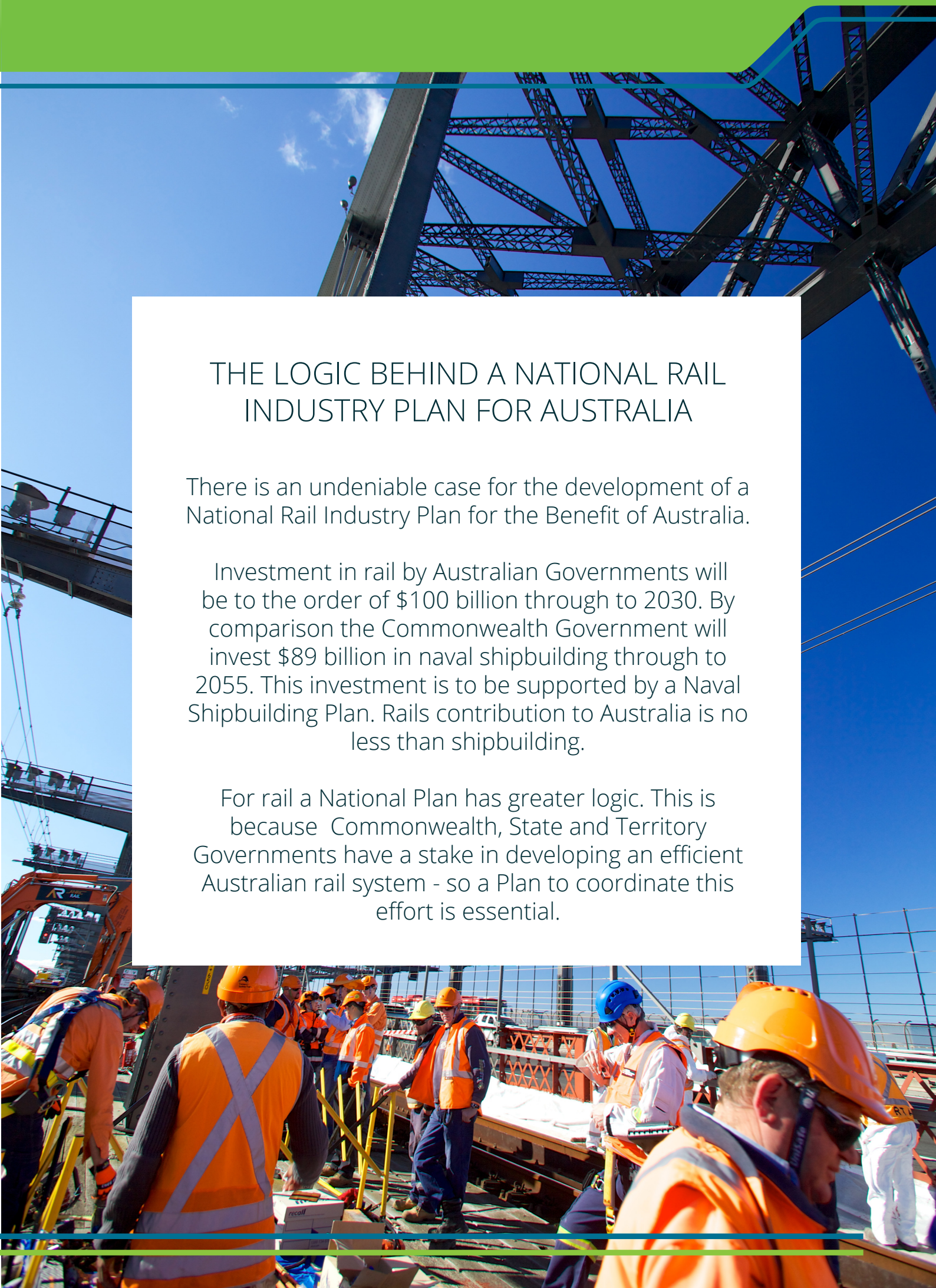
AUSTRALASIAN
RAILWAY
ASSOCIATION

A NATIONAL RAIL INDUSTRY PLAN FOR THE BENEFIT OF AUSTRALIA

September 2017



THE LOGIC BEHIND A NATIONAL RAIL INDUSTRY PLAN FOR AUSTRALIA

There is an undeniable case for the development of a National Rail Industry Plan for the Benefit of Australia.

Investment in rail by Australian Governments will be to the order of $100 billion through to 2030. By comparison the Commonwealth Government will invest $89 billion in naval shipbuilding through to 2055. This investment is to be supported by a Naval Shipbuilding Plan. Rails contribution to Australia is no less than shipbuilding.

For rail a National Plan has greater logic. This is because Commonwealth, State and Territory Governments have a stake in developing an efficient Australian rail system - so a Plan to coordinate this effort is essential.

CONTENTS

A RAIL INDUSTRY PLAN FOR THE BENFIT OF AUSTRALIA

Introduction

The rail industry makes a significant contribution to the Australian economy. Going forward, with proper planning, together with Commonwealth, State and Territory Government contribution, a National Rail Industry Plan for the Benefit of Australia will significantly assist the industry to achieve its full potential.

Australia depends on an efficient transport system. Each year almost one billion passenger journeys transport Australians on heavy and light rail networks in our capital cities and on regional services. Around 1.5 billion tonnes of freight, primarily bulk commodities, are moved on rail each year. This passenger and freight task is growing rapidly.

Rail is a large employer, with close to 200,000 directly or indirectly involved through freight and passenger operators, track owners and managers, manufacturers, suppliers, contractors, consultants and government administration. The contribution to the Australian economy now stands at about $26 billion, but this can jump significantly with the right policy mix.

Commonwealth, State and Territory Governments recognise the significance of rail to Australia. Between them investment in rail is likely to exceed $100 billion by 2030. This investment made in the national interest will enhance its contribution to our economy through greater efficiencies in public transport, in freight and in the jobs created in building, augmenting, managing and maintaining rail networks. All Australians will be the beneficiaries.

An important era lies ahead for rail. It is a pivotal time and a National Rail Industry Plan will ensure Australian rail can realise its full potential.

Why a National Rail Industry Plan is needed

Australian governments understand the increasing importance of both passenger and freight rail to Australia. They are motivated to commit to significant investments in rolling stock, integrated intermodal solutions and supporting rail infrastructure to address our growing transport needs, as well as efficiency and productivity gains.

These transport needs are driven by many factors. Dominant among them is congestion in our capital cities, particularly Sydney and Melbourne – a consequence of the continuing growth in the Australian population and in vehicle registrations:

- During 2016, Australia's population grew by 372,800 people - with 146,600 located in Victoria and 116,400 in New South Wales. In round terms, Melbourne and Sydney are growing at the rate of 10,000 people every month
- At January 2017 there were 18.8 million registered vehicles in Australia. In the preceding year both New South Wales and Victoria experienced a growth of about 2.5%, that is around 130,000 additional vehicles on the road in a year. The strongest growth was in light commercial vehicles (3.1%) and light rigid trucks (3.4%). The growth in articulated vehicles was circa 2%.

Further to this we live in a new age of consumerism. The trend of online shopping requires a pick-up from the supplier or wharf, then to the warehouse and onto the home, adding to road congestion. The growing population must be fed, so transporting product from our food bowls is on the increase. Rising demand for our produce, commodities and raw materials necessitates speed and efficiency in their delivery to markets. Housing affordability in our major cities is a recognised problem, giving rise to the need for options to improve access to and liveability in, our growth corridors and in our regions.

The imperative is to relieve congestion and to reduce the cost of mobility by efficient transport systems within our cities and our regions and to unclog our roads. Moreover, the lack of differentiation between the movement of passengers and freight within the major cities creates tension and potential conflict in the event of a breakdown or other incident.

The objective of a National Rail Industry Plan for the Benefit of Australia is to obtain maximum economic growth, efficiency, productivity and social benefits from the substantial investments currently being made. This will include in the areas of growth and employment; individual and company capabilities; productivity and innovation; integration of transport modes; local and export market opportunities; housing options and to provide the rail industry with greater certainty into the future.

Light and heavy rail can contribute significantly to a palatable transport solution for our cities and our regions. Freight on rail, as an option to road, offers equally palatable benefits in cost and efficiency, but we need to plan thoroughly to reap these benefits and to bolster those that rail currently generates.

The contribution rail already makes to our economy, environment and social cohesion cannot be underestimated. We cannot overlook fundamental benefits that are currently inherent in rail, namely:

- Rail's positive impact on road congestion – one passenger train takes 525 cars off the roads and one freight train takes 110 long haul trucks off the roads
- Rail's positive impact on costs – less congestion, fewer accidents and reduced road maintenance
- Rail's positive impact on emissions
- Rail's positive impact on commuting times and liveability in growth corridors and in our regions
- Rail's positive impact on social inclusion, health and amenity.

Appended to this Plan is Annexure 1 - Executive Summary of the ARA/Deloitte Access Economics Value of Rail Report that details the contribution rail makes to Australia. The Value of Rail Report is most compelling in laying plans for the future.

A collaborative approach which engages Commonwealth, State and Territory Governments can build on these attributes and serve to overcome the inefficiencies inherent in our current state-based systems.

Key government agencies, such as Infrastructure Australia, can feed into this collaborative process. A consolidated pipeline of projects around Australia will help identify priorities in addressing infrastructure needs, including the challenges of congestion, with funding approvals based on the compelling nature of the supporting business case.

The aims of a National Rail Industry Plan for the Benefit of Australia include:

- Highlighting the important role that rail plays in the national transport task and the economy
- Identifing the challenges and opportunities facing the national rail endeavour
- Providing a manageable, realistic set of initiatives for both government and industry to implement in a realistic timeframe
- To provide a structured way forward, seeking agreement amongst stakeholders, with outcomes that add value and that can be measured.

An integrated approach to transportation

The rail industry in Australia stands at the nexus between the opportunities presented by the significant and ongoing investment in systems and infrastructure. The challenges posed include ageing infrastructure, an ageing workforce and the historical separation of rail into discrete state-oriented networks. The way in which these challenges are addressed will determine the value derived from the current and future investment.

The situation now pertaining to rail in Australia is one of fragmentation. Historical events have resulted in a number of discrete, state-oriented networks with non-compatible infrastructure, differing regulatory frameworks and uncoordinated project schedules that compete for the same scarce resources. A National Rail Industry Plan for the Benefit of Australia aims to address these inefficiencies.

Rail cannot be considered in isolation. It is part of a broader transportation effort that includes road, air and sea for the movement of passengers and freight. Passengers must connect with rail transport from their homes and workplaces. A rail/road mix for freight is often required from key regional nodes and to the point of distribution.

Any rail industry plan must accommodate the broader transport requirements, particularly land transportation. This extends to passenger and freight intersections, integration into urban rail networks and improvement of efficiencies in moving freight over short haul or long distances. Levelling the playing field in road/rail pricing issues is integral to this. Propulsion/power/energy utilisation must also be included in the Plan.

Freight and passenger rail must co-exist in Australia's transport network. Each has policy priorities that must be understood.

Enabling a National Rail endeavour

Australia's rail endeavour is categorised as disparate, pursuing uncoordinated activities across multiple jurisdictions. As harsh as this commentary appears to be there are a myriad of examples which bear this out. Combined, these represent the foundation of the case for a national approach – a National Rail Industry Plan for the Benefit of Australia.

The Commonwealth Government has launched a Naval Shipbuilding Plan for Australia, affirming its commitment to build a sustainable naval shipbuilding capability in Australia based around an investment of $89 billion out to 2055. The rationale for a national endeavour for naval ships is said to be "building and sustaining Australia's naval capabilities, creating economic growth through maximising Australian industry participation, and securing Australian jobs that will endure for decades to come." A parallel can also be drawn for the Australian rail industry.

The Australian rail industry is no less important than shipbuilding – around $100 billion in investments is on the drawing board out to 2030. However, these investments flow from Commonwealth, State and Territory Governments. Accordingly, it can be said that the case for a coordinated plan – a national rail endeavour – becomes even more logical than it is for shipbuilding.

This is easier said than done.

Coordinating Australian governments, all with differing political aspirations, into one national endeavour is a challenge. The Council of Australian Governments (COAG) is not suited to this endeavour. The Transport and Infrastructure Council (TIC) brings Commonwealth and State Government Transport Ministers together and could endorse the National Rail Industry Plan for the Benefit of Australia concept and perhaps undertake an overseeing role.

TIC has made modest progress in harmonising rail requirements in bogies and glass, but the agenda for any Plan is comprehensive, requiring specialist input from a range of stakeholders and there is a degree of urgency about it. There are various options to achieve traction for a National Rail Industry Plan for the Benefit of Australia. Fundamental to it is a declared commitment and goodwill among stakeholders. Options include:

- Establishing a specific Rail Industry 'coordinating' or 'implementing' body to work co-operatively for the purposes of the Plan, or
- Establishing an 'authority' with appropriate legislative support.

In either case, issues of structure and composition arise. Representation from government, the bureaucracy, industry and agencies would be required, timelines set, budget allocations made and support from a small resourced secretariat.

The UK approach

One approach to be considered is that being pursued successfully in the UK.

In the UK, the rail industry and government has pledged to make the UK a global railway leader. To this end, the Rail Supply Group has been formed, co-chaired by an industry leader, the Secretary of State for Transport and the Secretary of State for Business, Innovation and Skills.

Industry and the UK Government worked collaboratively to produce 'Fast Track to the Future – a strategy for productivity and growth in the UK rail supply industry'. In effect, this is the UK's Rail Industry Plan.

This is a comprehensive plan for UK rail. There are many parallels with the Australian rail environment and what can be done to enhance rail's contribution to the Australian economy.

The UK Rail Industry Plan can be accessed at https://www.railsupplygroup.org/wp-content/uploads/2016/01/RSG-Brochure-Jan-2016.pdf. This comprehensive implementation plan documents the UK Government and industries pledge, productivity building blocks, sector strategy initiatives, and a comprehensive list of action plans, annually refreshed and tracked out to 2020.

THE FOCUS OF A NATIONAL RAIL INDUSTRY PLAN FOR THE BENEFIT OF AUSTRALIA

The focus of a National Rail Industry Plan for the Benefit of Australia should be relevant to all sectors of the Australian rail industry. Specific requirements may differ according to the nature of the rail activity being undertaken. Passenger and freight operators will each have their particular detailed agenda to pursue. Suppliers and contractors will likewise have differing requirements for success.

Rail should be at the centre of planning. It should be a priority in town planning, such as precincts for education, health, administration and community. Rail needs to match population movements in cities, growth corridors and regional centres. Focus on a smart cities plan comes into play. Rail is an integral component of the national transport system and its impact on urban and regional development.

Looking to the future, a national framework for corridor protection should be developed. That involves how to capture value from these corridors and will typically involve tri-government interaction, including Commonwealth, State, Territory and Local Government. Land use planning across all jurisdictions is part of this.

The speed of a train is a contentious issue. The starting point should be to achieve faster trains. The very fast train will no doubt come in due course, but the priority for now is faster trains. This will require positive steps to optimise current infrastructure assets.

The focus of the agenda for a National Rail Industry Plan for the Benefit of Australia should be relevant to the rail industry as a whole, embracing all of its endeavours. The agenda must be manageable if tangible progress is to be made.

Accordingly, the focus proposed for the Plan embraces five key requirements, namely:

- Recognising the importance of rail for Australia's infrastructure development, urban planning and freight movements
- Harmonising standards, minimising regulations and maximising economies of scale
- Growing capabilities of individuals and companies
- Maximising opportunities for rail companies
- Fostering innovation, research and development.

These are complex issues. They warrant examination and discussion among all stakeholders and an agreed way forward determined. Solutions will not come overnight. Rather, those at the table should consider the enablers set out in the following pages and early in the process, identify the actions required and who is responsible for them – whether it be industry, government departments or its agencies, research bodies and the like.

THE FIVE KEY AREAS OF FOCUS:

1. Recognising the importance of rail for Australia's infrastructure development, urban planning and freight movements

Enablers to achieve this include:

1.Establishing and maintaining a complete catalogue of all rail industry projects/investments (commissioned and proposed) – the 'Rail Industry Investment Pipeline':

- This should reflect time lines
- Reflect costs of projects and employment potential
- Assess funding and resource issues
- Consider and rank priorities.

2. Draw on the study ARA has commissioned from Deloitte Access Economics reflecting the contribution rail makes to Australia:

- Spell out the impact rail has on the major economic drivers, both GDP and employment
- Reflect the impact rail has on externalities, such as congestion, commuting times, safety, emissions and social cohesion
- Present the 'true value' of rail findings in graphical format to aid wide distribution and understanding.

3. Removing any policy bias between transport modes:

- Road/rail pricing
- Corridor preservation for passenger, freight and high speed rail
- Salary sacrificing for public transport tickets
- Recognising the importance of integrated transport in city planning
- Supporting the development of intermodal freight hubs and rail to ports.

4. Promoting the advantages that flow from rail:

- Generating an improved mindset among policy makers about the benefits of rail
- Promoting the advantages of major rail projects such as Inland Rail and Sydney/Melbourne metros
- Educating patrons to see how rail fits into Australia's overall transport offering as a viable, alternative transport mode
- Cooperating with tourism promoters, such as cruise liners, airlines, hotel chains to include rail as part of the tourism offering
- Promoting rail as a worthy option for young career aspirants
- Generating improved diversity outcomes.

2. Harmonising standards, minimising regulations and maximising economies of scale

Enablers to achieve this include:

1.Progressing work being led by Victoria (through RISSB) in harmonising standards relating to bogies and glazing:

- Extending the harmonisation efforts to homologation and system specifications
- Removing conflicting requirements in emission standards.

2. Working with the Office of the National Rail Safety Regulator (ONRSR) to achieve harmonisation in all areas of safety, particularly:

- Completing the full engagement of all states with ONRSR
- Addressing the safety issues relating to the movement of vehicles in rail facilities
- Harmonising the requirements of drug, alcohol and fatigue management.

3. Reviewing the approach to tendering and procuring to achieve a greater consistency of approach and reducing costs:

- Drawing on ARA's analysis of recommendations from the Productivity Commission
- Developing education programs on 'best practice' tendering practices relevant to both procurers and suppliers.

3. Growing the capabilities of individuals and companies

Enablers to achieve this include:

1. Identifing the labour skills required for a high performing rail system that is abreast of emerging technologies:

- Commission a labour market analysis to identify gaps in required skills (Bis Oxford Economics has prepared a comprehensive proposal to undertake this analysis)
- Drawing on the skills analysis being undertaken by training academies in Victoria and New South Wales. Exchange best practices to avoid duplication of effort. In particular, extend interstate the progress being made by the Rail Academy Newport particularly in the area of signals engineering. Similarly, the approach of Sydney Metro to achieve groundings in demolition, tunnelling, civil construction, rail and heavy haul should be mirrored in other states
- Improving the linkages between government, industry and training institutions, including TAFE and universities.

2. Ensure training methodologies are leading edge and keep abreast of future skill needs and training requirements:

- The use of simulators and virtual reality should be pursued with some urgency noting Deakin University is renowned for its VR expertise and the wide spread use of simulators in NSW
- Engage with training institutions to share best practice
- Explore international approaches to training methodologies, noting that InnoTrans 2018 may provide this opportunity.

3. Don't assume current approaches to traineeships and apprenticeships best meet rail industry purposes:

- A need to engage with rail companies, including operators, suppliers and contractors to explore how traineeships and apprenticeships can be fit-for-purpose
- The old statement that rail provides a 'job for life' is no longer appropriate. Rather, developing an approach to training that builds 'skills for life' particularly in science, technology, engineering and mathematics (STEM)
- Encouraging the mobility of skilled labour to rail, especially those with STEM skills
- Considering the provision of incentives for companies undertaking training in areas of particular need.

4. Training at certificate, degree and post-graduate levels is to be encouraged:

- Companies should consider offering cadetships to attract talented people to careers in rail
- Work experience for individuals across a variety of functions within the rail industry should be on offer
- Scholarships that offer international experience should be explored.

5.Promoting a bold and exciting image of rail to attract talented people:

- Considering whether rail companies could combine to undertake a program similar to the Australian Defence Force offering of a Gap Year described as a "fulfilling year of adventure, experiences, mateship, learning, leadership, and travel…it is a unique opportunity to get a feel for a career in the Services, without committing to a longer period"
- Retaining talent is as important as attracting talent
- Flexibility in working arrangements is required to appeal to a wider cross section of employees
- Maximising the benefits of gender balance in the workforce by supporting initiatives that focus on attraction, profiling, retention and networking
- Mentoring should become regular practice.

6. Programs for local companies to improve their capabilities to international standards should be on offer:

- Recognising the adverse impact on Australian rail if our capability to manufacture, refurbish and maintain our rolling stock and rail systems is lost to international competitors
- Ensuring Australia's rail industry maintenance capability is not diminished should local manufacturing of rolling stock move offshore
- Recognising the export potential of high tech, high value skills, particularly those in design. This includes Australia's training capability in all areas of rail
- Understanding that optimising the useful life of current rail assets, including infrastructure provides opportunities for capable local suppliers
- Examining the Supplier Continuous Improvement Plan (SCIP) implemented in the automotive component sector as an option
- Encouraging companies in other industry sectors, with relevant capabilities, to engage with the rail industry
- With an increasing tendency for suppliers to be required to demonstrate their capabilities to meet the standards prescribed through procurement processes (eg. the AVETTA process), developing training programs to assist suppliers understand these processes and to meet the standards required.

4. Maximising opportunities for rail companies

The enablers to achieve this are:

1. Amending the Australian Industry Procurement (AIP) thresholds to better reflect rail industry project values:

- Major projects require procurers to examine the capability of local companies to supply
- Coordinate procurement policies across government jurisdictions to achieve greater consistency and to facilitate competent local companies into the supply chain
- Tie local content provisions to outcome based measures such as economic activity, employment, capability, skills development, innovation, investment and long term reliability.

2. Governments and industry procurers should work with and encourage local industry to increase its capability to qualify in the supply chain on a commercially and technologically sound basis:

- Procurers should provide fair and reasonable opportunity to local industry to pre-qualify, tender and participate in rail related projects
- Buying practices, procedures and specifications should not disadvantage local industry
- State jurisdictions to ensure regulations, tendering processes and project specifications do not impede local suppliers.

3. Long term planning for government procurement of rolling stock taking into account whole of life costs:

- The number of trains per order and their timing should be optimised to achieve economies of scale
- Variations in train standards should be avoided to reduce the need for one-off designs, removing significant design costs
- Ensuring funding requirements are based on need rather than when funding is available.

4. The Productivity Commission and the House of Representatives Standing Committee on Infrastructure and Communications has proposed reforms to infrastructure procurement. These reforms should be pursued:

- More streamlined information for bidders, with only the preferred tenderer being required to provide detailed, non-design management plans
- A greater investment by government in the initial concept design of specifications (even to the point of ownership) which will assist in reducing bid costs
- Building Information Modelling (BIM) should be used to provide concept designs to reduce costs
- The issue of risk and its mitigation requires effective identification, management and allocation in the early stages of procurement ideally before final strategies are decided
- Generally, there should be no more than three shortlisted proponents for design and construct or manage and construct tenders and no more than two for early contractor involvement processes
- Education programs and guidelines on best practice tendering for both project procurers and proponents should be developed.

5. The Australian rail industry should seek to maximise its engagement in international supply chains:

- Austrade should engage with the Australian rail industry to foster international trade opportunities
- The trade opportunities should extend beyond products and services to technologies and know-how and into the education and training market, particularly in Asia and the middle east
- Austrade, in conjunction with the Commonwealth, State and Territory Governments and the ARA should take a delegation of Australian rail companies to Innotrans 2018 in Berlin.

5. Fostering innovation, research and development

Enablers to achieve this include:

1. Consider the establishment of a Centre for Rail Industry Capability (CRIC) modelled on the Centre for Defence Industry Capability (CDIC):

- CRIC would be an industry led organisation with the primary goal to drive innovation, productivity, excellence and competitiveness in the national rail industry, maximising its contribution to the Australian economy
- CRIC would provide a national coordinated approach to research and development, maximising the contributions to innovation by the CRCs for manufacturing and for innovation, the CSIRO and Australian universities with rail research activities
- CRIC would aim to generate commercial outcomes from its activities
- CRIC would focus on areas of competitive strength and strategic priority for the Australian rail industry identified throughout this Plan
- CRIC would have the option to pursue a solution-driven or problem-driven approach to innovation
- CRIC would investigate existing adjacent industry technology applicable to the rail industry.

2. The role of the Australian Centre for Rail Innovation (ACRI) should be reviewed:

- Examine whether ACRI could be restructured and its role widened with a financial model to support the role
- Barriers to accessing ACRI's research outcomes, when not IP/commercially protected, should be removed.

3. The role of Australian universities in rail related research and development should be better coordinated to provide a strong academic base for innovation:

- Examine the UK model, managed by the Rail Research UK (RRUK) Association. RRUK is a partnership between rail and UK research institutions undertaking relevant R&D. It is funded by the Rail Safety and Standards Board and Network Rail. The advantage is that duplication of research by various institutions is minimised through identifying the research specialisation of each research institute
- Set about creating a culture of innovation by introducing incentives for innovative projects
- Collaboration enables sustained good performance through sharing information, clarity over standards and the understanding of needs.

4. Refresh the collaborative study undertaken in 2012/13 by the Commonwealth's Rail Industry Advocate on behalf of the Commonwealth Government and the rail industry 'On Track to 2040 –preparing the Australian Rail Supply Industry for Challenges and Growth':

- This study provides an important roadmap for rail. Its findings and recommendations remain relevant and its implementation could be led by CRIC. The document can be viewed here https://industry.gov.au/industry/IndustryInitiatives/AustralianIndustryParticipation/SupplierAdv ocates/Documents/OnTrackTo2040-Roadmap.pdf

5. Technology opportunities were identified as follows:

- Materials and manufacturing, including advanced design, low cost manufacturing systems, high performance materials for heavy haul, advanced manufacturing, advanced materials for light-weighting, simulation for materials and manufacturing
- Monitoring and management, including automated health monitoring for smarter infrastructure, automated control and operations, advanced asset management systems, safety threat detection and intervention, advanced data analysis and information systems, advanced operations management
- Power and propulsion, including energy regeneration, advanced braking systems, energy use management tools, electric motors and systems, emission reduction technologies, gaseous fuels.

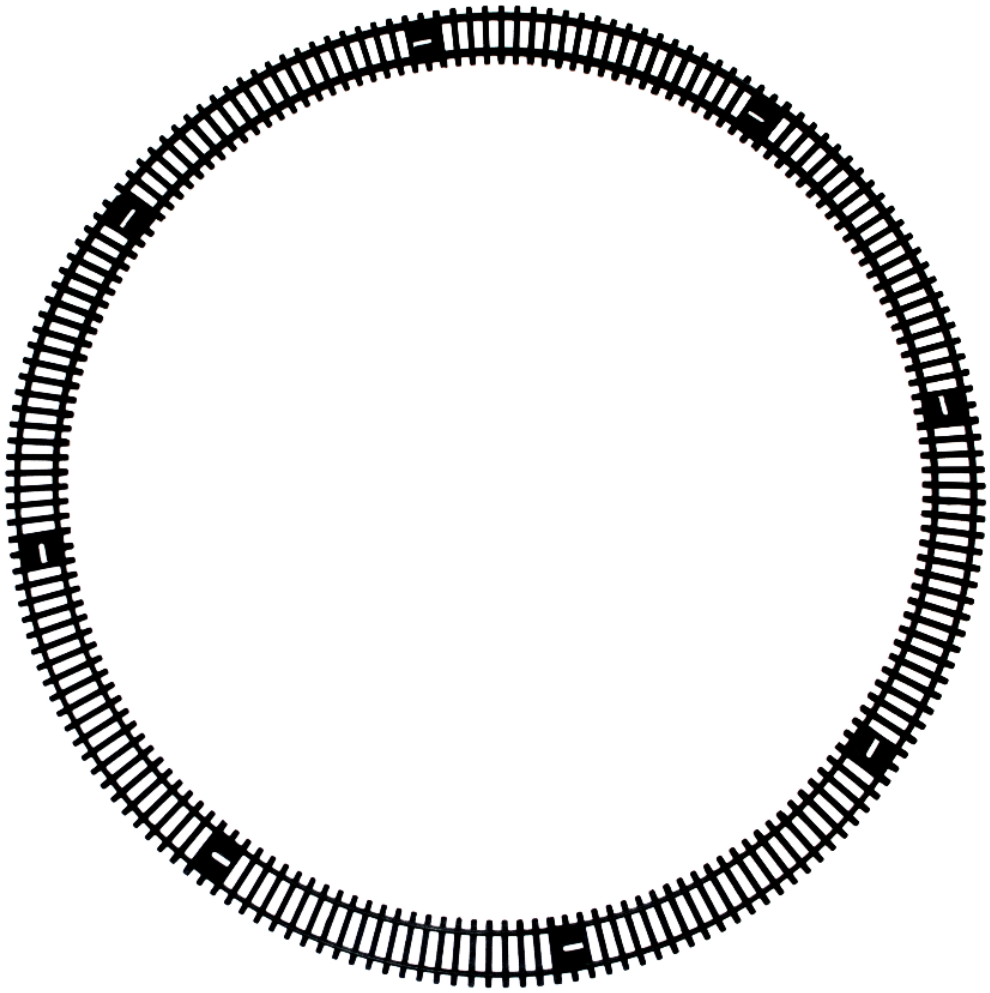
THE NEXT STEPS TO FURTHER DEVELOP THE PLAN

This National Rail Industry Plan for the Benefit of Australia is to be presented to stakeholders for review, seeking ultimate endorsement.

The proposed steps are:

- A Commonwealth Ministerial Roundtable to develop/ adopt the Plan
- Discussion with State and Territory Governments
- Discussion with key bureaucrats from the departments of transport, industry, infrastructure, education and training at the federal level to refine an action plan, timelines and budget parameters
- Provide an outline of the Plan to the State of Australia's Rail Industry Senate Inquiry
- Engage with opposition parliamentarians
- Gain consensus with State and Territory Governments for their support for the Plan
- Finalise the coordinating and implementation process
- Launch of the National Rail Industry Plan for the Benefit of Australia
- Wide distribution of the Plan
- Planning and resourcing the implementation of the Plan.

Deloitte.
Access Economics



Value of Rail

The contribution of rail in Australia

August 2017

In 2016 rail's **total economic contribution** was:

$26 Billion

Over 140,000 workers

But rail has **wider reaching benefits**:

Rail generates over **40% less carbon pollution** than road

Road travel causes almost **8x more accident costs** per kilometre travelled

Moving one person from road to rail can create **congestion cost savings of up to $9**

And given **expected growth...**

Passenger task to grow **19%** by 2026

Freight task to grow **26%** by 2026

Government should **focus on:**

Independent prioritisation with assessment of costs and benefits

Road pricing reform

A skills and projects review

Executive Summary

Australia's population growth rate – around 1.5% a year – is among the highest in OECD countries and since the year 2000 our population has grown by more than 25%. This growth, projected into the future, has startling consequences: Australia's population is forecast to almost double by 2070 reaching almost 45 million people. This means that, on average, population will increase by 370,000 people every year for the next 50 years. To put this into perspective, by around 2035 it will be as if another NSW has been added to Australia, by around 2045 it will be as if the entire population of Greece has been added to Australia's population and by 2065 it will be as if the population of the Netherlands has been added to Australia's population.

This growth in population won't be evenly spread. The majority of this increase will occur in our major cities. In fact, Sydney and Melbourne will add the largest number of people to their current residents. Both Sydney and Melbourne will add approximately 3 million people each by around 2060. This is roughly equivalent to adding the population of Brisbane and Adelaide to both of these cities.

The challenge of accommodating this growth in population is exacerbated by the fact that our cities can't continue to grow in geographic size forever. Natural boundaries, preferences of residents and commuting challenges will work together to limit the growth of the footprint of our largest cities. This means that there will almost certainly be a major increase in the density of our cities: more people living closer together.

Larger, more populous and more dense cities create significant challenges for achieving quick, convenient and affordable transport. Projections indicate that, with current vehicle technology and ownership trends, the stock of private motor vehicles will grow from around 14.8 million today to around 28 million by 2050. That is, without a significant change in vehicle technology, we're likely to add around 380,000 new cars to the road each year over the coming decades. More vehicles will be accompanied by more travel and more congestion. Over the period to 2050 it's likely that travel in private motor vehicles will increase by 40% and congestion costs will increase by far more than this.

A similar, but more extreme story is seen in freight with growth likely to follow along the path of GDP rather than population: a potential 88% increase in kilometres travelled by 2050 and an increase in vehicle stock of some 2.5 million trucks and light commercial vehicles.

To manage these challenges Australia will have to significantly develop its transport infrastructure with rail in a central role. Currently rail is a significant industry in its own right and makes a large contribution to the Australian economy of around $26 billion a year (1.6% of GDP) and 140,000 jobs. Rail is also an efficient, environmentally and socially beneficial mode of transport. Rail has lower emissions than road transport, is safer and can help reduce congestion in our cities.

Significant investments are being made into Australia's transport infrastructure, with projects such as Inland Rail and movements towards metro operations in Sydney and Melbourne underway. In some sense these investments are making up for a prolonged period of underinvestment in transport infrastructure. Looking to the future, rail will continue to have a central role as a focus for investment in transport infrastructure.

Sustained investment in transport infrastructure (and rail more specifically) will not only allow us to manage the challenge posed by population and economic growth but will allow us to develop a better integrated and prosperous society.

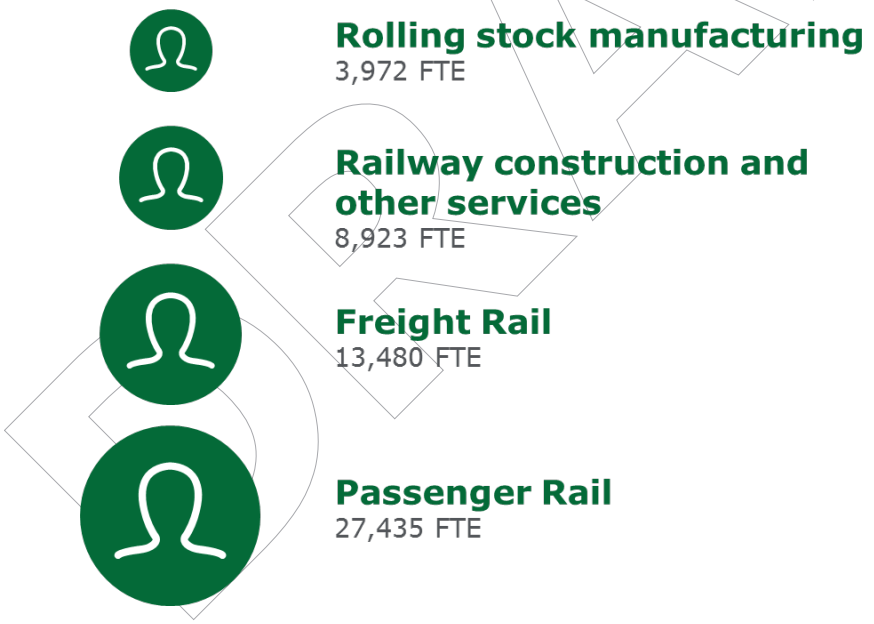
This report quantifies the current value of rail to the Australian economy in terms of its contribution to GDP and employment as well as its broader contribution to society through benefits such as reduced emissions, greater safety and reduced congestion. The key challenges facing transport in Australia are explored in more detail and areas of focus for Government and industry are identified in order to ensure that rail continues to generate value for the Australian economy and society. The main findings of this report are:

Key findings

The value of rail to the economy

- The rail industry directly contributes $13.3 billion in value add and employed 53,490 FTE workers in 2016.
- The total contribution of the rail industry to GDP (direct and indirect) was $26 billion and 142,288 FTE workers – making up to 1.6% of the Australian economy.

	Wages	Gross Operating Surplus	GDP	Employment
Direct Contribution	$6.7billion	$6.6 billion	$13.3 billion	53,490 FTE
Indirect Contribution	$7.1 billion	$5.7 billion	$12.8 billion	88,798 FTE
Total	**$13.8 billion**	**$12.3 billion**	**$26.1 billion**	**142,288 FTE**



- Regional employment is a focus for the industry – more than half of rail freight workers are outside the eight major cities, and just under half of rail manufacturing jobs exist in regional areas.
- Rail enables exports from mining, manufacturing and agriculture. Around $2.8 billion was spent by industry to transport goods by rail in 2013-14.

The value of rail to society

- Rail generates fewer costs in terms of accidents, congestion and emissions than road. These costs are not factored into transport prices.
- Each passenger journey made by rail instead of road generates benefits for society of between $3.88 and $10.64 by reducing congestion, accident and carbon costs.
- There are also health, social inclusion and amenity benefits from using rail.
- Road freight produces 14 times greater accident costs than rail freight per tonne kilometre and 16 times as much carbon pollution as rail freight per tonne kilometre.
- Moving freight by rail instead of road generates benefits for society of around 1.45 cents per tonne kilometre. This means that, if all road freight moving between Sydney and Melbourne travelled by rail, this would generate social benefits of $111 million a year.

Carbon emissions are **40% higher** on road than rail for each km.

Road travel causes almost **eleven times more** accident costs per kilometre than rail

Every road journey replaced by rail is estimated to reduce congestion costs by between **$2.46 and $9.22**.

Every 10,000 commuters that switch from road to rail will reduce carbon emissions costs **by at least $94,880** per year

Train users obtain health benefits of **$6.62 per trip** from walking to the station

Every road journey replaced by rail can reduce time spent waiting in traffic by **7-27 minutes**

Road freight produces **16 times more carbon pollution** than rail freight per tonne kilometre

Moving a single container by rail instead of road can **save up to $344.79** in carbon costs for movements between Australian major cities.

It is estimated that road freight crash costs were **14 times more per kilometre for road.**

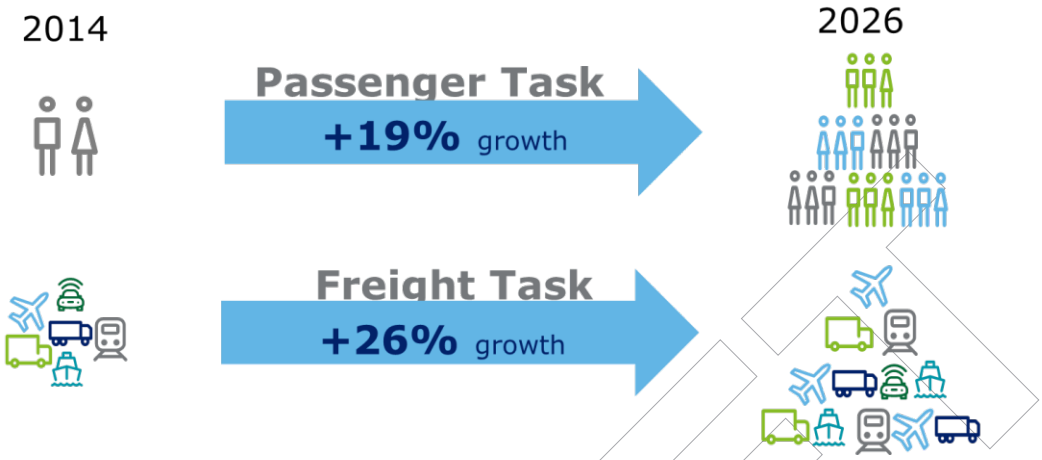
Moving nine tonnes of freight by rail instead of road between Melbourne and Brisbane **saves around $250 in accident** and emission costs

Case Studies

- Inland rail will provide a modern rail line connecting Brisbane and Melbourne, benefits include:
  - An increase in GDP by $16 billion during construction and the first 50 years of its operation
  - The creation up to 16,000 new jobs at its peak
  - The elimination of around 200,000 truck movements and 15 serious crashes on roads per year
  - Encouragement of development of freight precincts in areas such as Parkes
- V/Line's Regional Rail Link improved services on the Geelong, Bendigo and Ballarat lines, benefits include:
  - Reduced travel times by rail which are similar (and sometimes better) than travel times by car
  - A roughly 60% increase in passengers on the Geelong and Ballarat lines
  - The enabling of population growth in areas such as Carline Springs
- Integration of rail modes in Sydney will enable a truly connected CBD to emerge:
  - A new metro line will connect with existing heavy rail enabling development in the Barangaroo area which is expected to provide 24,000 jobs and generate $2 billion per year to the NSW economy
  - Light rail will reduce the number of buses in the CBD by 180 in the morning peak hour, equivalent to the number of busses the use Elizabeth St every morning.
  - Dedicated interchanges between these rail modes are being constructed throughout the CBD, including at Central, Town Hall, Wynyard and Circular Quay
- Rail is a good option for some businesses in making short journeys from the port to nearby factories
  - In Sydney, Woolworths makes use of rail at its distribution centre in Yennora where it has 74,000 square-metres of dedicated storage space. The use of rail at Yennora is cost effective for Woolworths and is estimated to eliminate 30 trucks from Woolworths' fleet – reducing congestion for Sydney's residents.
  - Breville has made a significant investment in relocating to a new, purpose designed national distribution centre at Minto Intermodal Terminal. By using rail, Breville reduces inefficient road handling movements and generates benefits for its business and the residents of Sydney.

Challenges for the future of transport in Australia and how to address them

The transport task is growing: Australia's population is forecast to double by 2075, and passenger and freight growth are both expected to outstrip this. Our transport networks will need to keep pace with this growth in demand.



- Technological change and policy which creates advantages for road transport are creating challenges for transport in Australia. New policy approaches will be needed to ensure we can meet the growing transport challenge.
- The upcoming stream of large infrastructure projects in road and rail will create constraints on skilled labour. We currently don't have a clear picture of the scale or specifics of skills that will be required to deliver these projects.
- The continued success of Australia's transport system and its ability to contribute to the economy and society is not guaranteed, and will require collaboration between industry and government to enable our transport networks to operate efficiently and allow the public to get the most out of the investments that are being made.
  - Government should continue to pursue improvements to planning decisions, procurement and regulation, including through road pricing reform.
  - Industry should pursue harmonisation of product designs and standards between jurisdictions and harness disruptive technologies with the potential to improve rail efficiency.
  - Government and industry should work together to improve customer experience, rail productivity and planning for the volumes and types of skilled workers required to deliver the ongoing stream of transport projects that will be required in the next 10-20 years.

T +61 2 6270 4501 | **F** +61 2 6273 5581 | **E** ara@ara.net.au

Suite 4, Level 4, Plaza Offices (East), Canberra Airport ACT 2609

PO Box 4608, Kingston ACT 2604 Australia | **www.ara.net.au**

NATIONAL RAIL INDUSTRY PLAN COORDINATION GROUP

Responsible for the delivery of the National Rail Industry Plan

- Independent Chair (Rail Advocate appointed by PM)
- Commonwealth Minister for Industry
- Commonwealth Minister for Transport
- Commonwealth Minister for Education and Training
- Infrastructure Australia
- 5 State Governments
- ARA
- Passenger Rail representative
- Freight Rail representative
- Rail Supplier representative
- Rail contractor representative

Secretariat support provided by Commonwealth Department of Transport and Commonwealth Department of Industry

Rail Coordination Group to report to the Prime Minister

Implementation Groups:

Transport Planning Taskforce

Project Pipeline
Road/Rail pricing
Urban planning
Corridor preservation
Intermodal hubs

- Commonwealth Department of Transport (Chair)
- State Departments of Transport
- Infrastructure Australia
- PMC (Cities)
- ARA
- Passenger Rail Representative
- Freight Rail Representative

Secretariat support by the Commonwealth Department of Transport

Procurement Taskforce

Harmonising standards
Improving tendering practice
Streamlining procurement

- Commonwealth and state departments of transport
- Commonwealth and state departments of industry
- RISSB
- ONRSR
- ARA
- Industry representatives (suppliers & contractors)
- Transport Operators

Secretariat support by the Commonwealth Department of Transport

Industry Capability Development Taskforce

Skills gaps analysis
Establish Centre for Rail Industry Capability
Review & Implement 'On Track to 2040'
Improving capabilities of individuals & organisations
Supply chain development
R&D & Innovation
Facilitating export opportunities

- Commonwealth & State Departments of Industry
- Commonwealth & State Departments of Education & Training
- Rail Training Academy's
- AusTrade
- ARA
- Rail Manufacturing CRC
- Australian Centre for Rail Innovation
- Innovative Manufacturing CRC
- Universities (with rail expertise eg. Monash)
- R&D organisations

Secretariat support by the Commonwealth Department of Industry.