



Towards a sustainable future

Sustainability
Annual Report
2019



Acknowledgement of the Traditional Owners

We acknowledge and pay respect to the Traditional custodians of the land known as Victoria. We pay respect to Elders past, present and emerging. We acknowledge the continuing spiritual connection to their ancestors', the land, water, and community. We acknowledge that this land always was and always will be Aboriginal land.

2019 YIRRAMBOI First Nations festival
Metro Tunnel Creative Program artworks by
Gunnai, Wiradjuri, Gunditjmara and Yorta Yorta
woman Lyn-AI Young and Boon Wurrung and
Wemba Wemba woman Jarra Karalinar Steel.
Photo credit: James Henry.

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Foreword



Since our establishment as the Melbourne Metro Rail Authority in 2015 to oversee the delivery of the Metro Tunnel Project, Rail Projects Victoria's portfolio has significantly expanded to now include the delivery of flagship projects that provide upgrades across the breadth of the state's metropolitan and regional rail network.

While our growing stable of projects helps us bring more transport benefits to more Victorians, it also provides an opportunity to continue to drive improved environmental and social outcomes to ensure we leave a lasting, positive legacy.

Construction is far more than just digging, lifting and building – alongside advances in technology, it offers the opportunity for new, smarter and greener initiatives. This report summarises the sustainability initiatives and achievements of projects being overseen by Rail Projects Victoria across 2019, with a focus on the Metro Tunnel and Ballarat Line Upgrade as two projects that have made the most significant headway in this space.

I'm proud to be able to continue to shine a light on our sustainability progress – I hope you enjoy reading the 2019 Sustainability Annual Report.

A handwritten signature in black ink, appearing to read 'E. Tattersall'.

Evan Tattersall
*Chief Executive Officer,
Rail Projects Victoria*



Introduction

About Rail Projects Victoria

Rail Projects Victoria (RPV) is delivering Victoria's largest ever rail infrastructure pipeline, with billions invested in metropolitan and regional rail projects including Geelong Fast Rail, Melbourne Airport Rail, the Metro Tunnel, Sunbury Line Upgrade and Regional Rail Revival. RPV is part of the Major Transport Infrastructure Authority (MTIA) which was established to oversee major transport infrastructure projects in Victoria.

RPV is responsible for planning and development of project reference design, site investigations, stakeholder engagement, planning approvals and procurement, through to the construction delivery and project commissioning phases.

We have assembled a skilled team of highly experienced professionals from across the public and private sectors to ensure the objectives of our projects are achieved for the Victorian community.

Sustainability context

It is essential that sustainability is considered in large-scale projects, as the building and construction sector has a significant environmental footprint. RPV believes in creating a legacy of healthy, connected, and sustainable communities through transport projects. This report documents the 2019 sustainability achievements from the construction of our projects.



Governance approach

REGIONAL
RAIL REVIVAL

Sustainability Policy

The RPV Sustainability Policy applies to all projects we deliver, outlining the following vision for our projects:

Through our delivery of major projects, we're committed to connecting communities in the healthiest, most sustainable way possible. We'll help to ensure a lasting legacy for present and future generations for a more liveable Victoria - environmentally, socially and economically.

To achieve this vision, RPV is committed to:

- Optimising the projects' design to ensure they are delivered to operate sustainably
- Managing resources efficiently through embedding energy, water and material saving initiatives into the design, construction and operation of the projects
- Avoiding, minimising and offsetting harm to the environment and the loss of biodiversity
- Protecting and conserving the natural environment
- Preparing for the challenges presented by climate change.

Implementation

We implement our Sustainability Policy by developing sustainability frameworks and strategies for our programs and projects. These frameworks and strategies translate our sustainability commitments into project specific commitments, objectives and targets, which are supported by project specific sustainability management plans. Our plans articulate the processes for working with delivery partners to ensure sustainability requirements are achieved.

Monitoring sustainability performance

RPV monitors the sustainability performance of its projects throughout the delivery phase. This monitoring program includes:

- Collecting and reviewing project sustainability performance information on a monthly basis
- Externally auditing the projects' sustainability programs on a regular basis to provide assurance that our sustainability requirements are being met
- Using third-party verification rating tools, such as the Infrastructure Sustainability Rating Scheme Tool and the Green Star Rating Tools, to measure and monitor sustainability performance on various projects.

The Infrastructure Sustainability Councils of Australia's (ISCA) rating scheme tool is being used to evaluate sustainability performance for early works and major construction for the Ballarat Line Upgrade and the Metro Tunnel Project. This allowed us to compare our sustainability performance to other projects across Australia and New Zealand.

Projects in delivery





Overview

The \$1.75 billion Regional Rail Revival (RRR) program will upgrade every regional passenger train line in Victoria. It is a joint initiative between the Australian and Victorian governments, including Ballarat Line Upgrade, Bendigo and Echuca Line Upgrade, Geelong Line Upgrade, Gippsland Line Upgrade, Shepparton Line Upgrade, North East Line Upgrade, Warrnambool Line Upgrade and Shepparton Freight Network Planning.

Ballarat Line Upgrade

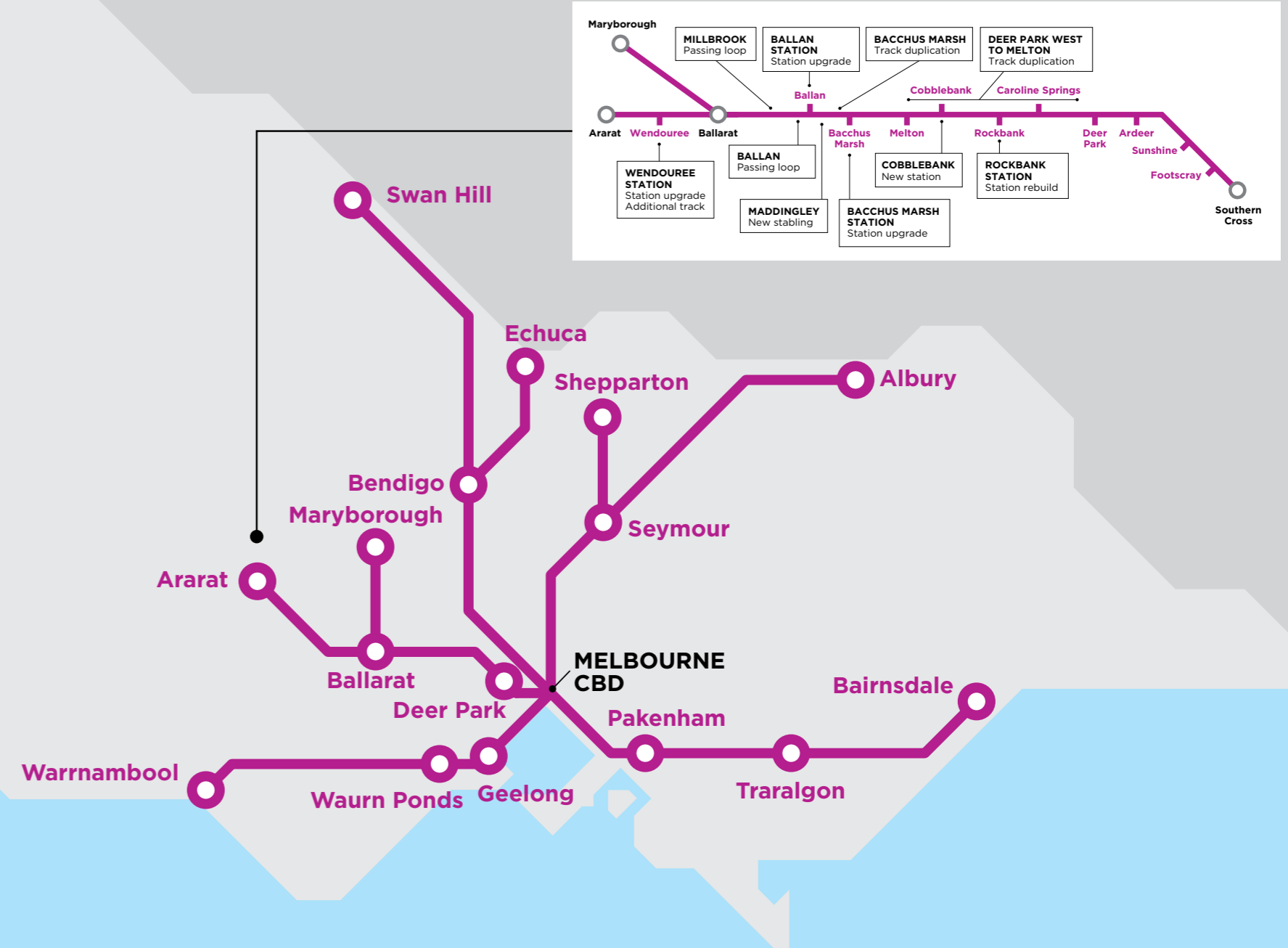
The Ballarat Line Upgrade is a key part of the Regional Rail Revival program and will facilitate extra services during peak times and trains every 40 minutes off-peak. This aims to service the growing communities in Melbourne's outer west, Bacchus Marsh, Ballan and Ballarat.

Gippsland Line Upgrade - Avon River Bridge

The Gippsland Line Upgrade will deliver improved train services to the growing communities of Gippsland and create hundreds of jobs in the region.

As part of the upgrade, a new bridge is being delivered over the Avon River in Stratford. The new bridge will improve reliability for passenger services. Trains will be able to travel at up to 90 km/h on the new structure, a significant improvement on the 10 km/h speed limit on the existing bridge. The nearby McAlister Street level crossing is also being upgraded as part of the project, improving safety for motorists and train passengers.

The Avon River Bridge upgrade also includes improvements to nearby Apex Park.





The Metro Tunnel Project

The Metro Tunnel will create a new end-to-end rail line from Sunbury in the west to Cranbourne/Pakenham in the south-east, with high capacity trains and five new underground stations. It will create capacity on the network to enable more than a half a million additional passengers per week across Melbourne's train network to use the rail system during peak periods.

Construction began in 2016.

SUNBURY LINE UPGRADE

Sunbury Line Upgrade

To take full advantage of the extra capacity on the rail network created by the Metro Tunnel, a range of enhancements are needed on the Sunbury Line to enable more modern trains to run. The \$2.1 billion Sunbury Line Upgrade will see various upgrades within the rail corridor extending from Sunbury to Footscray. These upgrades will ensure more modern trains can reliably run all the way from Cranbourne and Pakenham to Sunbury, linked through the CBD by the Metro Tunnel.

Construction began in 2019.



Materials, construction and innovation

RPV strives for environmental sustainability by supporting initiatives with innovative technologies that reduce the project's negative impacts, and by encouraging the adoption of sustainable construction materials. The initiatives featured below demonstrate some of the ways we have built sustainability into our new stations.

Ballarat Line Upgrade initiatives



Water

A 92.97 per cent reduction in potable water use over the life of the project.

A 25.7 per cent replacement of potable water use over the life of the project.



Materials

A 36 per cent Portland Cement Reduction was achieved across the project, which reduced emissions by minimising the amount of concrete used.

Case study: Cobblebank Station Design



Cobblebank Station is a brand-new modern station built in the suburb's future centre. It will help cater for the growing population of Melbourne's outer west and take pressure off existing nearby stations. Sustainability initiatives have led to impressive results across the station.



Concrete

- 90 per cent of the concrete used for the station contains recycled industrial bi product



Asphalt

- Asphalt with recycled content used to pave carparks
- 90 per cent of paved areas at Cobblebank Station use asphalt with recycled content



Steel

- Reinforced steel with polymer injection technology used to reduce carbon emissions



Water

- Rainwater tanks that supply the station toilets and evaporative cooling system



Cycling

- 25 per cent more bicycle hoops than industry standards
- Secure bike lock-up facilities installed to encourage sustainable transport



Solar Panels

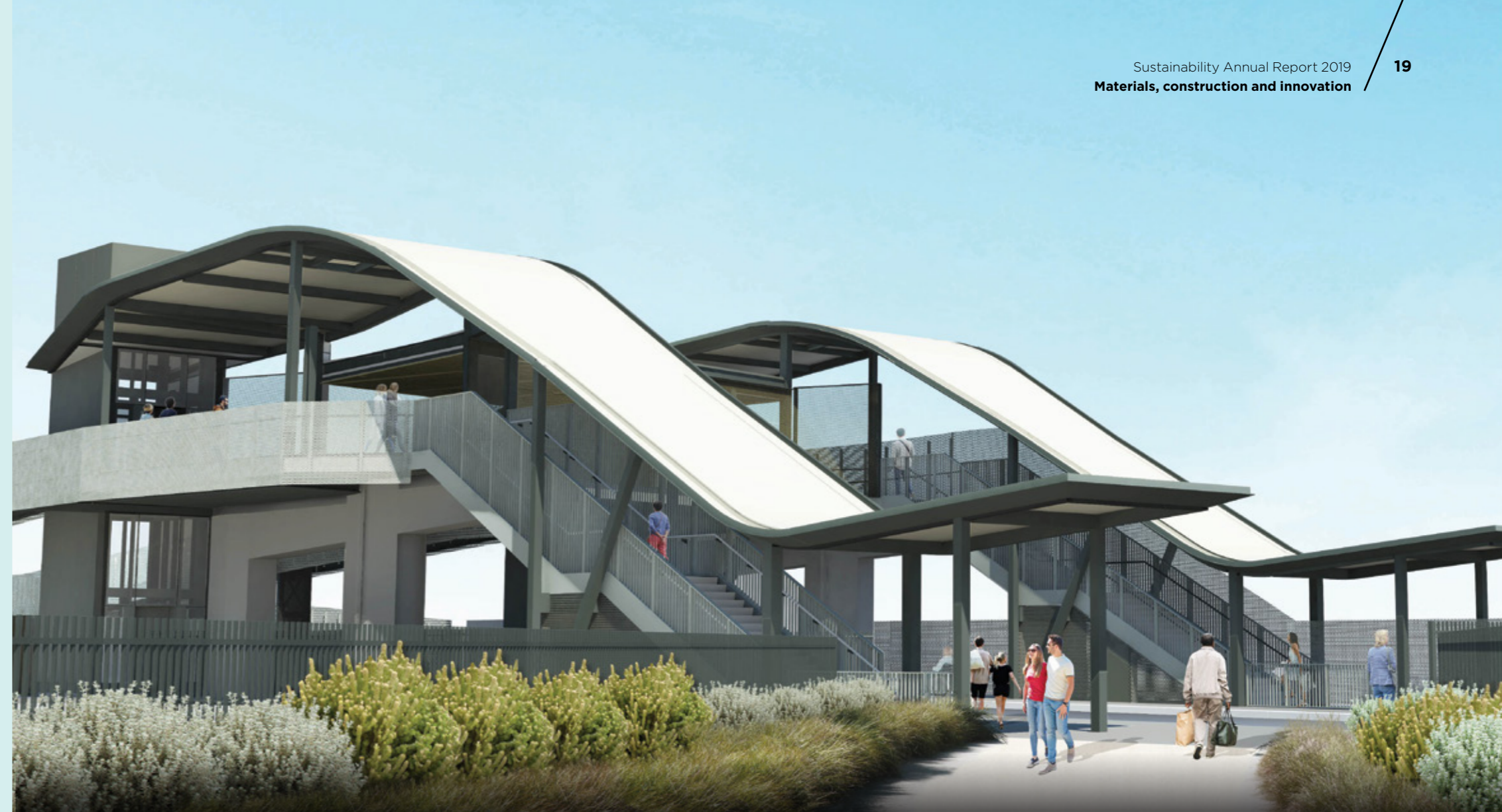
- 43 Solar panels generate power for station

RPV engaged the Indigenous-owned and operated company Bunjil Energy to provide the solar panels for Cobblebank Station. This helped support apprenticeships and employment opportunities for Aboriginal people, while generating sustainable energy for the station's lighting, lifts and heating, ventilation and air conditioning (HVAC) system. The panels are estimated to save approximately 20 tonnes of greenhouse emissions each year by generating over 30,000 kilowatt hours of electricity.



Artists

Artists Fiona Clarke and Ken McKean were commissioned to design artworks at five stations: Wendouree, Ballan, Bacchus Marsh Rockbank and the new station at Cobblebank. Each station has its own design, etched into the forecourt pavements, depicting the environment changing with the seven seasons of Victoria's Kulin Nation - the Traditional Custodians of the country on which the Ballarat Line sits. Fiona, an Aboriginal artist of the Kirrae Whurrong of South West Victoria and Ken, a non-Aboriginal artist have worked on major public arts projects across Victoria.



The Metro Tunnel Project Initiatives



Water

Stations designed to utilise 54 per cent less water during operation (total across all stations).

100+ kilolitres of recycled water tanks in use at the Deer Park facility. During 2019, 3218 kL of water was collected, treated and recycled through the Facility as a non-potable water source.

The tunnel lining segment manufacturing facility treated and recycled the wastewater from manufacturing the segments. The site has capacity to hold 127 kL of recycled water and collected rainwater from the shed roof, which is used for toilet flushing and washdown.

Water run-off from the tunnelling support facility at Edmund Herring Oval is captured, treated and used as recycled water for the truck wheel wash.



Energy

Stations designed to utilise up to 64 per cent less energy during operation.

125 kW of legacy renewable energy targeted to be installed at Arden Station.

Solar powered environmental monitoring

36 per cent reduction in greenhouse gas emissions at Rail Infrastructure Alliance (RIA) site offices.



Materials

Modelled 24 per cent reduction in materials lifecycle impact in the Tunnels & Stations package.

Minimum 50 per cent reduction in embodied greenhouse emissions by using blast furnace slag as a cement replacement and reducing the Portland cement content in the tunnel segment mix .

29,296 tonnes of CO₂-e saved in the construction of tunnels and stations due to the use of more sustainable concrete mixes (since construction commenced to 2019).



Innovation

The Energy Foundations Pilot Program (EFPP) is a collaboration between CYP and the University of Melbourne's School of Engineering in which the Metro Tunnel Project is providing a rare opportunity to facilitate an innovative research and development project.

The construction site of the Metro Tunnel's new State Library Station has become a field-testing site for geothermal technology, with piles and geothermal equipment installed by Early Works contractors. Using this new technology, foundations of infrastructure such as buildings, tunnels and stations have the potential to become a clean, renewable and economical solution for space heating and cooling.



Spoil

Spoil is the waste soil generated from excavation. In the 2019 Early Works for the Metro Tunnel Project, spoil was:

Reused - 270,000 m³

Diverted from landfill - 91,000 m³

Donated - 330 m³ to local land care group Friends of Westgate Park

The Rail Infrastructure Alliance completes comprehensive environmental monitoring for air, noise and vibration in accordance with the Environmental Performance Requirements (EPRs). The locations of these monitoring devices are generally either in adjacent residential properties (with landowner permission) or located on site. For locations where electricity is not available, solar powered options in compliance with the EPR's are provided by the project team. The monitoring location also reflects the current site conditions.



Inclusion and education

TUNNEL & STATIONS
ABORIGINAL PARTICIPATION PLAN



Aboriginal Engagement

The Metro Tunnel

Aboriginal participation plan

Supported by RPV, the vision of the Metro Tunnel's construction contractor, Cross Yarra Partnership (CYP) is for all employees in the Tunnels and Stations works package to acknowledge and celebrate the proud heritage of Australia's First People and promote opportunities for employment, career development and economic participation of Aboriginal and Torres Strait Islander Australians within the construction industry.

Using the guidelines from the CYP joint venture partners - Lendlease's Elevated Reconciliation Action Plan, John Holland's Reconciliation Action Plan and Bouygues Construction Australia's Aboriginal Participation Policy - an Aboriginal Participation Plan for the Tunnels and Stations has been developed.

CYP has provided employment for 119 Aboriginal Australians including 16 who are undertaking further training as part of the Victorian Government Major Project Skills Guarantee.

To date, the Rail Infrastructure Alliance has provided employment for 103 Aboriginal Australians including 12 who are undertaking further study or training via traineeships or cadet opportunities.



Social procurement

Social procurement

Across all projects, RPV seeks to engage priority job seekers and provide work to local businesses. This helps create social sustainability and includes people from all walks of life. Investing in local contractors and suppliers supports local businesses and produces economic flow-on effects including hiring local employees.

Outlook Environmental

Through the engagement of social enterprises such as Outlook Environmental, the Metro Tunnel Project has created opportunities for people with disability. Outlook Environmental has been providing waste removal services for project delivery partners throughout 2019.

Chris Lacey (pictured right) has been an Outlook employee for the past six years, helping sort through waste, assisting customers and directing trucks.

“There’s all the good stuff that gets you excited,” he says. “One man’s trash can be another man’s treasure.”

“I’ve also been taught how to record paperwork, which means the supervisor can do what he needs to do, and I can take over and keep going.”

Ricky Morris Plumbing and Gasfitting

In May 2019, a contract was awarded to Ricky Morris Plumbing and Gasfitting, for plumbing services in the Project’s CBD precinct.

“I felt that the opportunity for me as a plumber and gasfitter to start my own business and be independent was not only to deliver a plumbing service but to also stand by the values that I hold as an Aboriginal man and deliver a service for Aboriginal people and their communities,” Ricky says.

Ricky has worked in his community for a long time and dedicates his success to his elders who always encouraged him to remain determined and help increase economic development within his community.

The Metro Tunnel

Furthermore, 179 priority jobseekers were hired in the Tunnels and Stations package, 179 in the Rail Infrastructure Alliance package and 20 in the Rail Systems Alliance package.

Ballarat Line Upgrade

More than 40 regional and local contractors and suppliers have contributed to the Ballarat Line Upgrade. A range of businesses have been contracted at various stages of the project from concrete manufacturers, to water carters and equipment rental companies. This has supported local business from regions including Bacchus Marsh, Ballan, Geelong, Cobram and Congupna.



In addition to the hundreds of apprentices and trainees engaged through our projects, RPV educates and inspires students around the state by running education programs for schools.

Education programs



Metro Tunnel HQ

The Metro Tunnel will underpin Melbourne's rail network growth for decades to come and our young people have a bigger stake than anyone in our city's future transport system. With them in mind, we have created an Education Program based at our visitor centre, Metro Tunnel HQ, that will show them what our project means to them as future citizens and workers, targeting careers learning and skills in science, technology, engineering and maths (STEM).

In April 2019, 50 students from St Gabriel's Primary School in Reservoir paid a visit to the visitor centre to learn more from Rail Systems Alliance engineers. The grade five and six students brought in their own train designs to discuss with project engineers Mehmet Talat and Hiral Patel.

Ballarat Line Upgrade

RPV partnered with Western BACE (Business Accelerator and Centre for Excellence) to provide STEM (Science Technology Engineering and Mathematics) opportunities to students from Melton South Primary School, the closest school to the new Cobblebank Station.

Western BACE is not-for-profit community driven business hub that supports school students in computer science learning.

The program ran for one full school term (term 4) and involved 20 grade five and six students. Challenges included designing a colour-coded rail network and programming small robots to navigate around it safely. The students also learnt about town planning and how rail infrastructure plays a critical role in supporting a town centre.



At the opening of Cobblebank station in December 2019, RPV and Western BACE engaged a STEM Squad of local young people to run educational programs and activities for the public. This involved teenagers from disadvantaged or vulnerable families to engage in meaningful work while developing work-ready skills and providing a positive community impact.

Minecraft Mini Melbourne

Mini Melbourne is a world-first resource brought to life for the Metro Tunnel Education Program. In partnership with the Victorian Department of Education and Training, RPV created 600,000m² of Melbourne's city centre in Minecraft.

The Minecraft: Education Edition (Minecraft: EE) versions of Mini Melbourne support a range of classroom activities. Within this amazing virtual world, school students can explore the sights and landmarks of Melbourne including the location of construction sites for Town Hall Station. There were more than 18,000 individual downloads of the various Mini Melbourne maps during 2019 and Department of Education records indicate that usage of Minecraft: Education Edition in schools more than doubled in the months following the release of Mini Melbourne, as Victorian teachers used the maps for a range of learning activities including Archaeology Adventure: a multi-player game based on the excavations undertaken during the project's archaeology phase.



RPV is passionate about celebrating the heritage, ecology, and creative culture of Victoria, including Melbourne's reputation as one of the world's most liveable cities. We reduce the construction impacts of our projects through excellent urban design and community-minded initiatives.

Managing construction impacts

Liveability

Noise and vibration

Temporary acoustic sheds enclose the Metro Tunnel station construction sites in the city. These are custom-built to minimise noise, light and dust spill on the local community during our 24-hour tunnelling activities. The sheds are also being used as a blank canvas for artists to make the construction sites more visually appealing and showcase the vibrant creative culture of Melbourne.

City Square Acoustic Shed

One example of this in action is the acoustic shed over City Square. The temporary structure minimises noise, light and dust created during the 24-hour construction of the new Town Hall Station.

Detroit-based Pat Perry, an internationally renowned artist known for large-scale works across the globe, painted a 90-metre by 20-metre mural on the acoustic shed's roof. The artwork pays homage to Melbourne's theatre history and is inspired by an image of a theatre troupe from the late 1800s Pat discovered on a tour of the Princess Theatre archives with Elaine Marriner.

Corymbia ficifolia
Red-flowering Gum



Creative Program

The Metro Tunnel Creative Program

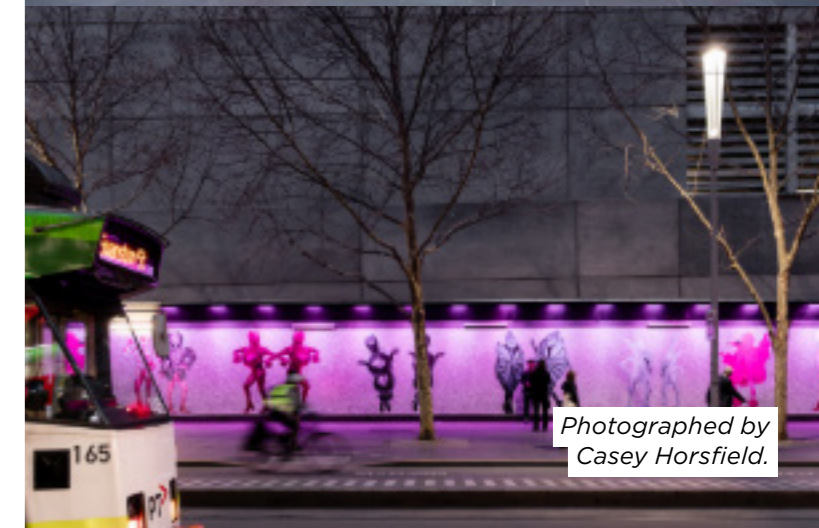
The Metro Tunnel Creative Program uses activities and events designed to enhance city life near the Metro Tunnel's construction sites.

From temporary artworks and activations to cultural programming and tactical placemaking, the Creative Program aims to minimise the disruption to city life caused by the Project's construction impacts. The Creative Program has the following objectives:

- Keep the city vibrant and moving
- Think laterally about space and place
- Remain quintessentially 'Melbourne' in our approach
- Stay true to local character
- Keep Melbourne liveable.

'Wrap up your troubles in dreams' by Will and Garrett Huxley, 2019

Wrap up your troubles is a photographic fashion parade bringing together a colourful collection of abstract costumes by Melbourne artists Will and Garrett Huxley. It was one of RPV's many vinyl artwork hoardings displayed on construction sites around Melbourne CBD.



Photographed by
Casey Horsfield.

Heritage

Victoria's heritage is unique and specialist investigations into historical and Aboriginal cultural heritage have provided a deeper understanding of the metro and regional project areas.

The Metro Tunnel Project

Extensive assessment of the historic and cultural heritage within the rail corridor was undertaken for the project. The identification of heritage places and artefacts influenced the design, construction and future operation of the project to minimise potential impacts.

These assessments resulted in new areas of heritage values, including the Toolern Creek, Mount Cottrell massacre and the Western Victorian Volcanic Plains landscape and areas of remnant native vegetation being recorded.

More than one million artefacts found during the project's archaeological investigations, the biggest in Victoria's history. Many of the artefacts have been displayed at Metro Tunnel HQ for the general public to view.



Regional Rail Revival

Thirteen Aboriginal Cultural Heritage Management Plans (CHMPs) were developed for the Ballarat Line Upgrade in consultation with relevant Traditional Owners and measures to minimise impacts to Aboriginal Heritage were developed and incorporated into the CHMPs.

Ecology

Avon River Bridge - Gippsland Line Upgrade

RPV is delivering a new rail bridge over the Avon River in Stratford. The new bridge over the Avon River will be built on the north side of the existing bridge and south of the Princes Highway. During the construction period, have been timed to accommodate the Australian Grayling, a native fish which is classified as 'threatened' in Victoria.

The Australian Grayling is a migratory species that relies on free movement between upstream and coastal areas at particular times of the year to complete its life cycle. Construction works on the Avon River Bridge,

particularly the building of instream structures, were timed to avoid critical periods in the life cycle of the Australian Grayling. This involved the spawning period from April to June, and the period during which the fish return from coastal seas to upstream reaches from September to November.



Towards a sustainable future

We now have multiple projects underway across metropolitan and regional Victoria.

We are working with our delivery partners to develop and implement fit-for-purpose sustainability solutions to deliver positive environmental, social and economic outcomes as we deliver improved rail infrastructure across Victoria.

The lessons we learn and the benchmarks we set will serve as a blueprint for how we deliver sustainable outcomes on future projects.

More information

To find out more about our projects:

 railprojects.vic.gov.au

 1800 105 105 (24 hours a day, 7 days a week)

