



# Rail Skills Strategy 2022–2026



# Minister's foreword

The Andrews Government is investing \$90 billion in new transport infrastructure that will transform Victoria's transport system.

Our rail projects include the Metro Tunnel, the Melbourne Airport Rail, the Suburban Rail Loop, upgrades to the Sunbury and Cranbourne lines, the Geelong Fast Rail project and upgrades to every regional rail line through the Regional Rail Revival program. In addition, we're removing 85 level crossings across the metro network that will allow us to run more trains, more often. At the same time, we're investing more than \$8 billion in new trains, trams, buses and supporting infrastructure to meet growing passenger demand for services and create jobs in Victoria.

Victoria is growing faster than any other state. This growth brings economic prosperity and productivity. High-quality, reliable freight transport and logistics services are essential to our connectedness and liveability, for the success of Victorian businesses and primary producers and job creation across all parts of our economy.

Victoria's freight plan, *Delivering the Goods*, outlines our investments for better freight connections including \$181 million to upgrade regional rail freight network, \$83 million stimulus funding to further uplift rail freight lines, \$58 million Port Rail Shuttle Network, \$125 million Port Rail Transformation Project, and investment in major projects including North East Link, the West Gate Tunnel, and planning for a new interstate rail freight terminal. The availability of a skilled workforce is critical to the movement of goods, and the delivery of both our projects and new services that run as the projects are completed.

The rail workforce spreads the breadth of the sector including engineering, construction, maintenance, signalling, drivers, operations, and customer service.

There have been challenges in ensuring a sustainable pipeline of rail industry workers – these include competition from other states for skilled labour, an ageing workforce, and limited awareness of the career opportunities among students. Our ability to source skilled migrants internationally has been significantly diminished by the COVID-19 pandemic, putting pressure on the availability of rail industry skills.

However, Victoria has a world-class education system supplying the state with a highly skilled workforce and we can build on these strong foundations.

We know that the rail sector is unique, and a one-size fits all approach will not provide the workforce required to deliver the transport projects and infrastructure we need to keep Victorians moving. We will work closely with employers, industry and unions to co-develop targeted responses that ensure they have access to the right skills when they need them.

Recognising and retaining our current skilled workers and their knowledge and expertise is just as important as attracting new workers to the sector.

This strategy complements the Victorian Skills Plan, represents our vision for the rail sector's workforce and provides a roadmap for how we will focus our efforts over the next four years.

We will:

- work with industry, unions and employers to address skill shortages in the state's rail sector and support employers by growing the pool of highly skilled workers in Victoria
- provide strong career pathways to the sector and train the next generation of highly skilled rail and rail-related construction workers in Victoria
- retain, upskill and reskill existing workers and support them to share their expertise
- promote the breadth of career opportunities that are available in the sector and work to increase the diversity of the rail sector workforce to ensure it represents the Victorian community it serves.

We cannot do this alone. The success of this strategy requires the active participation and partnership of industry and employers working alongside TAFEs, universities and the local community.

We want all Victorians who want to be involved in the sector to have the opportunity to play a part in the historic transformation of our rail network. With the right support and collaboration, we also have the opportunity to make Victoria's rail workforce the most highly skilled and sought after in the country.

We would like to acknowledge the many contributions made by people and organisations who have assisted in the development of this strategy. We look forward to continuing to work with Victoria's rail industry, unions and employers to realise the vision set out in this strategy.



A handwritten signature in black ink that reads "Ben Carroll".

**The Hon Ben Carroll MP**  
Minister for Public Transport  
Minister for Roads and Road Safety



A handwritten signature in black ink that reads "Jacinta Allan".

**Hon Jacinta Allan MP**  
Minister for Transport Infrastructure  
Minister for the Suburban Rail Loop



# Secretary, Department of Transport and Director-General MTIA foreword

The importance of rail to Victoria cannot be underestimated – since 2015, the Government has allocated more than \$48 billion to rail infrastructure projects and procuring new rolling stock, averaging nearly \$7 billion per annum. The rail industry and its supply chain directly employ over 20,000 people, with thousands more indirectly involved in the sector.

Not only does rail help to alleviate congestion on our road network and get Victorians to their workplaces, healthcare and schools, it also ensures that goods can safely and quickly move across the state. Having a safe and accessible rail network that grows with our population is critical to Victoria’s economic prosperity. Supporting the sector with a skilled workforce is vital for the rail sector to deliver a world class rail system.

A ready, highly skilled workforce will be crucial to the growth of the rail sector and will be a significant factor if we are to realise and maximise the benefits of significant Government investment in rail in Victoria.

This strategy is about building on current programs and initiatives and the good work of industry and employers to implement solutions to their skills challenges.

We have seen firsthand the benefits of working as a coordinated transport portfolio and using our collective effort to develop targeted responses to skills needs on a project basis. Now is the time to further harness these efforts and work together to boost rail-related skills across the board.

Having a strong, diverse and resilient workforce is critical to the successful delivery of the major rail infrastructure and manufacturing projects in Victoria. We look forward to working collectively with the rail industry and employers to deliver this strategy.



**Paul Younis**  
Secretary  
Department of Transport



**Corey Hannett**  
Director-General  
Major Transport Infrastructure Authority

# Rail skills snapshot

The integrated Department of Transport gives us a singular focus on tackling the big issues, planning for the future, and for partnering with others to ensure that our transport system safely supports all journeys and users.

We ensure that transport agencies and operators work toward a common goal: an integrated transport system that contributes to an inclusive, prosperous and environmentally responsible state. We also bring together the management of ports, boating and fisheries for commercial and recreational uses.

Bringing together of all aspects of the rail sector under the one portfolio offers the opportunity to work together in a coordinated, integrated fashion. From rolling stock manufacturing and operation to construction and maintenance of our rail network and infrastructure, we can now plan for and respond to the skills and workforce development needs of the rail sector.

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One integrated  
transport  
Department  
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## Rail in Victoria



Victoria is home to approximately 250 rail related businesses



Approximately 10,000 workers are directly employed in the rail infrastructure sector



Approximately 10,000 workers are directly employed in the rolling stock manufacturing sector

Melbourne is home to the largest light rail network in the world, moving around 800,000 passengers every day.

The 2020–21 Victorian Budget invested \$1.85 billion in the future of our tram network through the largest order of trams in decades. This investment will support close to 1,900 local manufacturing and supply jobs during peak production. This investment builds on our advanced manufacturing capability and helps Victorian workers and businesses develop their skills capabilities in cutting-edge advanced manufacturing.

This investment will also see the establishment of a new tram maintenance facility in Melbourne’s west to support the deployment of the next generation of trams.

The 2021-2022 Victorian Budget invested \$986 million to build 25 brand-new X’Trapolis 2.0 trains and the infrastructure needed to modernise the state’s train fleet – making journeys more reliable, while supporting around 750 jobs across manufacturing and the supply chain.

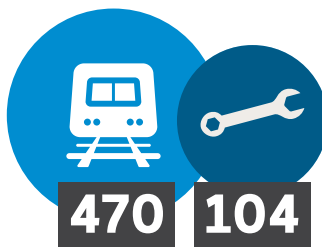
Part of the investment will also upgrade the Craigieburn Train Maintenance Facility, creating space for these modern trains and improving train maintenance to make the fleet more reliable and improve their longevity.

Regional rail is also an important priority for the Victorian Government. The appeal of intrastate travel has surged during the COVID-19 pandemic, making the upkeep and performance of the V/Line network even more critical. Hundreds of kilometres of rail sleepers, bridges, crossings and stations have and will continue to be upgraded, with new stabling and maintenance facilities being brought online.

Every year up to \$600 million is spent maintaining Victorian rail infrastructure. This includes the recent \$181 million investment by government for critical maintenance works to improve rail freight competitiveness and support the growing freight task that is vital to regional economies and supply chains. In addition, rail infrastructure works account for approximately 20 per cent of Victoria’s record \$90 billion infrastructure-related construction.



There is approximately 4129km of train track in Victoria



There are approximately 470 trains in Victoria with 104 in production or on order



There are approximately 500 trams in Victoria with 100 Next Generation trams to be built

The Metro Tunnel Project will free up space in the City Loop to run more trains to and from the suburbs, by taking our busiest train lines through a new tunnel under the city. The Metro Tunnel will create capacity on the network to enable more than a half a million additional passengers per week to use the rail system during the peak periods across Melbourne's train network.

The Metro Tunnel Project will create nearly 7,000 jobs for Victorians, including nearly 800 apprentices, trainees and engineering cadets. The Metro Tunnel is due for completion by the end of 2025, a year ahead of schedule.

Suburban Rail Loop (SRL) is a city and state-shaping project that will transform Victoria's public transport system, connecting our suburbs and creating opportunities in great places. The new rail line will

reshape Melbourne, connecting people to hospitals, universities and TAFEs, shopping districts, Melbourne Airport, and each other like never before.

SRL will be completed in stages over multiple decades. Stage One is a 26km underground rail line between Cheltenham and Box Hill, connecting major employment, education, health and retail precincts in the south east. The first phase of construction on Stage One will start in 2022.

Together with our pipeline of Big Build infrastructure projects, Suburban Rail Loop is a critical part of our state's recovery from coronavirus, generating important economic stimulus and up to 20,000 jobs during construction.

The estimated value added to Victoria's economy per annum by the rail sector is \$1.4 billion<sup>1</sup>.

<sup>1</sup> Australian Bureau of Statistics, Australian Industry 2018-19, <https://www.abs.gov.au/statistics/industry/industry-overview/australian-industry/latest-release>

# The skills and workforce challenge

Over the past five years, the demand for skilled labour in rail infrastructure has increased in line with major Victorian Government infrastructure investments. However, workforce supply has not kept up with the increased demand, leading to skills shortages in certain roles and occupations across the rail infrastructure workforce.

As investment has continued to grow in new rail infrastructure and rolling stock, and as rail operations expand across Victoria, there has not been a proportionate growth of a skilled workforce. Victoria wants to ensure it has the workers it needs to deliver and operate the growing rail network. The challenge is not only to meet growing demand, but to replace skills lost from an aging workforce.

These shortages extend beyond the entry level workforce, with unmet demand for management and engineering roles.

The infrastructure development, vehicle manufacture, operation and maintenance industries together deliver an integrated transport service. The needs of this service are met by a largely common workforce, and therefore share concerns with skills development.

Now is the time for a whole of industry approach across rolling stock manufacturing, assembly maintenance, operations and transport infrastructure projects to collectively work together towards the same objectives, learning from each other’s experience and reducing duplication of effort with the support of the Victorian Government.

A coordinated approach is needed to help focus industry’s efforts in partnering with Government and education providers to develop and maintain a sustainable pipeline of skilled labour.

Various segments of the sector have developed their own strategies and initiatives to try and address skills and workforce shortages

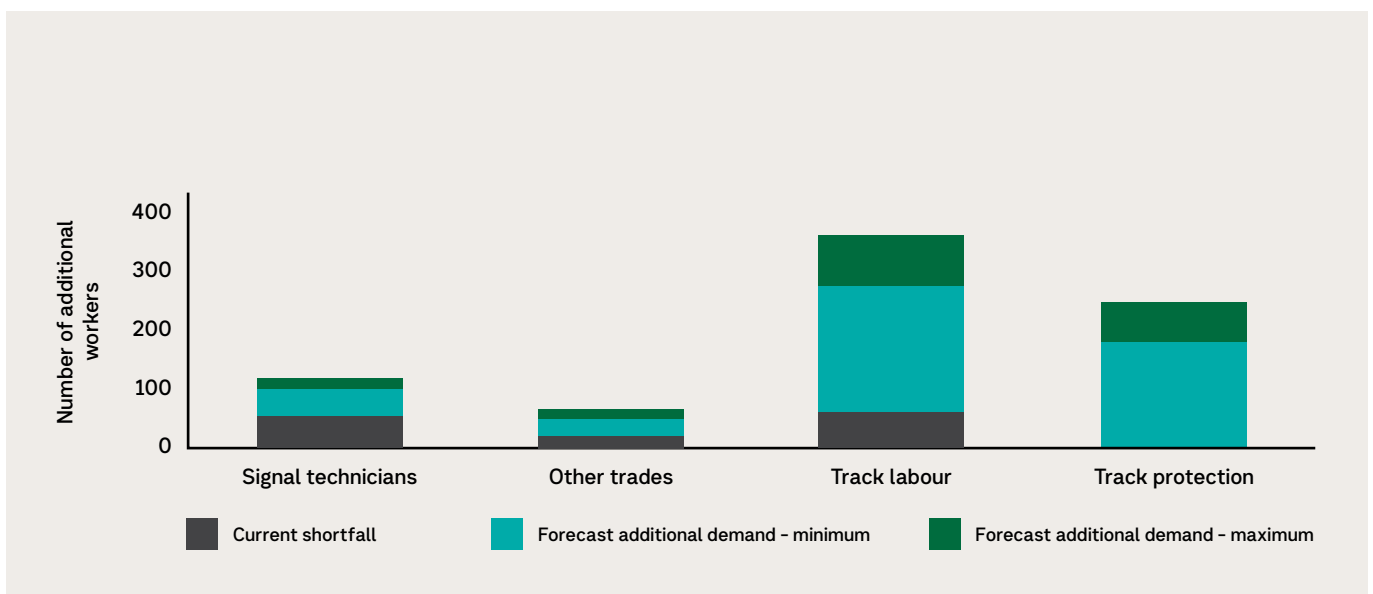


Figure 1: Estimated demand for key entry level rail infrastructure roles by 2022<sup>2</sup>

<sup>2</sup> Victorian Skills Commissioner, Skills Demand Snapshot Victoria’s Rail Infrastructure Sector, February 2020



## Giving industry a voice

The Victorian Government recognise the challenges being faced by the rail sector and the need to have mechanisms for industry to provide feedback and information on workforce issues and skills needs.

The Victorian Rail Advocate was established to champion Victoria's rail industry interests nationally and internationally.

A Rail Industry Development Advisory Committee (RIDAC) was established in 2020 to provide advice to the Victorian Government on all aspects of the Victorian rail industry, including training, jobs, innovation, research and development.

RIDAC is chaired by the Victorian Rail Advocate, and the membership of RIDAC reflects the broad interests of the sector. This includes members from industry peak bodies, employers, operators, the rail supply chain and rolling stock manufacturers, training providers, unions and community organisations.

A Training and Skills sub-committee has also been established and this sub-committee has been actively considering what initiatives could help support the sector.

The feedback from the sector through RIDAC and its advocacy work has provided direct input into the development of this strategy.



## National Rail Action Plan

The National Rail Action Plan (NRAP), approved by the Commonwealth Infrastructure and Transport Ministers Meeting (ITMM) in November 2019, is a set of 17 actions that are being successfully delivered by the Commonwealth, state and territory governments and key members of the rail industry.

The purpose of NRAP is to ensure the sector has the skills and labour required to build and operate an efficient and safe rail network; and to improve 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.

Victoria is actively involved in advocating for the Victorian rail industry at the national level and has been championing skills development and harmonising national standards as key priorities for the Victorian rail sector.

Collaboration on the NRAP has led to a deeper understanding of the increased role that rail can play in an integrated transport network and Australia's economic recovery, but there is significant long-term effort required to address the workforce challenges being experienced by the sector.

One of the key proposals arising out this work is the establishment of a National Rail Skills Hub. The Skills Hub aims to network and coordinate current industry and government initiatives and activities, to improve access and harmonise pathways to current and future rail skills, including in signalling systems and new digital rail control technologies.

The National Rail Skills Hub will be a special-purpose unit at the National Transport Commission to address three key issues:

1. removing barriers to cross-jurisdictional recognition of skills and qualifications
2. developing faster career pathways for rail sector employees
3. predicting skills gaps to improve workforce planning.

The Hub will do this by:

- connecting state-based rail academies and industry training initiatives in a coordinated, national network – so to harmonise training and improve portability
- collaborating with the National Careers Institute to build national pathways with clear entry points into rail jobs
- strengthening links to VET skills reform and the National Jobs Agenda
- developing a National Rail Skills Intelligence Model, based on a similar tool developed by the UK Skills Academy, which uses rich data sets to predict workforce gaps, thereby informing strategies for training, reskilling and retraining.

Victoria is supportive of this work and the new National Rail Skills Hub will complement this Strategy. The objectives and actions outlined in this strategy will be a direct input to the operation of the National Rail Skills Hub once established.



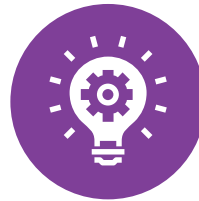
## Our vision

Victoria will be home to a world class rail workforce. We will prepare Victorians for the rail jobs of today and of the future, and encourage them into training that is aligned to priority occupations in the rail sector.

The rail industry will benefit by having a strong supply of skilled Victorians which will help them remain competitive in the global economy and ensure that they can deliver the Victorian Government's project pipeline.

Industry will work hand-in-hand with Government and the education system to implement greater planning that ensures a sustainable pipeline of workers, while also identifying ways to support the growth and capability of the supply chain and opportunities for innovation.

This strategy sets out actions in four domains to realise this vision.



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Build a strong evidence base



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Work based training pathways



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Adaptable, highly skilled and diverse workforce



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Promote the sector and attract new talent



## Objective 1

# Build a strong evidence base

Understanding exactly what skills are needed and in which areas of Victoria is the foundation to ensuring that we have the right supports and training offerings in place to support our rail sector workforce now and into the future.

### Strengthen evidence base: data collection and analysis

Using deeper data insights to inform skills and training planning in Victoria was highlighted as a recommendation of the Macklin Review<sup>3</sup> and the Victorian Government has responded to the Review through the Victorian Skills Plan 2022.

We will work more closely with the Department of Education and Training and the Department of Jobs, Precincts and Regions to bring together industry and training providers. We will consolidate data and insights to ensure that we have clear planning and investment in skills to support the rail sector.

These data insights will inform our planning and initiatives and help us to evaluate the training courses so that rail employers can be assured that government investment is supporting the attainment of the right skills and a sufficient pipeline of skilled, job-ready workers entering the sector.

### Fit for purpose training design and delivery

It is critical that the training delivered by TAFEs, universities, other training providers and employers is relevant and provides students with the skills needed to be safe and hit the ground running on a worksite.

The first step to addressing the skills needs of the rail sector is evaluating current vocational education training packages, in partnership with industry and unions, to confirm whether the current training is fit for purpose.

If the current training is deemed not to be providing students with relevant work-ready skills and knowledge, then new training courses, modules and competencies will need to be developed. The relevance and success of any new training will rely on the active input and feedback from industry.



### New qualifications and competencies through the Rail Industry Capability Project

The Rail Industry Capability Project delivered 15 new qualifications and 200 units of competency designed in partnership with industry.

The project, which was funded through the Department of Education and Training's Workforce Training Innovation Fund, designed new vocational education materials, including courses and units of competencies to help them upskill and train their current and future workforce.

The Project demonstrated innovative enterprise through a two-year partnership with Swinburne

University of Technology and Chisholm TAFE, across Victoria's metropolitan and regional rail industry, demonstrating a collaborative partnership to deliver the project initiatives.

Developing the new qualifications and competencies in partnership with industry meant that employers, current workers and students can be assured that the training being delivered is relevant and cutting edge and that when they're in the workplace they'll be job ready and able to carry out the basic requirements of their job.

<sup>3</sup> Macklin J., 2020. Future Skills for Victoria, Driving collaboration and innovation in post-secondary education and training, Victorian Government, Melbourne.

## Explore opportunities to expand existing networks of Centres of Excellence/Local Skills Precincts to enable co-location of industry with education providers

Precinct-based collaboration between industry, government, researchers, Not-for-Profits and peak bodies is widely identified as best practice, enabling flexible and regionally focused approaches to be developed that are specific to a location, its industries, its supply chains, its education and research providers, and its workforce<sup>4</sup>.

The Rail Academy Newport (RAN) established in 2007, is an example of a Centre of Excellence that could be built upon and expanded. RAN offers specialist training and assessment facilities for Victoria's rail, tram and associated industries. RAN is the only location in Victoria that provides the opportunity to train off network and simulate on track activities in a safe and supervised environment. It provides the most comprehensive off-network training infrastructure in Australia, and provides facility to type test equipment prior to introduction to the live network. RAN is not a provider of training in its own right.

Rather, its role is to identify and offer equipment suitable for critical safety training in a true working environment, and education spaces that are available to hire to training providers and industry. RAN provides a true working environment for the next generation of engineers, cadets and apprentices, including functional signal equipment (includes relays, point machines, train stops, boom mechanism, pedestrian gate, underground power and communications network), Substation with HV switching components, Full scale physical mock-up of the HCMT train with station area, Overheads, Road Rail Vehicle track, Dual gauge track and signals, and fully operational level crossing boom gate.

One of the greatest benefits of this facility is the practical training zones, where knowledge, skill and attributes can be blended together in a more immersive learning experience without any disruption to the live network.

Industry has also led the way by collaborating with Holmesglen Institute of TAFE and the Victorian Government to establish the first Victorian Tunnelling Centre (VTC) in Australia. The \$16 million centre will train around 3,500 local workers in tunnel boring machine (TBM) operation and underground construction each year—ensuring they are equipped to work on the pipeline of major tunnelling projects in Victoria. The Metro Tunnel is also receiving \$3.3 million funding from the Victorian Government's Workforce Training Innovation Fund to deliver a virtual reality training program that gives Victorian's skills in underground construction, tunnel boring and use of heavy equipment and technology.

The Next Generation Tram project may provide the catalyst to pilot a Centre of Excellence on a larger scale, encompassing all aspects of rail from innovation and manufacturing, to the operation and maintenance of rolling stock using existing facilities such as those at the RAN.

## Increase the number of trainers with industry experience

It is important that learners are guided by experienced teachers, trainers and industry professionals. This will allow each student to put their knowledge into practice and to be assured that what they are learning is relevant, up to date and that their skills will make them job ready.

The transport portfolio will work with the rail sector to look at ways to develop initiatives that encourage current workers to become accredited trainers, including developing flexible pathways to obtain the Certificate IV in Training and Assessment.



<sup>4</sup> Young, C., Jones, R. N., Lung, S., Ooi, D., Parry, N., and Heenetigala, K. (2020). Reimagining the workforce: training for a future rolling stock workforce. Rail Manufacturing Cooperative Research Centre, Melbourne.



## Objective 2

# Create work-based training pathways



Victoria has a world-class education system and a highly skilled workforce for which there is strong competition among Victoria's industries.

We need to make it easier for Victorians, particularly younger or school aged Victorians, to embark on study and training options that lead to a career in rail. This will help to strengthen the current pipeline of workers entering the sector.

By creating work-based training pathways for a broad range of professional and technical roles within the industry, we will ensure that we are creating a generation of job-ready workers who can deliver the huge investments being made in the rail industry to a world-class standard.

### Facilitate stronger industry partnerships with Skills and Jobs Centres

Skills and Jobs Centres (SJs) help current and prospective students, job seekers and employers. They provide expert and independent advice for free and support for Victorians ranging from career counselling, choosing or changing career, finding and applying for a job, or doing an apprenticeship or traineeship.

By engaging directly with SJs and providing them with information on the types of skilled workers and students they are looking for, employers would help SJC staff to provide targeted information to students about the rail job opportunities that are available in their local area.

Location can be an important consideration for individuals, and local jobs can sway people's decision making. Those individuals who are engaging with SJs are a captive and engaged audience and this is an opportunity that rail employers should leverage and focus their efforts on.

For those students considering a career in rail, SJs could connect them directly with local employers and immediate job opportunities, providing a clear pathway to study and employment.

We will work with DET to work out how we can better support employers to connect with their local SJC and actively raise the profile and services of SJs within the rail sector.

## Case study: Rail testing and commissioning

Where it is identified that current training arrangements – either on the job or in the classroom – are not meeting industry’s needs, or where regulation or entry criteria are creating unnecessary barriers to workforce access and opportunity, the transport portfolio is working with industry to develop new and better ways of working.

For example, the testing and commissioning of new railways has been identified as a significant area of risk to the delivery of projects due to a lack of standardisation and a shortage of skills. These risks can lead directly to delays in the delivery of projects.

While previous ad hoc approaches have attempted to standardise testing and commissioning practices and training, all operators and agencies

have struggled with influencing and addressing systemic issues within a project-focused delivery model.

The Major Transport Infrastructure Authority, in partnership with DoT, Metro Trains Melbourne and V/Line, is implementing a series of strategic actions aimed at modernising training methods and updating capability and skills assessment frameworks to better align with modern technologies and international practice. This approach not only streamlines the upskilling of new trainees, but also facilitates enhanced recognition of those skills and strengthens standardisation of testing and commissioning processes through improved, consistent, and structured training techniques.

The successful transformation of testing and commissioning processes will ultimately reduce the risk and impact of commissioning overruns, saving money for industry and the community.





## Objective 2

# Create work-based training pathways

### Link employers with Group Training Organisations to increase the number of apprentices & trainees in the rail sector

Employers often cite projects being too short as a barrier to employing apprentices and trainees for the full duration of their training. Using the services of Group Training Organisations (GTOs) would help to overcome this barrier.

GTOs employ apprentices and trainees under an Apprenticeship / Traineeship Training Contract and place them with suitable host employers – enabling them to build their skills and industry knowledge.

Under this arrangement, the GTO is the legal employer and thus assumes the responsibility for the legal aspects of the employment contract, as well as the training needs. This approach means employers are not tied to any contract with the apprentice or trainee.

This model provides employers with the flexibility to employ an apprentice or trainee for the duration they need, rather than the full length of an apprenticeship or traineeship. It also provides the flexibility for apprentices to move from one project to another as needed.

The greater use of GTOs would help to provide more apprenticeships and traineeships in the rail sector, which ultimately would help to strengthen the pipeline of new workers to the sector.

Through Big Build Apprenticeships, the Victorian Government is helping to kickstart a career on some of the biggest and most iconic infrastructure projects in the state. We are providing up to 1500 apprenticeship and traineeship opportunities per year to help Victorians who are finishing school or looking to re-skill.

The program is initially linking apprentices and trainees with the North East Link and the New Footscray Hospital projects. With an expansion onto other major projects over time, the sector is poised to be a key partner with the current pipeline of projects.

The transport portfolio will continue to work closely with DET and the newly established Apprenticeships Victoria to deliver more opportunities for apprentices and trainees looking to start a career in the rail construction and infrastructure sector.







### Case study: Metro Tunnel HQ school program

An Education Program based at the Metro Tunnel visitor centre, Metro Tunnel HQ, shows students what the project means to them as future citizens and workers, targeting careers and skills in Science, Technology, Engineering, Arts and Maths.

At the Metro Tunnel HQ, students are encouraged to experience the project firsthand, whether digging deep under the city on board our virtual tunnel boring machine or navigating their way around the future rail network.

In a classroom at Metro Tunnel HQ, students can extend their understanding of how public transport is changing and consider the opportunities presented by the Melbourne of the future.

Exposing students of all ages to the core of the rail sector in Victoria provides the opportunity for the rail industry to capture the hearts and minds of students and introduce the idea of a future career in the sector from a young age.

## You can't be what you can't see

### Provide direct workplace experience and industry visits available for students

A way to encourage prospective workers to choose the rail industry, whether they be school students or university and Vocational Education and Training (VET) students, is to provide exposure to the workplace and allow them to see the career opportunities firsthand.

At present, programs aimed at students can be uncoordinated and there is an opportunity to enhance and mature the current program offerings. Industry needs to work together to provide a more coordinated approach to promoting their employment opportunities to students.

Providing students with hands on experience of the workplace and technology would dispel some of the misconceptions that people have of the sector. For example, many believe that the rail industry is dirty and physical work, when in fact much of it utilises sophisticated technology and is made up of diverse people from all genders and backgrounds.

The rail sector is not unique in experiencing skills challenges and is competing against other industries who are also trying to influence students' career decisions. Offering site visits and the opportunities for students to see firsthand what a rail worksite can look like – and likewise their teachers, who have been shown to play a significant role in helping students identify their future aspirations and build work-readiness skills – will assist in starting the conversation about rail and open up Victorian students' minds to the job possibilities in the sector.



## Objective 2

# Create work-based training pathways

### Case study: New Certificate II Heavy and Light Rail Fundamentals for Victorian secondary school students

In an Australian first, year 10 and 11 school students with an interest in rail and construction have begun a two-year pilot program to get them ready for a career in the rail industry.

Led by the Level Crossing Removal Project and working with the Victorian rail industry, the course has been developed as an introductory rail qualification for high school students, known as Certificate II in Heavy and Light Rail Fundamentals (pre-vocational).


The curriculum sees students undertake training in several areas of railway operation, including customer service, safety awareness, rail infrastructure and rolling stock.

By the end of the course, students will have a basic knowledge and understanding of the rail industry in Victoria, including the technical know-how to lay sections of rail track and use a model signalling system to control a train's movement.

This program has achieved some monumental milestones with a pilot group of 13 students graduating in 2021 with Swinburne TAFE, and 19 students enrolled and commenced training in the Cert II at Hallam Senior in early 2022.

The two-year, part-time course will count towards a VCE qualification, and will hopefully encourage students to be part of the next generation of rail workers needed to deliver Victoria's upcoming infrastructure projects.

▼ Students enrolled in pilot program



Ensuring we have flexible pathways for people to start their career in the rail sector is an important measure to securing the workforce that industry needs now and into the future.



### Increase multi-skilling and dual trade opportunities and pathways

Multiple training pathways are important to cater for the diversity of individual's preferences and circumstances. It enables individuals to maintain lifelong employability in an environment where jobs, occupations, workplaces and the associated skill requirements are continually being transformed.

Diversity is more than just gender, race or ethnicity. It includes people of different ages, those with different socioeconomic backgrounds, diverse religious and political beliefs, sexual orientation, those with a disability and Aboriginal Victorians.

Apprenticeships and traineeships provide a valuable pathway between school and sustainable employment through a combination of vocational education, training and employment. However, we know that some employers don't consider job applicants as suitable, because they lack employable skills or the capacity to be immediately productive on the job.

Pre-apprenticeships and pre-vocational programs can help to overcome this barrier by providing a pathway between school and an apprenticeship. The Department of Transport can play a greater role in this space by coordinating input and intelligence from industry on the skills they need, and through liaising directly with the Department of Education and Training to ensure there are funded training pathways that align with industry needs.

This action could also extend to exploring the option of creating higher apprenticeships and opportunities to upskill Victorians who have already completed a qualification and are licensed in a trade to meet skills demand in areas such as signalling.

For example, the Australian Rail Track Corporation (ARTC) has employed a number of qualified electrical tradespeople and partnered with a Registered Training Organisation (RTO) to provide skills gap training for them to complete the Cert IV in Railway Signalling. This has reduced the training time from four years to two years to produce qualified, competent Signal Electricians.

Ensuring we have flexible pathways for people to start their career in the rail sector is an important measure to securing the workforce that industry needs now and into the future.

### Partnering with major project employers, industry, unions and TAFE

Victoria has a unique skills body which work directly with industry to achieve outcomes.

Apprenticeships Victoria is a partnership between the Victorian Government, major project employers, and the TAFE and training system to deliver more job opportunities for apprentices and trainees looking to start a career in the construction and infrastructure sector.

We will work with Apprenticeships Victoria to facilitate partnerships with industry, unions and TAFE to address the identified skills need and barriers to address these. This will then enable development of potential actions including 'Learn and Earn' models and piloting of these where the demand is needed most.



## Objective 2

# Create work-based training pathways



### Work with universities to influence course content and promote career opportunities to university students

Many industry sectors now need to adopt a vertically integrated approach to skills development, drawing on skills from across education sectors.

Victoria is trialling Advanced Apprenticeships pilots through partnerships with universities and industry. The pilots target small to medium sized businesses in key manufacturing areas with the aim to upskill, retrain and reskill their employees to enhance their capabilities in the workplace and improve their skills in Industry 4.0 technologies.

We recognise that while vocational and applied skills are important for the rail workforce, tertiary qualified workers are just as critical to the rail workforce and to support innovation in the sector.

While there are no specific rail engineering degrees, there is an opportunity for the transport portfolio to work closer with Victorian universities to enhance the visibility of rail and rail careers to university engineering students. Specifically, there needs to be a coordinated and concerted effort across industry, with the assistance of the Victorian transport

portfolio and other industry organisations such as the Australian Rail Association (ARA), to engage with universities, and actively encourage universities to incorporate rail specific coursework into degrees.

Some of the feedback from industry has been that graduates are not aware of the career pathways in the rail sector and that industry needs to look at how to create the same excitement that students have for other engineering specialities. Many stakeholders have cited the auto sector as a prime example of how to generate interest amongst students. Stakeholders cited competitions and hands on experience such as the Formula SAE-A – a motorsport competition where university students design, build and compete in their very own Formula-style open-wheeled racing cars – as an initiative that could be explored to generate similar interest amongst students for the rail sector.

Stakeholders also suggested that there needed to be a more proactive and coordinated approach to target university students across the Victorian universities network through a multifaceted approach including site visits for students, cadetship programs, and rail professionals visiting universities to speak to university students.

## Industry fostering the next generation of engineering and STEM professionals

Aurecon's Aurecon Bridge Building Competition was in its 18th year and engaged approximately 250 schools, with around 1200 students across Australia and New Zealand to design and construct a model bridge using materials supplied by Aurecon.

Prizes are awarded for the best overall entry, the strongest, the most efficient, and the most innovative bridge. This year, an optional digital component and digital award was introduced

to the competition to reflect the increasing role digital technology plays in the design and construction of bridges.

The competition works to cultivate a curiosity among students for STEM subjects.

It also helps to address the roadblocks keeping female students from engaging with STEM subjects by providing a unique learning experience that combines STEM skills with creativity in a fun and supportive environment.





### Objective 3

# Build an adaptable, highly skilled and diverse workforce

The rail sector is dependent on skilled labour, that can often take many years to build up the requisite skills and knowledge across the network.

Data<sup>5</sup> shows that the proportion of workers in the industry above the age of 50 is increasing, attributable in part to the declining proportion of workers below the age of 30. If this gap continues to widen the skills challenges currently faced by the sector will only continue to grow.

It is vital that we retain existing workers in the rail sector and that opportunities to upskill, reskill and pass on their expertise and knowledge are made available.

The expertise of current workers is highly valued and every effort needs to be made to preserve it. If we can keep those industry experts in the job and out of retirement for a few years longer, it will provide additional time to help upskill other workers and for new workers to be trained while supporting our older workforce in their transition to retirement.

Creating a diverse workforce that appeals to all Victorians regardless of their background should also be a key focus for industry. Not only will this help the sector to attract a wider range of potential workers but also help it in providing services that meet the needs of all Victorians.

### Establish mentoring programs

To be successful in today's ever-changing business environment, employers need to continuously learn and evolve, while also understanding employees' needs, aspirations and motivations.

Mentors can help provide mentees with the skills, confidence and resources they need to navigate a successful path through the rail sector. This also provides mentors the opportunity to meet, grow and learn from upcoming talent in their industry.

The mentoring experience provides a positive environment, leading to improved productivity, better work outcomes and increased job satisfaction. A higher level of satisfaction is associated with reduced turnover and improved retention, which is a challenge that the rail sector needs to address quickly to ensure that it has enough workers to deliver on the current pipeline and allows enough time for new workers to be trained through the VET system and university.

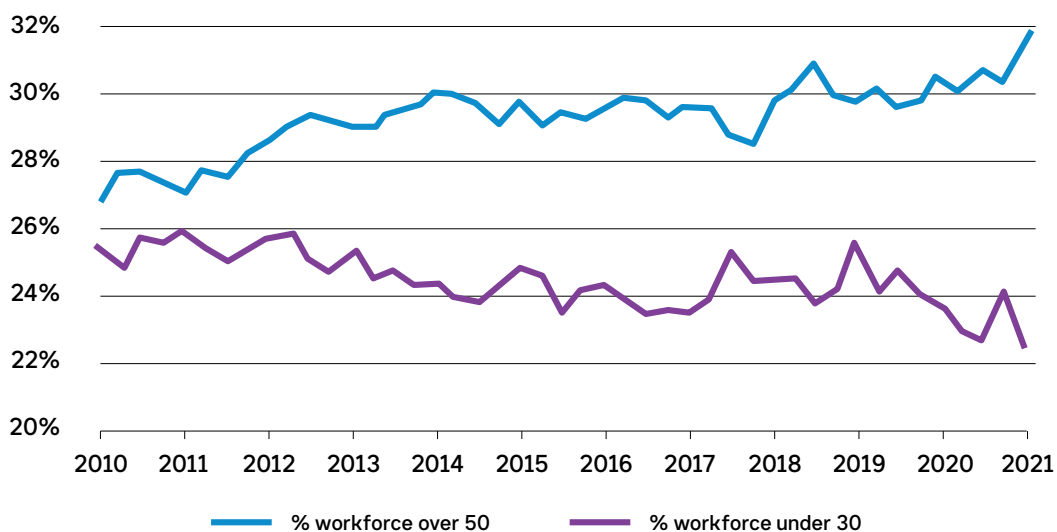


Figure 2: Rail sector age demographic breakdown for percentage of workers aged over 50 (blue) and under 30 (purple).

<sup>5</sup> ABS (2020), Labour Force, Australia, Detailed Quarterly, Cat. No. 6291.0.55.003. Chart combines construction, manufacturing, transport and postal services

## Case study: Women in transport mentoring program

The Department of Transport (DoT) established a Women in Transport (WiT) program in 2017 as the first of its kind in Australia. The objective of WiT was to increase the number of women working in the public transport sector to 25 per cent by the end of 2020.

Since the launch of the WiT program in 2017, the representation of women within public transport operators has increased by five percent from 16 percent to 21 percent. One of the key initiatives under WiT is a mentoring program. Women mentees are custom matched with industry leaders, experts and peers based on needs, goals, preferences and location.

Over 1,100 employees (550 mentoring pairs) to date have participated in the program.

A program evaluation found that all but one participant remains working in transport. 89% of mentees indicated they see a future in transport, while 41% have been promoted.

The program has significantly increased the confidence of mentees, and both mentees and mentors reported feeling more connected in the industry and have increased their knowledge of the transport industry as a result of the program.



## Provide upskilling and reskilling opportunities for workers

As technology advances, the rail sector will need to evolve. This presents challenges but also opportunities for innovation, as well as the need to support workers to upskill.

Government, industry, TAFEs and other training providers will need to work together to understand the training requirements to meet current and future skill needs. We will determine whether new formal qualifications, core competencies or micro-credentials are needed to upskill current workers to ensure they maintain capability in their chosen field and employment within the sector.

Industry, training providers and government will work hand-in-hand to assess whether there are upskilling requirements and planning requirements as part of procurement and delivery each time a new project is commissioned.

For example, as part of the delivery of new trams or trains, the possibility of supply equipment and/or rolling stock for workers to be trained on should be explored. This would provide a practical way to help facilitate a smooth and timely upskilling program for current workers.



## Objective 3

# Build an adaptable, highly skilled and diverse workforce



### Leverage government procurement and contracts to drive workforce & skills development

The Victorian Government is the largest procurer of goods and services in the state and there is a great opportunity to use this purchasing power to support broader economic activity by investing in workforce and skills development as part of the contracting process.

We recognise that, **under the Victorian Local Jobs First policy, the Major Project Skills Guarantee** applies to the construction of rail infrastructure projects and that this goes some way to addressing the skills needs of the rail sector, however, this does not apply to the manufacture of rolling stock.

We will explore introducing contract requirements to create workforce and skills development responses as part of a tender process for rail and rolling stock contracts, which could include MR5 and the manufacture of new rolling stock and maintenance contracts.

We anticipate that this will encourage a broader spectrum of businesses within the sector, particularly in the rail supply chain, to consider what actions they can take to address the skills challenges that they frequently encounter and actively invest in their future workforce.

We will also ensure, through the **Victorian Fair Jobs Code**, businesses that do the right thing are rewarded and that those that put Victorian workers first are recognised.

### Implement initiatives to support and increase diversity within the sector

Efforts to attract new entrants to the sector may be redundant if the workplace does not change.

We know that historically the rail sector has been characterised by an overrepresentation of males and this can be a deterrent for some prospective job seekers. While we do not want to lose the expertise of the current workforce, there needs to be a concerted effort to attract, support and develop diversity in the rail sector.

Diversity is more than just gender, race or ethnicity. It includes people of different ages, those with different socioeconomic backgrounds, diverse religious and political beliefs, sexual orientation, those with a disability and Aboriginal Victorians.

A diverse workplace brings multiple benefits, which are both internal and external. Benefits include new perspectives that can lead to better problem solving and more innovation, improved employee performance and increased productivity, staff retention, and the ability to attract a wider range of candidates.

An ultimate objective would be to embed inclusion as part of the everyday work culture of the rail sector, however as an initial step, targeted diversity initiatives that seek to attract Victorians from all walks of life to the sector will provide a strong foundation to build on.

**Victoria's Building Equality Policy** is creating training and employment opportunities for women through government procurement on building infrastructure, civil engineering and other capital works projects.

The Building Equality Policy commits to increasing the targets and requirements to create a more gender-inclusive industry.

We will continue implementing the Better Equity Policy through the **Social Procurement Framework** and evaluate its effectiveness, while ensuring the policy and implementation reflect the needs of women in 2023.



### **Driving greater social equality through EPIC: Refugee and asylum seeker engineer cadetships**

The Engineering Pathways Industry Cadetship (EPIC) is a new initiative developed by the Level Crossing Removal Program with Swinburne University that provides the transport infrastructure industry critical skills and an Australian qualification for refugee and asylum seeker engineers. Cadets are employed for a minimum of 18 months and will receive on-the-job training, support and mentoring while completing a customised Graduate Certificate in Infrastructure Engineering Management, requalifying them for the Australian workplace.

The initiative will continue to deliver support to the now 47 EPIC cadets across the transport infrastructure industry.

This includes 27 cadets now qualified, 25 working across our industry, and 19 progressing studies. There are currently 14 female participants in EPIC, demonstrating our commitment to driving more Women in Transport, as well as ensuring workforce participation by refugee and asylum seeker qualified engineers.

The EPIC model is also now being adopted by Major Roads Project Victoria with work progressing towards an endorsed Engineers Australia (EA) program, meaning work experience counts towards EA membership.



## Objective 4

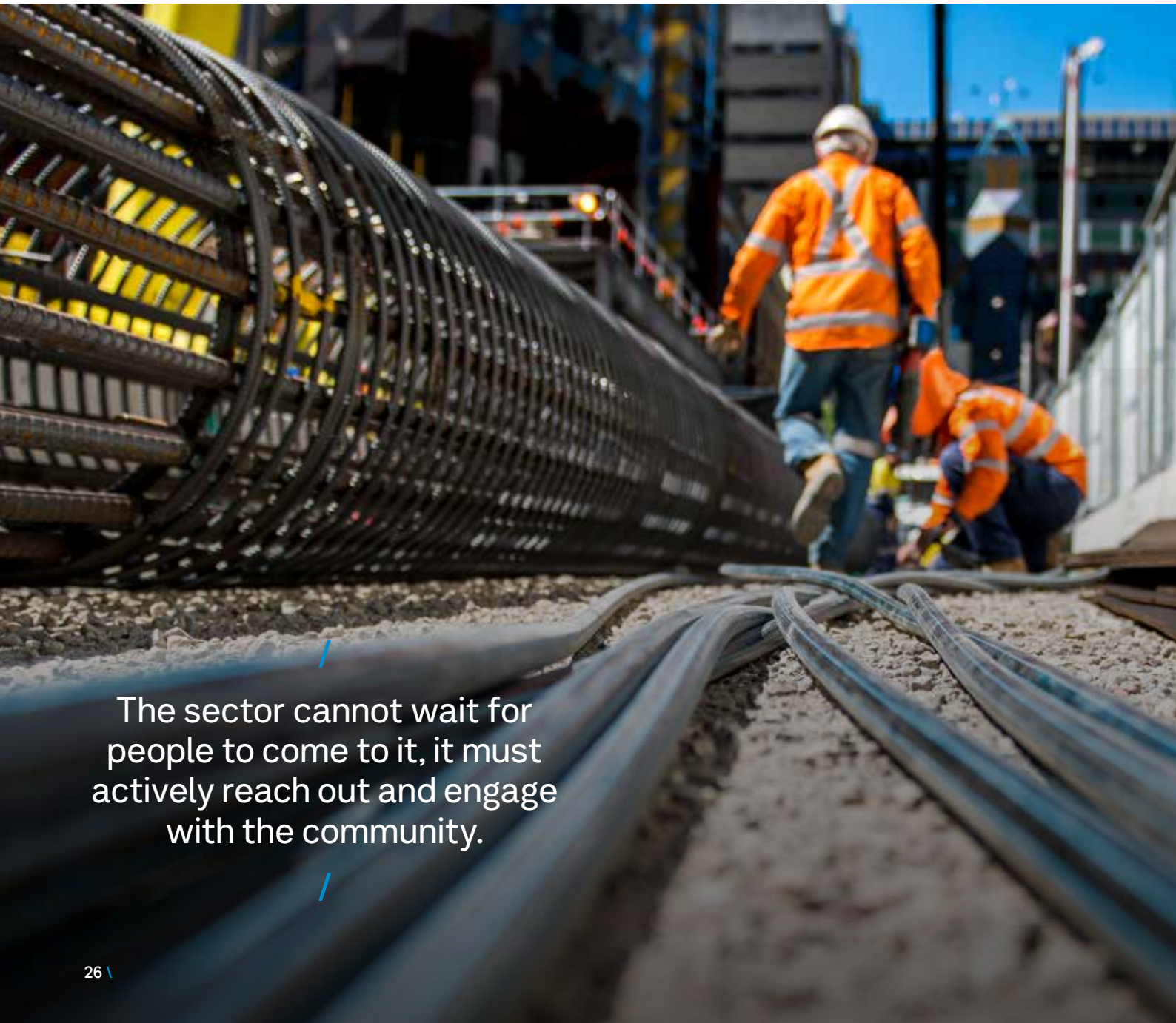
# Promote the sector and attract new talent

The rail sector has at times struggled to attract new people because of misconceptions about rail – for example that it is predominately manual labour, low-paying and does not offer secure employment. The sector offers a wide range of careers but many of these are not widely known.

Industry needs to collectively work together to proactively promote the sector, change public perception and celebrate the sector and the benefits it can offer individuals such as comparatively high wages, job security and opportunity to be involved in a sector that is quite literally keeping Victorians moving.

The sector needs to attract, retain and develop the right people with the right skills at the right time through targeted promotion.

The sector cannot wait for people to come to it, it must actively reach out and engage with the community.



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▲ Level Crossing Removal Project led 'Training for the Future', Engineering Industry Pathway Cadets from 2020 intake

### Support industry to map and promote the diverse career paths in transport

Mapping the career pathways and the different entry points to the sector, including the skills and qualifications required, will make it easier for individuals to understand the varied job opportunities and career trajectories that the sector offers.

Many students and job seekers view future career advancement and promotion as an important factor when making decisions about education, training and job application. The rail sector could attract new workers and stand out in the crowded job market by demonstrating the potential earning capacity, opportunities for advancement and efforts to diversify the industry.

Career maps would also help those workers who may be considering a career change to understand what transferable skills they have and additional training they may need to undertake. The transport portfolio will work closely with DET and the rail sector to ensure that career maps are accessible and widely made available to schools, students and job seekers through existing mechanisms and programs such as career education teachers and the skills gateway website.

Further, we would work closely with the ARA to complement work that they are doing to promote rail careers nationally.

### Roll out community campaigns to attract workers

The rail sector will work together to shift the way the industry is perceived by the community and to target specific cohorts of Victorians such as women, Aboriginal Victorians, young people, those considering career transitions and those from a non-English speaking background.

Taking a forward-looking approach by identifying what skill requirements projects will have and engaging early with the community will help to allow enough lead time for people to obtain the requisite skills to be job ready when a project commences.

Developing local campaigns, particularly for multi-year projects, to promote jobs and related training opportunities will also be important for the rail sector to develop and roll out in conjunction with government to help secure a pipeline of skilled workers when projects commence.

# Rail Skills Strategy Actions

Implementing the Rail Skills Strategy will require a staged approach.

We will work in partnership with industry towards the following actions to help attract and retain workers within the rail sector now and into the future.

Monitoring and evaluation activities will be undertaken across the lifespan of the Strategy to track progress, and identify achievements, key learnings and future priorities.

## 2024

- Increase multi-skilling and dual trade opportunities and pathways

## 2023

- Increase the number of trainers with industry experience
- Provide direct workplace experience and industry visits available for students
- Work with universities to influence course content and promote career opportunities to university students
- Establish mentoring programs
- Provide upskilling and reskilling opportunities for workers
- Leverage government procurement and contracts to drive workforce & skills development, including rail franchise agreements and new construction, rolling stock and maintenance contracts
- Implement initiatives to support and increase diversity within the sector
- Support industry to map and promote the diverse career paths in transport

## 2022

- Strengthen evidence base: Data collection and analysis
- Fit for purpose training design and delivery
- Explore opportunities to expand Centres of Excellence/Local Skills Precincts to enable co-location of industry with education providers
- Facilitate stronger industry partnerships with Skills and Jobs Centres (SJs)
- Link employers with Group Training Organisations to increase the number of apprentices & trainees in the rail sector
- Work with Apprenticeships Victoria to facilitate partnerships with industry, unions and TAFE to address the identified skills need and barriers to address these

Ongoing advocacy at a national level for Federal investment in



2026

2024



2023



skills and workforce development and support progress on harmonisation and interoperability

# Conclusions

This strategy provides the roadmap for us to help focus on the actions we need to take to build a strong and sustainable supply of skilled Victorians to make our rail workforce world class.

We know that any delay in equipping Victorians with the skills and experience needed to enter the rail workforce will inevitably impact on the delivery of our rolling stock and rail infrastructure projects. That's why we must act now.

Working in partnership with industry, unions, employers and the education sector we can identify the immediate, medium and longer term demands and become more proactive in planning and responding to these demands.

Industry will need to drive this work as they know best what skills they need. Rail employers are pivotal to this strategy and will need to be implementing these actions in their workplaces. With industry, unions and employers on board, Victorian businesses will be able to realise the benefits of the significant Victorian Government investment in rail.

We would like to acknowledge those that provided valuable contributions to this Strategy, including the following organisations:

- Victorian Rail Advocate
- Rail Industry Development Advisory Committee (RIDAC)
- RIDAC Training & Skills Sub-committee
- MTIA Board Workforce Diversity Committee
- Department of Education (DET)
- Department of Jobs, Precincts and Regions (DJPR)
- National Transport Commission (NTC)
- Victorian Chief Scientist
- Unions
- VicTrack
- Australian Rail Association (ARA)
- Australian Rail Track Corporation (ARTC)
- Bendigo Rail Workshop
- Downer
- Alstom
- UGL
- Rail Academy Newport.





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