



NORTH WESTERN PROGRAM ALLIANCE

Annual Sustainability Report 2020

JULY 2021



levelcrossings.vic.gov.au

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ACKNOWLEDGMENT

The Alliance acknowledges the Wurundjeri and the Boon Wurrung people of the Kulin Nation who are the traditional owners of the land on which we work. The Alliance would like to pay its respect to the Elders past, present and emerging of this great land.




Source: Artwork by
Jordan Lovegrove,
Ngarrindjeri,
of Dreamtime Creative



Moreland Station

PT >

↑  Trams Moreland Rd

← All Platforms

CAMERON ST

ND RD



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A MESSAGE FROM ROB CRANSTON



Alliance General Manager

The North Western Program Alliance (NWP or the Alliance) is working with the Level Crossing Removal Project (LXRP) to deliver on their commitment to remove 75 of the most dangerous level crossings across metropolitan Melbourne, by 2025.

As one of five Alliances established to deliver the works, in its four years since inception, NWP has successfully removed eight level crossings and constructed four new stations.

In 2020 we commenced works on an additional five level crossings and three new stations in Preston and Glenroy. These projects not only create thousands of jobs for our community, but they provide a safer transport system and allow the community to travel in a more efficient manner.

The year 2020 brought about significant change in the world, creating challenges that were unforeseen to many industries – infrastructure being no exception. Overcoming these challenges with resilience, adaptation and determination, the Alliance has

introduced new ways of working including some great innovations which can be adopted across the broader level crossing removal program.

Despite the challenges thrown our way in 2020, the Alliance's program remained on track as we reached:

- Practical Completion on the High Street, Reservoir Project with an additional project in development
- Completion of the Operational milestones of station openings and new elevated rail viaduct on the Bell to Moreland Project; and
- Commenced the Glenroy and Preston level crossing projects.

Prioritising our stakeholders, communities and the environment, the Alliance has been determined to progress with our work

and achieve our goals. This includes helping remove some of Melbourne's most congested and dangerous level crossings while enhancing the local area through increased open space.

One of our goals has always been to deliver sustainable solutions on the projects we work on. We have continued to focus on environmental protection and community involvement as well as value for money solutions established on our past projects. This has resulted in several sustainability achievements in 2020.

Our High Street, Reservoir project received Australia's first As-Built 5 star Green Star rating for a train station, from the Green Building Council of Australia (using Custom Melbourne Metro Rail Authority Tool). Obtaining a 4 Star Green Star.

As-Built rating was part of NWPAs contract, so achieving 5 stars and Australia's first As-Built 5 star train station means we have gone above and beyond all expectations.

We've integrated several new sustainability initiatives, in collaboration with private industry and universities, on our projects. Clever solar panel integration and indigenous co-design being just two examples. We hope these and many of our other achievements change the baseline for future construction projects in Australia.

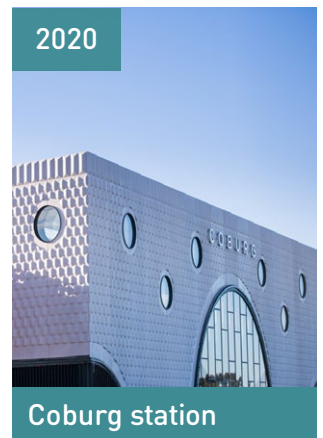
Our focus on innovation encompasses our commitment to make decisions that protect

our environment. From on-site controls to office management, materials consumption, and water and ecological protection, we strive to prioritise the environment in everything we do. We seek to consistently develop design solutions that minimise our carbon footprint, material consumption and environmental impacts during construction and over the life of the assets we build.

In 2020, we strived to support the wider community. With increasing issues in unemployment in the community, we have looked for opportunities to improve our social procurement processes and offer support to social enterprises

and Aboriginal businesses who were dealt a difficult blow when COVID-19 hit. Our focus on providing opportunities for people from disadvantaged and/or multi-cultural backgrounds continued and was combined with on and off the job training. Importantly, we provided additional support for the mental health of our employees during this incredibly challenging year.

At NWPA, we always seek to push boundaries and drive change in the construction industry. I am pleased to share with you some of these endeavours and strategies in our 2020 Sustainability Annual Report.



A MESSAGE FROM THE SUSTAINABILITY TEAM



Jane Ogilvie: General Manager

Commercial, Governance and Sustainability

The NWPAs Sustainability Strategy for 2020 was guided by the LXP Sustainability Strategic Plan 2019-2023. Our strategic vision is to use the power of the NWPAs program of projects to drive innovation with a focus on knowledge management to achieve great sustainability results for NWPAs, LXP and the construction industry.

Our strategy planning identified that we needed to focus on integrating and embedding sustainability into design and delivery, empower our project teams with knowledge and communicate awareness of the sustainability benefits we have achieved. The Alliance developed a new management plan, sustainability policy and locked in measurable performance objectives and targets at the start of the year.

I am proud of the sustainability achievements as documented

in the 2020 Sustainability Annual Report. The results are testament to the dedication and passion of the sustainability team and the hard work of our staff and subcontractors who have contributed to sustainability initiatives. The events of 2020 have taught us all to be adaptable, innovative and dynamic. With these qualities in mind and using the power of the LXP Program alliance model I am optimistic that NWPAs will continue the accelerated transition to greater sustainable outcomes.

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The events of 2020 have taught us all to be adaptable, innovative and dynamic. With these qualities in mind and using the power of the LXP program model, I am optimistic that NWPAs will continue the accelerated transition to greater sustainable outcomes

Moreland

1

ABOUT THIS REPORT



The Alliance Sustainability Report 2020 embodies the principles of the Global Reporting Index (GRI), outlining our sustainability performance to date.

The report is focussed on environmental, economic and social achievements on the program to date, and outlines our plans for the future.

This vision includes LXRP's five strategic objectives, which are known to the Alliance as 'the Five Greats'. This report will be broken up into sections that reflect these Five Greats, as indicated in the brackets below.

The Five Greats include:






-  **Great Places**
(Environmental Sustainability and Urban Design)
-  **Great Partnerships**
(Our Workforce)
-  **Great People**
(Our Workforce)
-  **Great Engagement**
(Our Community)
-  **Great Network**
(Innovations and Initiatives)



Figure 1. Overhead wiring works Bell to Moreland

NWPA Sustainability Achievements 2017-2020

The below outlines the achievements that the Alliance has made across its projects, with the 2020 achievements specifically outlined.

First train station in Australia to receive a 5 star As Built certification



(Using Green Star Custom - Melbourne Metro Rail Authority rating tool).

Green Star:

- High St: 5 star As Built certification
- Bell to Moreland (Coburg station): Design Round 1 awaiting verification & certification

Leading ISCA rating for High St



Infrastructure Sustainability Council of Australia (ISCA):

- 2 Excellent (Buckley St: score of 78 & Camp/Skye Frankston: score of 71 both for As Built)
- 1 Leading (High St: score of 89 for As Built), highest scoring level awarded by ISCA

23,724T

Tonnes of CO² in energy saved over the infrastructure life cycle (38.1%)

Equivalent to the annual emissions of 5157 cars.

* data includes construction and 50 years of operation of Buckley St, Camp/Skye/Frankston & High St Projects

11,560T



of CO² was saved (reducing Green House Gas emissions) from choosing more sustainable materials.

This is the equivalent of saving the GHS emissions from the construction of 592 km of road



317,924m³

(or 39,741 truckloads) of waste and spoil diverted from landfill (99.43%).



4,954,419

Overall man hours worked.



25,215m²

Gardens and planted areas.

Equivalent to 1.4 times the MCG oval.



421,958kL

of water saved during the infrastructure lifecycle.

Equivalent to the amount of water in 168 olympic pools or the amount of water 2905 households use annually.

* data includes Buckley St, Camp/Skye/Frankston & High St Projects for both construction & operation (50 years of operation of any station facilities, washdown of the platforms & concourse & landscape irrigation)



167

Aboriginal and/or Torres Strait Islander people in the workforce

Social Procurement spend with Aboriginal businesses or social enterprises: Total \$17,702,992.

Total social procurement spend: \$32,022,810

Total Aboriginal businesses engaged: 32

*including projects delivered and in development

ABOUT LEVEL CROSSING REMOVAL PROJECT (LXRP)



The Level Crossing Removal Project (LXRP) was established by the Victorian Government to oversee one of the largest rail infrastructure projects in the state's history.

As part of the Major Transport Infrastructure Authority (MTIA), LXRP projects fall under Victoria's Big Build. LXRP is tasked with the elimination of 75 level crossings across metropolitan Melbourne by 2025, in addition to associated

network upgrades such as station builds, track duplication and train stabling yards.

LXRP, as the Project Owner, plays a critical role within the Alliance by ensuring what is built drives best

value for money for the state, is consistent with government policy settings, and reflects community and key stakeholder expectations. The Project Owner works closely with other Alliance partners to achieve this.



Figure 2. Coburg station



ABOUT THE ALLIANCE

The NWPAs purpose is to 'make a real difference to the lives of our people and the communities in which we work'.



John Holland (JH) is the Principal Contractor within the Alliance, with responsibility for coordinating construction of the program of projects. KBR is the Principal Designer and oversees design development. As rail network operator, Metro Trains Melbourne (MTM) plays the important role of making sure what is delivered is fit for purpose, to meet network requirements now and into the future.

As one of five Alliances established to deliver the works over the past three years, NWPAs has successfully removed eight level crossings:

- Camp Road in Campbellfield,
- Buckley Street in Essendon,
- Skye Road in Frankston,
- High Street in Reservoir,
- Moreland Road in Brunswick, and
- Reynard Street, Munro Street and Bell Street in Coburg.

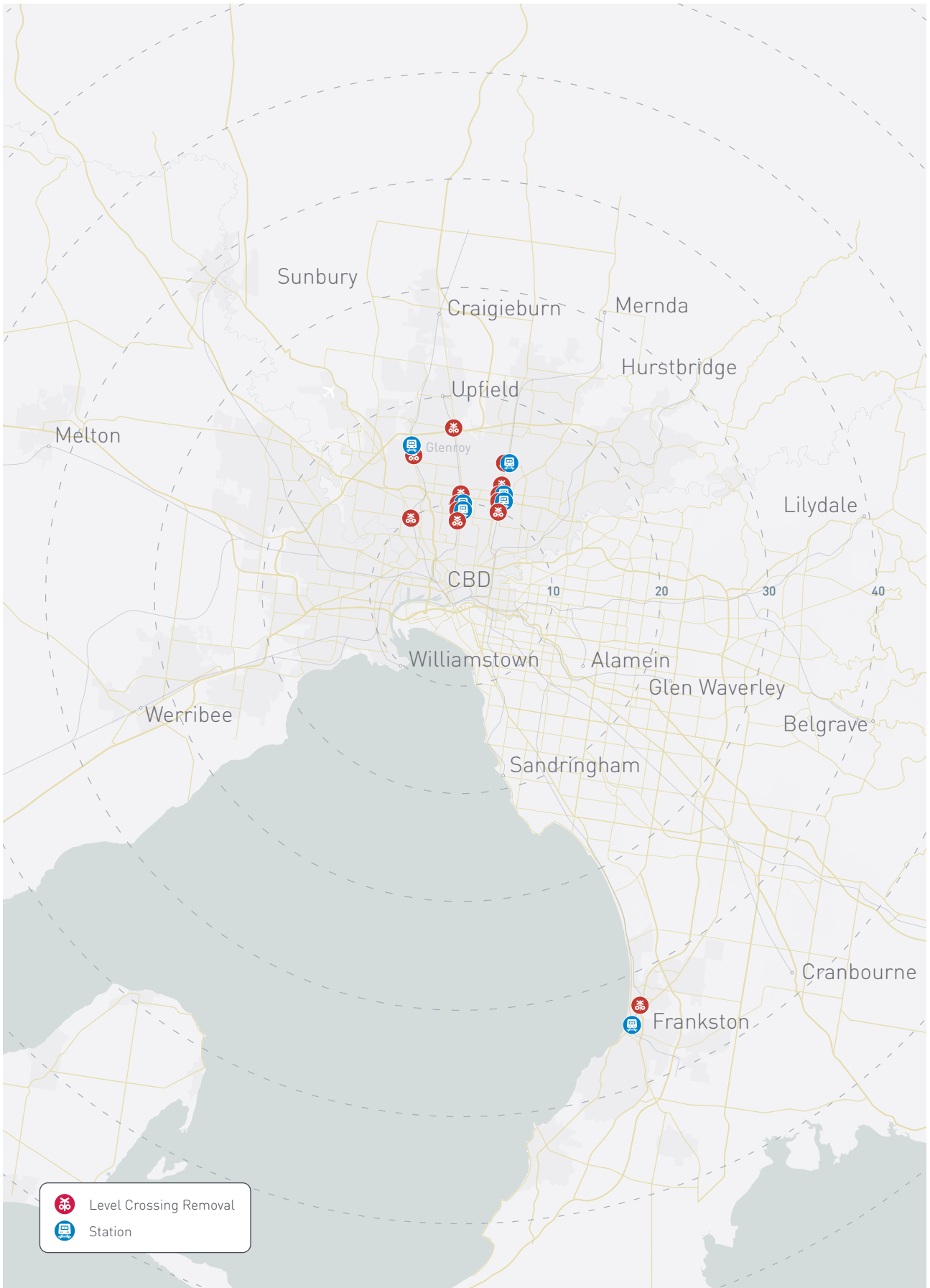
The Alliance has also delivered four new stations: Frankston, Reservoir, Moreland and Coburg. The Alliance has commenced early works for the removal of

another five level crossings, and construction of three new stations in Preston and Glenroy. An additional work package is in development for 2021, with works on more level crossing removals expected to commence soon.

The Alliance is committed to achieving positive economic, social and community outcomes, while providing environmental benefits such as reductions in resource usage and greenhouse gas emissions. This report gives an overview of our sustainability achievements in 2020, as well as the additional goals and initiatives that will be realised as our projects are completed.



Figure 3. Coburg workforce



NWPA project map

OUR COMMITMENT TO SUSTAINABILITY

LXRP Sustainability Policy

The Alliance works under this policy and has adopted a holistic approach, with the aim of achieving new benchmarks in infrastructure delivery.

Sustainability is reinforced in all core program and project areas, and is integrated across all stages – planning, design, procurement, construction, operation, and maintenance. The focus is driven through strategies that provide successful social, economic and environmental outcomes.

The LXRP Sustainability Policy provides a framework for setting the objectives which are determined for each individual Alliance Works Package as these vary by project.



Figure 4. Trains running at Coburg station

Our Policy

NWPA will deliver projects that achieve a great social, environmental and economic legacy, supporting the objectives of the [United Nations' Sustainable Development Goals](#).

We have adopted a strategic approach to address and mitigate the existing and emerging sustainability challenges for the rail infrastructure environment and our local communities.

To effectively implement this policy, NWPA will:

- Govern for sustainability by implementing project systems and processes to ensure effective and efficient delivery and operation of our projects
- Integrate economic, social, environmental and governance considerations into decision making, and seek to achieve positive outcomes for each
- Create a sense of place for communities by providing well-designed stations and precincts that are comfortable, accessible, safe and attractive
- Build resilient infrastructure which is future-proofed and prepared for the challenges presented by climate change
- Make a positive and meaningful contribution to community health and wellbeing by genuinely engaging with the community and project stakeholders
- Manage resources efficiently through embedding energy, water and material saving initiatives into our project design, construction and operation
- Manage our impacts to protect the natural environment wherever possible, while seeking opportunities to enhance ecological value within our works
- Enhance workforce health and wellbeing, inclusion and diversity, and skills and training through professional development and employee empowerment
- Demonstrate commitment to sustainable and ethical procurement, including prioritising local industry participation, social procurement and avoiding modern slavery
- Encourage innovation within our projects and supply chain to achieve sustainable outcomes
- Measure and report the sustainability performance of our projects.

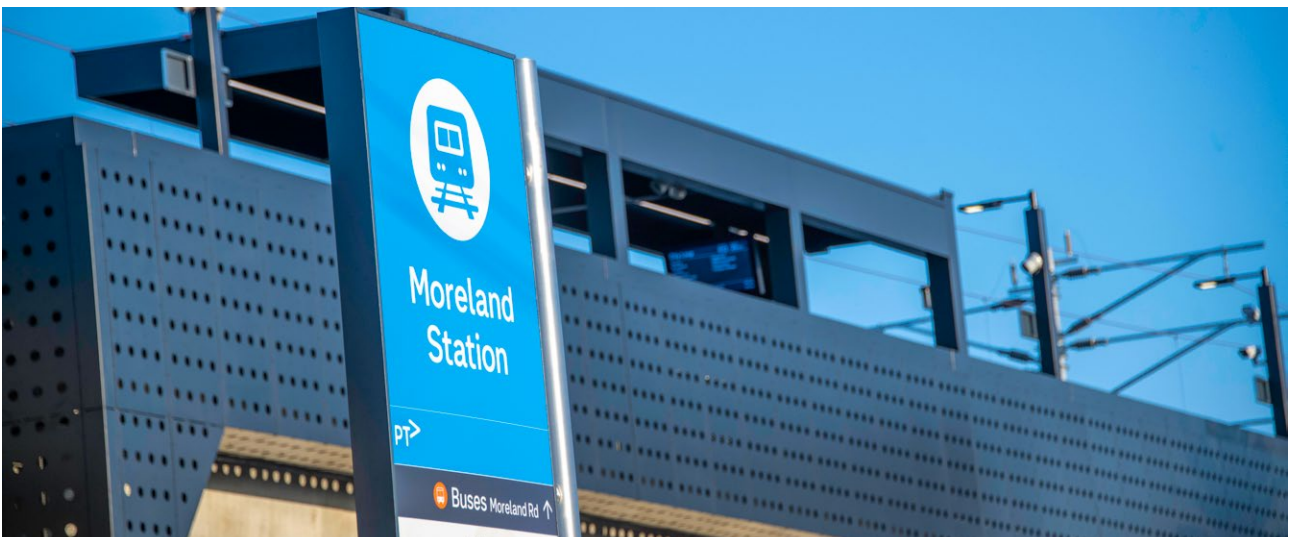


Figure 5. Moreland station - Station signage

Our Strategy

In 2020, NWPAs developed its Sustainability Strategy, Vision and Goals, using the LXP Sustainability Strategic Plan as a guide - focusing on what makes NWPAs unique to other infrastructure projects. The NWPAs sustainability vision is to use the power of the NWPAs program to drive innovation and continual improvement.

LXP Sustainability Strategic Plan 2019 – 2023

Act now to create a sustainable and prosperous future

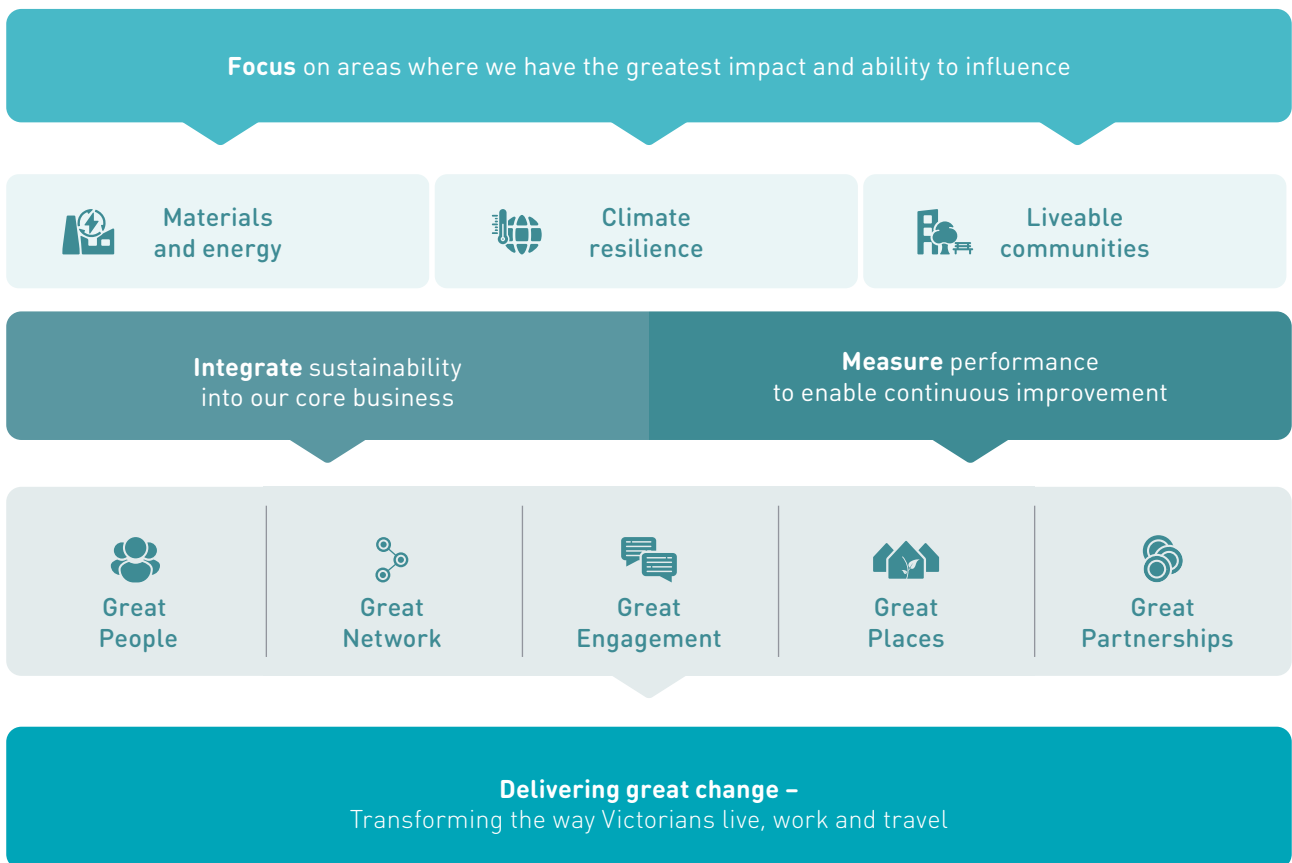


Figure 6. Sustainability strategy

By embedding sustainability into the way we do things, we can use the power of the program to innovate, build clever and build efficiently. We know that the most influential project stage is the early development stage of our projects, in planning and design (Figure 6).

The benefits of embedding sustainability into our processes and decision making early in the program provides an opportunity to embrace innovation during project development, to achieve more sustainable outcomes in delivery and for future operations.

The NWPA sustainability vision is to use the power of the NWPA program to drive innovation and continual improvement, taking what we've learnt from each project and embedding those lessons into the next. We can build upon our knowledge and experience, working more efficiently and focussing on initiatives and improvements.

Commencing sustainable initiatives during project development is a key focus. Good financial decisions, smart design and value engineering is sustainability in action



Figure 7. Reservoir station

Our History

2017

- ✓ **May 2017**
North Western Program Alliance formed
- ✓ **July 2017**
Camp Road construction commences
- ✓ **July 2017**
Sustainability Management Plan implemented
- ✓ **August 2017**
Official Sustainable Procurement Policy endorsed
- ✓ **September 2017**
Skye Road main construction works commence
- ✓ **November 2017**
Main Camp Road occupation and construction phase
- ✓ **December 2017**
Camp Road level crossing removed

2018

- ✓ **April 2018**
Temporary Station installed at Frankston Station to facilitate works
- ✓ **June 2018**
Skye Road Level Crossing removed
- ✓ **June 2018**
New Frankston Station opened
- ✓ **August 2018**
Main Buckley Street occupation
- ✓ **September 2018**
Buckley Street Level Crossing removed
- ✓ **November 2018**
Reservoir Project construction commenced

2019

- ✓ **March 2019**
Camp Road, Skye Road and Frankston Station Projects Awarded 'Excellent' Infrastructure Sustainability Rating
- ✓ **July 2019**
Reservoir station Awarded 5 Star Green Star Design Rating
- ✓ **September 2019**
Bell to Moreland Level Crossing Removal Project Awarded to the Alliance and construction commences
- ✓ **December 2019**
Reservoir Level Crossing removed and Reservoir station opened

2020

- ✓ **Early 2020**
Finishing works at Reservoir station including landscaping and reinstatement works
- ✓ **February 2020**
ISCA rating received for Buckley Street
- ✓ **July - November 2020**
Bell to Moreland Main occupation
- ✓ **August 2020**
Glenroy Level Crossing Removals Project Early Works - Awarded to the Alliance
- ✓ **October 2020**
Preston Level Crossing Removals Project Early Works - Stage 1 - Awarded to the Alliance
- ✓ **November 2020**
Trains running on Upfield line (2 weeks early) trains running express through Coburg & Moreland
- ✓ **December 2020**
Preston Level Crossing Removals Project - Stage 2 - Awarded to the Alliance
Glenroy Level Crossing Removals Project Awarded to the Alliance
- ✓ **December 2020**
New Coburg and Moreland stations open

Pedestrian detour to Coburg Station



MEASURING SUSTAINABILITY PERFORMANCE



Sustainability performance is measured through our objectives and targets set out in the Alliance Sustainability Management Plan. Rating tools are also used to provide a robust framework to quantify our sustainability performance.

This incorporates:

- The Infrastructure Sustainability Council of Australia's (ISCA) Infrastructure Sustainability (IS) rating scheme
- The Green Building Council of Australia's (GBCA) Green Star Rating Tool.

These rating systems have helped provide a robust framework to quantify sustainability performance, as described below.



ISCA Infrastructure Sustainability rating

The Alliance's commitments to sustainability are embedded in project contracts, plans and policies, as we strive to achieve an 'Excellent' Infrastructure Sustainability rating. The rating tool provides an effective way to guide and measure sustainability on infrastructure projects, by assessing environmental, social, economic and governance aspects.



Green Star Rating

The GBCA is Australia's leading authority on sustainable buildings and communities. Green Star is an internationally recognised rating system that delivers independent verification of sustainable outcomes throughout the lifecycle of the built environment. The Alliance is targeting 4 to 5-star ratings for the stations we build.

Sustainability Rating Scheme & Score

Sustainability Rating Scheme & Score or level aiming for or contractually bound by:

	ISCA		Green Star		
	Target	Achieved - As-Built	Achieved- Design	Target	Achieved - As-Built
Camp/Skye/ Frankston	65	71		N/A	
Buckley	67	78		N/A	
Reservoir	75	89	4 Star Design	4 Star	5 Star
Bell to Moreland	75	Under Assessment	5 Star (Coburg station)	4 Star	Under Assessment
Preston	75	TBC	Self-assessed pathway	TBC	TBC
Glenroy	75	TBC	Self-assessed pathway	TBC	TBC

Our sustainability objectives and targets are managed through our Sustainability Policy. These include objectives in the areas of:

- Governance
- Energy & Carbon
- Environmental Performance
- Climate Change
- Water Efficiencies
- Waste
- Materials
- Biodiversity
- Heritage
- Liveability
- Workforce
- Sustainable Procurement
- Innovation
- Community.

Appendix A outlines the performance NWPA has made against the sustainability objectives and targets.

Great Places



ENVIRONMENTAL SUSTAINABILITY



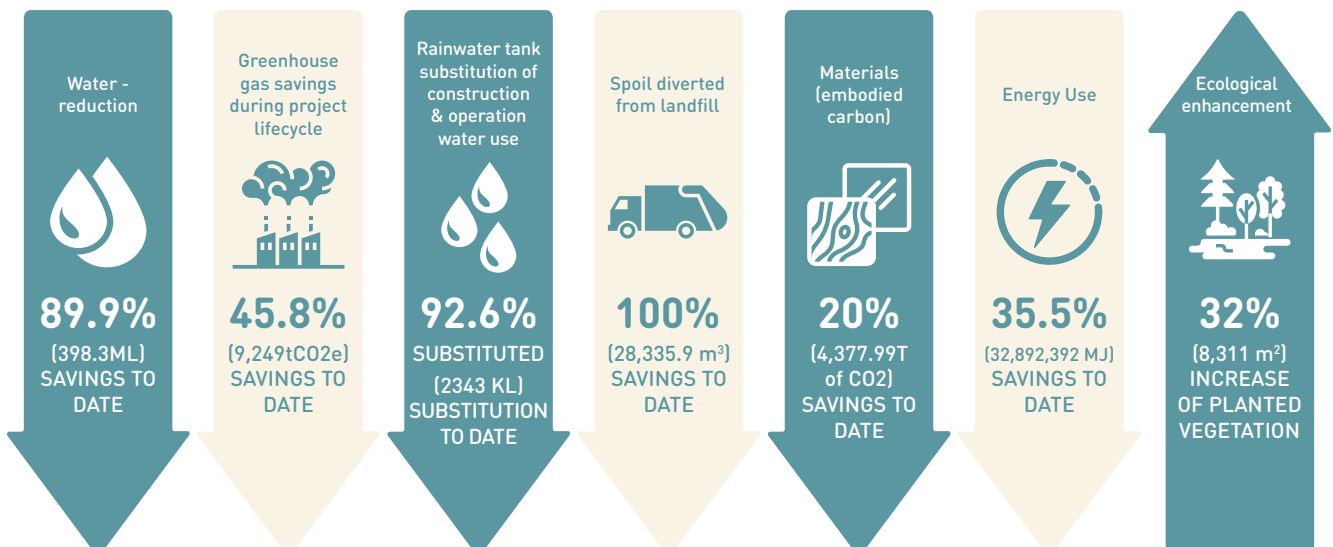
The Alliance recognises that the environment will be affected by the construction and operation of our projects. We are focused on minimising impacts through:

- Maximising energy efficiency and reducing fuel consumption
- Using water efficiently and seeking opportunities to use non-potable water
- Recycling and minimising waste taken to landfill
- Minimising impacts on the natural environment.

The statistics and information below outline the impacts of the Reservoir project, which concluded in 2020.



Overall NWPA 2020 Sustainability Performance





Water Use and Efficiency



Victoria has long been subject to drought conditions and water restrictions, so it's important for our infrastructure projects to be designed to be water-efficient over their lifecycle.

Water saving initiatives implemented across our projects include:

- Use of high water efficiency rated taps, toilet and shower fittings to ensure minimal operational water usage
- Installation of rainwater tanks for main site office toilet flushing and to refill water trucks on site
- Installation of rainwater tanks

at stations for patron toilets and platform wash down purposes

- Water sensitive urban design to provide passive irrigation of landscaping
- Smart metering to allow MTM to remotely monitor water consumption at their stations
- Hardy, drought tolerant landscaping where possible that has minimal ongoing irrigation requirements
- Saving potable water by using non-potable water sources for construction.

The rainwater tanks on site at Reservoir substituted 80.6% of all construction and operation water use. The overall percentage of construction and operational

water reduction compared to the base case footprint is calculated as 89.9%. The Reservoir Project obtained additional innovation points from ISCA for exceeding their benchmark water savings.

This reduction in water use footprint will provide substantial economic and environmental benefits to the asset operator, MTM. When coupled with the innovative remote metering and monitoring technology installed at the station (described below), staff will be able to monitor ongoing water usage and identify opportunities to reduce water demand even further. This will equip Reservoir station to be more resource efficient, and better prepared to handle drought prone climate change impacts in the future.

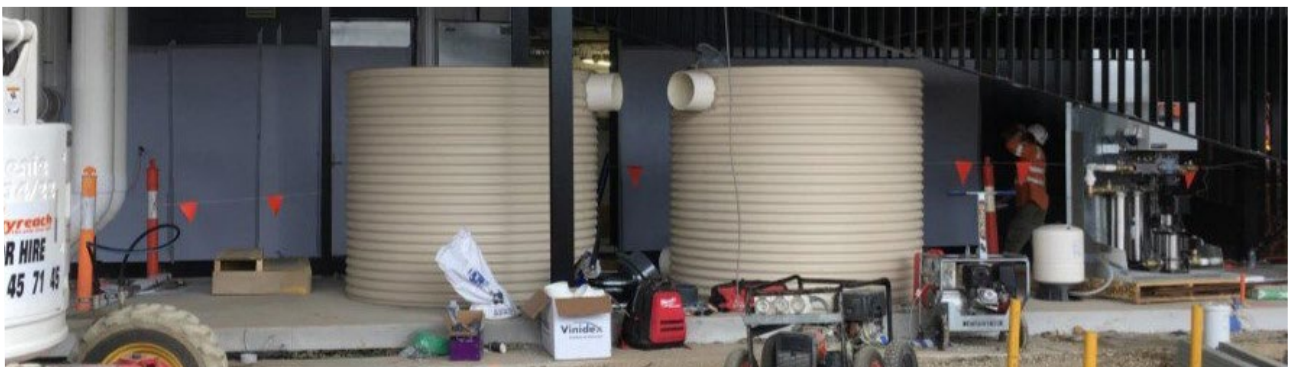


Figure 8. Rainwater tank used on Reservoir

Lifecycle water usage comparison (ML)

- Construction (ML)
- Operation (ML)



	Base case	Actual case
Operation (ML)	436.4	38.2
Construction (ML)	6.5	6.4

Figure 9. Lifecycle water usage comparison (ML)

Noise



Construction of infrastructure is inherently a noisy process, so the Alliance plans and implements a range of measures to minimise the impacts of noise and vibration on nearby homes and businesses. A key objective of the Alliance is to:

'Minimise noise, vibration and light impacts as a result of construction activities on the local community and the environment'.

To achieve this, we have implemented several strategies:

- Restricting construction to daytime hours unless works are unavoidable (e.g. night works during rail occupations)
- Notifying the community in advance of unavoidable works outside of the approved hours
- Selecting appropriate and well-maintained equipment
- Using noise control/attenuation devices on machinery (for example, mufflers)
- Using noise abatement measures such as noise screens/noise enclosures
- Turning off equipment when not in use
- Developing and maintaining robust and responsive complaints procedures.

To help ensure that noise levels are minimised, monitoring is conducted in advance of the works to determine baseline levels. Noise goals are then established, based on EPA Guidelines and LXR Standards, so that mitigation measures can be identified and managed at appropriate times.

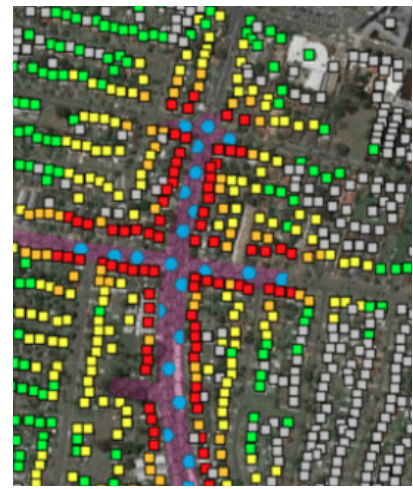


Figure 10. Heat map which illustrates predicted noise levels before mitigation



Figure 11. Macartney St, Reservoir during rail and retaining wall installation works

CASE STUDY

KNOWnoise



The Glenroy and Preston Projects have successfully implemented an online platform, KNOWnoise, to assist the delivery team in managing noise impacts to residents.

The program allows the Project to model the expected noise levels as a result of specific construction activities in exact locations. This saves the need for external consultants and provides the Communications Team with valuable information which helps us to develop mitigation strategies for the local community. The use of KNOWnoise results in a variety of benefits including cost savings, more accurate impact assessments and faster turnaround times. The Environment Team works with the Delivery Team to input data, which results in a detailed Noise Impact Report including a heat map showing the various degrees different residents will be affected.

SiteHive



Various Alliance Project sites employ the use of SiteHive units to monitor air quality, noise and vibration.

The data is recorded and made available to the Environment Team via an online platform in real time. This allows for prompt responses to any exceedances and the swift implementation of mitigation measures to prevent further exceedances impacting the community. The unit includes a camera which has the ability to capture images of the source of loud noises and is mobile so can be relocated to high risk areas. It has been very successful in supporting the Environment Team throughout the Project delivery phase.

Case Study



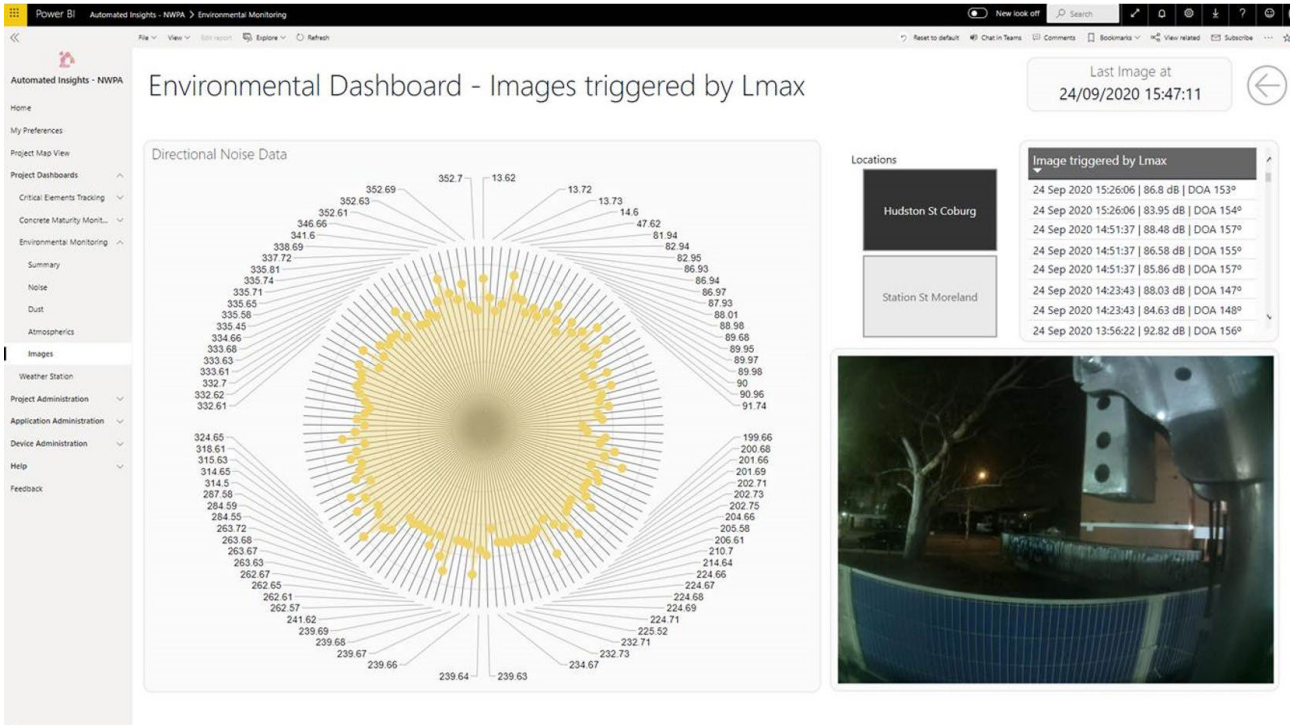


Figure 12. 360 degree environmental directional noise data - Knownoise



Figure 13. Field based sensor equipped with real-time tracking - SiteHive

Air Quality

The key element of air quality related to our works is the generation of dust. A range of suppression methods are employed to reduce the effects of dust.

These include water carts, stabilisation of soil and effective maintenance and management of construction roadways. Mitigation measures adapted by the project include:

- Bonding agents on haul roads and stockpiles
- Street sweeping
- Speed limits enforced
- Vehicles fitted with correct emission control devices.

In addition to traditional forms of dust suppression, the Bell to Moreland project has utilised a non-hazardous erosion control product to minimise dust arising from the hardstand surface along the alignment. This product binds dispersive soil particles and reduces mobility by wind and traffic movement. This is a more durable and long-lasting approach, which reduces the frequency of traditional suppression techniques and results in reduced potable water use.

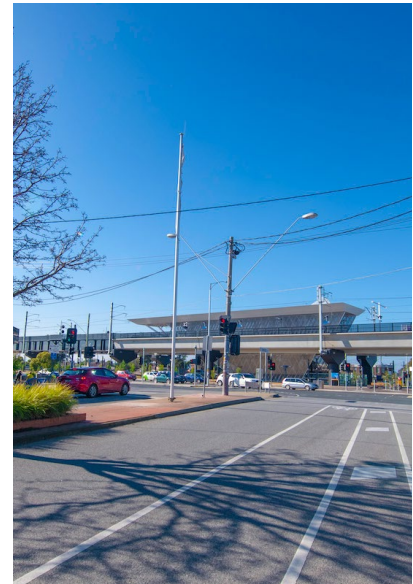


Figure 14. Reservoir train station



Figure 15. Dust suppression at Coburg station

Waste

Many different types of waste are generated during construction, from metal and concrete, to green and office waste.

A priority for the Alliance is to ensure that waste is treated according to the waste hierarchy (see Figure 16) which places avoidance as the most preferred option and direct disposal as the least preferable. Using this guiding principle, significant amounts of waste have already been diverted from landfill, particularly the key waste streams of concrete, steel and mixed comingle waste.

The Alliance conducts regular audits of our waste contractors to ensure waste is being recycled or disposed of in an appropriate manner during 2020.

As a result of these measures, 100% of spoil, 97% of construction inert and 87% of office waste was diverted from landfill, or 28,336 cubic metres.

In addition, the Alliance has partnered with Simply Cups to recycle coffee cups. See Figure 17 for the statistics in the latter part of 2020.

—
A total 4,789 coffee cups were recycled between January and December 2020

Waste hierarchy

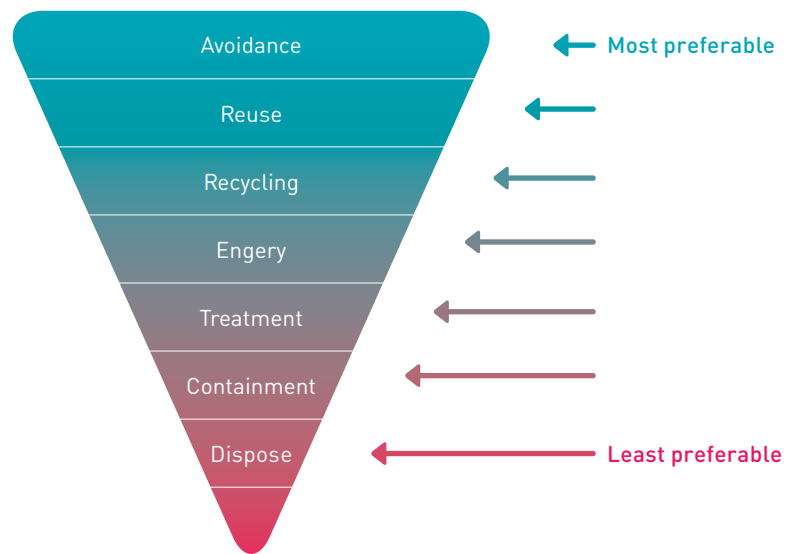


Figure 16. Waste Management Hierarchy

Month of collection

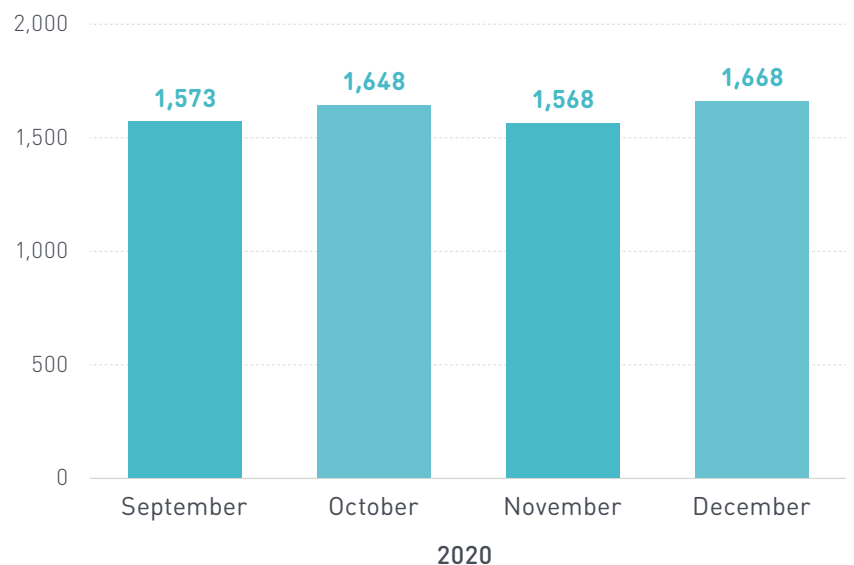


Figure 17. Coffee cup recycling data

Ecology

Although our projects are located in built-up suburbs where most of the land area has already been highly disturbed, the Alliance implements environmental controls to ensure any vegetation or ecological value on the sites are enhanced if possible.

The Alliance has implemented Flora and Fauna Environmental Control Plans for each project, to ensure the ecological values of the surrounding environment are not significantly impacted.

As a result of these controls, the ecological enhancement achieved at Reservoir station was 32%. This value was calculated based on the

comparison of pre-construction and post-construction areas of exotic vegetation, planted native vegetation and remnant native vegetation. There was an increase of 8,311m² of gardens and planted areas.

As part of the Glenroy early works, a Threatened Species Management Plan was developed to protect a

population of rare and threatened Geraniums growing next to the rail corridor. This Plan is the result of almost 12 months of specialist ecology research, thorough engagement with regulators, conservation groups and specialist nurseries. The management measures contained within the plan represents a robust conservation initiative for this species.



Figure 18. Landscaping establishment at Reservoir station

Woody Meadows



As part of the landscaping works, the Bell to Moreland project is partnering with The University of Melbourne on a Woody Meadows Research Project.

This project is a collaboration between the Universities of Sheffield and Melbourne and the City of Melbourne to create visually interesting landscapes comprising of indigenous plants. At several sites along the alignment, a wide range of native plants and flowers will be planted as part of our landscaping design. The overall result is low maintenance, drought tolerant plants, which attract local birds and wildlife. Woody Meadows has recently been trialled as part of the Abbots Road Level Crossing Removal Project. Its most successful implementation is at Birrarung Marr, Melbourne.



Figure 19. Woody Meadows planting



Climate Change

There is an extensive and growing body of evidence that shows Australia’s climate has changed significantly over the past 50 years. This will continue to place property, communities and infrastructure assets under increasing physical and financial risk.

In order to design infrastructure for a 100-year lifetime, it is critical to consider the impacts of a changing climate. A climate change risk assessment is conducted for each Alliance project, involving multidisciplinary internal team members and external stakeholders, to identify key climate change risks and develop

mitigation measures to be included in the design. Examples of key risks that were identified include:

- Increase/decrease in rainfall intensity
- Increasing average temperatures/solar radiation
- More frequent storms/weather events.

Mitigation measures to account for these risks were then designed into the stations and infrastructure. For instance, flood modelling was conducted for each of the project sites to test the designs under a climate change scenario involving increased rainfall intensity.

For a summary of climate change mitigation and adaptation measures adopted across the Alliance, see the figure below.

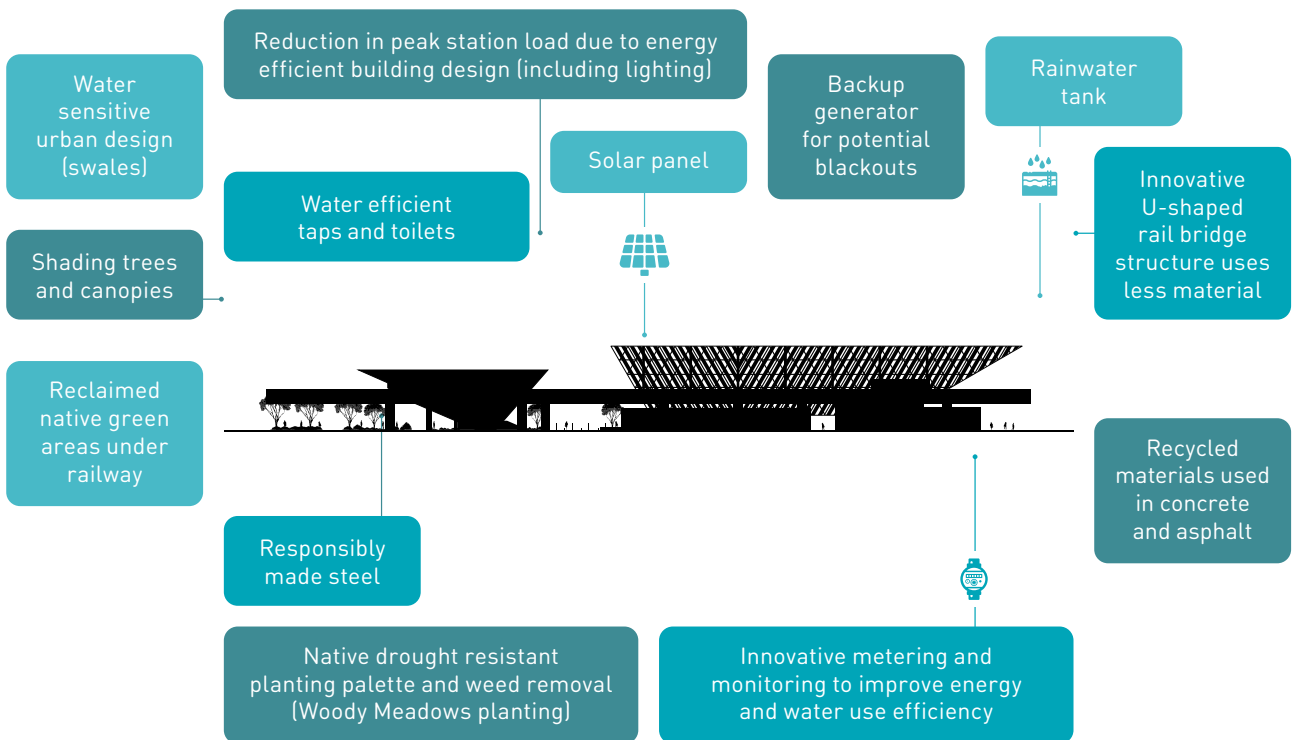


Figure 20. Climate change mitigation and adaptation measures

*Climateworks australia (<https://www.Climateworksaustralia.Org/project/infrastructure/>)

*Representative station image

Energy and Carbon

The Alliance is committed to:

- Reducing emissions created by construction and operation
- Striving for lower carbon transport
- Supporting innovative and cost-effective approaches to energy efficiency, low carbon/renewable energy sources, and energy procurement.

The following initiatives have been implemented across our projects to reduce emissions:

- Replacement of non-LED with LED lights in:
 - Construction lighting towers
 - Street lighting
- Fuel savings from:
 - Optimisation of track alignment to reduce earthworks
 - Use of piling pads in lieu of crushed rock to reduce pavement construction
- Steel reduction through:
 - Optimisation of bridge design to reduce number of stairs and lifts by half for Reservoir station
 - 100% use of responsibly sourced steel through the WSA Climate Action Program.
- Cement/concrete reduction through:
 - Incorporation of Supplementary Cementitious Material (33% reduction of Portland cement content)
 - Innovative design principles which reduced the amount of in situ concrete
 - Reuse of recycled crushed concrete as a replacement of virgin crushed rock

- 41% modelled reduction of peak electricity demand at Reservoir compared to a standard practice building.

Greenhouse gas emissions over the construction and operational phase of the Reservoir Project amounted to a reduction in 9,249 tonnes of carbon dioxide (CO₂-e) (45.8%) and 32,892,392 of total energy use MJ (35.5%).

Lifecycle energy use comparison

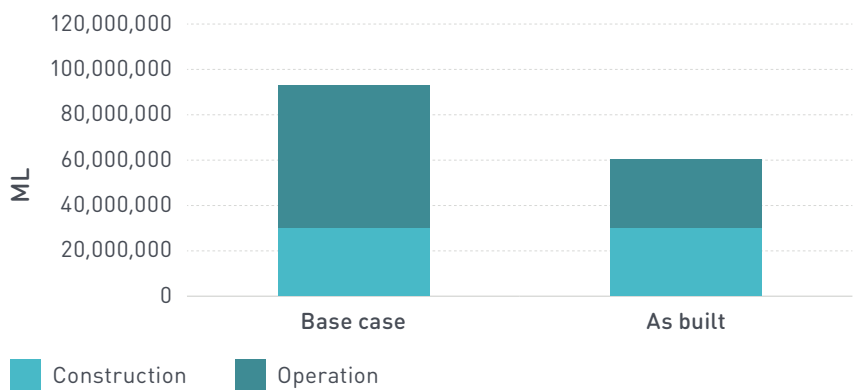


Figure 21. Lifecycle energy use comparison data

Lifecycle GHG emission comparison

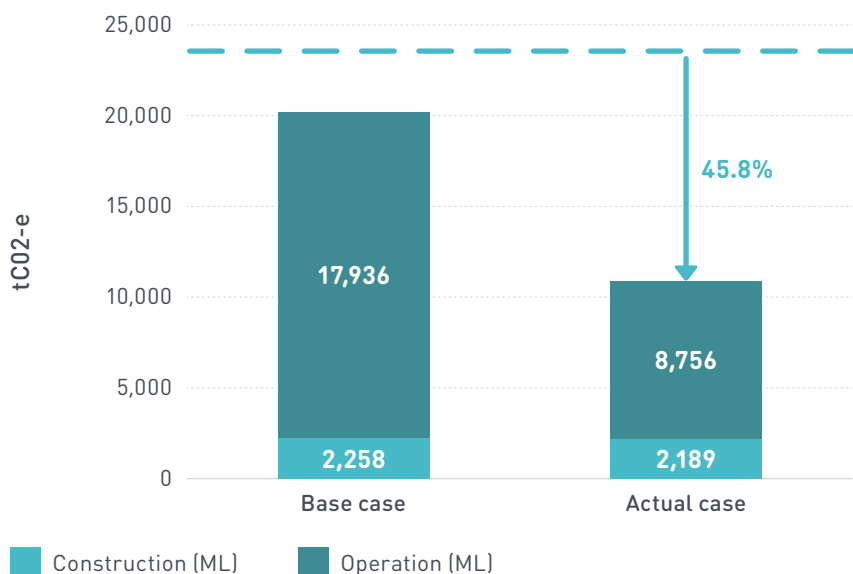


Figure 22. Lifecycle GHG emission comparison data

Heritage

The Alliance is committed to heritage conservation and identifying opportunities to enhance heritage value. Assessments were done for both Aboriginal and historic heritage within our project areas.

Aboriginal Heritage

To ensure that Aboriginal heritage is protected, investigations are undertaken to identify if any culturally significant items are present at the worksite. This is done by a qualified Heritage Advisor and if any items are found, they are collected and stored off site.

During earthworks we monitor for cultural items. If they are found, a protocol is followed to ensure that the appropriate authorities and relevant bodies are notified.

In addition to protecting the existing heritage, Aboriginal co-design is sought after in each of our projects and discussed in more detail in the Urban Design Section. In summary, this included relocation of a culturally significant canoe tree at Moreland station and addition of a Yarning Circle.

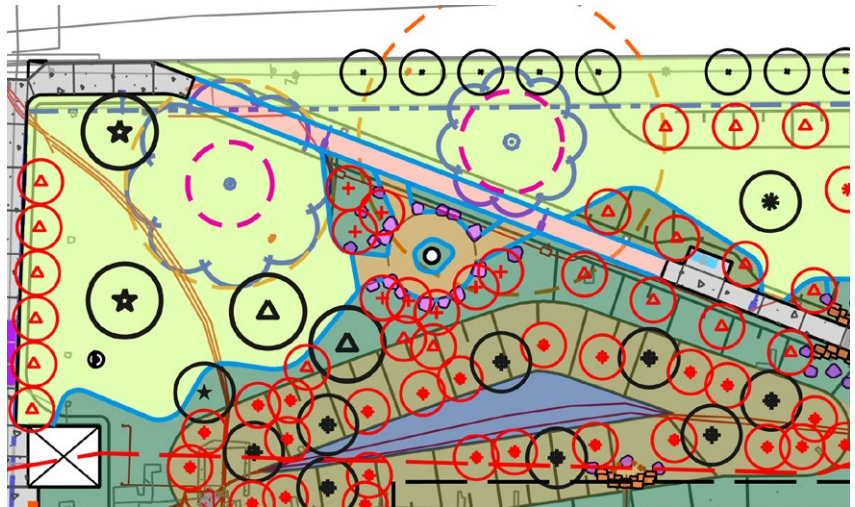


Figure 23. Canoe Tree and Yarning Circle plan at Moreland station



Figure 24. Canoe Tree and Yarning Circle at Moreland station



Figure 25. Canoe Tree and Yarning Circle at Moreland station



Figure 26. Canoe Tree and Yarning Circle at Moreland station plaque



Figure 27. Canoe Tree and Yarning Circle at Moreland station under construction

Historical Heritage

Where our projects have the potential to impact non- Aboriginal heritage this must also be protected, preserved and, where possible, enhanced.

For example, during preparation for the landscaping works in February 2020, north of the Reservoir Level Crossing Removal Project, the Delivery team discovered a timber box culvert. The culvert was likely constructed in 1889, in conjunction with the laying of the original railway track for the purpose of managing the flow of water on either side of the railway line. An initial assessment of the feature was made by Project Archaeologists and a Consent Application was submitted to Heritage Victoria. The feature was registered on the Victorian Heritage Inventory (VHI) as instructed by Heritage Victoria and a 'Consent to Damage' permit (i.e. demolish) was issued by Heritage Victoria. The timber from the culvert was treated with an epoxy resin and anti-graffiti coating and was installed in the station precinct. A plaque was installed next to the feature which describes the local heritage value of the culvert to passers-by and educates and informs the community of its significance. This was part of the landscaping design plan to incorporate historical features.

Other measures to investigate and protect historical heritage during our project in 2020 include:

- To address the potential heritage impact to the timber station at Reservoir station, an archaeological excavation was conducted before construction work commenced. The assessment concluded that the site was of low archaeological significance
- Moreland and Coburg stations conservation involved the restoration of Moreland and Coburg station buildings to return them to their original state. This required replacing the roof of both buildings with slate tile and fabricating new chimneys in the traditional styles. In addition a suite of other changes including facades and architectural treatments designed to respect the heritage significance of the corridor were undertaken
- Prepared a Permanent Heritage Interpretation Strategy for the precinct, which will tell the story of the Former Coburg Railway Line and inform visitors of the significance of the various heritage places



Figure 28. Timber culvert Reservoir station

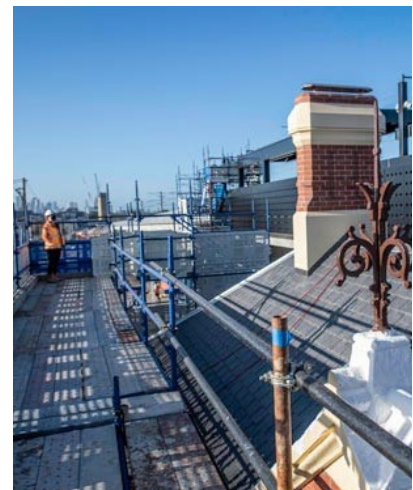


Figure 29. Heritage restoration works at Moreland station

- A number of heritage signals along the Bell to Moreland alignment were placed in storage for restoration and eventual relocation back into the landscaping
- The Moreland Signal Hut was temporarily relocated and protected within the project area. This will be restored and reinstated at the start of 2021
- Red bricks and blue stone pavers have been salvaged from the platform demolition at Moreland and Coburg and will form a part of the landscaping response
- The new station building facades also complement the history of the area. The new Coburg station facade replicates some of the traditional styles of nearby buildings through the banding running along the top of the concrete casts. The new Moreland station building references the original station buildings by replicating the flemish bond brickwork of these buildings in the facade treatment
- Heritage trees were relocated and cared for in a specialist nursery during the occupation and have now been returned to Moreland station.

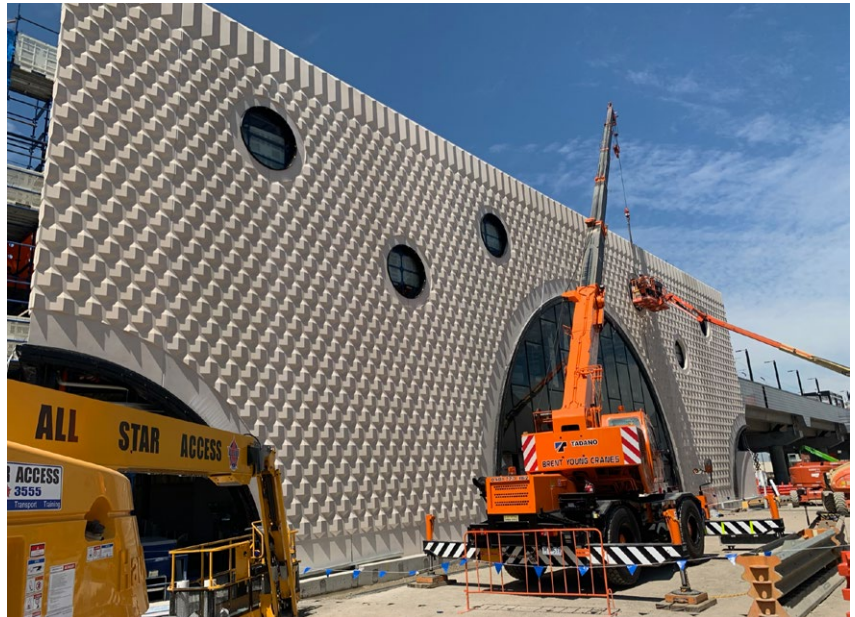


Figure 30. Coburg station facade replicates traditional style of nearby buildings



Figure 31. Moreland station facade references flemish bond brickwork of original station

Throughout the Bell to Moreland project, there have been several chance finds, including:

- Cameron Street Footpath - was removed following recording and approval from Heritage Victoria
- Colebrooke Street Weighbridge - was removed following archaeological investigations (with the exception of some brick footings at depth)
- Moreland Road historical signal equipment- (running beneath Moreland Road)- was partially recorded however works did not extend across the complimentary so it was partially left in situ
- Moreland station brick lined pit- recorded prior to development at this location.



Figure 32. Extent of the pedestrian path uncovered



Figure 33. Weighbridge archaeological investigation before removal



Figure 34. Moreland Rd - Historic signal equipment



Figure 35. Drainage channel uncovered during subgrade preparation for permanent pedestrian path construction

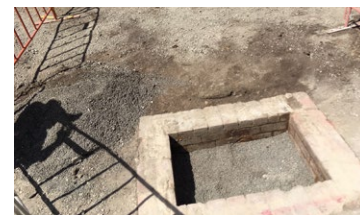


Figure 36. Pit uncovered during subgrade preparation, archaeological recording required during partial removal

Figure 37. Pit cleared by archaeologist before removal



Great Places



URBAN DESIGN



Achieving high quality urban design is a long-term process that ultimately aims to enable integrated, useful, attractive, safe, environmentally sustainable, economically successful and socially equitable places.

The Alliance aims to provide urban design solutions that are elegant and enduring, and take pride of place in the community. This will in turn, create inviting and activated spaces that increase public transport patronage and activate under-used land and facilities.

LXRP has developed an Urban Design Framework (UDF) to maintain a focus on urban design from the outset. It aims to:

- Build more cohesive and inclusive community places
- Build more environmentally sensitive infrastructure
- Create new urban spaces that are safe and engaging for people
- Create opportunities for people to contribute to civic pride and local economies.

When urban design objectives are considered alongside technical considerations from the start of a project and throughout the project delivery, it results in better, more integrated and efficient urban outcomes. This can often be achieved at minimal additional cost.

The UDF sets the expectations of the LXRP for high quality, context-sensitive urban design outcomes. It also sets out principles, measures and qualitative benchmarks so that we can measure and be sure design outcomes meet those expectations. Derived from the UDF are site-specific Urban Design Guidelines (UDG) for each project which respond to each site's unique context.

The UDF doesn't provide prescriptive urban design solutions, rather it sets out what is to be achieved in terms of urban design quality and performance. The principles, objectives, measures and qualitative benchmarks set out in the UDF aim to:

- Ensure proposals develop with good urban design considerations, treated as being integral to project solutions
- Provide the basis for the Urban Design Advisory Panel (UDAP) to provide advice and feedback
- Guide the evaluation of design proposals
- Establish the minimum quality expected by the State in terms of performance outcomes and benchmarks for quality.



Examples of design outcomes achieved on Reservoir station are listed below:

- Canopy material contains 51% open area to provide natural daylight and adequate airflow
- Canopy appears visually recessive in the landscape
- Civic plaza beneath the elevated structure connects surrounding suburbs
- Water Sensitive Urban Design (WSUD) (swales and rain gardens) to manage stormwater run-off from the rail viaducts and car parks
- Design of the U-Trough enables the train carriage to sit recessed, within a viaduct u-shaped trough to reduce its visual impact
- Anti-graffiti mechanisms used on bridge structures, columns and walls
- Low maintenance and drought-proof landscaping to maximise plant survival & green space.

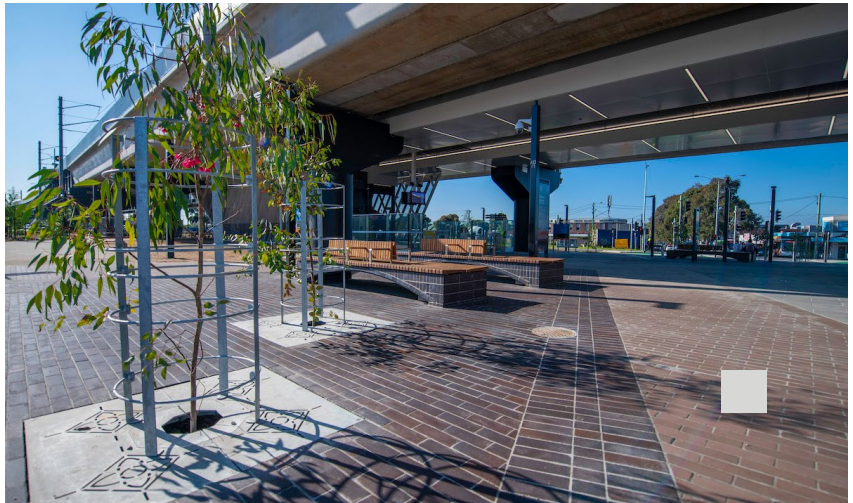


Figure 38. Anti-graffiti penetrative surface treatment at Reservoir station



Figure 39. Aluminium screen at Reservoir station



Figure 40. Low maintenance and drought-proof planting

Crime Prevention

The Alliance has integrated crime prevention into our safety and assurance processes to minimise the likelihood of crime occurring at our project sites during construction and operation.

Known as Crime Prevention Through Environmental Design or CPTED, the strategies we use are in line with the Urban Design Guidelines for Victoria 2017 (Department of Environment, Land, Water and Planning). Strategies used include:

Natural Surveillance:

- Clear sight lines through to pedestrian crossings either side of structures, including between access and destination points
- Tree plantings consider the size of the mature tree and their impact on natural surveillance to not obstruct sightlines
- Consideration of the location of kiosks and ticket offices, to maximise natural surveillance.

Natural Access Control:

- Open paved areas, delineated shared user paths, landscaping and public lighting are used to clearly guide the public to and from specific areas around the station, car parks and shared user paths
- Clear sight lines through the site increases legibility and supports intuitive wayfinding
- Clear wayfinding such as PTV signage assisting in providing clear physical direction to transport users
- Separate cyclist wayfinding signage to assist in providing clear direction to people on bicycles
- Improved lighting.

Definition of Space and Ownership:

- Using different materials to differentiate different areas, such as seating in entry points to the stations

- Inclusion of Disability Discrimination Act (DDA) compliant tactile ground surface indicators through the station precinct and broader pedestrian areas.

Activity support and management:

- The encouragement of walking and cycling through the implementation of delineated shared user paths
- Seating is provided to either side of the central plaza, inviting pedestrians to use the space
- DDA-accessible public seating with back and armrests are located within shaded, cool and vegetated spaces that naturally encourage public usage.

Maintenance:

- Vegetation being composed in part of drought tolerant native plants that when established, will only require seasonal maintenance
- Anti-graffiti measures.



Figure 41. Reservoir station

Indigenous Co-Design

For Aboriginal people, culture, nature and land are inextricably linked. The term Country refers to the embodiment of their cultural connection to the landscape and environment.

The boundaries of Countries are expressed orally (song-lines), following prominent landmarks and features, traversing the landscape.

All of Victoria's major train lines are part of a long-term formalisation process of Aboriginal pathways across Australia. These pathways are what facilitated the sharing of culture, resources, song, dance, art and lore. From a Level Crossing Removal Project (LXRP)

perspective, the rail network connects to several important 'song-lines' each with their own distinct story and culture.

As such, we must consider how we can draw upon the richness of this historic line and express this through appropriate design responses. This project is about how we can honour and celebrate the Traditional Owners and provide a lasting cultural legacy.

'We seek to draw upon the richness of the Traditional Owners historic and contemporary knowledge in these places to enhance the design of infrastructure and civic spaces to root it strongly in place. In doing so we celebrate the diverse cultures of Victoria's Traditional Owners'

Indigenous Design Guidelines

LXRP has developed Indigenous Design Guidelines to guide this process. The guideline ensures that projects follow a consistent process when including Aboriginal design in their program through Preliminary Development Work to Construction.

These guidelines inform the Aboriginal Design Principles that have been developed by NWPAA for our projects.

For each package in the Alliance, an Aboriginal Culture Design Strategy is prepared to identify the site-specific issues and opportunities. The Alliance has now developed

two Aboriginal Culture Design Strategies including for the Bell to Moreland Project and Preston Project. These three project areas are covered by Wurundjeri Country and Boonwurrung, Bunurong Country with various Traditional Owners engaged to lead this process.

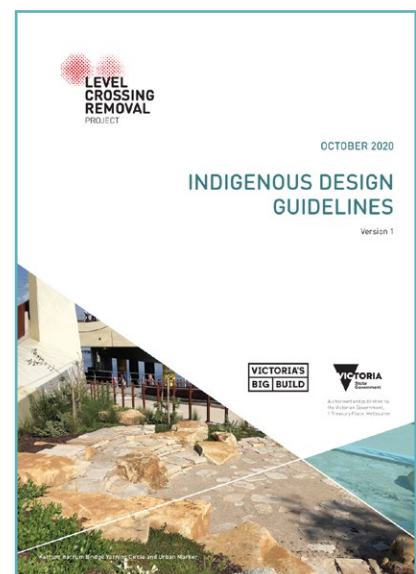


Figure 42. Indigenous Design Guidelines



Source: Artwork by
Jordan Lovegrove,
Ngarrindjeri,
of Dreamtime Creative

Indigenous Co-Design Achievements

Using these guidelines, principles and strategies, the following achievements have been made on the Alliance projects:

Canoe tree monument – Moreland precinct (Bell to Moreland Project)

- Within the Moreland station precinct was an existing canoe tree monument which commemorated the Aboriginal people and their craftsmanship. The casting includes a plaque recording that on the site an old gum tree was located and an Aboriginal canoe was cut from its trunk. The plaque states that the old gum tree became dangerous, so it was removed and reinstated with a monument.
- Given the significance of the element, NWPA included this in the Aboriginal co-design process we've undertaken with the Wurundjeri Cultural Heritage Council. In particular Uncle Perry who has been actively involved in the co-design workshops. The Wurundjeri Elders have advised on appropriate treatment for the relocated canoe tree which includes native planting and a yarning circle that members of the community can meet, gather and yarn. It's also an opportunity for educational purposes that the Traditional Owner's will be able to tell stories to future generations. The canoe tree will be reinstated north-west of the current location.

Oakover Green enhancement – (Preston Project)

- The Oakover green enhancements has been produced based on feedback from key stakeholders including Darebin City Council and the local community to improve the open useable space at this end of the project. This area has been included in the POSAP (Preston Open Space Advisory Panel) process and developed through consultation with the Wurundjeri Elder's. The concept is based around 3x connections – Connection to Nature, Connection to Culture, Connection to Community.

- The drainage basin/wetlands serve as an integral part of the drainage function for the area, which we are proposing to populate with native plants. The three Elders involved in the development of this area include Aunty Gail, Aunty Julieanne and Aunty Di who are excited by the prospect of this area being a legacy for the Wurundjeri people and connection to community and Country. The yarning circle central to the precinct will allow for educational learnings for future generations including weaving and story telling.

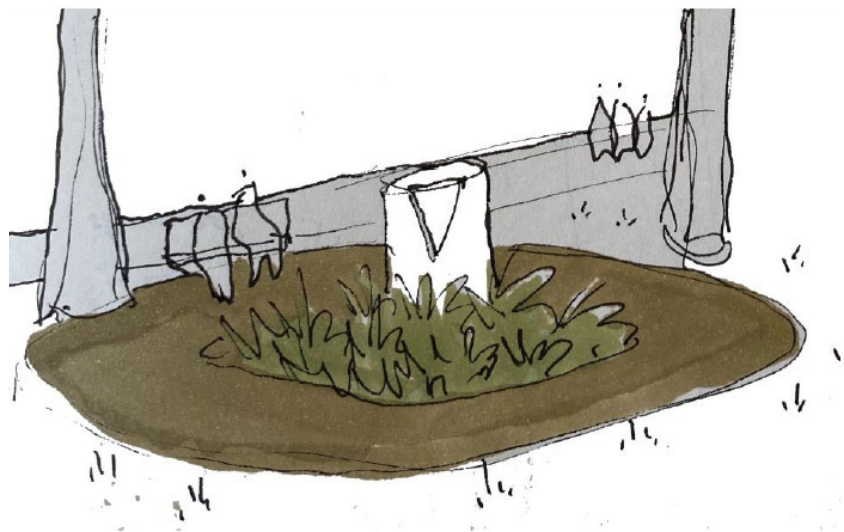


Figure 43. Canoe Tree and Yarning Circle concept drawing at Moreland station

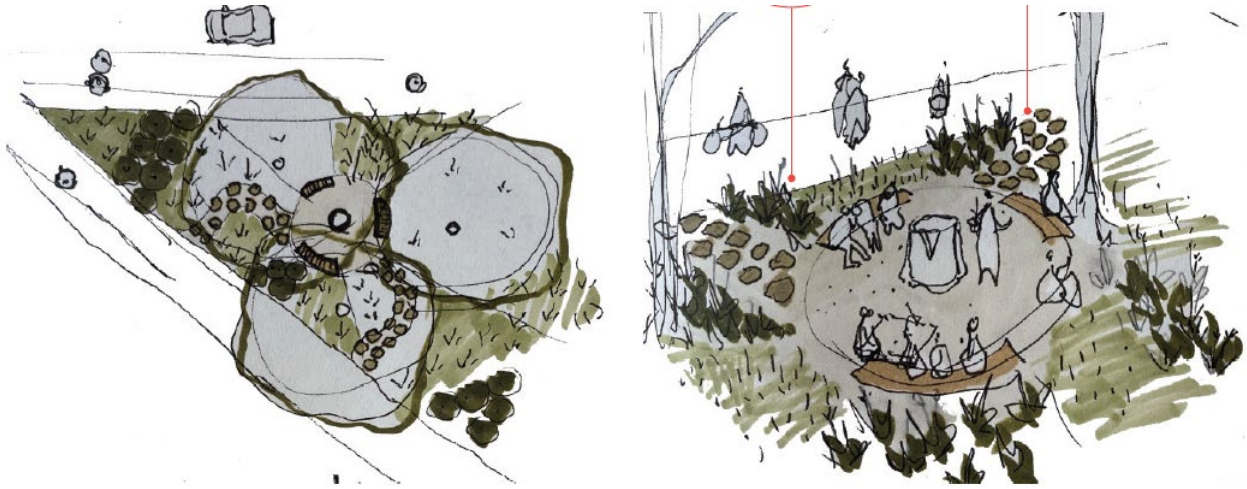


Figure 44. Canoe Tree and Yarning Circle concept drawing at Moreland station



Figure 45. Canoe Tree and Yarning Circle concept drawing at Moreland station

Great People & Partnerships

OUR WORKFORCE



One of our objectives is to create a diverse and sustainable workforce that draws from all sections of the community. We continue to work with a network of industry specialists to support people with barriers to employment and provide direct and indirect access to opportunities on the project.

The Alliance is committed to creating a diverse and sustainable workforce that draws from the wonderfully diverse communities we serve. We understand that diversity of thought creates high performing teams which is why we will continue to work with a

network of industry specialists to support people with barriers to employment and provide direct and indirect access to opportunities on the project.

We have embedded inclusive processes into all aspects of

our business including our procurement process. We have built strong relationships with Aboriginal businesses and Social Enterprises and actively seek out opportunities to include these businesses into our supply chain.

The following statistics are from 2020



255

Trainees/apprentices/
cadets engaged



10%

Major Skills Project
Guarantee (MPSG)
to date (10% target)



30% average

Female participation rate



26%

Females in
leadership roles



2,520,861

Overall man hours worked

Social Procurement



**including projects delivered
and in development*

\$17,703,309

Total social
procurement spend

\$12,663,509

Spend with
Aboriginal business
or social enterprise

\$5,039,800

Total priority Jobseeker
employment and
training costs



Social Benefit Provider Engagement



21

Aboriginal owned businesses



28

Social enterprises

Priority Jobseeker Engagement

52

Number of people economically or socially disadvantaged including migrants, refugees, asylum seekers, disengaged youth, ex-offenders, youth justice clients, veterans and at risk people

31

People living with a disability

71

Aboriginal and/or Torres Strait Islander people

35

Long term unemployed or retrenched people

189

Total priority Jobseekers engaged



Leadership roles - Gender split

	Females	Males	Total
Alliance Management Team	2	6	8
Senior Management	6	18	24
Mid Management	12	29	41
Managers	13	42	55
Total	33	95	128

Percentages

Females	Males
25%	75%
25%	75%
29%	71%
24%	76%
26%	74%

Major Achievements to Date

Social Traders Big Spender Award 2020

Social Traders assist the relationship between social enterprises and business and government buyers by certifying social enterprises and working with them to expand their businesses.

They support their members and work with them to update their tender processes to create new opportunities for social enterprises.

John Holland was announced as winner of the Social Traders Big Spender Award 2020. NWPA was a significant contributor in

this space, spending \$1,093,537 with social enterprises.

Aboriginal Engagement- a collaborative culture

In 2020 the Alliance engaged an experienced Diversity and Inclusion Manager. This appointment allowed us to further embed processes to enable people with barriers to employment to participate in project opportunities. Our strategies across Aboriginal engagement and social procurement aim to stimulate the local economy, achieve community buy-in and address social disadvantage along the North West corridor. To achieve this, the Alliance has made a commitment to maintain a collaborative culture where inclusion, creativity and sensitivity to local community needs and cultural diversity are paramount and considered at the front end of our projects.

These strategies have resulted in:

- An increased participation of Aboriginal people
- An initiative to expand Aboriginal businesses
- Partnerships with local groups through the Wurundjeri Tribal Council

- Strong partnership being developed with Kinaway (Aboriginal Chamber of Commerce).

The Alliance is also currently working with Aboriginal communities during the design of future projects.



Figure 46. John Holland Big Spender of the Year - Social Traders Award 2020



COVID-19 Response Group

On 11th March 2020, the World Health Organisation (WHO) declared the COVID-19 outbreak a global pandemic. With the uncertainty that lay ahead, NWPAs quickly mobilised a team to respond to the changing landscape while heavily planning for the biggest occupation ever to be undertaken in Victoria's history.

NWPA established a two-tiered COVID-19 response with the overarching aim of ensuring the health and wellbeing of staff, subcontractors and suppliers working on the Alliance.

The two-tiered approach comprised:

- A Response Group providing a governance structure to ensure the development of processes and plans to manage the changing dynamics of COVID-19 and
- A Site Response team providing on the ground support in the event of a suspected and/or confirmed case.

The success of the Response Group and Site Response team (The Team) was underpinned by bringing together cross-disciplinary functions. The Team comprises the Office of the AGM, Safety, Commercial, Delivery, HR/IR, Communications, Project Managers, General Superintendent, Project Owner and Project Partners. All these members had to come to a consensus on a course of action before it was taken - yet ensure that decisions were made without delay.

Being largely sub-contractor based, the Alliance held an online Sub-Contractor Forum to outline the COVID-19 requirements to ensure compliance with State Government directions. A representative from

DHHS was invited to attend to answer any questions. The Alliance continued to provide advice and support to sub-contractors around compliance and provided assistance where required.

NWPA lead the industry with the development of QR codes to enable swift contact tracing in the event of a suspected or confirmed case, increased cleaning as well as dedicated on-site COVID-19 Marshalls to monitor compliance. The Alliance ensured the health and wellbeing of staff, subcontractors and suppliers throughout 2020 and was able to maintain program and meet our agreed delivery dates in spite of all the challenges thrown our way.



Figure 47. COVID Safe best practice

Social Initiatives

NWPA, including our subcontractors, work with many social enterprises and Aboriginal businesses in the social procurement space to ensure we continue to deliver social and sustainable outcomes. There is also a strong focus on the employment of priority jobseekers, as part of our social procurement commitment, and trainees, apprentices and cadets, as part of the Major Projects Skills Guarantee (MPSG).

Social enterprises

The following social enterprises were engaged by the Alliance in 2020:

- **Brunswick Industries** – social enterprise providing work for people with a disability, providing sanitiser for John Holland and NWPA
- **Clean Force** – a social enterprise supported by NWPA who have been providing quality commercial office, residential and industrial cleaning services for over 18 years. They provide sustainable employment for over 200 people who experience mental illnesses, learning disabilities and other types of disadvantages such as refugees and the long term unemployed
- **Outlook Environmental** – a social enterprise providing Waste Removal services
- **Bunji Hire** – an Aboriginal equipment hire business providing vehicles, light towers and other equipment
- **Kulbardi** – an Aboriginal business providing office supplies to NWPA
- **Heart2Heart (Panku)** – an Aboriginal business providing First Aid training and supplies
- **Brite** – a social enterprise nursery providing trees/plants to our projects
- **Cycon Monero** - an Aboriginal business conducting civil works and providing employment opportunities for Aboriginal people
- **Local Transit** - a social enterprise providing transport services and supported employment opportunities for the migrant population
- **Just Gold Partnership** - Just Gold is digital agency and a social enterprise that helps other social enterprises by providing a range of services (either pro-bono or via grants that can be applied for) that these businesses normally wouldn't have access to. NWPA has entered a strategic partnership with Just Gold and have engaged them to create numerous e-Learning solutions (instructional design/course development, creative, voiceover and software development)
- **Fruit2Work**- a not-for-profit social enterprise supported by NWPA which creates opportunities and second chances for people who are trying to regain their lives and a sense of purpose after falling foul of the law. They create meaningful work to empower and upskill their employees by delivering fresh products to the Bell to Moreland and Glenroy sites (and offices before COVID-19 restrictions were put in place).



Figure 48. Clean Force

Initiatives

The following initiatives were delivered by the Alliance in 2020:

- **Engineering Pathways Industry Cadetship (EPIC) - Training for the Future (TFTF)** - a Victorian Government initiative to drive social equality outcomes. The program recruits qualified engineers from diverse backgrounds, including those from refugee or asylum seeker backgrounds.
- **LXRP Initiative GEN44** - Designed to build a diverse pipeline of graduates ready for careers in rail through mentoring and networking. Through partnerships with Project Alliances, Joint Ventures and Training for the Future Partners, GEN44 gives internships, mentoring and networking opportunities to the following university students cohorts:
 - Aboriginal
 - Disability
 - Low socio-economic backgrounds
 - Refugees/asylum seekers.
- **LXRP Initiative GEN8** - Designed to help mid-career professionals who are asylum seekers or recently arrived refugees gain valuable rail industry experience. This program targets people with professional qualifications and experience from their countries of origin. This includes a target of 50% women.
- **Female Junior Supervisor Program** - An industry first initiative designed to encourage females and placing them through a two year program that provides on-the-job experience, mentoring, formal qualification in Civil Construction Supervision, leadership and IR training and a suite of rotations within the Alliance to maximise exposure and development.
- **Career Trackers** - is a national non-profit organisation with the goal of creating pathways and support systems for Indigenous young adults to attend and graduate from university, with high marks, industry experience and bright professional futures. Through our alliance partners, NWPA has provided internship opportunities to Indigenous university students across our projects.
- **Gender Diversity committee** - has been established by NWPA to drive initiatives and be the employer of choice. The newly established committee will meet for a face to face workshop in early 2021 to establish the committee's strategy going forward.

Alliance Run Events



JANUARY 2020

A Great Day

An all-day event which brought staff together to celebrate past project milestones and contribute to the Alliance's future vision. The day included guest speakers, interactive workshops, planning sessions, social activities, games, food and live music.



MARCH 2020

International Women's Day

Events were held at both our North Melbourne and Bell to Moreland offices to promote the importance of gender equality. Staff heard from inspirational guest speaker, Shantelle Thompson, who shared her story around mental health, perseverance and positivity.



JUNE 2020

Reconciliation Week

A celebration of Australia's history, culture and achievements and a look into the future of how we can continue to progress reconciliation across Australian.



AUGUST 2020

Social Procurement, Diversity and Social Inclusion Lunch and Learn



SEPTEMBER 2020

R U OK? Day

An online event was held to mark R U OK? Day, staff heard from world-renowned presenter Michael Crossland who shared his life story and highlighted messages of perspective and resilience. Michael followed up the event with a Q&A session with staff.



SEPTEMBER 2020

NWPA Subcontractors Forum

An online event was held for all NWPA sub-contractors to inform them of our COVID safe requirements, the session also included a Q&A with the Department of Health & Human Services (DHHS) Construction Industry representative.



The following events have been run by the Alliance in support of education and change within our workforce.



JULY TO DECEMBER 2020

Online Staff Monthly Updates

A monthly online forum which kept staff updated and connected with what was happening across the Alliance, the agenda included different guest presenters each month as well as a Q&A session with NWPAs Alliance General Manager and LXRP's Program Director.



AUGUST TO NOVEMBER 2020

Online Lunch and Learns

A monthly online session hosted by a different team each month, designed to educate staff on different work areas and how functions of the Alliance fit together.



AUGUST 2020

Wear It Purple Day

The Alliance ran several initiatives to highlight the importance of LGBTI+ inclusion such as encouraging everyone to wear purple, providing purple face masks for staff to wear on-site, having a relevant guest presenter at the August online staff update and including Wear it Purple Day messaging at pre-starts to the workforce.



OCTOBER 2020

Indigenous Business Month

NWPA promoted Indigenous Business Month in their October newsletter (Connexions) taking the opportunity to educate the team at NWPA and provide details of Indigenous business engagement opportunities at NWPA. The article stated that Indigenous Business Month was an initiative driven by the alumni of Melbourne Business School's Indigenous Business Master Class who wished to provide positive role models for young Indigenous Australians and improve the quality of life for their communities. It also detailed how the theme in 2020 was 'Invigorate, Build, Maintain to keep our sector strong'. The theme acknowledged that businesses across all sectors were met by challenging times in 2020, but also acknowledged that we all have a role to play in keeping the Indigenous business sector strong.



NOVEMBER 2020

NAIDOC Week

A dedicated online lunch and learn session was held in acknowledgement of NAIDOC Week's 2020 theme 'Always was, Always will be'. Staff heard from Aboriginal elder, Uncle Billy, who shared his story and educated the team about Aboriginal culture and tradition.



NOVEMBER 2020

November

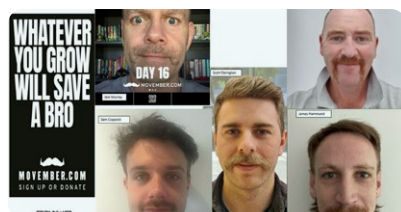
A NWPA November team was formed and an internal fundraising campaign was run to raise money for men's health issues such as mental health and suicide prevention, prostate cancer and testicular cancer.



SEPTEMBER TO DECEMBER 2020

Be-Well Program

A dedicated health and wellbeing program designed to encourage staff to better look after themselves and others and to keep connected while working remotely during COVID-19 restrictions. The program included regular communications, initiatives such as the 10,000 Steps Team Walking Challenge and Kids Colouring Competition, and weekly online exercise classes run by a local physio clinic.



Great Engagement



OUR COMMUNITY



The health and wellbeing of the communities within which we work is top of mind when planning our communications and engagement approach.

Each project has a comprehensive Communications and Stakeholder Engagement Plan that identifies impacts construction activities may have on the community, as well as mitigation strategies to manage those impacts.

Our approach to engagement includes:

- Acknowledging that we are guests in the community and will behave as a responsible and responsive neighbour
- Providing timely and accurate information about construction activities

- Proactively establishing and maintaining cooperative relationships with identified stakeholders
- Developing a detailed understanding of the local context, to minimise impacts and optimise community outcomes through our design and construction methodologies
- Managing and addressing community issues, enquiries and complaints effectively and promptly.

In 2020, the COVID-19 restrictions in Victoria saw all traditional engagement activities cease, which had a significant impact on the way The Alliance was able to communicate with key stakeholders and the wider community.

Our Communications team had to be agile and adapt to changing circumstances, while keeping the community informed on construction activities.

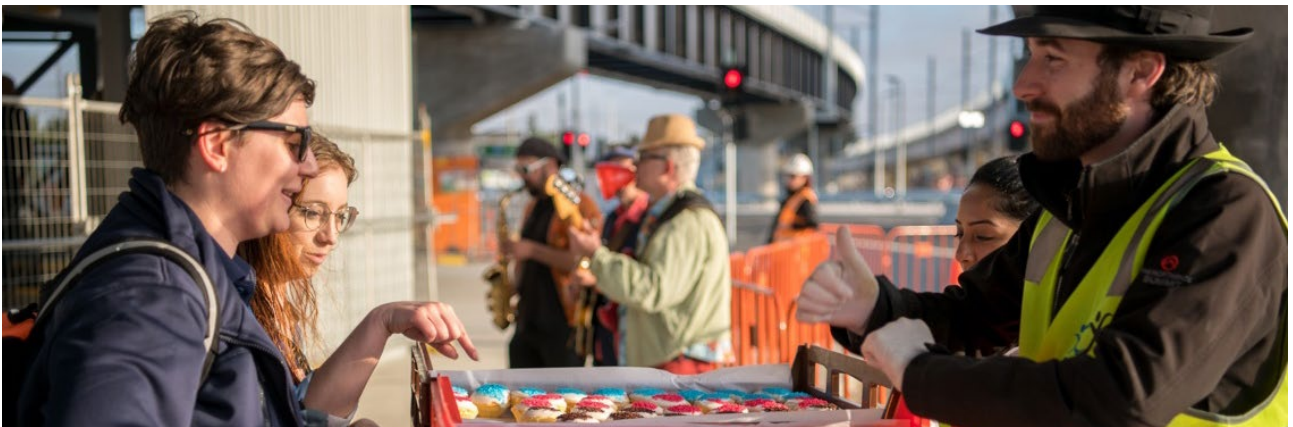


Figure 49. Community engagement at Reservoir station



LEVEL CROSSING
REMOVAL

BELL TO MORELAND
LEVEL CROSSING
REMOVAL PROJECT

BELL TO MORELAND
LEVEL CROSSING
REMOVAL PROJECT

MMPIC
CUSTOMER SERVICE

Community Engagement

While our community stayed home and kept safe during metropolitan Melbourne's COVID-19 lockdown, we continued to deliver Victoria's longest and most complex rail occupation in history and remained keen to tell our story and share our progress. In a time where doorknocking and letterbox drops were not suitable engagement methods, we looked to develop new ways of communicating:

- Facebook Live - the team worked with LXP to deliver Facebook Premiere, an online Q&A session which received more than 6,500 views
- The Facebook Premiere event enabled visual information sharing in a real-time experience, allowing the project team to connect with the community safely. The initiative built upon the LXP online engagement capability of Facebook, reaching thousands of interested people who otherwise were unable to leave home to

participate in the traditional, in-person site tours. The initiative supported the Government restrictions by directly reducing safety risks associated with visitors on-site during the pandemic and demonstrated the team's application of COVID-19 Safe measures to those engaged in the online, interactive event. It also increased public awareness of the project's progress during a period where travel was highly restricted (5km from home) and provided an insight into occupation progress that otherwise could not be achieved

- SMS notifications - the team established a subscription drive with stakeholders and the community, to issue SMS notifications around traffic changes. During the most intense lockdown period of 2020, the team added links to the LXP website where further information on construction was available.

The Alliance worked collaboratively with the local childcare centre, the Department of Education & Training and Moreland City Council to develop respite arrangements for the Centre located adjacent to the construction site. The arrangements were put in place to support the Centre staff and children while works continued as part of the Bell to Moreland Level Crossing Removal Project.



Figure 50. Community engagement – providing information and bicycle checks along the Bell to Moreland Shared User Path

Domestic respite and relocation program – the largest program delivered for LXP to date

REACHING PEOPLE

330 homes approached

Engagement provided in English, Greek and Arabic, utilising both written methods and local community networks.



UNDERSTANDING INDIVIDUAL NEEDS

More than **290** needs assessments completed



MOVING OUR NEIGHBOURS

171 relocations

107 short term respite placements

40 proactive offers

67 reactive placements



During the occupation, the team responded, assessed needs and arranged access to respite.



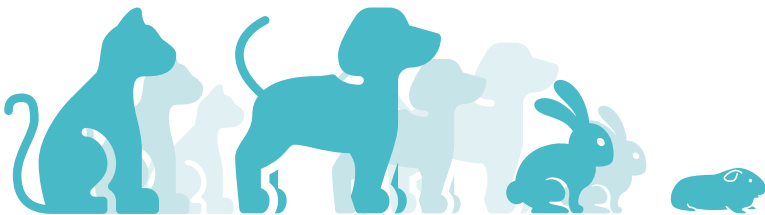
116 PETS RELOCATED INCLUDING

58 cats

55 dogs

2 rabbits

1 guinea pig



13 accommodation providers engaged to facilitate the program

Including serviced apartments, rentals, AirBnB as well as private rentals. All neighbours were individually matched to the most appropriate option.



Supporting rail passengers during the occupation

To support the local community and keep them on the move, innovations we put in place by the rail communications teams including:

A new 'bus stop location' poster design was developed. The posters, which were installed at all impacted stations along the Upfield Line during the occupation, displayed a static map and a QR code linking to a Google map for each replacement bus stop.

A PTV webpage, which exclusively housed disruption information was created. Each passenger disrupted by these works was directed to this

page to inform them of current and upcoming disruptions.

Digital screens were used to bolster communications and improve the passenger experience. A combination of existing digital screens in the City Loop and temporary digital screens at major bus interchanges were used. The screens including information on accessibility, disruptions, safety and LXR promotion.

Supporting local businesses and organisations

One of the Alliance's aims is to minimise disruptions and maximise benefits to the local businesses and organisations near our project sites.

Measures were implemented by the Communications & Stakeholder Engagement team to actively support and connect with nearby businesses and organisations including:

- COVID-19 Safe approaches through coffee and snack vouchers for staff for RUOK Day and Rail RUOK Day
- COVID-19 Safe reward and recognition program involving four local coffee shops from

along the project alignment (one trader complimented the team's strategies, advising that without project support they may not have been able to keep trading through COVID-19 restrictions).

- Feed the workforce - more than 400 project team members and workforce shared a COVID-19 Safe hot meal, coffee and snack in an activity which involved five local food and beverage vendors from along the alignment.

Inspiring the next generation - Moreland Primary School artwork

As part of our relationship with the community, the Alliance seeks to be actively involved in education about our works.

This includes displaying artwork from students at Moreland Primary School around the Bell to Moreland construction site. Students were asked to create art that featured Australian landscape, community gardens and their interpretation of the project space being created under the rail line. The underlying theme was 'life during lockdown'.

The resulting artwork is uplifting and sure to catch the eye of local residents as they pass by. Three sets of the chosen artworks were created, with two installed either side of the station precinct (along Cameron and Station streets in Brunswick). The third set has been returned to the school to commemorate the artists, signed

with messages of appreciation and encouragement from the Bell to Moreland Project team. With the school being so close to the project site, the artwork has received a lot of attention.



Figure 51. Moreland Primary School students artwork on display

Great Network

INNOVATIONS AND INITIATIVES

Around the world the drive for higher living standards combined with the growing global population is placing increased demand on our planet's resources.

Innovations, new technology and improved processes, can reduce congestion, unlock the capacity to run more trains, reduce

the environmental impacts of infrastructure development and promote social progress in our communities. LXP has labelled Innovation as one of our Key Result Areas (KRA) and we aim to foster a culture of openness and creativity, which allows our members to contribute their ideas. Many of the initiatives from previous years are continuing to be implemented on the Alliance's current projects

and projects in development (such as metering and monitoring). The below outline initiatives from 2020, from across a number of NWPA projects.



Figure 52. Tilt meters at Reservoir station



Solar

Solar panels have been installed on our Bell to Moreland project to increase energy efficiency and reduce our impact to the environment

Solar Powered Site Sheds

In addition to solar panels, self-powered site accommodation or 'solar sheds' have been adopted on the Bell to Moreland and Preston projects as an energy-efficient solution for office and meal areas for staff. This reduces the need for generators and improves business operational cost as well as reducing the impact to the environment.

Solar powered pedestrian lights

Solar powered portable pedestrian traffic lights were implemented at the High Street and Cheddar Road intersection during parts of the construction works.

A business as usual traffic management system may involve manned traffic persons to assist pedestrians, (labour intensive and costly), or using diesel-powered portable traffic lights (which generate emissions and noise).

The Reservoir Level Crossing Removal Project worked with supplier RPM Hire to use a unit which combines two separate traffic light systems: a pedestrian crossing system and a standard portable traffic light. The pedestrian system meets all Australian Standards and includes the audible sound and tactile push button system.

The main sustainability, environmental, social and economic benefits that come from using solar powered pedestrian lights include: carbon neutrality (100% solar-powered and no carbon emissions), elimination of noise pollution from the motor, increase in safety (as it is more visible than a zebra crossing), off-peak availability, portability and lights can be manually adjusted.



Figure 53. Solar lights

Over 32 days, the solar shed on Bell to Moreland reduced run-hours for 768 hours, saving \$2,150



Figure 54. Solar panels at Moreland Station



Figure 55. Solar Shed at Bell to Moreland site offices

eMesh

The Bell to Moreland project used macro synthetic fibres (eMesh) in lieu of traditional reinforced concrete for footpaths and the cycle path.

eMesh is made of 100% recycled plastic and complies with all the project's requirements and applicable design standards. It has a number of advantages over traditional reinforcement methods:

- Design life – being plastic it can't rust and will meet the 20-year lifespan requirement
- Constructability – it's easier to dispense in comparison with laying reinforcement, cutting mesh and positioning bar chairs – easier to place the concrete and finish using a trowel, wood float or broom
- Environmental – reduction of 90% CO2 in production, in comparison to reinforced steelmesh – reduction in fossil fuels usage by 93% – reduction in water consumption in manufacturing by 90% – uses 100% recycled plastic
- ISCA – benefits around material and CO2 reductions.

- Safety – reduced injury risks by removal of steel cutting and tying – reduction in trip hazard with no mesh laydown required on site.

In addition to the environmental benefits of eMesh on NWPA projects, the company that makes them (Fibercon), has also generated 4,624 hours of employment for National Disability Insurance Scheme workers.

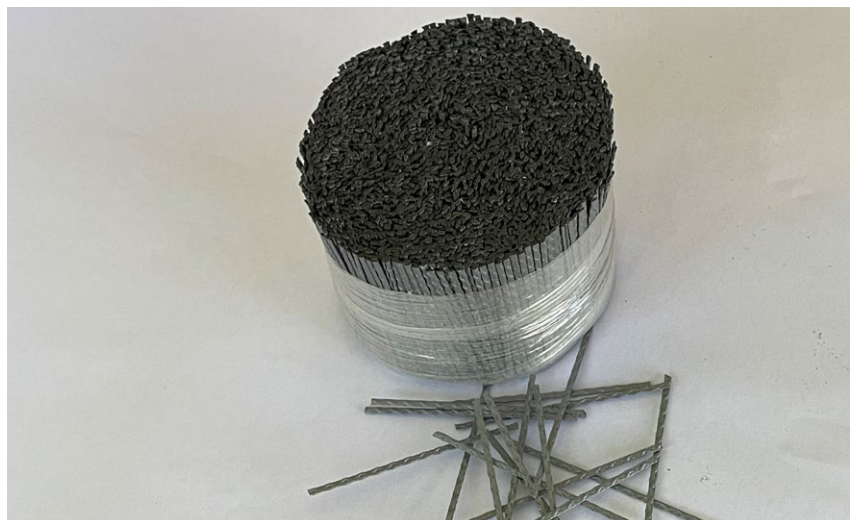


Figure 56. Emesh

Tilt Meters

Tilt meters provide real-time measurement of track sleeper inclination which directly monitors track superelevation (design versus in situ).

This monitors quality of the track form in relation to construction quality, and any differential settlement or underperformance of retaining structures or drainage systems. The meters alleviate the need for in field survey personnel to continually enter the rail corridor during and after

project construction which offers a significant cost saving, and safety improvement (for the survey team) and the safety of the track form when operational. This initiative has been installed on our Reservoir project and has industry wide applications.

Monopiling

The Monopiling innovation involves replacing the conventional pier foundation design of a cluster of piles (900 & 1200mm) and a pile cap with one large-diameter pile (one, 2100mm-diameter pile).

This initiative was first utilised on the LXR program on the Reservoir Level Crossing Removal Project and demonstrates a novel construction technique which significantly reduces installation hours and mechanical substitution and provides efficiency gains.

This innovation involves replacing the conventional pier foundation design of a cluster of piles and a pile cap with one large-diameter monopile.

Monopiling is not a new concept but this is the first time it has been applied in the context of constructing a viaduct. During the Reservoir planning phase an opportunity was identified to utilise this technique to reduce the number of occupations required during construction, resulting in cost savings, reduced installation hours and network disruption. The replacement of the traditional pile cap method significantly improved

the constructability and safety through elimination of hazards associated with constructing pile caps. Where ground conditions are suitable, Monopiling is an innovation that can be used industry-wide.



Figure 57. Monopiling at Reservoir station



CASE STUDY

Project Sustain

Project Sustain is an LXP Initiative building on the LXP Sustainability Strategy 2019-2023 which involves practical delivery of materials and energy initiatives. All LXP Alliances are participating and each alliance has chosen an initiative to work on.

North Western Program Alliance is working on utilising materials in pavements that have low embodied emissions and/or are sustainably sourced from recycled products. These include options such as polymers, EMESH, plastics, Supplementary Cementing Materials, recycled glass, reclaimed asphalt pavement, crushed concrete, etc.

These pavements will aim to be designed in a way that makes the way pavements more environmentally friendly, for example, making pavements permeable, including solar pavements and energy generating pavements.

Vision of Project Sustain:

Use the power of the NWPA Program to drive sustainability innovation and lessons learnt, including:

- Identify key interfaces to drive efficiency
- Engage senior management
- Empower project teams and individuals
- Communicate sustainability benefits
- Integrate sustainability team across design and delivery.

Case Study





10:37 City Loop	PLAT	1	1
Stops All	PLAT	1	22
10:57 City Loop	PLAT	2	12
Stops All	PLAT	2	29
10:44 Upfield			
Stops All			
11:04 Upfield			
Stops All			



GPS Tracking of U-Troughs

Traditionally, delivery information of large structural elements were coordinated through sporadic phone calls between site team and suppliers. This resulted in inefficiencies when delays and issues were encountered during delivery.

To create a more seamless solution, GPS/4G trackers were individually placed on large structural elements (such as L beams and rail bridge components) from the precast yard to site to enable real time tracking. The project team went beyond the typical practice of including trackers only on haulage trucks, and individually attached GPS trackers on each structural element using specialised magnets. This enabled the

team to get detailed data on location of individual elements every 90 seconds.

This initiative resulted in energy savings from efficient use of plant and equipment on site and allowed the team the ability to immediately identify any issues caused by delivery to reduce community disruptions on local roads. In addition, the team could track progress from home during COVID-19 lockdown.

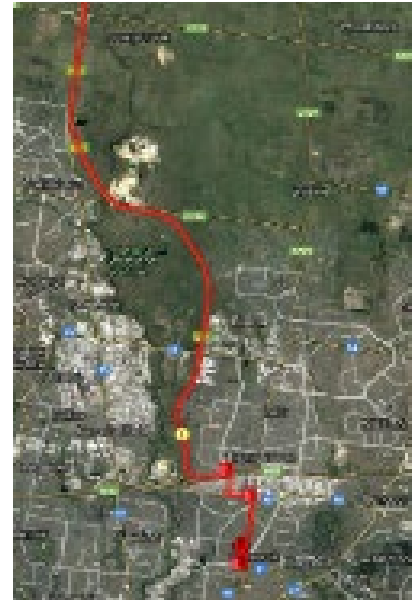


Figure 58. Trip tracked and displayed with in Telematics Guru



Figure 59. L beam delivery to B2M site

Metering and Monitoring

This innovation is the implementation of electrical and water sub-meters into the MTM (station operator) system at the train station. This gives MTM the capability to remotely monitor the performance of their assets in real-time. The data is automatically and securely transferred to a central MTM repository, which will provide a web-portal for MTM's corporate Environmental Team.

This allows MTM to track electricity and water usage and identify where usage is coming from, resulting in the ability to increase efficiencies and achieve greater economic and environmental outcomes. This remote capability is currently not available at any other station in Victoria.

Reservoir station is the first in the Melbourne metropolitan train network to implement remote electrical and water monitoring at the sub-metering level, and hence it has been recognised by the Green Building Council of Australia as an innovation. The project has shared this innovative solution with other level crossing projects so that it can be rolled out in all future stations.

The main sustainability, environmental, social and economic benefits that come from using the Metering and Monitoring initiative include:

- Usage information obtained from sub-meters will allow MTM to recognise trends of wasteful behaviour at their stations and assist in the identification of faults
- Sub metering coupled with green infrastructure installed at station sites (e.g. rainwater harvesting systems) will assist in achieving major environmental and sustainability outcomes for all future projects. In the case of Reservoir station, this could be up to 188.4 kL of potable water savings and 58,663 kWh of electricity savings per year. As a result, MTM has the potential to decrease their carbon emissions by approximately 63.4 tonnes
- This initiative will replace an outdated monitoring and reporting system and will produce more accurate and frequent results with less reliance on resources to gain required data from site or wait for monthly/ quarterly billing totals
- This initiative promises to be a major step in achieving the outcomes associated with the continuous monitoring of the network's performance, which will help achieve the goals MTM have committed to in their Environmental and Sustainability statement
- Meter data can be used to increase response times for fault detection and will improve efficiency in the usage reporting process
- Time and cost savings will be realised through the adoption of the standard hardware list and installation methodology for metering and monitoring designs
- System will allow the identification of operations and maintenance improvements which can improve the efficiency of the station for up to 45% for electrical monitoring.

Recycled Glass Fines Trial

About 1.5 million tons of municipal glass waste is generated annually in Australia, of which only about two-thirds is recycled. The stockpiles of recovered glass in Victoria are estimated at over 300,000 tonnes.

To address this issue, the Alliance has partnered with the University of Melbourne, Hansen and Sustainability Victoria to trial replacing virgin sand with glass fines in concrete at High Street, Reservoir. This is a key step in a longer-term aim to support the Victorian Government's Recycled First policy, by reducing demand for virgin sand (which has limited quarries around Melbourne) and facilitating a new use for a problematic waste stream.

A successful trial was completed in October 2020, on the Shared User Path at Reservoir station. Samples from the concrete poured on site have been analysed by the University of Melbourne. In summary, the results are very positive, with only minor engineering property differences found between sand and glass fines. This demonstrates the viable potential of using unwashed recycled glass as a replacement material for virgin sand.

Results from this trial will inform the update of the VicRoads concrete specifications and standards, facilitating the use of waste glass fines in concrete application on infrastructure projects in Victoria.



Figure 60. Unwashed recycled glass fines concrete pour at Reservoir station Shared User Path (SUP)



EDWARDS STREET →

EDWARD BUTTON

WHAT'S NEXT

There are exciting plans for 2021, with the Alliance starting construction of Preston and Glenroy level crossing removal projects. Innovative new initiatives are being targeted for these projects and others under development.

Some of our key sustainability goals for 2021 include:

- Prioritising indigenous co-design in the design process
- Continuing to develop our social procurement initiatives
- Continuing to further embed diversity and industry capability and inclusion as business as usual processes
- Finalising sustainability requirements into the procurement and management processes
- Expanding our innovation and initiatives to keep up with world-class research and development including the Project Sustain energy and material initiatives
- Continuing to work with our stakeholders and communities to form great partnerships to deliver great places, respecting the past and leaving a legacy for future generations.

Moreland station



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Sustainability Performance

The following table outlines the performance NWPA has made against the sustainability objectives and targets.

-  Fullfills target
-  On track to fullfil the target
-  Does not fullfil the target
-  Does not fullfil the target but meets its intent

Theme	Objectives	Target	Status to date			
			Reservoir	Bell to Moreland	Glenroy	Preston
Governance	Be accountable and transparent on sustainability performance	Undertake annual reviews on sustainability performance and report publicly				
	Have accreditation to ISO 14001 (Environment), ISO 9001 (Quality) and AS/NZS 4801 (OH&S) and will regularly monitor performance	Report sustainability performance quarterly to senior management				
Energy and carbon	Strive for lower carbon transport	Optimise integration with sustainable access modes including walking, cycling, bus and tram networks				
	Reduce energy emissions and carbon footprint during both construction and operation	Achieve at minimum a 15% reduction in carbon emissions associated with construction and operations when compared to BAU				
		Design buildings to achieve at least a 10% improvement over performance requirements set out in the National Construction Code (NCC), Australia's primary set of technical design and construction provisions for buildings				
	Support innovative and cost-effective approaches to energy efficiency, low carbon/renewable energy sources, and energy procurement	Investigate all avenues for renewable energy supply for both construction and operation				

Theme	Objectives	Target	Status to date			
			Reservoir	Bell to Moreland	Glenroy	Preston
Environmental performance	Avoid, minimise and offset harm to the environment and loss of biodiversity	Minimise environmental impacts, sources of pollution and environmental nuisance during the works				
	Protect and conserve the natural environment	Comply with or exceed environmental obligations for the project				
Climate change	Infrastructure, operations and construction will be resilient to the impacts of climate change	Mitigate all extreme and high-priority climate change risks				
		Treat a minimum of 50% of medium-priority risks				
Water efficiencies	Minimise potable water consumption	Reduce water consumption in construction and operation compared to BAU				
		Minimise potable water consumption in construction and operation compared to BAU				
	Maximise opportunities for reuse of rainwater, stormwater, wastewater, groundwater	Investigate rainwater harvesting and reuse systems at construction sites and all stations				
Waste	Minimise waste through project lifecycle and maximise beneficial reuse of spoil	Recycle or divert from landfill: <ul style="list-style-type: none"> • 80-100% by volume of spoil; • 50-90% by volume of inert and non-hazardous waste; and • 40-60% by volume of office waste. 				

Theme	Objectives	Target	Status to date			
			Reservoir	Bell to Moreland	Glenroy	Preston
Materials	Reduce materials impacts through sustainable materials selection	Maximise the use of Australian made steel products where possible in line with local content targets				
		5% reduction in materials lifecycle environmental impacts compared to a base case footprint				
		Aim to source materials with an ISCA-approved environmental label				
		Procure concrete with high recycled content (supplementary cementitious material, aggregates) where practical and allowed by standards				
Biodiversity	Protect and create biodiversity through appropriate planning, management and financial controls	Minimise vegetation clearing				
		Maximise native landscaping				
Heritage	Protect and promote heritage through appropriate design, planning and management controls	Maximise opportunities for archaeological research and future interpretation of archaeological finds				
		Opportunities for heritage interpretation identified and implemented at appropriate station precincts				
Liveability	Promote improved public transport patronage by maximising connectivity and interchange capabilities	Stations and precincts designed in accordance with the LXP Urban Design Guidelines				
	Provide well-designed stations and precincts that are comfortable, accessible, safe and attractive	Implement initiatives which will provide tangible benefits to local community groups during the construction period and beyond the construction period				

Theme	Objectives	Target	Status to date			
			Reservoir	Bell to Moreland	Glenroy	Preston
Workforce	Increase opportunities for employment of local people, participation of local businesses	Utilise apprentices, trainees or engineering cadets for at least 10% of all hours worked				
		Ensure that at least 2.5% of all hours worked are undertaken by Aboriginal or Torres Strait Island employees				
Sustainable Procurement	Influence contractors, subcontractors and materials suppliers to adopt sustainability objectives in their works and procurement	All contractors to be requested to provide their sustainability policy and details of implementation				
		Tendering processes will encourage subcontractors to identify, develop and implement sustainable procurement innovations and opportunities				
		Pre-award evaluation to be utilised to assess sustainable performance of contractors prior to contract award				
		Subcontractors required to report against sustainability targets monthly				
		Social procurement targets: Aboriginal and Torres Strait Islander engagement target is 2.5% of labour hours				
		Major Project Skills Guarantee (MPSG) is 10% of deemed hours (MPSG is hours contributed by trainees, apprentices or cadets)				
		Social procurement is a dollar target 3% of project budget which includes spends with social enterprises, aboriginal businesses and employment and training costs of marginalised and underrepresented groups				

Theme	Objectives	Target	Status to date			
			Reservoir	Bell to Moreland	Glenroy	Preston
Innovation	Encourage the pioneering of innovation in sustainable design, process or advocacy that seeks continuous improvement to promote new ideas and thinking	Provide positive and active contribution to all the Level Crossing Alliances				
Community	Support and enhance social, cultural and community wellbeing	Ensure community and local stakeholder engagement and involvement in the development of the project				
		Create opportunities for local business involvement during the delivery phase				
		Minimise negative impact on the community and local businesses during construction and operation				