the impact of different modal choice drivers differ depending on the type of freight. For intermodal freight, decisions about mode choice are largely based on the time sensitivity of the product's delivery, from which price/service trade-offs can then be considered.

The modal choice drivers for bulk transport are quite different compared to intermodal freight. It was concluded that pricing and the timely movement of large shipments were the critical drivers of mode share for bulk, with rail being preferred provided that the infrastructure supports an efficient train service. Analysis of other routes also came to the conclusion that extremely low speeds and differing track standards is a major constraint on operators' ability to run a viable freight service.

The relative service quality performance for road and rail, and thus reasons for rail's mode share on the north-south corridor are summarised in the table below.

Table 3 North-south corridor - service quality relative to road

Rail	
Transit time	Significantly slower to much slower <ul style="list-style-type: none">• Melbourne-Brisbane standard rail service is 25% slower than standard (solo driver) road, and 60% slower than express road• For shorter Melbourne-Sydney and Sydney-Brisbane routes, rail is well over double the transit time for road
Frequency	Moderately less frequent <ul style="list-style-type: none">• Rail offers daily service frequency, compared to road's 'as required' service
Reliability	Moderately less reliable <ul style="list-style-type: none">• Rail's reliability of achieving advertised freight availability times is around 85% in the headhaul direction, compared to road's average of 98%
Price	Moderately lower <ul style="list-style-type: none">• Rail freight (including PUD) generally 80-90% of road freight cost

Source: Synergies

Figure 2 -

From FoF mode share workstream, page 8 (<https://ara.net.au/wp-content/uploads/Future-of-Freight-Improving-modal-share-1.pdf>)

The Future of Freight report goes on to identify a number of key trends and conclusions regarding the relative performance of rail freight and thus key drivers of low mode share in the intermodal freight markets nationally. The full detail is linked in the footnote below, and can be summarised as follows:

1. The key drivers of mode choice are door-to-door price, reliability and transit time;
2. Rail has poorer service quality than road, but many customers are willing to trade off price and service quality provided their overall service requirements can be met;
3. Haul distance is important to price and service quality;
4. Shipping will return as a strong competitor for long distance freight;
5. Road productivity, supported by Government policy initiatives, has increased faster than rail;
6. Inland Rail has the potential to facilitate a step increase in rail productivity for Melbourne-Brisbane;
7. Efficient access to highly productive intermodal terminals; and
8. The relative attractiveness of rail can be significantly increased by improving rail reliability.

Victoria as part of national freight systems

The Constitution of Australia assigns responsibility for transport policy to the states, which sees the critical policy and investment responsibility for transport and freight systems residing with state actors. However, international thinking is increasingly seeing a shift towards concepts of 'end-to-end freight journeys' or 'freight-as-a-service,' in a similar way to the evolution of thinking about public transport over recent years, to focus on customer journeys and mobility-as-a-service. It is for this reason, that it is critical to understand that Victoria's decision-making and policy formation is a key part of the larger national landscape. Whilst this submission will seek to focus on the opportunities for the Victorian Government to support a thriving and effective freight and logistics sector within Victoria, this is only possible with effective coordination and collaboration at a national level which includes all states and territories.

In 2023, the DITRDCA initiated a review of the National Freight and Supply Chain strategy, putting the spotlight on what is required to ensure a modern, efficient, multi-modal and resilient supply chain servicing Australians for the future.

The ARA and FORG made a [joint response to the Review of the National Freight and Supply Chain Strategy](#), in which we urged the federal government to focus on collaborative efforts that could drive

the productivity, resilience and sustainability of national supply chains. We make the same emphasis here, and will detail further the opportunities for Victoria to proactively engage with and indeed drive the National Cabinet's Interoperability agenda being progressed through Infrastructure Transport Minister Meeting (ITMM) with the leadership of the National Transport Commission (NTC).

There is limited ability for the industry to meaningfully impact interoperability challenges constraining productivity within the current structure of authority shared by jurisdictions. In order to achieve this, there would need to be a step change in commitment to coordinated decision making in the national interest or major Commonwealth intervention.

Development of alternate options for industry coordination that are able to more effectively address these issues will be critical in enabling the development of strategies. This will work to address the constraints arising from network and jurisdictional regulatory fragmentation and will assist in reducing barriers to entry.

While alternate industry coordination options will not, by themselves, resolve these issues, more effective industry coordination mechanisms are an essential pre-requisite to the development of long-term solutions to these matters.

Recommendation: Prioritise resources within Freight Victoria and associated public service entities to drive implementation of national commitments to deliver rail system interoperability across Victorian assets (track gauge, signalling and associated infrastructure) and pursue change or coordination where required to deliver interoperable operating conditions (safeworking rules, training requirements, rollingstock approval and testing requirements etc.).

POLICY & REGULATORY SETTINGS

Improving the efficiency and safety of Australia's rail system by continuing to align or harmonise operating rules, infrastructure and operational standards and systems across the nation's rail network is a key priority for the Victorian rail freight sector.

The lack of a national rail systems perspective is compounded by the increasing sophistication of below and above rail technology, rollingstock, signalling and communication systems. These factors stand to exacerbate interoperability issues over time.

Furthermore, these concerns are further exasperated in Victoria by the present of multiple, non-aligned parties all with conflicting priorities and ways-of-working. These organisations include the Department of Transport and Planning including Freight Victoria, VicTrack, V/Line, the Victorian Infrastructure Delivery Authority (VIDA), including the Level Crossing Removal Project, Regional Rail Revival, as well as Metro Trains Melbourne (MTM). There is very limited accountability for access providers to account for and explain decision making that directly affects freight operators.

Outside of Freight Victoria, this is little industry-specific knowledge or senior management with freight industry experience. For example, MTM have no dedicated staff members with a role to consider, plan for, engage with or facilitate freight access or outcomes. This should be resolved through the elevation of Freight Victoria within DTP Vic to the level of Deputy Secretary; this would ensure the freight receives the elevation and recognition of its role in the Victorian economy. This could also be remedied through contractual requirements and KPIs with the renegotiation of the metropolitan franchise agreement.

Recommendation: Empower Freight Victoria by elevating representation to Deputy Secretary level with DTP with a whole-of-government mandate and appropriate resourcing to oversee and coordinate Victorian Government agencies to implement the refreshed state freight policy, including powers to compel coordination and transparent public reporting to Minister for Freight and Ports 6-monthly on actions, network outcomes and performance.

Recommendation: The new metropolitan operating franchise contracts should be updated to reflect the role of the metropolitan network operator in facilitating, planning for and engaging with freight customers.

Overall, the rail freight sector's experience of engagement with the Victorian Government, has been limited. Whilst Freight Victoria, has continued to engage extensively with industry bodies, there is a need for broader engagement with industry to better understand the needs and priorities of key freight customers and exporters.

Freight Victoria's ability to drive effective whole-of-government policy and sector outcomes is constrained by the structural makeup and lack of ongoing resources and influence. This results in limited accountability of other bodies to implement change, commit to actions or ability for Freight Victoria to compel whole-of-government coordination for freight outcomes.

Recommendation: Leadership of Freight Victoria manage and maintain a regular forum attended by all RIMs, all operators, Freight Victoria and industry representatives to establish executive-level focus on the implementation of the forthcoming state freight policy, managing operational difficulties and advancing harmonisation initiatives

recommended throughout this submission, including production of 6 monthly reports to Ministers and published online against strategy KPIs.

Structural constraints on rail freight productivity

Rail freight efficiency on key intermodal corridors is constrained by a number of factors, many of which are related to inconsistencies that exist between networks and between jurisdictions. There are also other factors that impact intermodal efficiency that are more industry-wide (and some that are economy-wide). All these factors impact on rail's competitiveness and, in turn, its mode share, by increasing the cost (and ultimately the price) of rail freight services and, in some cases, reducing service standards including service reliability. Importantly, these constraints further impede rail efficiency by stifling future gains from existing investments as well as discouraging future investments in establishing a more competitive rail service.

Over the last three decades, there has been significant change to the structure of Australia's rail industry. Privatisation of elements of the rail sector, together with government institutional changes, have resulted in a significantly increased number of independently managed rail networks. For those constraints that are fundamentally caused by the fragmented management of Australia's rail networks, or by the jurisdictionally based regulatory frameworks, the extent of the impact depends on the extent to which services cross separate train networks and operate within different jurisdictions.

The same regulatory framework applies across RIMs, however, co-regulatory framework means that interpretation of regulatory obligations differs by RIM. For example, across Victoria there are 8 different safeworking system environments, as a result of different signalling, communication and network control practices, meaning a high compliance burden on operators maintaining competency for drivers and train crew, limited workforce mobility and high cost of training.

In addition, multiple access agreements are required for operation of individual services. See further information under access and pathing (page 25). In Victoria in particular, the access guidelines have not been reviewed for many years, and is entirely uncoordinated with parallel undertaking reviews occurring currently across the ARTC interstate network, Queensland Rail network and NSW's metropolitan and regional networks. This alignment of review creates a unique opportunity to align access frameworks and deliver a step change in administrative red tape reduction.

The desktop literature review and direct stakeholder consultations conducted to inform the '[Safety and Operations](#)' workstream of the Future of Freight report concludes that the key operational constraints on operational rail efficiency are:

1. Inconsistent operational standards and rule books;
2. Silo based safety management systems;
3. Inconsistent physical standards and equipment;
4. Coordination of pathing, train management and possession arrangements;
5. Inconsistent access management and regulation;
6. Concentration in the above rail market due to barriers to entry;
7. Inconsistent environmental regulation;
8. Workplace flexibility;
9. Insufficient skilled labour;
10. Driver training;
11. Fatigue management;
12. Passenger priority; and

13. Lack of access to real time prediction of freight arrival.⁶

The '[Safety and Operations](#)' workstream of the Future of Freight goes on to examine how each of these constraints have the potential to influence the key mode share drivers in terms of reliability, transit time, service availability/frequency and price, and then evaluate the extent to which each constraint represents a major impediment to rail operating efficiency, but if addressed, could potentially offer material benefits in terms of improved mode share. The assessment shows there is 'no low hanging fruit' or 'easy fixes' to improving rail operating efficiency, and so recommends prioritisation of any high impact impediments that, if addressed, could potentially allow further progress to be made on the removal of efficiency constraints on an issue-by-issue basis.

The most important factors that are driving this lack of strategic alignment relate to structural market design issues (i.e. network fragmentation) as well as the absence of institutional and regulatory arrangements to improve industry coordination. These are explained as follows:

1. Network fragmentation and mixed organisational focus on intermodal freight

- RIMs are almost all expected to operate within a commercial framework and are governed by their own commercial drivers. Intermodal freight is not a priority for some RIMs, where it is a minor customer, and the RIM's commercial outcomes are largely driven by its performance in meeting the needs of its major customers (e.g. passenger services in the metropolitan networks, coal services for the Hunter Valley and Central Queensland coal networks). The problem is exacerbated where Governments, as owner or funder of networks (particularly metropolitan passenger networks), do not specify any clear freight objectives or clearly defined freight performance metrics, or where they prescribe returns or prioritise investment which is not consistent with freight operators' priorities.
- This is not a criticism of the RIMs, as they are all responding to their own organisational objectives. Rather, it is a predictable outcome of the incentives created by the governance framework and the market structure. However, given the extent of misalignment of commercial objectives, it is unrealistic to expect that the industry should be able to collaboratively reach a commercial agreement on how to address many interoperability issues, as there is little benefit to the RIMs from doing so, particularly in isolation, and potentially material costs involved.

2. Regulatory frameworks that do not promote harmonisation

- While there are long term policy agendas to promote harmonisation, the focus has been on harmonisation between RIMs through industry collaboration. This approach also runs into difficulties where the stakeholders are subject to differing jurisdictional regulatory requirements and/or are governed by different jurisdictional regulators who may have different priorities and interpretations of requirements.
- Even in rail safety, where there is a single regulatory framework and a single national safety regulator, harmonisation concerns still apply to the co-regulatory framework, which advises each RIM to develop its own safety systems to address the risks on its network has significant benefits in permitting flexibility within a network, but it does not promote harmonised approaches to managing risks across networks.
- This approach to regulation of rail networks differs materially from the regulation of other cross jurisdictional infrastructure networks, such as electricity, gas and telecommunications, as well as the road network. In these cases, the intrinsic characteristics

⁶ Executive Summary of the '[Safety and Operations](#)' workstream of the Future of Freight report, page 2.

of the service provided (where there is no equivalent complexity to the wheel:rail interface present in rail) support regulatory frameworks that are designed to promote consistency in standards and approaches in order to maximise interoperability and reduce barriers to entry.

The Victorian Government should adopt a risk-based approach for trains who utilise the shared metropolitan passenger/freight network to provide greater access for these trains, particularly during the current curfew periods. A risk-based approach could allow certain trains to access the network during current curfew periods, allowing the network managers to collect data on the performance trains to inform future decision making around expanding access further for freight trains.

This will be particularly important for effective use of the Port-Rail Shuttle Network, considering the extent of shared running on MTM track and congestion on the Frankston line through to Dandenong. Without a more transparent and flexible approach to managing capacity allocation on shared lines, it will be impossible to realise Victoria's vision for expansive use of rail from the Port of Melbourne. Further, the cost and competitiveness of rail over short distances in the metropolitan zone is poor. This is not something that can be readily addressed but is a structure difference in transport modes. Therefore, it is vital that regional freight and interstate infrastructure is of sufficient quality to support a transition of freight (particularly export) volumes from road to rail across its entire journey to port.

Recommendation: Victorian Government ensure alignment of public infrastructure managers with the port rail task including establishing a Freight Level of Service (FLOS) for the shared freight and passenger network, and development of a clear and transparent definition of "passenger priority".

Recommendation: Prioritise the introduction of centralised guidance across all Victorian agencies (and in line with progress to achieve this nationally) that promote safety and productivity gains through operational harmonisation and work to identify the specific actions required to address high priority harmonisation related constraints, including actions agreed to under the National Rail Action Plan and other regulatory reviews.

Recommendation: Require all Victorian agencies (including the Environmental Protection Authority) impacting rail freight policy to report every 6-months to Ministers and publish reports on freight performance metrics and how it has supported the delivery of the renewed freight strategy.

Impacts of network fragmentation: a case study – Rollingstock approvals

Before operating any given piece of rollingstock, operators first need to secure accreditation from ONRSR (referred to as rollingstock accreditation) and then approval to operate from each RIM it is intended to be used (referred to as rollingstock approval).

The RIM approval process is unique to each network and requirements differ between them. In many cases, the requirements for approval are not clearly articulated and available to industry participants or potential entrants prior to application. Given there are typically multiple networks per state, this results in many more regulators and quasi-regulators than above-rail operators in Australia.

As BITRE acknowledges in their 2006 report, “national train operators face more multiple generic and rail industry regulations than most other industry players”.

(Source: Optimising Harmonisation in the Australian Railway Industry, Sept 2006, BITRE, page17).

For example, a single operator Aurizon which primarily operates bulk or heavy haul services across three states must deal with six networks (including one network that Aurizon manages itself) and five regulatory authorities in addition to environmental regulators.

Operators must submit detailed and lengthy applications including technical specifications and test evidence to RIMs to secure approval to operate. Depending on the RIM, this can take anywhere from a matter of weeks to many months, and in some cases well over a year. Achieving an outcome also often requires technical expertise to be employed in-house or to be engaged through consultancy, a further cost to operators. In addition, new or innovative rollingstock is typically rejected initially as it departs from the “norm” for current rail principles, and it is these principles that are being used to assess and approve new equipment.

The constraints on interoperability imposed by rollingstock approval processes also have a negative impact on freight customer mobility within industry and hinder more robust competition between above-rail operators. For example, for specialised goods such as steel products, switching between operators is made much more difficult by the fact a prospective carrier needs to procure specialised wagons and get approval for these wagons to operate on the relevant networks. The extremely high capital cost of this investment and uncertainty and opacity of the accreditation process means this customer is very ‘sticky’ and acts as a barrier to competition.

Further, multi-layered accreditation and lack of clarity on network requirements mean operators can be tempted to purchase for the widest possible access outcome, meaning they buy for the lowest common denominator. In other words, they will identify the poorest quality track infrastructure (typically denoted by lowest axle weight or speed limit) across the networks they intend to operate and procure to ensure they will achieve access to this track. This will also act as a barrier to effective transition to decarbonised rollingstock. The confused and inconsistent rollingstock approvals thus act as a disincentive to invest to optimise rollingstock.

Ironically, the most difficult accreditation processes are typically applied in metropolitan areas where freight trains are accessing track that is shared with passenger services. Whilst this may present as logical given heightened reliability, efficiency, emissions and physical access concerns when compared with regional networks, it often results in ‘grandfathered’ rollingstock predominating on these networks, where the most desirable outcome for the industry and community would be the opposite.

Access and seamless pathing

Multiple access agreements are required for operation of individual services and often includes multiple RIM transition points during operation of individual service. This requires operators to navigate multiple access frameworks across Victoria.

Further, different train control systems, operating requirements, on-time thresholds, and possession regimes are applied by the different RIMs.

The fragmentation of access arrangements and lack of central coordination creates difficulty and complexity for operators securing contiguous paths across networks, thus increasing transit times, and reducing the ability to maximise the use of available rollingstock and network capacity. Poor operational coordination also reduces rail service reliability and increases cost by reducing rollingstock utilisation. By comparison, there are no equivalent constraints on access or productivity impacting road freight providers.

A re-alignment of incentives to promote seamless rail freight supply chains when traversing multiple networks and jurisdictions is fundamental to improving rail freight efficiency and maximising rail's ability to compete with alternate modes. This requires improved harmonisation of operational standards and processes with a focus on improving both safety and productivity, as well as improved harmonisation of environmental and access regulation and management. The rail industry, by itself, cannot achieve the necessary change; government facilitation is required in order to provide a regulatory and governance framework for developing guidance on the best practice approaches to each of these issues, as well as to resolve issues where agreement cannot be reached through collaboration alone.

Recommendation: Commission an investigation into the most effective rail freight coordination model to optimise the efficient movement of rail freight across the multiple rail networks in Victoria.

The inflexible application of passenger priority and peak curfew requirements is also challenging and excessively restrictive. They have the effect of increasing the cost of rail freight services by reducing rollingstock utilisation and ability to maximise use of rail network capacity, and reduces reliability by creating additional delays for freight trains.

Recommendation: Review passenger priority access arrangements to resolve a more flexible and transparent approach to managing network access across passenger and freight services, supported by the signing of Service Level Agreements.

It is understood that the Victorian Government is currently finalising their rail access guideline, and it is understood that the new guideline is intended to replace the previous system administered by the ESC. In the ARA's Future of Freight report the importance of achieving improved national consistency in the approach to managing rail access was highlighted. Whilst the Victorian guidelines reflect similar high-level principles as adjoining states, there has been an overall lack of alignment to the detailed process and requirements. Detail processes and requirements are equally important in achieving efficient benefits for industry.

The Hunter Valley Coal Chain Coordination (HVCCC) serves as an exemplary case study illustrating the value of central coordination and alignment of supply chain stakeholders to delivering asset utilisation, efficiency and network optimisation. The presence of a sophisticated coordination mechanism is an ideal example of how integrated scheduling, real-time data sharing, and collaborative decision-making among various stakeholders have significantly improved operational efficiency.

Case study: Hunter Valley Coal Chain Coordinator

The Hunter Valley is arguably the best managed, most efficient and productive publicly owned rail freight infrastructure in Australia. The region achieves very high above and below rail asset-utilisation, excellent reliability and performance, and leading profitability. This is thanks to the central coordination of the [Hunter Valley Coal Chain Cooperative](#) (HVCCC), a model industry recommends be considered for application elsewhere.

Formation

In 2003, an Industry review team recommended implementation of a centralised coal chain planning body to deliver benefits for the coal industry. This led to a precursor organisation to the HVCCC being formed, before it evolved into its current model in 2009.

Up until this time there was no central planning and coordination process for the movement of coal through the Hunter Valley coal chain. All planning was done at the individual service provider level, often resulting in inefficient planning and scheduling of coal through the coal chain, a lack of coordinated planned maintenance activities, excessive cancellations, conflicts over who had access to coal chain infrastructure, and when and where, investment uncertainty, large vessel queues and international reputation damage, and crippling demurrage costs. These are similar challenges to those experienced by rail freight operators to this day across most of NSW.

Mission and scope

From the beginning, membership of the HVCCC included all organisations responsible for the transport of coal from Hunter Valley mines to the port and onto ships for export, including operator of the cargo assembly and ship loading terminal, rail freight operators, ARTC as track owner and Newcastle Port Corporation.

The HVCC was the first cooperative model of its kind in Australia implemented to maximise export opportunities through a coordinated approach to planning. Membership was open to any existing and future service providers of transport and port infrastructure along the coal chain.

The HVCCC uses an elaborate and detailed simulation model of the HVCC to analyse and assess the throughput of the system, to detect and identify any bottlenecks in the system, and to investigate and explore the benefits of infrastructure upgrades and expansions.

With services spanning from 'day of operations' to 10 years, HVCCC aligns coal chain capacity with demand, integrating maintenance and operation to synchronise the flow of coal from load points to power stations and vessels through a vast network of interdependent infrastructure. HVCCC planning and scheduling routinely delivers productivity and efficiency that is aspirational for other coal chains, as well as accurate forecasting and modelling, and insightful analysis.

Although executing the perfect plan is ideal, disruptions from weather, unplanned maintenance and schedule slippage are inevitable across such a vast network. Amid these challenges, Members depend on HVCCC to maximise throughput for peaks lasting weeks or months and, at all times, to optimise the efficient interaction of coal chain assets to serve collective needs, mitigating the increasing complexity of demand being met from more distant load points.

Outcomes

The coal chain enjoys unprecedented long-term strategic planning, transparency, stability, cooperation and a sense of fairness and trust. The Hunter Valley coal chain is now the largest coal export operation in the world and consists of:

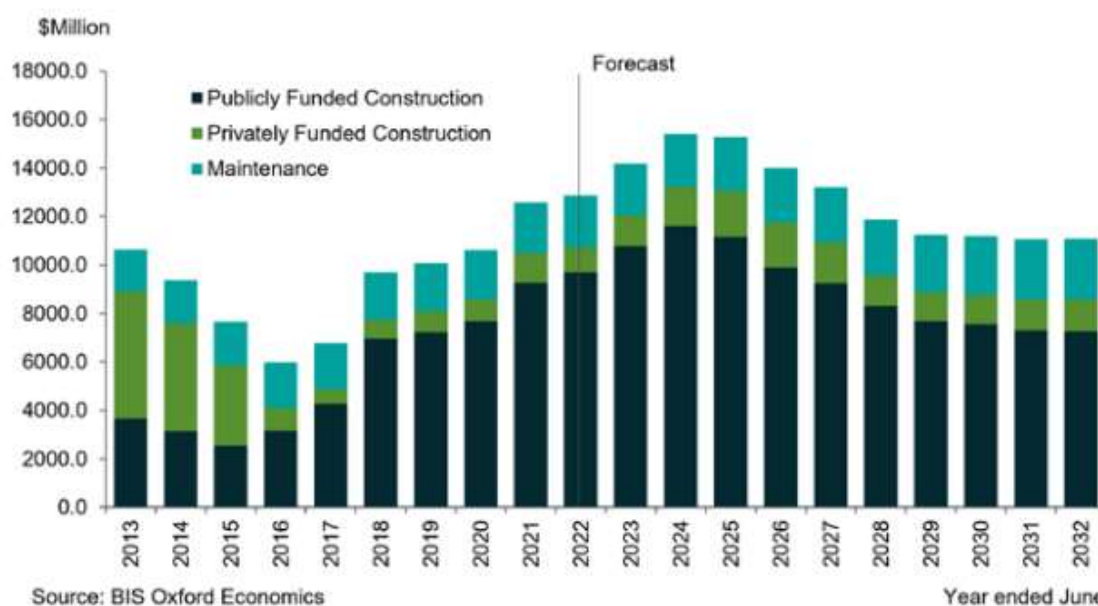
- Approximately 35 coal mines owned by 11 coal producers;
- Coal haulage distances of up to 450 kilometers;
- More than 30 points for loading coal onto trains;
- Four rail haulage providers delivering to three coal terminals; and
- The movement and loading of more than 1600 coal vessels annually.

National action on interoperability

Last year the Prime Minister, state Premiers, and territory Chief Ministers made the historic decision that “Improving the interoperability of rail systems” would become a National Cabinet priority. This decision signifies how important this issue is to governments across Australia to ensure our rail systems are able to operate more efficiently and be better utilised for the movement of freight. The decision is also reflective of the unprecedented level of investment in rail infrastructure projects across the country.

Rail construction and maintenance activity in Australia rose to a record \$12.9 billion in 2021-22, with activity forecast to average \$14.4 billion over the next five years. Overall, \$129 billion in rail civil construction and maintenance is forecast for the coming decade to 2031-32, compared to \$96 billion over the last decade. Over the next 15 years, \$154 billion in rail construction work is expected.

Figure 2



With such a significant investment pipeline in place, it is essential that solutions to our interoperability challenges are addressed as soon as possible. It is also worth noting that much of this investment is being undertaken by state governments on passenger rail projects, largely isolated from other networks with little consideration for freight operations or interoperability. Improving interoperability will be critically important to avoid a ‘digital break of gauge’ in signalling systems, similar to the physical break of gauge that has plagued rail track infrastructure since Federation.

National Cabinet has now delegated Infrastructure and Transport Ministers (through ITMM) to progress the issue of improving the interoperability of rail systems. In December 2022, the Ministers of ITMM agreed that the NTC focus on five priority areas identified as critical pain points for the rail industry.

These priority areas are:

1. Identifying the best mechanism for codifying a small number of critical national standards and complementary rules to make rail more competitive;
2. Aligning train control and signalling technology on the eastern seaboard;
3. Reducing the burden on drivers, crew, and maintenance workers;

4. Streamlining rollingstock approval regimes; and
5. Identifying the national/international pathways for digital skills required in Australia in the next five years.

At an ITMM in June 2023, Ministers agreed to codify a small number of high-impact interoperability standards required to achieve nation-wide safety and productivity benefits. The standards will be performance-based with a priority focus on digital train technology, a single on-board interface for drivers and crew, and streamlining rollingstock approvals. Ministers also asked that a stocktake and gap analysis be undertaken of the current supply chain capacity in the Australian rail manufacturing sector, including identifying opportunities to support local suppliers to grow and have greater ability to deliver componentry to support local outcomes.

Further to this initiative, the Australian and Victorian governments, as well as the ARA on behalf of rail industry leaders, have come together to sign the historic Memorandum of Cooperation to address longstanding coordination issues between Australia's rail networks.

Given the significance of the rail interoperability challenge and the current focus from all governments on improving productivity, it is essential that this issue be recognised in the Strategy. Rail is already responsible for the majority of Australia's freight task and if it is to become more competitive with road in the containerised freight market, as well as play a greater role in decarbonising the economy, then it is critical that we improve the interoperability of rail systems.

Recommendation: See above recommendations regarding interstate and intra-state interoperability.

Land use planning

Land use planning, corridor preservation and appropriate protection of industrial lands is critical to the ability of the sector to manage the freight task projected over coming decades.

Urban encroachment on formerly industrial lands as Melbourne grows consistently adds pressure to existing rail freight operations, terminals and workforces. The projected population growth and densification of existing population centres and demands for passenger rail services are all going to further constrain rail freight operations.

The freight and logistics supply chain requires well-located, large parcels of industrial land for warehouses, depots and logistics activities. Specifically, intermodal terminals require industrial lands within their catchments to maximise their productivity – the higher the availability of nearby industrial land, the more cost-competitive rail freight becomes through greater volumes being attracted to that catchment. Sufficient supply of well-located industrial land in Greater Melbourne will reduce the cost of moving freight and increase efficiency and productivity while minimising traffic, emissions and amenity impacts.

It is critical that land use policy protects what's left of our industrial lands, while also providing for additional, well-serviced industrial zones to cater for the nation's growing trade needs.

Major infrastructure projects committed to, by the Victorian and/or Australian Governments in Victoria would benefit from a more appropriate planning approvals process which achieves senior management buy-in at a project level to ensure appropriate outcomes are achieved on a case-by-case basis in lieu of following a business-as-usual process irrespective of project significance. Beveridge Intermodal Precinct is currently awaiting planning approval so is a highly relevant current project that will benefit from a planning working group and can be used as a test case.

Further, existing planning processes which have been implemented to guide Victoria's Big Build elements which impact the rail network have been done without appropriate regard to the impacts on freight operator access, operational continuity and commercial impacts.

Recommendation: Retain existing industrial land and expand supply through rezoning and servicing of additional land. Existing industrial land (including in urban areas) should not be rezoned for other uses.

Recommendation: Prevent the subdivision of large parcels of industrial land into small lots unsuitable for freight, logistics and industrial activities and encourage the consolidation of small industrial lots into larger land parcels.

Recommendation: Optimise the use of industrial lands and avoid constraints from urban encroachment by improving the planning approvals process; improving design standards of residential developments in urban areas; and creating buffer zones to minimise impacts on communities.

Recommendation: The Victorian Government must consider how the competing demands of passenger and freight rail will be provided for over time, and how the state can successfully balance urban densification with the need to increase transport capacity for both freight and passenger services of all modes in urban areas while protecting rail freight capacity on the shared network.

Recommendation: A working group comprised of Commonwealth & State representatives should be established to ensure alignment of priorities and ensure strategies are being implemented that are focused on alleviating planning impacts on project budgets and delivery timelines. Beveridge Intermodal Precinct is currently awaiting planning approval so is a highly relevant current project that will benefit from a planning working group and can be used as a test case.

Recommendation: With the progress of Victoria's Big Build and major projects across Victoria, greater understanding, and consideration of the impact on freight must be considered and factored into decision making processes. To optimise conditions for rail freight, priority must be given to gauge standardisation of the regional rail network with, in particular, rapid completion of the Murray Basin Rail Project.

Recommendation: Develop a 'case management' model for planning approvals for major infrastructure projects.

Long term corridor protection and preservation

While network capacity is not a high priority in the immediate term, the very long timeframes associated with the planning and development of new corridors means that there is a high priority associated with the identification, preservation and preliminary planning for freight corridors where long-term capacity constraints are anticipated. It is also essential from a planning perspective to ensure that existing capacity and transit/cycle times for freight services on critical corridors are not eroded by other developments, including urban encroachment and increased utilisation by passenger services.

Planning and corridor protection is the responsibility of all levels of government. A 2017 Infrastructure Australia Study ('Corridor Protection') identified that a national framework for corridor protection was

required to guide coordinated and meaningful action by all levels of government.⁷ The 2019 National Action Plan of the National Freight and Supply Chain Strategy committed to identifying and protecting key freight corridors and precincts from encroachment.⁸

Recommendation: Consistent with the 2019 National Rail Action Plan, the Victorian Government should lead action amongst state and federal peers to coordinate assessment of long-term network capacity requirements, and the extent to which this may require additional rail corridors (including freight only corridors in urban areas) beyond those for which corridor preservation is complete or underway.

It is critical that DTP Vic/Freight Victoria is well integrated with peer agencies on matters impacting freight systems, and that they exercise their relationships with supply chain participants including rail freight operators to make informed land use planning decisions. This has not always been the case.

Road versus rail user charging

Prices for road infrastructure do not encourage the use of the most efficient mode for the right task.

The heavy vehicle road charging framework requires review. The use of diesel/petrol excise as a means of road funding lacks transparency and creates confusion in relation to policies aimed for the uptake of electric vehicles to improve the environmental sustainability of Australia's transport task. Clear user-based charging for heavy vehicles, delinked to diesel utilisation, will assist Australian Governments achieve both their environmental and transport objectives.

PAYGO pricing methodologies should be independently reviewed to ensure there is no cross subsidisation between vehicle types. In order to do this, responsibility for administering heavy vehicle road user charges could be transferred from the NTC to another body, such as the ACCC (which would be the most appropriate body under existing institutional arrangements).

Recommendation: Policymakers should re-consider the benefits of Mass Distance Charging in relation to setting road user prices on a basis that are able to better reflect full cost recovery, including sunk capital and externalities.

In the meantime, increased HPV permits (either increased volume or geographical scope) should only be granted where this has been subject to a cost benefit assessment including considering the likely consequence on mode share.

Government incentive schemes to promote efficient mode utilisation may be appropriate in local instances to encourage a mode shift and/or to address a discrete policy objective, and are most effective when used as a transitional measure until the full benefits of longer term strategies to promote rail productivity are realised (see above case study).

⁷ Infrastructure Australia (2017), Corridor Protection, Planning and investing for the long term, July 2017, p.32.

⁸ Transport and Infrastructure Council (2019), National Action Plan, National Freight and Supply Chain Strategy, August 2019, p.17

Harmonisation for rail supply chain value

Type approvals

Type Approvals require new and/or novel technologies to pass through discrete due diligence testing prior to being adopted by railway operators. Nationally consistent standards for projects could save the rail industry \$40 million each year⁹ benefiting both the network operators and the suppliers and manufacturers.

Currently, new technology, products and construction/maintenance processes, must pass through each RIM's specific approval process prior to being rolled out, regardless of whether the technology, product or process has been approved or applied elsewhere. Type Approval with a singular RIM does not currently serve as a 'trust marker' to another RIM. This adds a further hurdle to those that are developing innovative technology and proposing technology across different networks.

The lack of consistent and equivalent type approval processes between jurisdictions and customers costs the rail industry \$230 million per year¹⁰. There is opportunity to develop a more harmonised approach to Type Approval processes applied through cooperative agreement, on a set of standardised principles and approaches. Addressing the weaknesses of the current Type Approval processes will ensure more resilient supply chains and support the growth of the domestic economy.

The industry applauds the Department of Transport and Planning Victoria's (DTP Vic) leadership in facilitating a national approach to type approvals. TfNSW and the DTP Vic have launched a strategic initiative to standardise the type approval process across transport and asset classes. This will be done through the implementation of a consistent type approval assessment procedure.

Recommendation: Conclude the trial of standardised type approval underway in partnership with TfNSW, share learnings with industry, and consider ways to accelerate progress on type approval harmonisation within Victoria, and across jurisdictions and RIMs.

Local content

There are significant benefits to be achieved by both the Victoria and Commonwealth governments by taking a more holistic and national approach to the application of local content policies in procurement processes.

Differing local content policies prevent suppliers from operating across jurisdictions, this in turn creates industry inefficiencies and prevents the development of a strong and productive industry.

A National Local Content Policy, as opposed to a series of state local content policies, offers the key to unlocking the benefits of scale, componentry harmonisation and design efficiencies. These could amount to a cut of some 19 per cent in rollingstock manufacturing procurement expenses, which would be of considerable benefit across the country, allowing state governments to increase spending in areas such as education and health care.

The Australian Government recently launched the National Rail Manufacturing Plan which has committed to adopting a national local content approach. A nationally consistent approach to LCPs would reduce unnecessary capital investment and duplication of capability, deliver greater industry stability, job security, and support a more cost-effective, competitive rail manufacturing sector.

⁹ https://ara.net.au/wp-content/uploads/20221025-Estimating-the-economic-cost-of-Type-Approval-processes-in-the-Australian-rail-industry_final.pdf

¹⁰ Ibid.

The rail supply chain is spread throughout Australia's eight states and territories. Overall, much of the rail supply chain is largely concentrated in New South Wales and Victoria – reflecting that these most populous states will tend to be centres for passenger and freight rail operations. Many firms operate across borders. In achieving a more sustainable, and competitive rail supply chain, any artificial cross-border barriers that may be preventing effective transfer of capacity or skills between Australian jurisdictions should be reviewed. Implicitly, restricting market access prevents the access to opportunities to achieve economies of scale, a consolidated investment in assets and facilities, and a sustainable rail supply chain.

Recommendation: Adopt a holistic, national approach to the application of local content policies in procurement requirements, evaluation, compliance, and auditing processes.

Pre-qualification

A national accreditation scheme that supports pre-qualification for rail constructors could enable suppliers to input information once, so contractors as well as purchasers can easily identify registered suppliers and access necessary supplier information, including accreditations. Harmonising accreditation recognition across jurisdictions will assist in addressing costly inefficiencies.

There are basic examples of national pre-qualification schemes in roads and bridges as well as non-residential building, and there are certainly opportunities for more sophisticated nationally coordinated sector accreditation schemes internationally (such as in the utilities and rail sectors in the UK) and support by an online portal and platform to minimise duplication and streamline processes.

Establishing a standardised prequalification framework promotes consistency, streamlining processes across diverse rail authorities. Contractors stand to gain significantly, navigating a uniform application process that reduces redundancy and saves time when seeking prequalification with multiple authorities. The initiative facilitates efficient information sharing among rail authorities, fostering collaboration and transparency in assessing contractor performance. This standardised approach not only enhances industry cohesion but also brings about potential cost reductions through streamlined procedures. Moreover, the scheme enables mutual recognition of prequalification status, creating a more interconnected and collaborative rail infrastructure sector. It is proposed that the expansion of the Austroads' National Prequalification System for roads and bridges can be expanded for rail infrastructure projects benefiting both rail authorities and contractors.

Currently there are several various pre-qualification and accreditation platforms in use by various transport and infrastructure agencies, as well as rail operators and managers. This leads to suppliers having to pay for multiple portal access and submit multiple pieces of documentation, sometimes to the same providers portal, where the information is not shared, but housed in different aspects of the providers systems for their various clients. This not only creates substantial costs and administration resource inefficiencies for the supplier/contractor, but there are substantial cost savings to be achieved by the transport or infrastructure client if there was one agreed portal, where information was shared on an as needs basis, to reduce all parties service fees and substantially improve efficiency outcomes with streamlining outcomes.

Recommendation: Support the expansion of the Austroads national pre-qualification scheme to incorporate rail infrastructure projects and participate in the develop and roll out of the expanded scheme supported by a national online portal.

Project iTRACE

The Australian rail sector does not have a standard language to identify and mark material parts and components. Eighty per cent of rail operators, manufacturers and maintainers are not confident in

their master data and seventy per cent of the data reaching the warehouse is not fit for use in current and future software systems. Ordering the wrong part costs money and considerable time is lost correcting the duplicate or misidentified material/serial numbers or data attributes.

The ARA together with industry launched Project iTRACE in partnership with GS1 to set a consistent industry standard for automatic data capture (barcoding and/or tagging) and support efficient management of material master data to assist the procurement process of rail components and assets.

Project i-TRACE creates a common language and a single source of truth, provides a centralised platform via the national product catalogue, removing data errors and duplication between organisations.

The project offers a whole-of-industry standardised approach to lifecycle tracking of an asset or component in the supply chain to support efficient management of material master data to assist the procurement process of rail components and assets. Project iTRACE assists all stakeholders effectively identify rail components and assets, electronically capture information about them and share that information with relevant parties – operators, suppliers and maintainers. It allows national and international product identification and traceability and enables automation and digitisation.

Project i-TRACE contributes substantially to risk reduction, improving data and material quality, workmanship and safety reliability. It also ensures regulatory compliance requirements are met and, with the ability of real-time tracking, allows the rail sector to develop a sustainable business model and speed up transition to a circular economy through the digitisation of data sharing.

Recommendation: Implement Project iTRACE by preparing, sharing and maintaining material master data in a digital format, and ensuring you and your suppliers are marking components with GS1 barcode standards.

INFRASTRUCTURE AND PLANNING

Critical infrastructure gaps

As outlined previously, existing rail infrastructure across Victoria is not comprehensively of a standard that enables rail freight operators to provide a service that can effectively compete with road in terms of the key drivers of mode choice – transit time, reliability, frequency/availability and price.¹¹

In order to identify how the quality of rail infrastructure and planning processes contribute to rail freight service quality gaps, the '[Infrastructure and Planning](#)' workstream of the Future of Freight report assessed the rail infrastructure characteristics that influence the drivers of rail mode share, including consideration of:

- Trunk rail network characteristics, including permitted rollingstock configurations; allowable speed; capacity; reliability; resilience; flexibility; and train control and scheduling systems;
- Complementary infrastructure, including the quality of intermodal terminals (location, efficiency of cargo interchange, capacity and accessibility to operators) and the quality of their first/last mile connection to road and rail networks, including port shuttle services; and
- Rollingstock, including performance characteristics, reliability and capacity.

The report then considered the difference between current rail performance and established best practice (having regard to the best practice currently achieved on Australia's rail networks) and prioritised these gaps having regard to the nature and extent of benefits, and the extent of constraints. Based on this analysis, the infrastructure gaps that are considered to be most critical to improving rail's mode share for intermodal freight are summarised as follows:

1. **Network reliability and resilience** - Introduction of network improvements and other asset management strategies, to support improved train service reliability, focusing on improved on-time departure from terminals, improved on-time running and reduced network interruptions together with faster restoration of services following interruptions.
2. **Digital train control system** - Introduction of digital train control system, integrated across the intermodal freight network enabling; more effective use of available network capacity; improved safety and reliability; improved transit times; and are an essential pre-cursor to increased train automation.
3. **Optimised network planning and scheduling** – Introduction of automated train scheduling systems, integrated across the intermodal freight network enabling; optimised scheduling of train services across RIM boundaries; optimised real time rescheduling; real time journey tracking; and more effective use of available network capacity. (Also see further above regarding access and seamless pathing).
4. **Long term corridor protection and preservation** - While network capacity is not a high priority in the immediate term, the very long timeframes associated with the planning and development of new corridors means that there is a high priority associated with the identification, preservation and preliminary planning for freight corridors where long-term capacity constraints are anticipated. It is also essential from a planning perspective to ensure that existing capacity for freight services on critical corridors is not eroded by other developments, including urban encroachment and increased utilisation by passenger services.

¹¹ See more detail about intermodal market key service quality gaps from page 3, '[Infrastructure and Planning](#)' workstream, Future of Freight, from page 53.

Operators report significant delays due to inability to optimise train paths over multiple networks, inflexibility in crossing locations and operational delays at network boundaries particularly where scheduled path connections are not met across Victoria.

Recommendation: To better understand and monitor the reasons for late running of trains, RIMs and rail operators, DTP Vic/Freight Victoria should develop standard reporting metrics to monitor network and fleet performance and proactively agree strategies to address challenges identified.

Recommendation: DTP Vic prioritise work with ARTC and across local RIMs to develop a harmonised signalling and train control environment with single driver interface as per National Cabinet prioritisation and in coordination with the NTC.

Recommendation: Commitment by all Victorian RIMs and ARTC to the development of an integrated automated scheduling system across the entire intermodal network, including development of a technical solution to interface between individual RIM automated scheduling systems and capturing regional networks significantly interacting with the interstate network.

The '[Infrastructure and Planning](#)' workstream of the Future of Freight report goes on to identify a series of specific projects beneficial in improving rail mode share as a result of improvements in rail service quality or reductions in rail operating costs.¹² Those relevant to Victoria are included below.

Project	Overview	Status
Melbourne IMT – Beveridge	Development of new open-access IMT, incorporating best practice characteristics.	Under construction. Mar 22 - Federal Govt announced budget funding commitment in 2022-23 Budget of \$1.62b for BIFT and \$280m for road connection upgrades.
Melbourne IMT – Truganina (WIFT)	Development of new open-access IMT, incorporating best practice characteristics. Development of northern and western connections from WIFT to mainline rail corridors.	Mar 22 - Federal Govt announced budget funding commitment in 2022-23 Budget of \$740m for WIFT and \$920m for Outer Metropolitan Ring (OMR) South Rail Connection. Delivery and timeline now uncertain.
ATMS integration on interstate corridor	ATMS continues to be under development. Short of extending the future roll-out of ATMS to other networks, more of the benefits of ATMS on the intermodal corridor could be realised if it was integrated with systems that operate on other parts of the corridor network (Arc), and to the Victorian track where interstate trains interface with the passenger network. Interoperability is a significant issue whether other track owners are investing in different platforms to support their own network technologies (i.e. ETCS)	Interoperability and technological interfaces being progressed as part of National Cabinet prioritisation of Interoperability and NTC workplan.
ANCO on interstate corridor	The ARTC Network Control Optimisation (ANCO) is currently implemented in the Hunter Valley network and is designed to enhance dynamic capability to manage variations and streamline network wide train	Not currently being considered in any public forum.

¹² '[Infrastructure and Planning](#)' workstream, Future of Freight, from page 53.

	<p>control It also enables longer trains to run along the network. ARTC manages the movements of around 250 trains per day on the Hunter Valley network, with around half of these being coal trains. The other half comprise passenger services, grain, general intermodal and other bulk freight trains. In the future, the full benefits of digital pathing could be realised if ANCO was extended beyond the boundary of the Hunter Valley network. This could help optimise (non-coal) trains before they enter the network and also continue the optimisation as trains leave the network.</p>	
ANCO integration to connecting regional corridors	<p>An option to integrate ANCO with other connecting systems so that the benefits of digital pathing and train control can be fully captured and extended to those networks before they enter and after they leave the Hunter Valley network</p>	<p>Not currently being considered in any public forum.</p>
Sunshine and Caulfield crossovers	<p>Removal of Sunshine and Caulfield crossovers undermines the Principal Freight Network (PFN).</p>	<p>Not currently being considered in any public forum.</p>
Victorian Mode Shift Incentive Scheme (MSIS)	<p>The MSIS has not been well aligned with market needs and has not stopped freight moving to road which impacts terminal viability. It has also never been open to be contested or accessed beyond the original four IMTs included from commencement, while other sites which are not covered have seen freight move to road and/or closed.</p> <p>In June 23, VAGO released the Effectiveness of Rail Freight Support Programs. The report concluded that the department's 2 programs (MSIS & PRSN) have not yet fully realised the government's intention to move more freight by rail.</p> <p>Although the scheme has kept some containers on trains that would have likely gone to trucks, it has not increased rail's share of container freight in regional areas.</p> <p>Delays in delivering the shuttle network facilities and services mean the social, economic and environmental benefits from diverting metropolitan containers from road to rail are also delayed.</p>	<p>Lack of transparency about long-term prospects for the scheme, persistent rumours about discontinuation.</p>
Murray Basin Rail Mark II	<p>Cycle times for grain services in the Murray Basin are excessive due to a combination of very low allowable train speeds and excessive delays due both to safeworking requirements and crossing delays. The resulting poor rollingstock and crew utilisation provides a strong disincentive for rail operators to invest in rollingstock for these services, or to deploy existing rollingstock in the Murray Basin where there are options for alternate deployment (e.g. for grain services in NSW). See additional detail beneath the table below.</p>	<p>See additional detail beneath the table below.</p>
Webb-dock rail connection	<p>The number of containers handled by the Port of Melbourne is forecast to grow from 3 million twenty-foot equivalent container units (TEUs) in 2019 to close to 9 million TEU by 2050. The majority of this growth in</p>	<p>Port of Melbourne to identify and analyse potential investment options</p>

	<p>containers will need to be delivered at Webb Dock. However, with the existing infrastructure, all freight to and from Webb Dock is carried by road. This results in increased congestion on the surrounding road network. Road network capacity in and around the port precinct has limited capacity. Future growth in road demand will constrain efficient freight movements.</p> <p>Potential options to address the proposal include new rail connections to Webb Dock or reinstating the previously decommissioned rail corridor.</p>	(Stage 2 of Infrastructure Australia's Assessment Framework).
Port of Portland network connection	<p>The 2024-25 Australian Budget included provision of \$150 million to upgrade the Maroona to Portland rail line, a 172km stretch of standard-gauge line linking western Victoria to the national rail network and the Port of Portland managed by ARTC.</p> <p>Maroona to Portland currently runs only grain trains, but the nascent mineral sands industry could use the network to transport an additional 900,000 tonnes to port each year.</p> <p>Strategic consideration of the connection of this standard-gauge track to the Victorian broad-gauge network is urgently required to leverage this Commonwealth investment.</p>	<p>Not currently being considered in any public forum.</p> <p>Importance of rail access to Port of Portland has increased in profile as a result of recent federal funding, increasing value and priority of gauge standardisation of the Sea Lake and Manangatang lines.</p>
Melbourne-Adelaide double stacking	<p>Double stacking containers between Melbourne and Adelaide is not currently possible due to 1,020 structures that impact on clearance.</p> <p>These include 229 significant obstructions, 218 signals and 573 minor obstructions. Double stacking could reduce above-rail operating costs and increase capacity.</p>	Feb 21 – Infrastructure Australia identified it as an early stage proposal. ARTC was to identify and analyse potential investment options (under Stage 2 of the IA's Assessment Framework)
Albury-Somerton infrastructure quality	<p>The line is over 150 years old and there have been large amounts of remedial spending undertaken previously and there can be frequent cancellation of services (passenger, freight). Work should continue to reduce speed restrictions.</p>	Not currently being considered in any public forum.
Murrayville to Pinnaroo Standard Gauge	<p>Project to provide Sunraysia region freight customers optionality to rail volumes to Victorian ports and to South Australian ports by reinstating ~25km of track with standard-gauge rail infrastructure to connect Murrayville to Pinnaroo rail infrastructure.</p>	Not currently being considered in any public forum.
Sunraysia Mallee Port Link IMT	<p>Development of an Intermodal Terminal at Ouyen to service an expansive catchment across Western Victoria of exports including grain and hay, table grapes, almonds, citrus, wine, mineral sands, and other agricultural products and achieve a 24-hour cycle time from the region to the Port of Melbourne, increasing asset utilisation and building the case for private sector investment by operators, bulk handlers, aggregators and growers/miners.</p>	<p>Not currently being considered in any public forum.</p> <p>Detailed business case completed by GHD for Ouyen Inc. in 2021 is available to the Victorian Government.</p>

<p>Grain sidings Benalla-Oaklands</p>	<p>Freight only standard-gauge railway line in NE Victoria, currently used by Pacific National and Southern Shorthaul Rail for grain trains.</p> <p>During good harvests, the line can receive two trains per day and additional sidings for grain storage could support volumes. Upgraded sidings with lighting to allow 24/7 operation could provide benefits.</p> <p>The line condition is deteriorating and numerous emergency repairs carried out in 2021. The line has a speed of 30 kph speed limit from Benalla to Yarrawonga, and a 20kph limit from Yarrawonga to Oaklands.</p> <p>As at Nov 2021, trains are banned from using the line between the hours of 1200 and 2000 if temperatures rise above 32 degrees</p>	<p>Not currently being considered in any public forum.</p> <p>Importance of upgrading and maintenance now a live topic of industry and rail advocacy discussion due to predicted volume increases in grain harvests over coming years.</p>
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Murray Basin Rail Mark II

Cycle times for grain services in the Murray Basin are long due to a combination of very low allowable train speeds and excessive delays due both to safeworking requirements and crossing delays. The resulting low rollingstock and crew utilisation provides a strong disincentive for rail operators to invest in rollingstock for these services, or to deploy existing rollingstock in the Murray Basin where there are options for alternate deployment (e.g. for grain services in NSW). The additional 260 km round trip to the ports of Melbourne and Geelong from the Mildura line is a critically negative time and cost factor.

The broad-gauge lines in the Murray Basin were to be converted to standard-gauge under the \$440m Murray Basin Rail project, but work stalled in 2019 with the upgrade half complete.

The delays and uncertainty have dampened private investment and undermined the competitiveness of rail. For example, the compromised project scope, delays and uncertainty have contributed to:

- Suspension of a \$55 million regeneration of loading and storage facilities scoped and planned by GrainCorp, now pending the completion of all five stages of the full Murray Basin Rail Project. The prevailing uncertainty about network investment in the region, particularly the standardisation of Ballarat to Gheringhap, must be addressed to restore private investment appetite.
- Lengthening of the journey for agricultural products from Birchip to Geelong return from 319 km return by rail to 447 km, adding 40% distance to the journey and undermining the competitiveness of rail with road.
- Lengthening of the journey for grain from Murrayville to the closest port at Geelong to 673 km (compared to via road to Adelaide at 282 km) further undermining the competitiveness of rail to road.
- Suspension of the \$46 million 'shovel ready' Sunraysia Mallee intermodal project to service the Sunraysia and Mildura regions where currently more than 80% of the 1 million tonnes of intermodal freight travels to port by road according to the detailed business case completed by GHD.
- Expanded permitting of high productivity A-Double road vehicles, further compromising rail competitiveness along proposed port shuttle corridors and existing regional terminals, such as Ultima which now sees containers hauled by road to Adelaide for export.

Long cycle times and therefore low frequency of services from the area also means there is little redundancy in the system for unplanned outages, operational constraints, effective empty container management, extreme climatic events or natural disasters. The resulting lack of reliability undermines means customers cannot rely on rail and will continue to invest in vehicles, load facilities, depots and other enabling infrastructure which lock them into road freight over time.

Work to address allowable train speeds on the Mildura line have seen improvement, but cycle times remain compromised by the move away from the commitment to standardise the Ballarat corridor, resulting in an additional 260km being added to each round trip to ports in Geelong and Melbourne.

As part of the recommended network capacity analysis and investment strategy, we would like to see consideration of standardisation of the Ballarat corridor, Managatang and Sea Like lines, including the costs and benefits, such as the potential value of creating alternative train paths – access to all three Victorian ports from all north-west rail lines – and reduction in cycle times.

Investment pipeline certainty

A nationally coordinated rail project pipeline would provide clarity and enable forward planning for industry to appropriately invest. Having a frequently updated and transparent public pipeline of projects would also allow industry to invest, plan and train to prevent capability and capacity challenges.

The ARA's Australian Rail Supply Chain report published in 2020 highlighted the importance of this issue, recommending that investment pipelines be regularly reviewed and published well before procurement phases commence. This would ensure local firms have adequate time to prepare and invest to meet the forecast demand.

Currently industry experience limited meaningful consultation on industry investment, specifically in relation to upgrades of track and infrastructure along with shared network impacts.

Additionally, whilst operators are investing heavily in rail freight maintenance, this does not appear to be long term investments and is instead random – need annual line-item for regional rail network (freight specific)

Competing for budget funds annually for the maintenance of a critical asset, and its maintenance needs can be forecast. There needs to be an annual line item in which V/Line can count on to formulate long term network management strategies.

However, the issue is broader than just having a visible long-term pipeline of work. The promise of work is not enough. The supply chain cannot make commercial decisions to invest in specific capacity and capability until they are contracted to a project. Therefore, delays in the procurement process and the execution of contracts can be an impediment to timely delivery of project milestones.

Recommendation: In the absence of a national coordinating body, state governments should regularly review and re-publish their rail investment pipelines, as well as committing to the priority project recommendations of Infrastructure Australia.

Managing a dual-gauge network

Victorian freight on rail faces distinctive challenges due to the dual-gauge network. Whilst full standardisation across the entire state would be the most effective solution, it is also recognised as unlikely to be prioritised for public investment. However, there are many optimisation opportunities which should be analysed to lift freight rail efficiency and productivity in the dual-gauge environment. Even if long-term network planning determined value in partial standardisation of existing broad-

gauge track, this will not assist us meet the freight task or encourage mode shift over the coming five years or life of the new strategy, and as such, encourage the Victorian Government to consider opportunities to support industry in overcoming the 'dual gauge dilemma'. Unlike Qld and WA, the ability to move rollingstock between broad and standard offers an opportunity to manage fluctuations in harvests.

Network performance across some areas of the regional Victorian track is inadequate to deliver a competitive freight service which meets the needs of customers. Permanent speed restrictions of 20km/h or 40km/h will never meet market expectations for anything other than a subset of freight which is entirely non-time sensitive. Even international fruit customers are demanding delivery times to the Asia of 72 hours from harvest, a cycle time which cannot be supported by the network in Victoria's most productivity agricultural region. If Victoria aspires to grow the proportion of freight from our regions on rail, this track performance is unacceptable.

There has been significant uplift in grain volumes being transported by rail across Victoria, primarily out of Central/Western Victoria, with total reported volumes now approaching 2 million tonnes annually on rail, an almost doubling of total volumes. Whilst an achievement, this remains a very modest share of total agricultural export volumes which Victoria should aspire to have transported by rail annually. By comparison, NSW boasts well over 4 million tonnes of export grain alone on rail per year, with WA exceeding 15 million tonnes regularly. This is to say nothing of the opportunities to capture other agricultural and mining bulk, or intermodal freight on rail. The major difference between NSW and Victoria is that NSW has an integrated standard-gauge network fully connected to the interstate network thus allowing total flexibility and multiplicity of train paths.

Operators report the primary constraints imposed by network characteristics which inhibit this growth as:

1. **Network access and reliability** – experienced national multi-modal operators warn customers that would need to rely on Victorian networks to access the Port of Melbourne should factor in approximately 90 days of network outage per year. They attribute this to a lack of coordination for possessions and maintenance planning, the persistent disruptions of the 'big build' activity across Victoria, and the lack of adequate consideration of impacts of network disruptions on freight customers in project design. In contrast, across NSW possessions are managed and works planned in such a way to minimise freight disruption with outages limited to a maximum of three days, and plan projects to accommodate morning and evening peak passenger running and overnight freight running, though it is important to acknowledge a lower frequency of regional passenger services affected. Recent Ballarat Station Pit refurbishment could have been managed to maintain single line running for the duration but was not. This is inconsistent with a stated goal of increased freight on rail and is entirely within the powers of the Victorian Government to remedy.
2. **Investment certainty** – There has been considerable uncertainty and changes in policy and investment pipeline over recent years which have eroded confidence in the operating environment and dampened investment appetite. For example, the Murray Basin Rail Project has been redefined multiple times with mixed signals to the market on completion of the original project scope. There is a need to invest time and effort in comprehensive network capacity and investment planning which offers the necessary certainty to encourage private investment in rollingstock, crewing, loading facilities and terminals. Recent uplift in grain transported on rail across the state demonstrates there is an opportunity to activate such investment and drive short-term outcomes with the right signals to the market.

3. **Information for fleet planning** - Introduction of additional rollingstock both to enable replacement of near life expired rollingstock as well as to provide for the operation of additional intermodal freight services, where that rollingstock reflects current best practice technology including, where possible, ability to adapt to future technological change was identified as critical to competitive service provision in the Future of Freight report.¹³ As a result of the challenges detailed above, there is very low appetite for investment in broad-gauge fleet to operate in Victoria. Short of standardisation, this would be vastly improved by measures to enhance network performance, long-term transparency in network investment and consideration of facilitation for bogie-exchanges to increase flexibility of the standard-gauge fleet.

Victorian Government investment over recent years has demonstrated the ability to activate mode shift and achieve more sustainable freight outcomes quickly when well targeted.

Better long-term planning would also improve the ability to capture private investment in measures to improve network and service performance such as grain loading facilities, new private terminals and new fleet. For example, in spite of a highly positive business case for the Sunraysia Mallee Port Link (intermodal terminal at Ouyen) the project has so far seen no progress as the proponents await greater certainty on the full completion of the Murray Basin Rail Project.

New terminals and improvements to existing terminals are critically important to long-term growth. As a feature of the network capacity assessment and investment plan recommended, it is recommended that a terminal investment fund be established to support suitable initiatives with industry co-investment.

Recommendation: Establish a terminal investment fund to support suitable initiatives to achieve network connectivity for new terminals or terminal upgrades with industry co-investment.

It is critical that greater transparency and certainty be restored on long-term network investment and performance to help manage the dual gauge operating environment. This has informed the recommendations advanced to focus on:

1. Conclusion of this freight strategy refresh and completion of a network capacity assessment to identify the short, medium and long term future for the network.
2. Assess the need for any additional dual gauge lines to support supply chain changes, including Portland for example.
3. Identify non-track infrastructure opportunities for Government to assist in overcoming the dual gauge challenges such as Government asset ownership and bogie exchange facilities.

Recommendation: Require major project proponents to complete a 'Freight Impact Assessment' when planning works which will have network impacts to increase the transparency of disruptions to commercial freight activity, assign an economic value to the disruptions and encourage better planning practices to mitigate impacts.

Recommendations: The Victorian Government to develop a consolidated reporting mechanism or process to advise operators of upcoming track possessions; whilst also considering the impact of freight on track possessions, not just on passenger operations.

¹³ ['Infrastructure and Planning'](#) workstream, Future of Freight, from page 4.

Recommendation: Require V/Line to develop a 10-15 year network investment strategy in collaboration with freight customers and operators which includes transparent consideration of strategic standardisation and connectivity opportunities and establishes performance goals across the network (including consideration of benefits of further gauge standardisation, axle load and speed improvements, increases, train length increases etc.).

Recommendation: Investigate models to facilitate bogie-exchanges for rollingstock conversion to increase fleet flexibility and responsiveness to seasonal grain market fluctuations.

Rail project cost benefit assessments

There is a commonly held concern within the rail industry that not all of the external benefits of rail are properly taken into account in evaluating rail/road investment decisions and other policies impacting mode share. There is significant scope for improvements to the way in which conventional Cost Benefit Analysis (CBA) frameworks are applied to assess the costs and benefits with different transport modes, and hence the consequences of modal shift. Further details on opportunities to improve CBA frameworks to fully recognise the environmental, congestion, safety and amenity benefits of rail can be found in the ['Policy'](#) workstream of the Future of Freight report, pages 4-5.

Recommendation: Infrastructure Victoria develop a new standard template for the development of Cost Benefit Analysis (CBA) framework for road and rail infrastructure proposals which appropriately accounts for externalities to be used across Victorian agencies.

Network resilience

Over the last three years we have witnessed the devastating impacts that severe weather events and flooding have had on communities around the country. These events have also heavily impacted the rail freight network and resulted in significant disruptions to our national supply chain.

When critical rail links are disrupted, the flow-on effects to other modes and the broader supply chain is significant. Whilst Victoria has not suffered extensive climatic events or natural disasters in recent years, below are some examples of impacts on supply chain businesses from weather related disruptions to rail infrastructure over the last three years around Australia.

- The Shepparton derailment and Broken Hill flooding events severely impacted supply chain businesses reliant on this rail infrastructure. These events in particular resulted in significant community impacts and food security challenges.
- There was a complete loss of rail access to and from Port Kembla for almost a month, cutting-off supply chains to and from BlueScope steel and Manildra's Bomaderry mill, and block access to export markets for grain producers in the NSW Riverina and Central West. This has meant that BlueScope now charters a ship from port Kembla to Westernport due to the impacts of track possessions in Victoria.
- Australian manufacturing facilities experienced significant challenges as a result of supplies being delayed due to rail line outages, with economic impacts felt by both Australian and international customers.
- In NSW water utilities were faced with supply shortages for critical chemicals used in water treatment processes, which threatened the supply of clean water.

Infrastructure resilience is an issue that has come to the forefront for several industries in recent times and rail is no exception. The Australian rail industry has an overarching goal to improve

Australia's productivity and help make rail the mode of choice in the national logistics supply chain, however this goal is becoming increasingly difficult due to the state of rail infrastructure.

It is critical that RIMs be able to promote the greater use of rail by delivering a safe, more reliable and robust rail network which meets customer expectations and provides capacity for growth.

Unfortunately, severe weather-related events are increasing in frequency, highlighting the need to improve the national freight rail network through a greater understanding of network vulnerabilities and plan for resilience improvements.

Much of our rail freight infrastructure was built more than 100 years ago and was simply not constructed to modern design standards capable of withstanding the effects of climate change and increasingly extreme and frequent weather events. This has highlighted the need to improve the national freight rail network through a greater understanding of network vulnerabilities and plan for resilience improvements.

Industry efforts to-date have focused on measures to improve resilience but have largely been limited to reducing the probability of infrastructure failure. Future proofing rail supply chains will require concerted effort to identify, fund and deliver a program of rail infrastructure upgrades across the country which improve network redundancy, reliability and resistance, particularly in response to climate risk. The emphasis has to be on reducing whole of life costs, even where the upfront ask is higher.

The rail freight industry welcomed the commitment of over \$1b in the 2024-25 Australian Budget for the ARTC to invest in a comprehensive Network Investment Program over coming years, with an emphasis on building the resilience of the interstate rail network, increase redundancy across the network to achieve greater flexibility to manage disruptions and maintain freight flows, and to enable more rapid recovery from incidents and impacts of extreme weather.

Recommendation: The rail freight sector urges the Victorian Government to invest in similar hydrological modelling and network planning to identify key vulnerabilities and provide funding for upgrades and opportunities to 'build-back-better' to RIMs outside of BAU revenue streams and network maintenance.

Regional level crossings

Several high-profile incidents at level crossings have occurred over recent months, most notably including a fatal collision on New Years Eve at a level crossing on the Barrier Highway at Bindarra in South Australia (near the New South Wales border). The collision resulted in the tragic deaths of two experienced Pacific National train drivers, Mick Warren and Kevin Baker, when the locomotive they were driving collided with a heavy vehicle. This has seen renewed public interest in and prominence of regional level crossing safety.

In February 2024, the new [National Level Crossing Safety Strategy](#) (NLCSS) was released. The NLCSS is uncontroversial in its focus and identifies the urgent need for national coordination on data and prioritisation, information sharing on trials and technology interventions and collaboration between road, rail and road user stakeholders.

The majority of level crossings in regional areas, including private crossings, are passive and only protected by signage including STOP or GIVE WAY signs, or sometimes no signage. Safe passage is solely reliant on the road vehicle driver making a judgement that it is safe.

The traditional solution to reduce risk on these crossings was to undertake costly activation works to have boom gates, flashing lights and/or bells which require the provision of electricity at often remote locations and the added lead time to acquire equipment followed by installation. For example, there

are over 3,000 public and private level crossings on the ARTC network with around 650 activated. Activating the remaining crossings is not a feasible solution.

There is a need to complement education and enforcement with utilisation of technology to reduce risk across many level crossings without relying on costly engineering solutions. Major advancements in batteries, solar energy and communications technology present opportunities to reduce risk across the network sooner than upgrades while a growing number of suppliers of these technologies is a positive for the industry and safety.

In February 2023, a commitment by the previous Australian Government was reconfirmed by Minister King allocating [\\$160 million towards the upgrade of regional level crossings to improve safety](#).

Funding submissions can only be submitted by State and Territory governments with priorities informed by state and territory agencies, RIMs, Local Governments and private organisations such as heritage railways.

The Australian Government will fund up to 50% of the cost of each upgrade, capped at \$2 million per site. The first of two rounds were submitted by the states and territories in September 2023. Successful sites have been announced for WA, VIC, NSW and SA. Round two sites will be submitted by September 2024 with sites under both rounds to be complete by mid-2027. Funding is being provided to the states and territories.

The industry hopes that the National Level Crossing Safety Committee can help better coordinate and openly report on these to accelerate information sharing and uptake of appropriate options.

There are also awareness and education campaigns being progressed by multiple authorities across Australia.

Whilst the \$160m is strongly supported by industry, there are material concerns about the way the Commonwealth has chosen to distribute the funds. The industry applauds the Victorian Government for having committed to supplementing Commonwealth funds across the state.

There is a lack of transparency on the evaluation matrix being used and how the funding split is occurring on a state basis. It appears that the number of regional crossings in each jurisdiction is a key determinant of funding, but this is a poor measure because most of these crossings see very little road and rail traffic.

The program incentivises state agencies to prioritise their preferred level crossing upgrades and scope of works. RIMs will need to submit their solutions for particular sites and effectively negotiate with the agencies. RIMs should be the primary source of priorities and preferred solutions as level crossings are managed by them.

Recommendation: Align priorities of regional highway patrol authorities to treat level crossing risks seriously, and create a dedicated reporting mechanism for rail freight operators to report incidents and near misses for compliance action. This should be complemented by greater use of mobile technologies for enforcement, reducing the burden on police.

Recommendation: Fund Rail Infrastructure Managers to invest in a proactive program to replace all signage at level crossings on closed rail lines with fit-for-purpose signage, and develop a streamlined process for the formal and public closure of crossings not in use.

The ongoing drive for higher productivity vehicles across the road network, including push to allow 60m long vehicle access all existing roads, has the potential to materially impact level crossing

safety. Current proposals exclude roads with restrictions, including level crossings, but this will lead to pressure to permit access to these vehicle types at rail crossings. We see adopting this policy as likely to have a direct and immediate worsening of regional level crossing safety.

Recommendation: Review local, state and national roads which can appropriately accommodate heavy vehicles of different types (based on weight and stopping speed primarily) considering the number and type of level crossings to inform the NHVR PBS approvals and permits.

WORKFORCE DEVELOPMENT

Victoria is suffering from a skills shortage, and this is a challenge that has impacted many industries, not least of which is the transport sector. Road, maritime, aviation and rail are all experiencing challenges in securing skilled workers, particularly specialist roles, the combination of which are essential to ensuring we have a strong and efficient state and national freight and supply chain.

The ARA's 2023 '[The Rail Workforce: An Analytical Overview](#)' report, confirmed expected national workforce gaps in the rail industry of up to 69,000 skilled workers by 2024, with some areas of specialisation already experiencing acute shortages. Also, the report has identified a serious retirement cliff that will impact rail with 35% of the current rail workforce retired by 2035. Freight has a higher average age than some other sectors of the rail industry, so the impact could have a negative impact on the rail freight industry. This impacts Victoria more than many other states as Victoria has the second largest share of rail workers in Australia and has been heavily investing in rail over the last ten years.

Unlike the broader transport sector, rail suffers from significant barriers to mobility, as each jurisdiction and RIM has differing requirements for the training courses that lead to recognition of the competencies held by workers. In other words, at a time when we have significant skills shortages, the freight industry is faced with large productivity losses by having train drivers, maintenance workers and other rail workers undertake RIM specific training every time they operate in a different jurisdiction. This is a significant pain point for the freight sector, where drivers and other crew are required to hold multiple entry level competencies such as Safely Access the Rail Corridor and multiple safeworking competencies to move from one RIM to another.

A powerful example in Victoria of this issue are the differing training requirements for train drivers to move from passenger regional and city train networks to the NSW regional and passenger networks and ARTC network. Not only is there a requirement for drivers to undertake extensive initial training of the safeworking and roads for each jurisdiction, but they are also required to undertake regular recertification training to confirm their competence.

These skills and mobility challenges impact many roles in the rail industry, such as signalling, track maintenance, train drivers and controllers, as well as educators, trainers, and assessors. There is also a lack of direct pathways into rail from TAFE and universities, as there are currently very few relevant courses in either education sector available. This issue is compounded by a shortage of qualified rail training staff both in industry itself and in private Registered Training Organisations (RTO), with the inconsistent nature of standards and systems across the Victorian, NSW and national rail networks making training particularly challenging.

Historically the large government rail entities, as integrated rail organisations, have undertaken their own training, however, with changes to the structure of the rail industry, and privatisation of most of the freight sector, there is now an urgent need for TAFE to work with the rail industry to be able to deliver rail specific training. TAFE has always supported rail well in the training of tradespeople. However, in relation to the other roles in the rail freight industry, it has not had funding or opportunity to contribute to building skills in the freight sector.

As a proof-of-concept project, ARA and North Metro TAFE in Perth are developing the nationally accredited Rail Operations Fundamentals Skill Set which is made up of 7 units of competence. These units are in several rail qualifications and are entry level. It is planned that the freight industry will partner with North Metro TAFE to take graduates from the skill set into driver training programs where they can learn the specifics of company rollingstock, network routes and safeworking. This will be the

first time that any units that are in train driving training have been delivered outside a rail organisation. When private RTOs deliver these units, it is always as a result of a contract between a rail operator and the RTO, not accessible to anyone who is keen to enter the rail industry. Building talent pools as TAFE does for many other industries is urgently needed by the freight industry and many other sectors within the rail industry.

Train drivers have traditionally not been recognised as being in short supply. This is a function of the limitations of the ANZSCO 6-digit occupation codes. Whilst organisations such as VLine and MTM can recruit drivers without difficulty, regional freight operators find it much more difficult to recruit the necessary numbers to ensure reliability and succession given the aging demographic of train drivers. It is hoped that the review of ANZSCO codes will result in the splitting of passenger and freight drivers which will ensure government has a more authentic view of skills in the freight sector.

State and territory ministers agreed to the National Rail Action Plan (NRAP) in 2020. The NRAP set out 17 initial actions for governments and industry to lift the productivity and safety of rail, including a specific focus on addressing skills challenges.

This NRAP program of work focuses on three priority areas: addressing skills and labour shortages; harmonising standards and rules; and advancing interoperability of freight and passenger travel.

The NRAP is led by the NTC and brings together governments and industry to maximise the benefits from the record investment through overcoming both legacy and emerging issues impacting the industry.

One of the key ongoing goals of the NRAP is for governments and industry to work together to improve portability of skills across states and territories. NTC is currently exploring the opportunities for harmonisation of key safeworking rules to improve safety and productivity of train crew and maintenance staff.

As with the rail interoperability challenge, the issue of skills harmonisation and portability needs to be recognised within the context of the strategy. While it is critical to ensure we address the skills shortages facing the freight and supply chain sector, it is equally important that these skillsets be mutually recognised across different jurisdictions and networks. Establishing a national workforce with improved skills portability will be essential to ensuring we have a better connected and efficient network in NSW and nationally.

Recommendation: Work with Victorian TAFE and the ARA to develop an industry partnership model with the TAFE sector to play a greater ongoing role in training the rail workforce of tomorrow and providing pathways to enter the industry for candidates not already employed in industry.

Recommendation: All Rail safety roles must hold nationally recognised units of competence, skill sets and/or whole qualifications. The curriculum for these qualifications must be generic as is the case for all other occupations.

Recommendation: Domain specific competence needs to be defined for all accredited rail operators rail safety workers such as drivers and mapped to the operator's risk register. Domain specific training must be risk rated following an RBTNA process and ONRSR needs a mechanism (appropriate resources) to support industry in understanding and achieving the necessary ASQA/WHS standards to ensure reliable, robust network level assessment.

Recommendation: Support reform of ANZSCO codes, used to identify critical skills shortages and align Commonwealth policy, to include more rail jobs, including freight driver as a 6-digit occupation.

DECARBONISATION

Decarbonising rail freight

In 2022, the Australian Government committed through legislation to achieve net zero greenhouse gas emissions by 2050, with a target of achieving 43 per cent below 2005 levels by 2030. The Victorian Government has gone further, setting targets of 75-80 per cent below 2005 levels by 2035 and net zero by 2045. These ambitious goals will require a significant shift in traditional operations for several industries, including the transport sector.

In 2020, the transport sector accounted for 19 per cent of Australia's total greenhouse gas emissions. The vast majority of these emissions (85 per cent) were generated by road transport, with trucks alone accounting for 20 per cent of all transport emissions. Rail by comparison, accounted for only 4 per cent of emissions for the entire transport industry, despite moving 56 per cent of Australia's total freight.¹⁴ Moving more freight on rail provides a tangible, immediate alternative for reducing carbon emissions in the freight sector. Rail freight produces 16 times fewer emissions than road freight, and delivers significant sustainability benefits by reducing congestion, improving safety and supporting enhanced community outcomes.

Existing policies to support greater use of rail recognise the significant and immediate emissions reductions that can be achieved through modal shift. This will be particularly important as the Victorian population grows. The anticipated 26 per cent growth in freight demand by 2041 will require greater use of rail to avoid increasing road congestion, noise and air pollution, and to maintain the liveability of greater Melbourne and regional communities.

While the short-term decarbonisation benefits rail can provide are clear, the industry recognises the need to further reduce emissions to support the achievement of net zero targets in the transport sector. Close collaboration between industry and governments to develop and progress clear decarbonisation pathways will be an essential part of this process. There is an urgent need to harmonise environmental regulation and approvals to reduce differences between jurisdictions, and support greater coordination on decarbonisation measures.

The adoption of new technologies

Rail traction is the single biggest source of greenhouse gas emissions in the rail industry, with freight locomotives generally powered by diesel. While the electrification of the network has provided opportunities to support decarbonisation for metropolitan passenger services, it is anticipated alternative technologies will be required for rail freight. A number of trials for solutions such as battery electric and hydrogen technologies are underway in Australia and overseas. However, there is currently no single technology commercially available in the Australian market that would enable rail to phase out the use of diesel traction. It is anticipated that a phased approach to emissions reduction between now and 2050 will be required, including:

- **Improved energy efficiency and productivity solutions** to reduce emissions in the short term;
- **Transitional solutions** such as biofuels, renewable diesel and bi-mode locomotives, including battery electric or hydrogen solutions, with the ability to run on overhead power where available, in the short to medium term;
- **Alternative propulsion solutions**, such as battery, hydrogen and other zero emissions alternatives as technology trials are completed and these solutions become commercially available in Australia.

The average asset life of rollingstock is 25-30 years, and it is estimated that half of Australia's fleet may need to be replaced in the next eight to 13 years. Based on these lifecycles, the rollingstock purchased during this next, key procurement window will be in operation until 2057-2067 – well beyond the time of Victoria's 2045 net zero target. There is therefore an urgent need to implement policy changes to enable the efficient transition to a decarbonised fleet now, particularly given some of these technologies are yet to be proven and commercially available within Australia. National and state net zero strategies generally prioritise decarbonisation of the road sector given the significantly higher contribution of road vehicles to overall emissions. While this is appropriate, a sole focus on the road sector in the short term would result in the loss of opportunities to significantly reduce rail freight emissions for decades to come.

The ARA has engaged with industry and government stakeholders in the development of its soon to be released Rollingstock Decarbonisation Critical Path. The project has identified clear recommendations to support the rail industry's transition to low and zero emissions technologies, including:

- Establish a shared, national vision and long-term plan to support the industry's transition to net zero;
- Ensure nationally consistent regulation that is fit for purpose;
- Explore funding for collaborative research and trials into new technologies, and to assist the industry in scaling up once technologies are proven;
- Ensure enabling infrastructure to support new technologies is available, particularly with regard to access to charging infrastructure and renewable fuels supply.

These actions will require collaboration between government and industry to ensure a harmonised, nationally consistent approach to the rail freight sector's transition to net zero.

Recommendation: Victoria contributes to the development of a shared national approach for governments and industry to support the decarbonisation of rail freight operations.

[Energy infrastructure and fuels](#)

Access to sufficient and reliable supply of affordable renewable energy will be key to supporting the rail freight sector's decarbonisation efforts. The scale and location of renewable energy infrastructure needs to be aligned with existing and future rail networks. Certainty in the consistency of energy supply will be essential to ensure the widespread uptake of new technologies, including battery-electric solutions.

Collaboration is necessary between government, the energy sector, rail managers and network operators to identify suitable locations for electrification, charging and fuelling facilities. Energy infrastructure needs to be targeted and aligned with predicted demand in the freight sector, and strategic land use planning will be necessary to support this.

Consideration should also be given to renewable energy sources, such as solar, that can be generated on rail infrastructure land, particularly at intermodal facilities and in regional locations.

[Biofuels and renewable diesel](#)

While biofuels remain a good short to medium term solution to decarbonise rail operations, increased supply will be required to support their widespread adoption in the freight industry. Biofuels and renewable diesel are also generally more expensive than traditional diesel, and consideration should be given to measures to reduce this cost to ensure rail remains cost competitive as it adopts more sustainable solutions.

Electric charging infrastructure

With battery electric technology trials currently underway in Australia, it is likely this solution will be an important part of the rail freight sector's pathway to net zero. Appropriately located charging infrastructure, linked to renewable energy, will be essential to support the adoption of these technologies. With the transport sector poised to be a high user of renewable energy, particularly in regional centres, there are opportunities to consider the location of charging facilities along the freight network, maximising efficiencies for freight operators and providing additional co-benefits for the wider community on key routes.

Additionally, consistent national standards for technology enablers, such as the charging infrastructure for battery electric locomotives, will support the efficient rollout of new technologies in the rail sector. It is recommended that measures are explored to ensure universal charging stations can be implemented to meet rail freight sector's needs, preventing a reliance on proprietary solutions that may otherwise differ between rollingstock models. This will maximise the use of charging infrastructure deployed and reduce the risk of facilities only being able to serve particular models or operators on any one section of the rail freight network.

Hydrogen and other alternative fuels

Hydrogen is expected to provide a long-term solution for decarbonising rollingstock in Australia. Trials for these technologies have largely been completed overseas, in part due to the limited hydrogen market currently available in Australia, as well as the current high cost of hydrogen that is available. Greater certainty around forward planning for hydrogen supply to ensure sufficient volumes, appropriate fuelling locations, and affordable pricing, is required.

Recommendation: Victoria explores opportunities to develop renewable energy infrastructure along rail freight corridors to ensure certainty of supply for the industry and deliver co-benefits to communities.

Composition of freight modes to support decarbonisation

The decarbonisation of freight cannot be explored on a mode-by-mode basis alone. Each transport mode will be presented with its own challenges in decarbonising. At times, the solution to address these challenges will be complementary across modes and present an opportunity to realise efficiencies. For example, the co-location of charging facilities in areas accessible by both road and rail (i.e. intermodal terminals) have the potential reduce the costs of implementing a charging network that meets the needs of the freight sector and improves integration between freight modes. Opportunities to realise benefits across modes should therefore be explored wherever possible.

However, consideration of whole-of-system changes to the freight network will also need to be made to direct investment to where it can have the most impact. Government infrastructure investment plans should consider the optimal network design to maximise the use of low and zero emissions transport options while improving the overall efficiency of the freight network. This may require a fundamental change to network planning over time, and lead to a rebalancing of mode share to best support decarbonisation efforts.

Early consideration of these issues should inform investment to support the decarbonisation of the freight sector and maximise the benefits that can be realised.

Recommendation: A whole-of-systems approach should be taken to ensure the optimal use of all modes as part of a sustainable freight network in the long-term.

Environmental regulation

Across jurisdictions, there are significant differences in environmental regulation and approvals. When travelling through states, and sometimes even within jurisdictional boundaries, operators must comply with specific environmental law and regulations. Environmental regulation is not adequately informed by expert knowledge of the rail freight industry and does not sensibly consider the negative externalities of regulatory responses to poor performance.

It could potentially be improved with revised governance arrangements to create the necessary incentives to achieve greater alignment of environmental standards and accompanying accreditation processes across jurisdictions.

Unfortunately, available technology for emissions mitigation on existing locomotives are prohibitively expensive and often difficult if not impossible to retrofit successfully. Even if new technology of this nature was available, uptake would be limited by several factors, including: the fact any locomotive to which it was fitted would be considered a whole new piece of equipment for accreditation purposes; environmental issues associated with refuelling and in-line fuelling; low axle load lines which require older locomotives to operate; existing network characteristics such as structure profiles and low axle loads will likely limit uptake of batteries or other technology solutions under development overseas.

In Victoria, rollingstock operators are regulated under the Environmental Protection Act 2017. Rollingstock Operator EPLs are intended to provide a flexible regulatory mechanism to drive a reduction in the impacts of the Victorian operational rail network over time, with an emphasis on exhaust and noise emissions.

The inherent societal and environmental benefits (reduced congestion, emissions intensity, noise and improved air quality) associated with increasing rail mode-share are demonstrably significant. However, a sustainable uplift in rail mode share will require an ongoing, holistic and collaborative approach to addressing environmental externalities, such as rail noise in sensitive settings.

This contrasts with the current regulatory framework that tends to consider rail environmental performance in isolation. A typical response for concerns created for the EPA by a given locomotive's emissions is to defect the rollingstock and require maintenance, resulting in the immediate transfer of all volumes from rail to road, a significant net worsening of environmental outcomes.

These policy and regulatory settings place much of the onus on rollingstock operators to invest in solutions to issues that are multi-faceted and often exacerbated by ageing infrastructure and urban encroachment on rail freight corridors. Notably, road freight participants are far less exposed to costs associated with social and / or environmental externalities which can contribute to a reduction in rail cost competitiveness per tonne of freight moved.

Improved ties between relevant government agencies, rail infrastructure providers and rollingstock operators regarding rail-related noise in sensitive areas along key freight corridors would support efficient and targeted allocation of resources to address long-term issues associated with rail infrastructure.

Recommendation: Consider opportunities to advance harmonisation of environmental regulation as it relates to rail freight across jurisdictions, ensure it is adequately informed by expert knowledge of the rail freight industry and appropriately considers the negative externalities of regulatory responses to poor performance.

Recommendation: Alongside improved efficiency, decarbonisation and infrastructure resilience, incentivisation programs should consider measures that support a reduction in environmental externalities (e.g. clean air and noise).