

North Western Program Alliance

2022 Sustainability Report

Inspiring Excellence





*The new and improved
Preston Station*

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Acknowledgment of Country

The Alliance acknowledges the Wurundjeri Woi-wurrung People and the Boon Wurrung people of the Kulin nation who are the traditional custodians of the land on which we work.

The Alliance would like to pay its respect to Elders past and present, and extend that respect to all Aboriginal and Torres Strait Islander peoples.





Baliyang the bat

The Oakover Green space tells the story of Baliyang the bat (creator of women) thumping its wings over water, until the water thickens into mud and two bagrooks (women) suddenly emerge.



Message from the Alliance General Manager

Stephen Shaddock

NWPA continues to lead the way in developing and implementing great sustainability outcomes across the program.

Our success in sustainability is due to our passion and commitment to delivering superior outcomes in the infrastructure we build and the legacies we leave.

Our approach to sustainability initiatives is being recognised by the wider industry. We were successful at the coveted National Banksia Sustainability Awards for our Bell to Moreland project, winning the award for Future Places. We were also successful in taking home the prize for the Industry Leader award in the Sustainable Places and Destinations category at the Premier's Sustainability Awards.

These industry achievements speak for themselves, but they don't come easily. Transforming rail corridors, improving traffic congestion and providing vibrant, sustainable and urban solutions for our local communities is what drives us every day.

We often talk about the Power of the Program governance framework which enables us to improve and mature each of our initiatives with every project we deliver. This was true for both our Glenroy and Preston projects, which were largely completed in 2022 with excellent sustainability credentials, including significant energy reductions and outstanding improvements to ecological value.

At NWPA we have a dedicated Sustainability team who consistently strive for continuous improvement and excellence. Embedding dedicated resources into our Development phase, brings an improvement focus from the beginning, and strengthens our ability to realise step change initiatives that not only benefit the LXP program of works, but can be adopted by the wider industry.

There is no limit to our thinking on what is possible for current and future projects.

We make today's achievements, tomorrow's norm. Every project offers opportunities just waiting to be realised, which ultimately benefits the communities within which we work.



**Alliance General Manager
- Stephen Shaddock**

Message from the Director, Transformation & Sustainability

Fiona Bowie

We are always looking for new ways to deliver low carbon, resilient and inclusive infrastructure that leaves an enduring legacy.

Glenroy and Preston were the key projects on our 2022 agenda. Our focus revolved around creating vibrant communities, while actively working towards minimising carbon emissions through efficient energy usage and smart materials design.

In 2022, LXP nominated NWPAs as 'the sustainability champion' of the Program. We accepted this call-to-action and began leading an industry changing initiative, championing the use of recycled materials in our urban precincts.

Through knowledge sharing and collaboration we can maximise the benefits of sustainability opportunities. We have openly shared deeply valuable and granular knowledge about our triumphs and setbacks throughout the industry. This has resulted in remarkable partnerships and the wider uptake of sustainability initiatives.

We continue to work with the industry as a whole to grow needed capabilities and inspire sustainability excellence.

As the Director, Transformation & Sustainability, I am shifting our immediate attention to harnessing intelligent engineering solutions to significantly reduce our carbon footprint, with close collaboration between our dedicated engineering and sustainability teams.

I am inspired every day by our driven and talented NWPAs team who have delivered truly excellent sustainable outcomes. I'm proud to share some of our highlights and achievements from 2022.



Director, Transformation & Sustainability – Fiona Bowie



Glenroy Station

A photograph of a modern building interior, likely a transit station. The scene features a wide staircase with metal railings leading upwards. The walls and ceiling are composed of large, perforated metal panels. Several rectangular glass panels are integrated into the structure, some of which are illuminated from within, casting a warm, colorful glow in shades of yellow, orange, and pink. A tall, slender light pole with a circular ring at the top is visible on the right side. The overall atmosphere is bright and contemporary.

Coloured glass shining bright at Bell Station

About this Report

NWPA 2022 Sustainability Report

North Western Program Alliance's (NWPA) 2022 Sustainability Report incorporates the Global Reporting Initiative (GRI) Index to robustly frame its sustainability performance.

This report encompasses the key social, environmental and economic achievements of projects in delivery or completed during 2022. It highlights a number of case studies from Glenroy and Preston level crossing removal projects that demonstrate NWPA's sustainability excellence.

NWPA's sustainability vision includes the Level Crossing Removal Project's (LXRP) five strategic objectives, which are known to the Alliance as 'the Five Greats'.

The Five Greats include:

- Great Places
- Great People
- Great Engagement
- Great Partnership
- Great Network

The Five Greats are part of NWPA's holistic and multidimensional sustainability strategy; on all projects we aim to achieve broad, long-term benefits for the environment and the community.

About the Level Crossing Removal Project

The Level Crossing Removal Project (LXRP) was established by the Victorian Government to lead one of the largest rail infrastructure projects in the state's history. LXRP is part of the Major Transport Infrastructure Authority and falls under 'Victoria's Big Build'.

In 2022, LXRP announced the removal of an additional 25 level crossings across metropolitan Melbourne, resulting in a total of 110 level crossings targeted to be removed by 2030. This is in addition to other rail network upgrades such as new train stations, track duplication, and tram maintenance facilities, to bring greater safety, traffic improvements and connection to the growing communities of Melbourne.

LXRP's Sustainability Vision aims to achieve excellent environmental, social and economic outcomes across all phases of a project. This ensures the delivery of an integrated program that connects the community in an environmentally sustainable manner. Importantly, as a member of the Infrastructure Sustainability Council of Australia, LXRP endeavours to obtain an independent Infrastructure Sustainability Rating for appropriate projects.

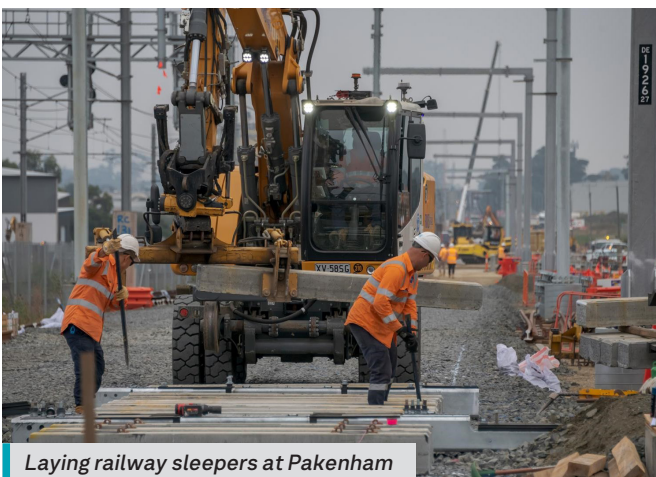
To achieve its Vision, LXRP is focused on three areas – aligned with eight United Nations' Sustainable Development Goals – that have the greatest impact:

- Materials and Energy: Reducing program-wide emissions and environmental impact from materials and energy use.
- Climate Resilience: Building climate resilient infrastructure by considering climate risks in design, construction and operation.
- Liveable Communities: Creating places that support liveability by contributing to a safe, reliable and affordable transport network, promoting public health and improving air quality.

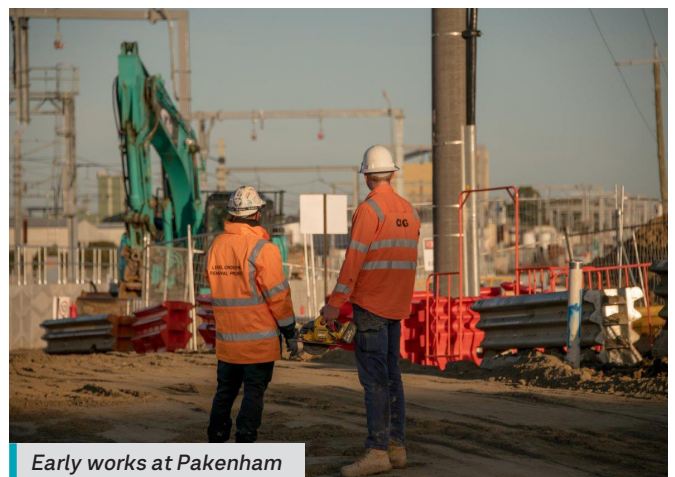
LXRP's sustainability strategy is based on the principle that embedding sustainability practices during the planning phase, is the best way to achieve positive outcomes for local and global communities.



Three focus areas: Materials and Energy, Climate Resilience & Liveable Communities



Laying railway sleepers at Pakenham



Early works at Pakenham



An early morning view over Bell Station



About the Alliance

NWPA consists of John Holland (JH), Kellogg Brown & Root (KBR), Metro Trains Melbourne (MTM) and LXRP, and is one of five alliances delivering the LXRP program of works.

NWPA was established in early 2017 to deliver level crossing removals predominately on the north-western rail corridor (Craigieburn and Upfield lines) and additional works required to facilitate broader network upgrades. Our purpose is to make a real difference to the lives of people within the communities we work.

NWPA Vision and Values

Our vision is to be the most creative, engaged and enthusiastic team, building better places for Victorians to live, work and enjoy.

The NWPA values of Care, Empowerment, Creativity and Excellence are applied across all phases of the project lifecycle. The work we deliver provides many benefits to the community – improving road safety and congestion, increasing capacity to run more trains on the network, and connecting communities through well-designed open spaces.

We are proud to say that our values-driven projects are contributing thousands of job opportunities and leaving a legacy that can be enjoyed by local communities today and by generations to come.

NWPA Sustainability Approach

NWPA delivers projects that achieve a great social, environmental and economic legacy, in alignment with the objectives of the United Nations' Sustainable Development Goals (SDGs). Our strategic and resilient approach aims to address and mitigate existing and emerging sustainability challenges, as well as realise opportunities for sustainability innovation. We do not take lightly the key role we play in building sustainability capability and commitment for the rail infrastructure environment and our local communities.

NWPA understands that urban design and transport infrastructure must be inclusive – tailored to the needs of the community. We actively engage with stakeholders to ensure our projects meaningfully contribute to a sense of community connection. Our efficient construction and operational resources create accessible and well-designed station precincts and open spaces that enhance wellbeing.

Our Purpose
 We make a real difference to the lives of people on the Alliance and in the communities in which we work

Our Vision
 We strive to be the most creative, engaged and enthusiastic team, building better places for Victorians to live, work and enjoy

Care
 We care about each other, we listen, and operate with a generosity of spirit

Empowerment
 We own our roles, trust and support each other

Creativity
 We approach our work with curiosity, an open mind and optimism

Excellence
 We operate with teamwork and integrity to deliver excellence

Our purpose, vision and values

Key Result Areas (KRAs)

For NWPAs, achieving excellence across our KRAs mean the difference between making a profit or a loss. Our commitment to the KRAs drives trust, demonstrates alignment with LXP, and builds a reputation for exceptional project delivery.

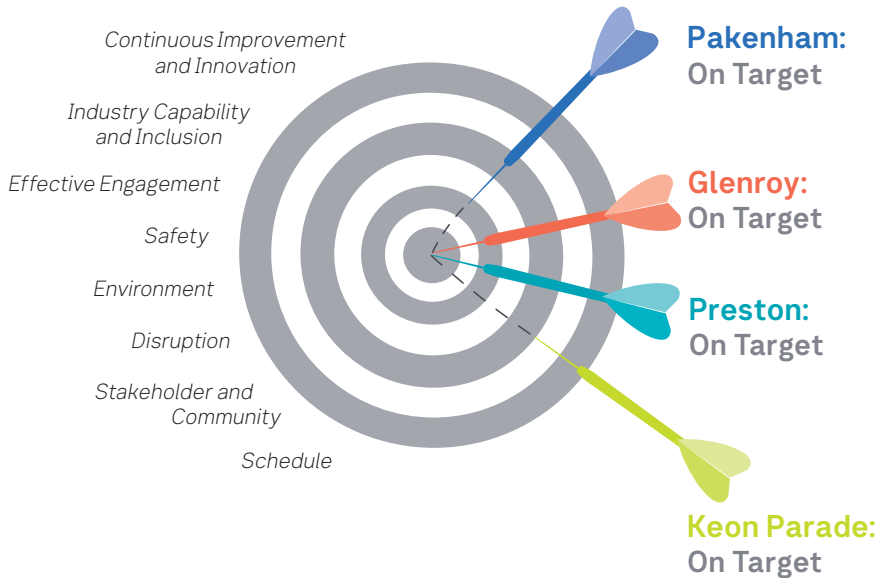
NWPA has eight KRAs that drive maximum performance **and value for money** across **all aspects** of the LXP program.

Three of these are 'program' KRAs which guide the operation of all LXP alliances, including:

- Continuous Improvement and Innovation
- Industry Capability and Inclusion
- Effective Engagement

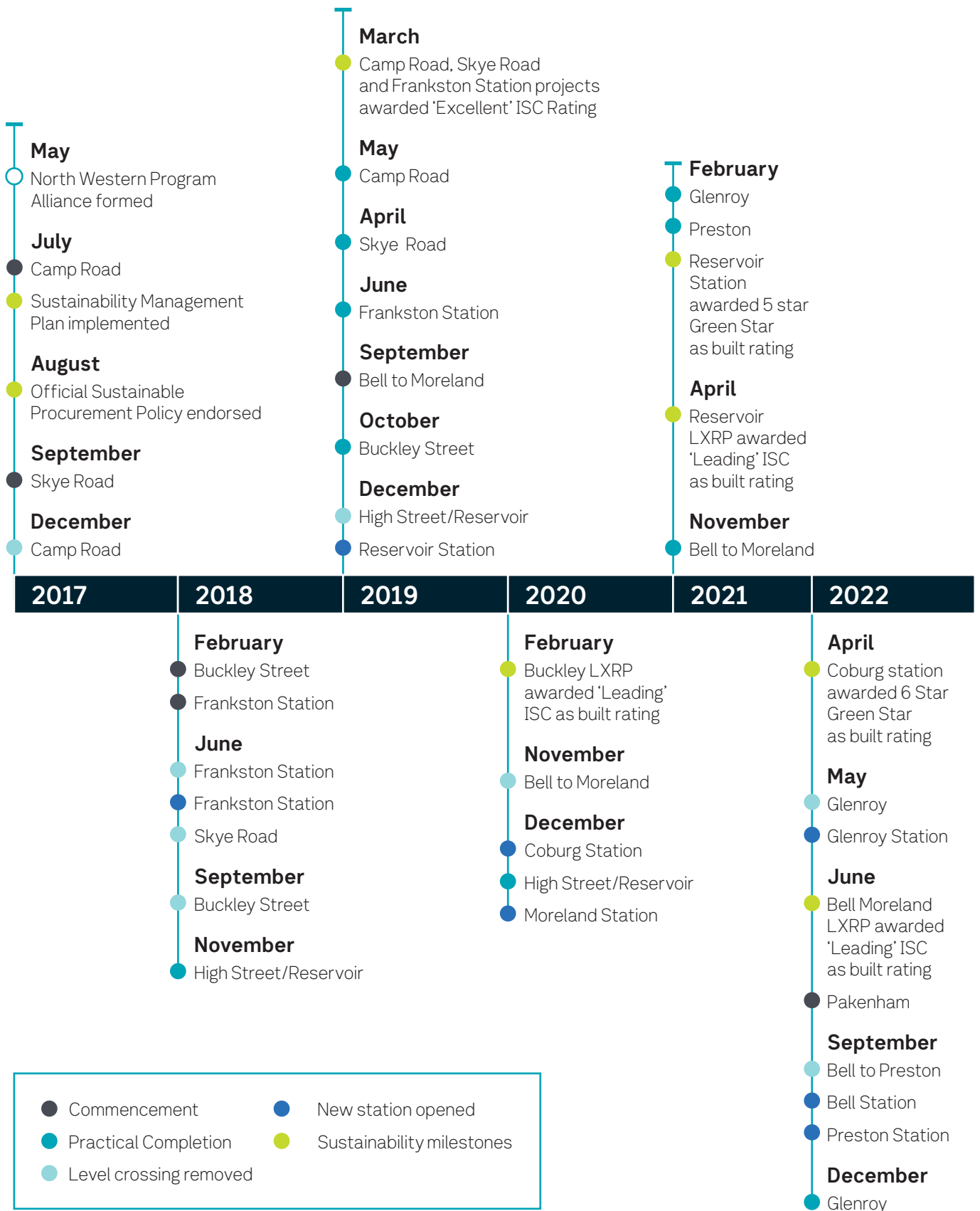
There are also five 'package-specific' KRAs, which guide the delivery of each project:

- Safety
- Environment
- Disruption
- Stakeholder and Community
- Schedule



Key Result Areas	Pakenham	Glenroy	Preston	Keon Parade
Program KRAs: Continuous Improvement and Innovation, Industry Capability and Inclusion, Effective Engagement.	On Target	On Target	On Target	On Target
Package-specific KRAs: Safety, Environment, Disruption, Stakeholder and Community, Schedule.	On Target	On Target	On Target	On Target

Our History



Inspiring Excellence

2022 was a big year for NWPA. Driven by the strategic mandate to be the ‘Sustainability Alliance’ on behalf of LXRP, NWPA has worked hard to inspire sustainability excellence in the industry – to empower, collaborate and advocate for sustainable outcomes.

The NWPA Sustainability Team oversees the targeting of step change innovations, while concurrently embedding previous innovations into new projects. Building on the industry-leading sustainability outcomes achieved in 2021, the team continues to deliver infrastructure that incorporates complex sustainability innovations, setting new benchmarks for wider industry practice.

The team has lead the way in recycled product use in construction, including eMesh and ECOPact at Glenroy (a carbon neutral concrete mix using recycled plastic reinforcing fibres), and PolyPave in asphalt at Preston.

NWPA's commitment to utilising recycled products aligns with the Victorian Government's 'RecycledFirst' policy which aims to:

- optimise the use of recycled and reused materials within major transport projects
- build a better understanding of the types, volumes and location of recycled and reused material
- support innovation.

NWPA is breaking new ground in the sourcing of funding for innovative sustainability initiatives on its projects. In 2022, one of NWPA's projects was awarded a grant through the Circular Economy Markets Fund: materials (administered by Sustainability Victoria) to trial the novel inclusion of recycled tyre rubber into permeable pavement, to be delivered in 2023.

NWPA won multiple awards in 2022, in recognition of sustainability excellence.

NWPA's efforts were formally honoured by the Green Building Council of Australia (GBCA), the National Association of Women in Construction (NAWIC), the Infrastructure Sustainability Council (ISC), and the Victorian Premier's Awards. These are outlined in more detail on page 19.

NWPA takes seriously its responsibility to empower industry partners to pursue sustainable solutions and advocate for systemic and resilient change. Throughout 2022, NWPA actively engaged with government

and industry to achieve alignment and realise efficiencies in the context of the market's accelerating sustainability transition. NWPA presented at multiple conferences: two presentations at ISC, a presentation and panel at AusRail, and a presentation at GBCA.

By pioneering innovative sustainability practice and garnering recognition for this, NWPA is creating broad industry awareness and support for forward-thinking sustainability strategy. NWPA's associates are inspired to follow suit – to deliver excellence in sustainability.



PolyPave Asphalt at Preston



The 34th Banksia National Sustainability Awards

What we did in 2022

Across four projects, nine level crossings, five new stations and an abundance of sustainable urban solutions, we connected communities.

Glenroy Level Crossing Removal Project

The boom gates are gone – we have successfully lowered the rail line under Glenroy Road, marking the 60th level crossing to be removed as part of LXRPs program of works. The Glenroy ground-level premium station now boasts state-of-the-art safety and accessibility features and a comfortable waiting room with stunning city views. The precinct has improved community connection, with criss-crossed pedestrian and bicycle paths and stunning landscaped forecourts, connecting Hartington Street to Dowd Place for the first time. We are proud to have made Glenroy safer, less congested and revitalised.

Preston Level Crossing Removal Project

At Preston, we have removed level crossings at Oakover Road, Bell Street, Cramer Street and Murray Road. The brand-new Preston and Bell Station precincts are hugged by vibrant and accessible public open spaces respecting both Aboriginal and European heritage and feature seating, play and BBQ areas and an abundance of native plant life. Previously divided by the rail corridor, the precinct's eastern and western areas have been connected by a shared walking and cycling path from Oakover Road through to Murray Road. Connecting local neighbourhoods through sustainable and inventive urban solutions has always been one of NWPAs main drivers.



Glenroy Station at dusk



Preston Station

Pakenham Level Crossing Removal Project

Currently in delivery phase, the Pakenham level crossing removal project will replace three level crossings with a 2.5km elevated rail bridge that will allow space underneath to create NWPAs signature community open spaces. The new stations we are building at both Pakenham and East Pakenham will revitalise the area, improve safety, reduce road congestion and allow more trains, more often. We are excited to create open, inclusive and engaging spaces that enable intermodal connectivity and activity hubs for the benefit of the community.

Keon Parade Level Crossing Removal Project

Awarded in October 2022, the Keon Parade level crossing removal project will deliver a 750-metre long rail bridge and a brand-new Keon Park Station with state-of-the-art facilities. The vibrant, modern Keon Park Station precinct will feature extensive walking and cycling paths and abundant landscaping. It will be located on the south side of Keon Parade, providing increased safety and accessibility while strengthening the connection between neighbourhoods, local shops, cafes and eateries.



Pakenham Station progress



Keon Parade project launch and Smoking Ceremony

2022 Awards

Winning Entries



Bell to Moreland

Industry Leader Award for Sustainable Places and Destinations, The Premier's Sustainability Awards (Victoria)



Bell to Moreland

Great Places Award, Planning Institute of Australia (PIA) Excellence Awards



Bell to Moreland

Award of Excellence (Infrastructure), Victorian Landscape Architecture Awards



Bell to Moreland

Future Places award, Banksia Sustainability Awards

People



Dev Chandraratne

(Sustainability Advisor)

Green Building Council of Australia's 2022 Future Green Leader of the Year



Dev Chandraratne

(Sustainability Advisor)

Winner of the Young Achiever Award, The National Association of Women in Construction (NAWIC) Awards



Fiona Bowie

(Director, Transformation & Sustainability)

Runner Up for the Sustainability Champion Award, ISC Awards

Finalists



Bell to Moreland

Infrastructure Project Excellence Award, Australasian Rail Industry Awards (ARIA)



Bell to Moreland

Engineers Australia Project Excellence Awards (Victoria)



Bell to Moreland

Excellence in Social Outcomes category, ISC Awards



Bell to Moreland

Sustainability and Environment Excellence category, ARIA



Glenroy

Project of the Year category, John Holland Awards



NWPA

Team of the Year category, John Holland Awards

Sustainability Ratings



Coburg Station

6-Star Green Star rating in Building Design & Construction
Category: World Leadership



Bell to Moreland

Leading ISC rating for as built
Leading score of 98 for as built



City view from Preston Station



Locals enjoying the new shared use path at Glenroy



Recognition of Sustainability Excellence on the Bell to Moreland Project

2022 Premier's Sustainability Awards

Winner 'Sustainable Places and Destinations'

The Premier's Sustainability Awards are an annual celebration of the trailblazers leading the way in Victoria's transition to a circular, climate-resilient economy. The awards are delivered by Sustainability Victoria on behalf of the Victorian Government and the Premier of Victoria, Daniel Andrews.

In 2022, NWPAA was recognised as the Industry Leader in the 'Sustainable Places and Destinations' category for the Bell to Moreland level crossing removal project, which transformed a divisive rail corridor in Melbourne's inner north, into a vibrant and active urban precinct, promoting community health, inclusion, resilience and a sustainable connection to nature.



Fiona Bowie accepts the Premier's Sustainability Award for Sustainable Places and Destinations

A cyclist enjoying the new separated use path at Moreland Station



34th Banksia National Sustainability Awards

Winner 'Future Places Award'

Australia's longest running and most prestigious sustainability awards, the Banksia National Sustainability Awards recognise leadership in biodiversity, climate change, and First Nations people, reinforcing the diversity of sustainability with over 15 categories.

NWPA was recognised as Industry Leader in the 'Future Places' category for the Bell to Moreland project. Design decisions were informed by community feedback and stakeholder collaboration, resulting in the creation of over two Melbourne Cricket Grounds worth of new public space, 2.5km of shared use paths enabling active transport, innovative landscaping to encourage biodiversity, and conscious design for better place-making.

The project's sustainability outcomes were rated amongst the highest ever by the Infrastructure Sustainability Council and Green Building Council of Australia.

NWPA is proud to have delivered a sustainable community precinct which can be enjoyed by current and future generations.





Preston Station – open space

Sustainability Approach

Sustainability has been at the centre of NWPAs project development and delivery over the past six years, which has seen the removal of thirteen level crossings and the construction of seven new rail stations, with a further three projects underway at the end of 2022.

In the 2021 Sustainability Report, NWPAs described our approach, which involves analysing trends every six months to develop innovations and address emerging priorities on each new project – an inventive way to continually improve methods of implementation, build long-term partnerships and target step change innovations. We call this the ‘Power of the Program’ approach to sustainability.

Leveraging the success and lessons learnt from the ‘Power of the Program’ approach, NWPAs developed a sustainability approach that embeds sustainability concepts into project development and design phases and aligns more closely with the engineering function to drive long-term, meaningful change. This also means that the delivery of tried and tested sustainability initiatives is streamlined into day-to-day activities, freeing up our team to quickly identify and realise innovation opportunities as they arise.

NWPAs is driven to continue to transfer lessons learnt and implement new initiatives.

We will not stop raising industry sustainability benchmarks and pushing boundaries to achieve our vision of building better places for Victorians to live, work and enjoy.



Preston Station – shared use path



Preparation for landscaping work on the western side of Glenroy Station



Preston Station - open space

Measuring Sustainability Performance

NWPA is dedicated to achieving the utmost excellence in economic, social, and environmental sustainability, across all aspects of its program.

This includes decision-making, implementation, and performance monitoring. Measurement of performance is the foundation of good sustainability management. Through a strong performance management framework, we are able to progressively establish new sustainability baselines from which to measure our operational performance against. This enables us to ensure excellence, safeguard continuous improvement and target inefficiencies and non-conformances. We measure, manage and strive to improve in all aspects of our project lifecycles.

The NWPA project teams aspire to create long-term value for communities by supporting the objectives of the United Nations' SDGs as well as benchmarking against leading sustainable rating tools, notably the Infrastructure Sustainability (IS) Rating Scheme delivered by the Infrastructure Sustainability Council (ISC). Refer to Appendix 1 for the progress we have made against the sustainability objectives and targets.

With each new project, we aim to surpass the performance achieved on the last.



Landscaping on the western side of Glenroy Station

Sustainability Performance Outcomes

We use the United Nations' SDGs, IS Rating Scheme and Station Design and Performance Requirements to benchmark and measure our sustainability outcomes.

United Nations' Sustainable Development Goals (SDGs)

The SDGs came into effect in January 2016 and form a blueprint to achieve a better and more sustainable future for all. They address global challenges, including those related to poverty, inequality, climate, environmental degradation, prosperity, peace and justice. NWP is progressively incorporating the SDGs into relevant documentation, plans and reports as a point of reference to deliver strong performance outcomes.

Infrastructure Sustainability (IS) Rating

Developed and administered by ISC, the IS Rating Scheme is the industry standard in evaluating the social, environmental, governance and economic performance of infrastructure. It covers all aspects of infrastructure projects – planning, design, procurement, construction, operations and maintenance.

With its standardised benchmarks and independent third party assured data, the rating scheme is able to provide a common language for best practice sustainability in infrastructure across Australia, New Zealand and beyond.

The scheme helps build an organisation's sustainability credentials and reputation by promoting commendable instances of continuous improvement and innovation to its global audience.

The IS Rating Scheme continues to adapt to industry growth, with iterative changes incorporating new tools and meeting shifting performance thresholds.

Station Design and Performance Requirements

Infrastructure projects are driven by sustainability performance outcomes. NWP conducts assessments to evaluate our sustainability performance during the design, delivery and operational phases of a project.

These assessments are informed by both the LXRP and NWP Sustainability Policies, as well as best-practice building standards, and are then verified by Technical Advisors engaged by LXRP.

Equipped with this approach, the project team gains further insights on opportunities for improvement and alignment with project Key Performance Indicators (KPIs) and NWP's values.

The Alliance promotes sustainable transformation of the built environment by assessing a project's performance against the following objectives:

- Reduces the impact of climate change.
- Enhances health and quality of life.
- Restores and protects the planet's biodiversity and ecosystems.
- Drives resilient outcomes for buildings, communities and homes.
- Contributes to a sustainable economy.



2022 Objectives



Waste

Lower waste throughout project lifecycle
Maximise reuse of spoil



Carbon and Energy Management

Strive for reduced carbon footprint
Increase energy efficiency over asset life cycles



Water Efficiency

Design for climate resilience i.e. Water Sensitive Urban Design
Reuse rainwater, stormwater, wastewater and groundwater



Governance

Embed sustainability into decision-making
Demonstrate performance against industry benchmarks
Be accountable and transparent



Biodiversity

Protect and create biodiversity through planning, management and financial controls



Heritage

Protect and promote heritage through design, planning and management controls



Community

Positively contribute to community health and wellbeing
Ensure local community engagement in project development



Sustainable Procurement

Encourage contractors to adopt sustainable procurement practices



Environmental Performance

Minimise pollution and environmental nuisance



Innovation

Share learnings and proposals at the Joint Coordination Committee



Materials

Reuse materials i.e. Australian made steel products
Substitute traditional materials with sustainable alternatives



Liveability

Enable and encourage walking, cycling and public transport use
Deliver an inclusive space that facilitates positive interactions
Enhance network reliability



Workforce Development

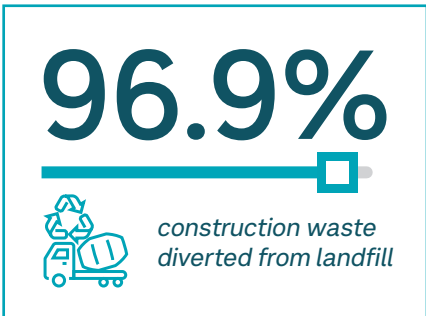
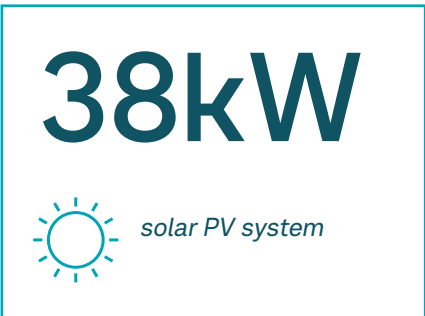
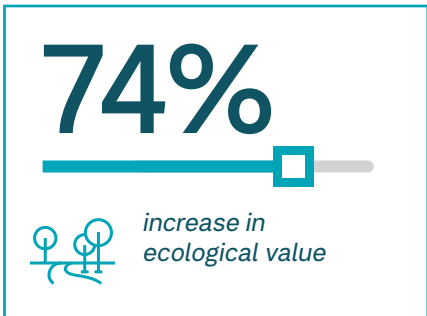
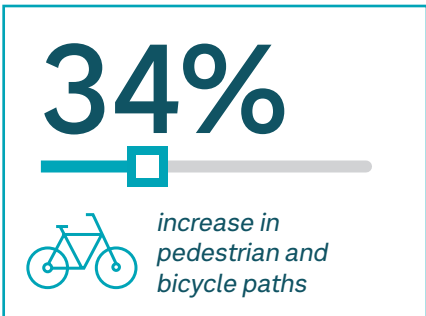
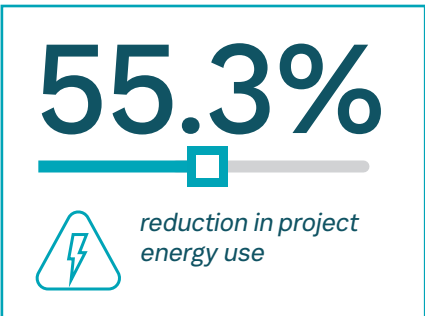
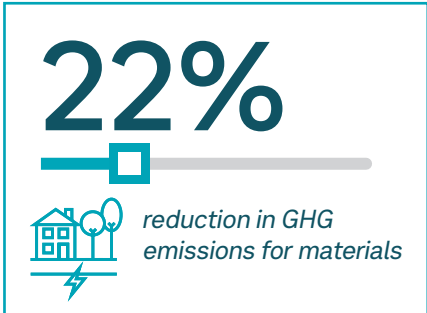
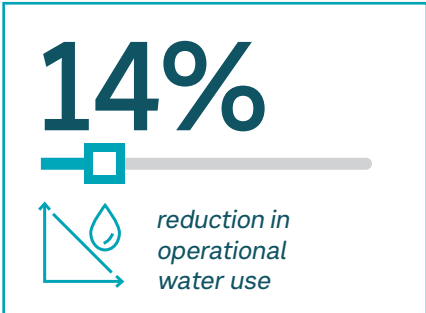
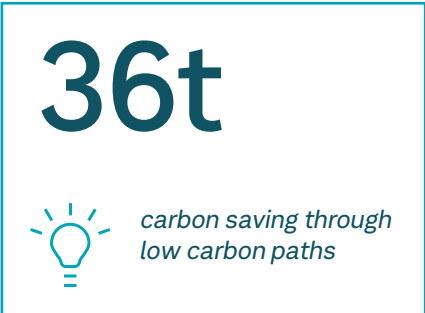
Support local businesses and employ local people



Sustainability Success for Glenroy

Following the success of the Bell to Moreland project, NWPAA again achieved a leading ISC as built rating for sustainability excellence in infrastructure, achieving outcomes that were not only 'green', but also healthy, liveable, productive, and resilient.

Seven dedicated sustainability innovations were recognised as part of Glenroy Station's rating result, including implementing ECOPact concrete with eMesh, Spoil Tracking, Concrete Maturity Testing and more.



Key sustainability outcomes of the project



Preston Station lights up at night

Sustainability Success for Preston

The Preston project delivered exceptional sustainability outcomes, including 60,000m² of new public space for the community of Preston.

Initiatives like Single-Line Running and Radiant Heat Curing were applied to maximise resource efficiency and reduce community impact. To ensure that the infrastructure was community-focused and inclusive, we integrated stakeholder participation, community health and wellbeing, heritage protection, as well as urban and landscape design throughout the delivery.

46.9%



reduction in project energy use

22%



reduction in GHG emissions for materials

105%



increase in ecological value

189%



increase in pedestrian and bicycle paths

55%



reduction in operational water use

97%



construction waste diverted from landfill



Aboriginal Design of Oakover Green - enhancement of heritage values



49t

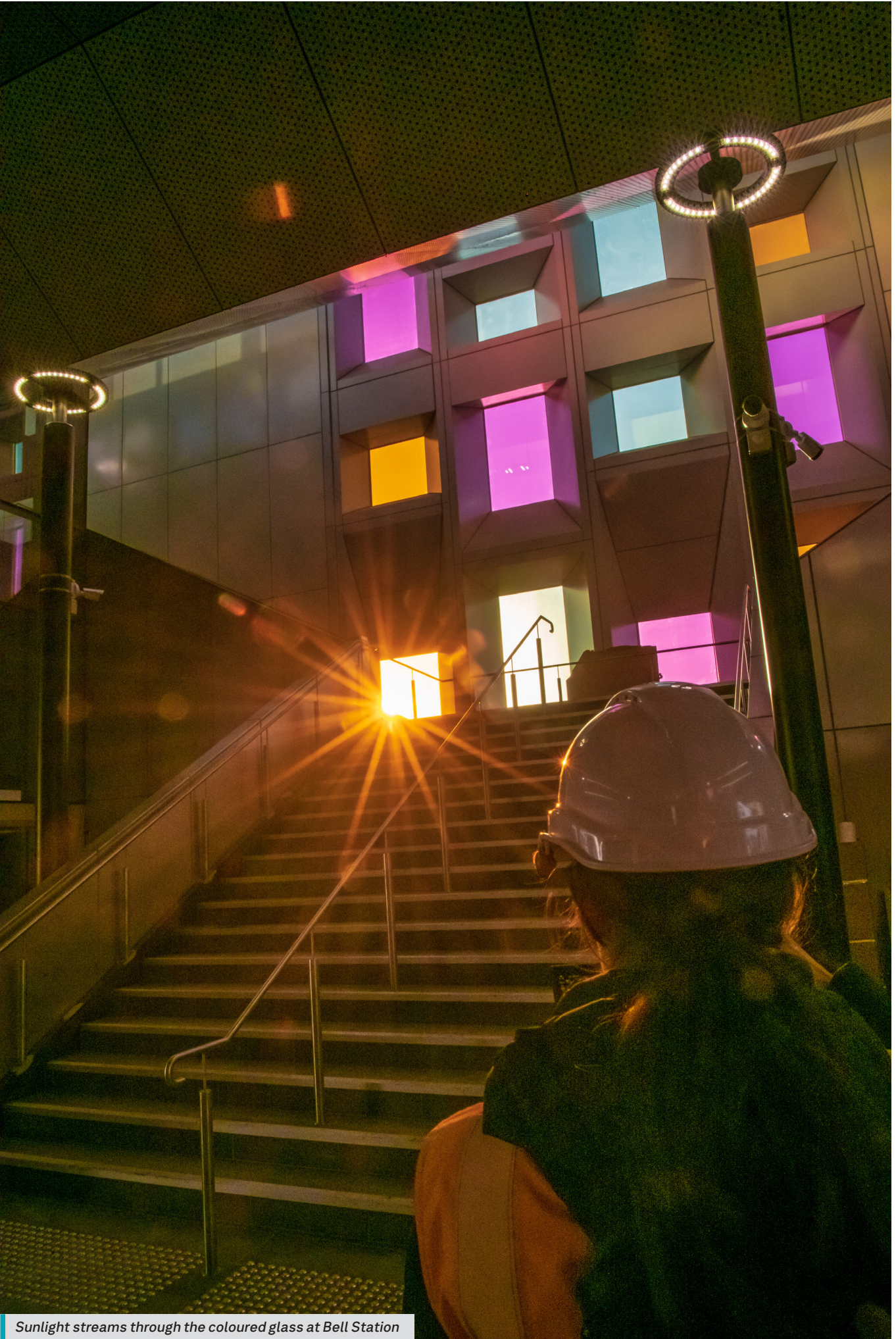
carbon saving through low carbon paths

88kW



solar PV system

Key sustainability outcomes of the project



Sunlight streams through the coloured glass at Bell Station

Landscaping on the Preston project



Strategic Objectives: The Five Greats

The Alliance recognises that surrounding ecosystems will be affected by the construction and operation of our projects. Our aim is to minimise harm to the environment and enhance local ecosystems.

In this section, NWPA highlights strategies that were undertaken in 2022 to drive Great Change for the environment, including initiatives in climate change management, resource use efficiency, waste and recycling, ecological sustainability and biodiversity.



Landscaping at Glenroy Station

Great Places: Resource Management

Climate Change Mitigation – Energy and Carbon

Solar systems in our projects

NWPA is committed to delivering renewable power solutions that provide power and climate resilience long into the future.

At Glenroy, Preston and Bell Stations, the project team installed solar systems, 38kW and 88kW respectively, comprising over 200 panels. These solar arrays were the largest installed on a NWPA project at the time.

In keeping with our continuous improvement mindset, we are doubling our solar capacity on every project.

By installing solar panels and an accompanying back up generator, the stations become more resilient buildings. They are less reliant on mains power and well-equipped to withstand power outages and other potential weather or climatic impacts.

Our on-site solar generation at Preston Station provides energy to lighting, station elevators and other amenities. This will save approximately 3,600 tonnes of CO₂e over its lifetime, a quantity equivalent to the emissions generated by 780 cars a year.



Solar on the Preston Station rooftop



Solar on the Glenroy Station rooftop



Solar on the Bell Station rooftop

Climate Change Management - Resource Use Efficiency

Glenroy Level Crossing Removal Project

After the success of water and energy monitoring strategies on the Reservoir project, Glenroy Station implemented a metering and monitoring initiative.

The initiative allows best-practice tracking of resource use throughout the station building and links with control technologies for flexible and sophisticated management of energy and water.

Through the use of a comprehensive sub-metering and remote monitoring system, operators are able to maximise energy and water productivity through analysis and reporting. The metered data is automatically and securely transferred to a central Metro Trains Melbourne (MTM) repository. Access to metered and real-time monitoring data enables MTM to track energy and water use, plan maintenance activities, minimise long-term operational costs and achieve positive climate targets.



Monitoring meters



Glenroy Station platform

Water Conservation

Water Saving Initiatives

We aim to reduce fresh water consumption during construction and operation. Therefore, identifying non-potable water sources is an essential part of early construction for all NWPAs projects.

At Glenroy Station, three rainwater tanks were installed at the crib facilities to provide non-potable water for toilet flushing during construction, and water tanks were provided for sanitary use in the final station design.

Following suit, the Preston team installed an 8,500L rainwater tank system for toilet use and washdown, reducing demand on mains water by around 55%. The installation of these tanks – to harvest and reuse rainwater for operational use – will continue to reduce water consumption long into the future.

Another key water use reduction initiative implemented during construction on both projects was the use of a dust suppressant that reduces required volume and frequency, resulting in a total of 1.98kL of water saved.



Rainwater tanks at Glenroy

Conduit Recycling at Pakenham

Combined Service Route (CSR) works are a big part of early works for our projects. Until now, old conduit pipes have been disposed of in landfill and replaced by new ‘fit-for-purpose’ conduits.

In 2022, the Pakenham project team worked with subcontractor Symal on a recycling innovation, to reduce the number of conduit pipes ending up in landfill.

Old conduits stripped out of East Pakenham have been recycled instead of being sent to landfill. Symal used a machine to crush the old conduits. The materials were sent to Vinidex, who can reuse them to make new conduits or other products from the recycled plastic.

This great sustainability innovation is an inspiring example of how a traditional waste stream has been repurposed as a resource, with the benefit of reducing the embodied emission footprint of project materials.



Old conduits ready to be recycled

PolyPave in Preston Car Parks

In a first for the Alliance, the Preston team introduced a new type of asphalt called PolyPave Green Roads, provided by Alex Fraser Group.

PolyPave incorporates up to 50% reclaimed asphalt pavement, recycled glass sand and recycled plastics.

The Preston project team placed approximately 1,000 tonnes of PolyPave asphalt across the Preston Station car park, Bell Station car park and Edith Street car park. Compared to conventional asphalt mixes, this product creates a stronger pavement with a longer service life, due to its increased fatigue life, better moisture resistance and improved rut resistance.

PolyPave has the potential to be used as an alternative asphalt option on future NWPAs projects. This could address the present lack of demand in the end products generated by recycling and value-adding plastic waste streams.

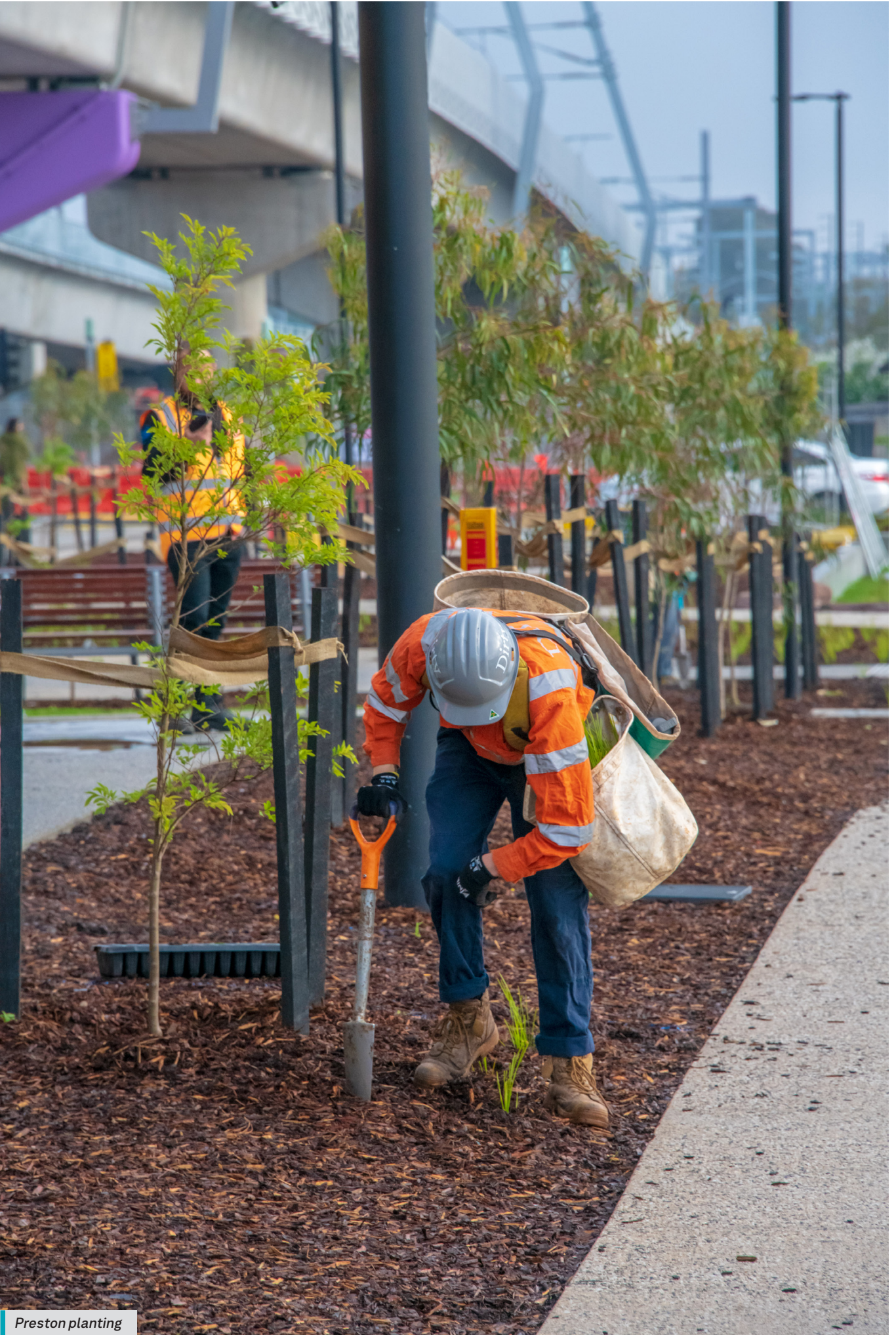
Innovative initiatives like PolyPave drive Victoria's circular economy and promote landfill diversion.



PolyPaving works at Cramer Street, Preston



PolyPaving works at Cramer Street, Preston



Preston planting



Great People: Ecology

Regenerating nature is a critical priority for NWPAs project teams.

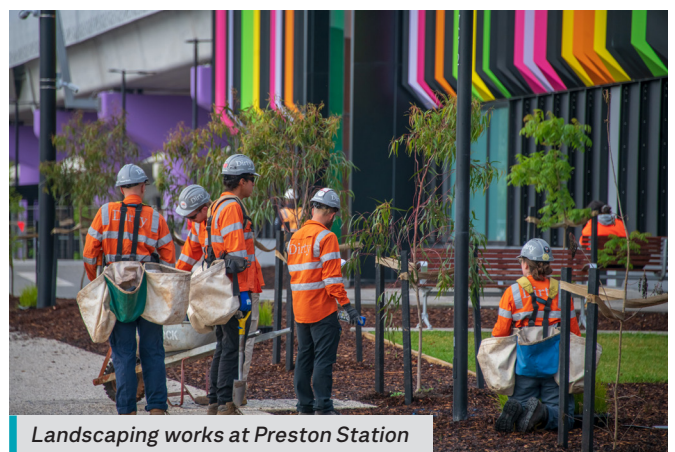
Ecological Value

NWPA projects provide a rare opportunity to enhance nature throughout railway corridors, by transforming previously underutilised land into abundant and open green spaces.

Ecological value is a tool for measuring the ecological properties (biodiversity and vulnerability) and functional characteristics (fragmentation, connectivity and resilience) of a given area. It is calculated by comparing the natural composition of land – the level of life and the level of nature as a whole – before and after construction.

The Glenroy project enhanced the ecological value of the area by 74%, by increasing the prevalence of native species and overall green space.

While the Preston project's ecological value was enhanced by over 105%, demonstrating how elevated rail solutions enable increased ecological value, ecosystem renewal and habitat connectivity.



Landscaping works at Preston Station

Biodiversity

Dianella Amoena preservation

Dianella Amoena, commonly known as the Matted Flax-lily (MFL), is a critically endangered plant in Victoria. The majority of MFLs are located on roadsides or within the rail corridor.

Several MFLs were identified in the rail reserve at Pakenham. A 'No Go' zone was established to prevent any accidental damage or destruction to the surrounding MFLs.

The MFLs to the west were inside the East Pakenham construction footprint. Under the guidance of the Project Ecologist, the plants were salvaged and relocated. After a year of being tended to by a specialist plant nursery, the Pakenham MFLs were planted in their permanent home, away from the disturbances of the construction site.

The relocation by the Pakenham Environment and Ecology specialists was seamless and well coordinated.

Rare Geraniums

One of the earliest environmental tasks at Glenroy was the relocation of Geranium sp. 1, a native Geranium found only in Victoria and once thought to be extinct.

Due to the very small number of surviving populations and the threats to its habitat, this species was listed as endangered under the Victorian Flora and Fauna Guarantee Act 1988.

The Glenroy project team organised the relocation of 14 individual Geraniums. Seed was collected from the species located at Glenroy and then propagated at the Victorian Indigenous Nurseries Co-Operative (VINC). As a result, around 200 seedlings were able to develop and grow.

In May 2022, the Geranium seedlings were planted in St Albans, creating a new population of Geraniums and increasing the biodiversity of the area.





Great People: Heritage in Urban Design

Preserving and enhancing local heritage is a core principle of NWPAs urban design approach.

Highlighting cultural heritage through a process of engagement and collaboration, benefits the community in three ways:

- Historical significance: As the cultural heritage reflects history, it helps the local community understand how the culture has evolved over time.
- Identity and belonging: Preserving cultural heritage helps maintain a sense of continuity and belonging across generations.
- Educational value: By observing cultural heritage, we can learn about the arts, sciences and humanities.



Preston open space design

Aboriginal engagement and collaboration at Preston - Baliyang the bat

In collaboration with the Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation – a Registered Aboriginal Party (RAP) - the Preston design team showcased local Aboriginal cultural features in open spaces.

The Oakover Green space tells the story of Baliyang the bat (creator of women). In summation, it describes the bat thumping its wings over water, until the water thickens into mud and two bagrooks (women) suddenly emerge.

The eight piers in this space visually communicate the story. A white bat is pictured flying through the charcoal-coloured and starry night sky, with the blue water and yellow and brown ochre of the creek bed depicted beneath.

Leaf-shaped seating features float along the path, past the yarning circle, leading to rippling water, which rises up around the play space.



Aboriginal design outcomes at Oakover Green open space design

European Heritage – Preston’s ‘Pocket Park’

A new neighbourhood open space area was built in Preston. Salvaged railway sleepers and reused tracks were placed artfully amongst a garden bed populated with native trees, grasses and shrubs.

The new ‘pocket park’ is located between Oakover Road and Miller Street, paying homage to the area’s inclusion of local heritage with a strong emphasis on vegetation and rewilding.

Workshops between community members and project designers, a theme for the area was established, which referenced the history of the adjacent site – the historic Preston tram depot.

Bell Station Façade Stories

The design of Bell Station was informed by the motifs and imagery of post-war migration and suburbia – a cornerstone of Preston’s cultural and urban identity.

The precast concrete panels installed on the outer walls of the new station building were directly inspired by the hipped-roof design common in the post-World War II housing located throughout Preston.

If you look closely, the panels appear to be an exact bird’s eye view of the surrounding suburban landscape.

Commuters travelling along the elevated viaduct are able to connect the station to its immediate context and see that Preston itself provided the blueprint for the station’s design.

The station building design was contemporary, interactive and locally-connected.



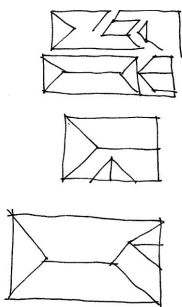
Salvaged railway sleepers and reused tracks



'Pocket park' at Preston



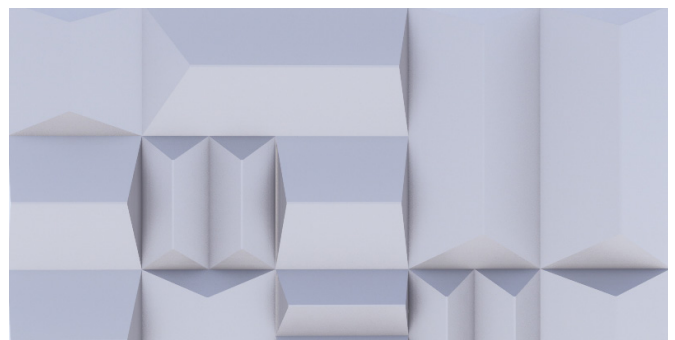
Bell Station hipped-roof design inspired façade



Roof abstraction



Satellite image of suburban rofscape



3D Image of the precast concrete form

Heritage Design at Glenroy

Tom Borgas was commissioned to design two pieces of art for the Glenroy level crossing removal project. Titled 'Scape' – both designs reflect Glenroy's heritage.

The anti-throw screens installed over the rail trench on the new Glenroy Road bridge, reflect the foliage of the Murnong (Yam Daisy), which was previously found in the Glenroy area.

The Hartington Street sculpture consists of 30 individual galvanised steel square sections. The sculpture's red and white colours reflect the now removed old boom gates, while the black and white stripes are reminiscent of the level crossing signage. The yellow and green colours represent the foliage of the Yam Daisy, which was a staple food for the Wurundjeri people of the area.



Yam Daisies on the screens at Glenroy Road



Hartington Street sculpture

The Pakenham team on their regular 'Flanno Friday'



Great People: Our Workforce

NWPA is committed to creating a diverse and sustainable workforce that draws from the multicultural mosaic of communities it serves.

We continue to collaborate with a network of industry specialists to support people who face barriers to employment by providing them access to job opportunities on our projects.

2022 NWPA workforce statistics:

- Trainees/Apprentices/Cadets engaged: 281
- Major Project Skills Guarantee (MPSG) remaining on track across the Program: 10%
- Overall person hours worked: 2,931,620
- Average female participation rate: 32%
- Females in a leadership or managerial role: 22%

In 2022, we engaged with 424 priority jobseekers:

- 71 economically or socially disadvantaged people
- 64 individuals living with a disability 'employed' or 'engaged'
- 175 Aboriginal and/or Torres Strait Islander people
- 114 Long-term unemployed or retrenched



NWPA's diverse Keon Parade team

281

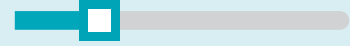


Trainees/
Apprentices/
Cadets engaged



NWPA projects remain on track to achieve 10% Major Project Skills Guarantee (MPSG)

32%



Average female participation rate

2,931,620



Overall person hours worked

22%



Females in leadership or managerial role

Engaged with

71



economically or socially disadvantaged people

Employed or engaged

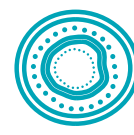
64



individuals living with a disability

Engaged with

175



Aboriginal and/or Torres Strait Islander people

Engaged with

114



long-term unemployed or retrenched

Total of

424



priority jobseekers engaged



Diversity

NWPA is committed to cultivating an exceptional level of engagement and enthusiasm within our team, and fostering a work environment that thrives on positivity, diversity, and inclusivity.

Diversity is celebrated internally and externally throughout the duration of NWPA projects, to raise awareness and empower the whole team.

2022 events and celebrations included:

- Senior leadership attending and sharing an Iftar (breaking the fast) with Glenroy traders.
- Celebrating Ramadan and Diwali festivals with potlucks and guest speakers.
- Producing a multilingual ‘Thank you Glenroy’ video at the end of the occupation to celebrate the diversity of Glenroy and the team.
- Hosting an International Food Fair focusing on the diversity of cuisines in Glenroy.
- Holding several Culturally and Linguistically Diverse (CALD) and Trader ‘Walk and Talks’ – bringing the CALD community onto site.

NWPA Providing Opportunities to GROW

In late April, the Preston project welcomed a group of Aboriginal job seekers to the project, as part of LXRP’s Gain Real Opportunity in the Workforce (GROW) program.

GROW is designed to introduce people from marginalised and disadvantaged backgrounds to employment and training opportunities and pathways.

The program also helps participants achieve the basic tickets required by the industry – their Construction Induction White Card and Track Safety Awareness card.

The visit was an invaluable opportunity for members of NWPA and the Preston project team to provide an insight into what happens on a work site and what potential job roles are available.

The next steps are for the Alliance to liaise further with each individual to try and match them with an opportunity on the project.

The GROW program is an excellent way to facilitate face-to-face site visits and gain the valuable vocational insights needed to place priority jobseekers in suitable and meaningful employment.



Celebrating diversity



LXRP's GROW Program visit



Leadership Development for Women

NWPA recognises that empowering women to progress in their careers produces benefits for all.

In late November, several of NWPA's rising leaders attended the two-day Women in Leadership Summit themed 'Breaking Barriers, Building Legacies'.

The summit was run by the Women Leaders Institute, which has distinguished itself as a pioneer in developing safe and supportive spaces for emerging and established female leaders to be inspired, grow and connect across Australia, New Zealand and Asia.

At the summit, 25 female leaders from a variety of backgrounds presented on the topic of being a leader, gifting attendees with valuable insights and practical knowledge to help navigate their personal career journeys.

NWPA supports its talented female staff and workforce to reach their full potential through targeted succession planning and leadership development. We remain committed to delivering transformational outcomes in the gender equity space.



ISC certification event

Excellence in Sustainability at NWP

Recognition of Sustainability Excellence on the Bell to Moreland project

NWPA's Sustainability Leaders Inspiring Excellence

Infrastructure Sustainability Council (ISC) 2022 Awards, Sustainability Champion, Highly Commended – Fiona Bowie

In 2022, Fiona Bowie, Director, Transformation & Sustainability, was a finalist for the ISC Sustainability Champion award, which recognises established sustainability or infrastructure professionals who have championed sustainability on a particular project or initiative. Fiona was nominated for her work on the development of the 'Power of the Program' governance framework. The framework has revolutionised the way sustainability is delivered at NWPA, resulting in outstanding and continually evolving outcomes as well as strengthening industry partnerships to drive change.



Fiona Bowie (left) with ISC CEO, Ainsley Simpson

**The National Association of Women in Construction (NAWIC)
Young Achiever Award, Future Green Leader Award
– Dev Chandraratne**

NWPA Sustainability Advisor Dev Chandraratne was awarded both the NAWIC Young Achiever and the GBCA Future Green Leader of the Year in 2022.

This coveted award recognises young individuals who make a significant contribution to furthering the role of sustainability within the built environment industries.

Dev was recognised for her work as a Sustainability Advisor on the Bell to Moreland and Glenroy level crossing removal projects, where she improved sustainability calculation methodologies by creating a program-wide approach for estimating baseline energy and materials emissions for LXR.

Dev's contribution led to the Bell to Moreland project achieving the highest ISC as built rating to date in 2022.

On the Glenroy project, Dev worked closely with internal stakeholders, alongside supplier Holcim, to implement a new and innovative eMesh shared use path at Glenroy Station. This asset maximised the use of recycled materials in the concrete – a big step towards achieving carbon neutrality.



**NWPA's Employee of The Month
– Sajitha Srivelan**

Sajitha Srivelan, Sustainability & Innovation Coordinator, was nominated as the Employee of the Month in August 2022 in recognition of her coordination and completion of NWPA's National Greenhouse Energy Reporting process.

Throughout 2022, Sajitha played an active role in mentoring programs. Equipped with her thorough understanding of project data and operations, she educated her team members on applying problem solving skills to project challenges and adaptively provided support to the wider team. Her ability to upskill herself and others, as well as work collaboratively to manage workloads across a broad range of people and disciplines was empowering, particularly for younger team members.



Safety and Wellbeing

At NWPA, the safety and wellbeing of our team, and the communities we serve, is our highest priority.

Trailblazer in Safety Messaging

In 2022, the NWPA safety team pushed the boundaries of traditional construction safety messaging. Rather than relying on hard-hitting, emotional messages, the team brainstormed innovative ways to create softer, more subtle messaging. Our approach was showcased in the end-of-year safety campaign and was extremely well received. NWPAs ability to think outside the box resulted in impactful messaging that focused on safely arriving home to loved ones at a typically distracting time of year.

By challenging traditional ways of thinking and communicating, NWPA has become a trailblazer in safety messaging.

Safety & Wellbeing Hub

The Safety & Wellbeing Hub was developed in 2022 providing resources to ensure we continue to create a safe workplace, prevent harm and inspire exceptional health, safety and wellbeing performance. It empowers our people to develop the skills to identify unsafe conditions or behaviour that could lead to injury, property damage or even fatality.

NWPA aims to create an open culture where everybody feels capable and supported throughout this process.

Key features of the Safety & Wellbeing Hub include a list of all the safety representatives at each site and their contact details, a safety dashboard with safety performance statistics for each site, as well as training opportunities and upcoming campaigns for staff to participate in.

'This is Why'

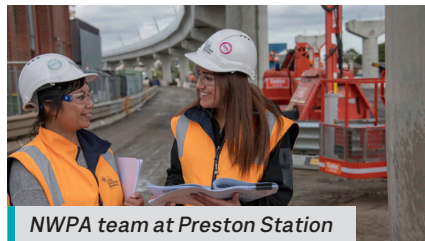
Construction is a high-risk industry and we need to work together to ensure that everyone is safe and well, everywhere, every day.

In January, Pakenham's workforce was given a launch presentation of LXP's 'This is Why' campaign, which aims to embed positive attitudes towards safety on site by highlighting potential impacts of a work injury. The campaign shared real stories of people impacted by safety incidents and how it changed their lives. These stories encouraged the audience to combat complacency, feel empowered to speak up and look out for co-workers.

'This is Why' will continue to be launched across our project sites in 2023.



Safety message from Brett Halls



NWPA team at Preston Station



'This is why' presentation at Pakenham



Plant awareness training at Glenroy

Initiative: Wall- E

We are always looking for opportunities to improve safety, working conditions and productivity.

In late November, the Pakenham team began a three-week trial of an innovative 3D camera system that uses Artificial Intelligence (AI) and the Internet of Things (IoT) to detect at-risk pedestrians in the vicinity of mobile plant items.

The technology detects pedestrians and objects in the designated detection zone and issues a visual and audible alarm, in real time, to alert the operator of the plant via an in-cabin screen. The system also sends the recorded data to a web-based dashboard for further evaluation and analysis. Data is collated to provide insight into the number and location of the potential risks detected around each item of plant, as well as a snapshot of each detected event for the Health, Safety and Environment (HSE) Manager to review.

This technology is compatible with various types of mobile plant items and easily customisable to specific detection zones. It is also resistant to environmental impacts such as weather and vibrations. It is a well-suited and practical solution for construction safety optimisation.



Wall-E



Wall-E on the forklift





International Women's Day celebration

Social Inclusion Events

NWPA ran numerous internal events throughout 2022 to support our people and raise awareness of social inclusivity and wellbeing.

International Women's Day (IWD)

8 March 2022 marked IWD with the theme 'Break the Bias', focusing on the individual responsibility to call out gender bias and inequity. Celebrations across the Alliance included morning teas and special guest speakers – our women thoughtfully reflected on their experiences in the industry, shone a light on each other's talents and embraced the need for strong female camaraderie.

At Glenroy, the team supported local charity Vincent Care with a gold coin donation from attendees, to support services and programs for people experiencing homelessness and domestic violence.

The Pakenham team followed suit and donated gold coins to the Victorian Women's Trust. A presentation about being female in the male-dominated construction industry, and the positive changes that have been adopted over recent years, was delivered at the Preston site office.

National Reconciliation Week and National Aborigines and Islanders Day Observance Committee (NAIDOC) week

In 2022, NWPA recognised National Reconciliation Week with a mid-week 'Lunch & Learn' session, hosted by NWPA's Indigenous Engagement Advisor, Tony McCartney. Tony, a proud Wotjobaluk man, also connected to the Nari-Nari mob near Lake Mungo in NSW, spoke to the Alliance about his career, community, self-determination, Treaty, Truth Telling and some of NWPA's initiatives. It was an opportunity to explore how each of us can contribute to achieving reconciliation in Australia.

NWPA acknowledged NAIDOC week (3 July to 10 July), by celebrating the history, culture and achievements of Aboriginal and Torres Strait Islander Peoples. The theme for 2022 was 'Get Up! Stand Up! Show Up!', which was a call-to-action for all Australians to bring about systemic change. Events were held across all sites with staff invited to hear from Indigenous speakers who shared their

perspectives on the week and what it means to them. To conclude NAIDOC Week, Melbourne-based singer Jimmy Kyle passionately shared his insights on Aboriginal history and took us on an educational journey through his personal story.



IWD – Break the Bias



NAIDOC presentation at Lonsdale St

Wear It Purple Day

On 26 August 2022, NWPA hosted a Wear It Purple Day discussion, which highlighted the importance of starting the everyday conversations that centre around sexual orientation and gender identity – conversations that foster understanding, connection and companionship in the face of difference.



Wear It Purple Day



Wear It Purple Day celebration in the Lonsdale office

R U OK? Day

R U OK? Day inspires and empowers everyone to meaningfully connect with the people around them and start a conversation with those in their world who may be struggling.

To mark R U OK? Day in 2022, Civil Supervisor Andrew Thorpe, sat down with Brett Halls, our Health, Safety and Environment Manager, to have a candid chat about mental health.

Andrew shared his personal mental health journey, including the staggering feat of running 100km to raise awareness and funds for specialist Aboriginal family violence service, Dardi Munwurro. The conversation was broadcast live from the Pakenham site, shared across all NWPA locations.



R U OK? Day

Movember

During the month of November, the team at NWPA raised \$13,717 to help tackle prostate and testicular cancer, and support mental health and suicide prevention.

It was an excellent opportunity to raise awareness of the mental health challenges we all face and to encourage people to open up. A significant number of people across the Alliance got involved in the cause, whether it was through growing facial hair with the other mo-bros onsite or partaking in adventure challenges such as walking, cycling, and swimming.



Brett Halls contributing to Movember



Andrew Thorpe and Brett Halls on the couch during R U OK? Day



Great Engagement: Community

Community engagement is critical across all phases of a project lifecycle. We pride ourselves on developing and maintaining close, collaborative relationships with communities to receive feedback, insights and direction that will guide the design and delivery of our projects.

Connection with Culturally and Linguistically Diverse groups

NWPA has continuously demonstrated the importance of cultural diversity by identifying opportunities to improve engagement with Culturally and Linguistically Diverse (CALD) community members.

Providing a robust CALD community engagement service is essential to building trusting relationships, conducting critical consultations and gauging the real-time impact of works. At Glenroy, the project team implemented a strategy that included:

- Translating Community and Construction Updates into signage, videos, gawk screens, relocation letters, social media and property condition surveys into the top five local languages.
- Inclusion in Community Updates of pictures of local CALD traders and influencers, with their backgrounds and stories.
- Raising internal awareness about CALD during weekly meetings, including talking about the traders' cultural requirements, promoting CALD traders' businesses, as well as talking about the CALD trader-specific issues and challenges arising as a result of our works.
- Building an internal network of 'Linguistic Legends' (staff fluent in other languages), which reached up to 22 different languages in Glenroy. This was an excellent resource when communicating with stakeholders or members of the public with low or no English proficiency and when seeking cultural advice.

Construction updates were distributed by the Communications & Stakeholder Engagement team to key CALD locations such as local traders, the library and Mosque, as well as the Neighbourhood Centre and the local Aged Care facility, with follow up calls and visits to further explain the works. All collateral is readily available on the LXP website.



Community updates translated into Urdu

Inspiration from the Preston Project

Promoting community value is not only about providing positive benefits and physical infrastructure, but also improving the lived experience of residents.

Over a two-year period, local artist Rose Story found herself inspired as she watched from her lounge room window the onsite activity as the team delivered the Preston project. Rose's residence overlooks Bell Station and during Covid she decided to start recording the changes happening daily outside her window through her artwork. She began painting, drawing, and photographing the construction work during the occupation period at Preston.

Rose created around 20 cubist-influenced pieces, which all captured the energy, movement and progression of the project. Her works included a triptych (artwork divided into three sections) of the construction phases, stop-motion videos of the build, and paintings of the construction crew on site.

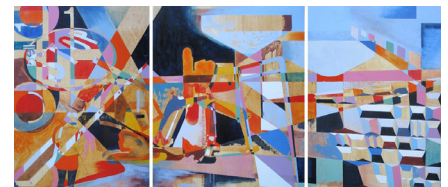
"I found the process, machinery and equipment enthralling. A once in a lifetime infrastructure project was unfolding before my eyes and I had a front row seat," said Rose. "I felt compelled to start documenting it."



'Thank You Preston' community event



'Thank You Preston' community event



Artworks by Rose Story

Case Study: Follow Bless Collective

In November 2022, our Pakenham team decided to partner with a local community group to lend a helping hand in the neighbourhood. The Follow Bless Collective was a perfect partnership, located just outside our site office door in Bourke Park, Pakenham.

Each Thursday evening, Follow Bless Collective transforms a small patch of Bourke Park into a welcoming dining area, to bring collective services, programs and support to those who are undervalued, isolated and disadvantaged. They provide meals for their guests as well as items such as clothing, toiletries and emergency food supplies.

More than 18 NWPA staff volunteered to support the initiative, including taking orders, working the barbecue, plating up and serving meals to the community.

The support that the NWPA team provided enabled a number of Follow Bless Collective's regular team members to mingle and chat with diners, providing the social connection that some may be lacking from their lives.



Follow Bless Collective at Pakenham

Case Study: The Journey with Polytechnic Students

The Preston team put a massive effort into caring for the community in 2022.

The Preston project team provided site walks for over 200 students with learning difficulties from close neighbour, Melbourne Polytechnic. Significant changes in local stations can sometimes push students away from attending class.

This initiative was designed to lessen any concerns students may have had around getting to their classes during this period. The site walks were aimed at helping students understand upcoming train disruptions, expectations on closures at Bell and Preston Stations and directions to their desired destination. As part of the 'walk and talk', the team handed out station closure information brochures and a map on how to get to replacement bus stops.



The journey with Polytechnic students

Case Study: Clean Up Australia Day

On 6 March 2022, members of the Glenroy team along with their family and friends volunteered a few of hours of their time to clean up for the local community.

Working with the Clean Up Glenroy community group, the team aimed to help tidy up Dowd Place in the Glenroy Station precinct with a focus on providing greater awareness around mask disposal and other effects of the pandemic.

Two hours later, the sum tally of their great work was 21 bags full of general rubbish, a car tyre, a suitcase, drawers and two lawn mowers for good measure – well done to the Glenroy Grime Busters.



Clean Up Australia Day

Case Study: Vegetation planting activity by little hands

NWPA hosted a planting activity at Bell Station in September 2022. Children from the childcare centre located adjacent to the project took an excursion to Bell Station and helped plant some trees and shrubs while learning the value of sustainability and re-vegetation.

The colourful mural on the side of the childcare centre building provided the perfect backdrop, as the children eagerly got stuck into their work, with all the plants quickly finding their way into the ground.

NWPA and the childcare centre have enjoyed a great working relationship throughout construction with both the educators and students eager and enthused as they watched the daily progress of our work. Earlier in the project we donated some PVC pipes to incorporate into the centre's playground.



Vegetation planting



NWPA's Community Engagement Program

Following the completion of the Glenroy project in October 2022, the project team expressed their appreciation to the local community. A 'Thank You Glenroy' community event was held in the Dowd Place car park.

This free community event marked the completion of the new Glenroy Station and level crossing removal. A number of food vans provided approximately 2,500 servings of food throughout the day. Local entertainers engaged the community through music, dance, art demonstrations and a 'Spin & Win' competition held by the project team.

This community event demonstrates the importance we place on maintaining strong, positive relationships with highly impacted local communities.



'Thank You Glenroy' community event



'Thank You Glenroy' community event



'Thank You Glenroy' community event

Brite Plants Wholesale Nursery provided plants for the Preston project



Great Partnership: Positive Impacts

Throughout 2022, NWPAA was able to continue to support long-term partnerships with businesses such as: SOS Security (security services), Brite Plants (plant and tree supply), Brunswick Industries (hand sanitiser), and Victorian YMCA (labour/office fit-out).

NWPAA was keen to develop healthy and positive partnerships with Aboriginal-owned businesses, social enterprises and academic institutes, within a partnership framework that prioritises sustained growth and positive social impact.



Kinaway registered supplier Wamarra on site at Preston

Relationship with Aboriginal-owned businesses

Kinaway

NWPA is committed to delivering social and economic benefits to Victorian Aboriginal people.

In 2022, NWPA continued to actively promote the inclusion of Aboriginal businesses in project opportunities and worked with key partners like Kinaway (Victorian Aboriginal Chamber of Commerce) to engage resources and obtain information about Victorian Aboriginal business engagement.

Kinaway's purpose is to provide business support and advice, help improve visibility and networks, strengthen relationships and create opportunities for Aboriginal and Torres Strait Islander businesses. Driven by a strength-based model of Aboriginal business ownership, Kinaway promotes and supports the ongoing operation of Aboriginal businesses to increase their participation in the Victorian economy.

“The path to true self-determination is ensuring that, as Aboriginal people, we participate at all levels in the economy.”

Kinaway CEO, Scott McCartney

Cable Containment Services

The Pakenham team worked alongside Indigenous suppliers to help empower them to gain meaningful and long-term work in the industry.

A great example was the award of the supply contract for conduits and materials to Cable Containment Services (CCS), an Aboriginal-owned and Kinaway-certified contractor.

Specialising in civil electrical and communication infrastructure products, CCS is a proud Aboriginal enterprise that delivers sustainable economic outcomes for Aboriginal and Torres Strait Islander peoples, through partnerships primarily in the road and rail construction industry.

The partnership helped to build stronger ties with CCS, establishing them as a significant player in the conduit supply industry and helping us 'de-risk' the supply of materials for NWPA projects.

A2B Personnel

A2B Personnel is an Aboriginal-owned and controlled apprenticeships, recruitment and labour hire company. A2B have a thorough and proven model to get their employees job ready and working. They provide employability training which improves confidence and job skills, as well as work placement and mentoring. They also follow up with post-placement support and employee liaison services.

The 100% Yorta Yorta-owned business, has provided workers for both the Glenroy and Preston projects:

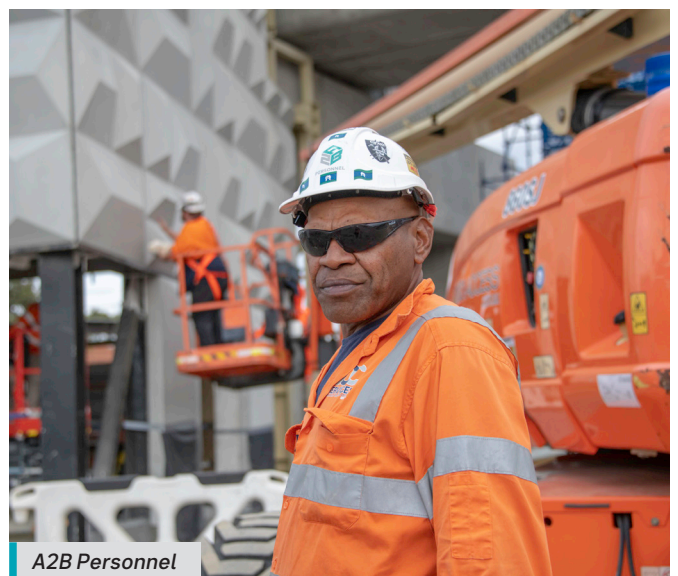
- Glenroy: there were four A2B employees, including two electrical apprentices and two general labourers.
- Preston: at its peak, the project team had 12 A2B employees in varied roles such as machine operators, general labourers and Covid marshalls.

“We look forward to growing our relationship with NWPA and the continued collaboration which provides meaningful employment to more and more Aboriginal men and women. We are so appreciative of all the support shown by the NWPA team.

A2B Personnel Managing Director, Andrew Walker



Pakenham team with CCS representative



A2B Personnel



Collaboration with Academic Institutes

The University of Melbourne

In October 2022, NWPAs partnered with the University of Melbourne's Faculty of Engineering and Porous Lane, to successfully be awarded a Sustainability Victoria grant under the Circular Economy Market Fund: Materials.

The grant will fund the development and field trial of an Australian first crumb rubber kerb and channel made from one of Victoria's most problematic waste streams – old tyres. The field trial of the new permeable kerb and channel product will be undertaken by NWPAs on the Pakenham project.

If this innovative prototype proves successful, it could be adopted as a sustainability product on other NWPAs, LXP and infrastructure projects in the future, and drive improvements in Victoria's circular economy.

“Partnering with the University of Melbourne positions NWPAs as a leader in construction materials research and development.”

- Fiona Bowie, NWPAs's Director, Transformation & Sustainability

Swinburne University Research Projects

NWPAs hosted Swinburne University Master students, throwing out the challenge to complete an industry project that tackles real challenges and opportunities within the Alliance. Project research topics included:

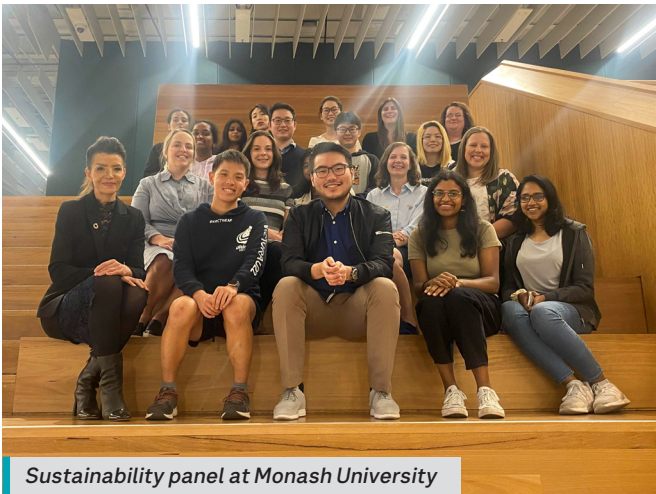
- Incorporating sustainability metrics into the financial reporting process
- a method to assign carbon cost to activities was developed, and benchmarks were calculated per material type across all activities.
- Expanding the Global Completions Roadmap, which covered Development (new), Pre-construction (new), Construction, Practical Completion, Post Practical Completion, and Final Completion with a detailed process.
- Studying how to increase Delivery Engineers' wellbeing by applying optimisation techniques. As a result, high-stress activities were identified, and working time allocations were evaluated.

Monash University

NWPA is focused on inspiring the next generation of sustainability leaders. A panel event was organised at Monash University's Clayton Campus, featuring current and past members of the NWPA environment team.

This initiative was primarily focused on environment and sustainability roles in construction, to inform students of the different opportunities available. Various internship and graduate opportunities available within the Alliance were promoted to the students.

As a result, we received great feedback about the level of confidence and excitement it instilled in the students and the potential careers ahead of them. As a demonstration of the initiative's success, some attendees have gone on to commence sustainability careers in the construction industry. The NWPA team would love to do this again, even broadening the initiative to other universities.



Sustainability panel at Monash University

Glenroy College

In August 2022, the Glenroy team met with Victorian Certificate of Applied Learning (VCAL) students from Glenroy College to give them a site tour, and an overview of the construction industry and potential career pathways. VCAL is a practical option for year 11 and 12 students that can lead to apprenticeships or traineeships. Each Glenroy team member talked about their career path and discussed the wide range of occupations available within the construction industry. Following the tour, the feedback from both Glenroy College and Merri-bek City Council was positive and appreciative.



Site tour for Glenroy College students



Brite Plants team members

Great Partnership: Social procurement

A positive social procurement process enables us to drive positive economic and community outcomes in tangible ways.

Social Procurement

NWPA's social procurement objectives and targets are summarised as:

- Consider benefits to disadvantaged groups
- Develop Workforce
- Employ Aboriginal or Torres Strait Islander Peoples for 2.5% of total labour hours
- Maximise engagement with local industries.

NWPA significantly contributes to supporting pathways and opportunities that break the cycle of disadvantage for some of Australia's most vulnerable and marginalised people.

Through engaging with priority job seekers, the Alliance showcased the construction industry's ability to actively combat employment inequalities and be a force for good in the community.

Inclusive and Accessible Design – Ability Works

In November 2022, NWPA engaged Ability Works to provide inclusive design consultation and advice.

Ability Works is a non-profit social enterprise for people from all walks of life and abilities. Their inclusive design service offers greater insights for designers seeking to create infrastructure with better usability, accessibility, and customer experience.

During the engagement with Ability Works, their consultants with visual, hearing, mobility, cognitive impairment and social anxiety disorders, provided advice based on their lived experience of navigating the rail network. The design team traversed through our previously completed Reservoir Station alongside Ability Works consultants, providing them with an immediate understanding of improvements that would enhance our future station designs beyond the minimum accessibility specifications. Further discussions with Ability Works were conducted with respect to the following design elements:

- Human factors assessments
- Wayfinding signage
- Communication tools that better cater for people with special needs.

These recommendations have been embedded into our Keon Park Station design and the partnership will continue into the future.



Ability Works consultants providing inclusive design insights



Ability Works consultants at Reservoir Station

City bound train departing Preston Station



Great Network: Innovations and Adoption

Using the LXP framework, NWPA had 12 innovations approved, and adopted seven initiatives from other alliances in 2022. Among these initiatives, six were directly related to Sustainability, Environment and Safety.

NWPA is a highly successful change agent – we are always pursuing continuous improvement opportunities and innovations across the program. On every project, we seek to pioneer and adopt innovations in technologies, processes and methods that deliver sustainability excellence, while maximising performance and value for money.

NWPA is passionate about 'Inspiring Excellence' across the wider industry by sharing learnings and knowledge captured throughout development and delivery. We are committed to sharing innovations with other alliances to push for continual improvement across the program.

Knowledge Sharing

The Alliance encourages staff to present their inspiration anytime and anywhere.

To ensure we capture all the great ideas, the Alliance developed *Knowledge Centre*, a live centralised portal to collect innovative ideas that could be implemented on our projects.

During 2022, NWPA accomplished some remarkable sustainability outcomes for LXP, their stakeholders and the industry. NWPA worked with South East Program Alliance (SEPA) to promote 'Solution Reuse'. We then set up a working group to evaluate reuse ideas from each alliance that can be implemented universally across all future LXP packages. The aim is to achieve consistency, value for money and overall efficiency.

For example, the Glenroy Station project team proposed the idea of 'ballast reuse for subgrade improvement'. Following this presentation, other alliances expressed interest in including ballast reuse in their projects, highlighting the value of knowledge sharing and collaboration.

Innovation

Radiant Heat Curing (Piers and Crossheads) at Preston

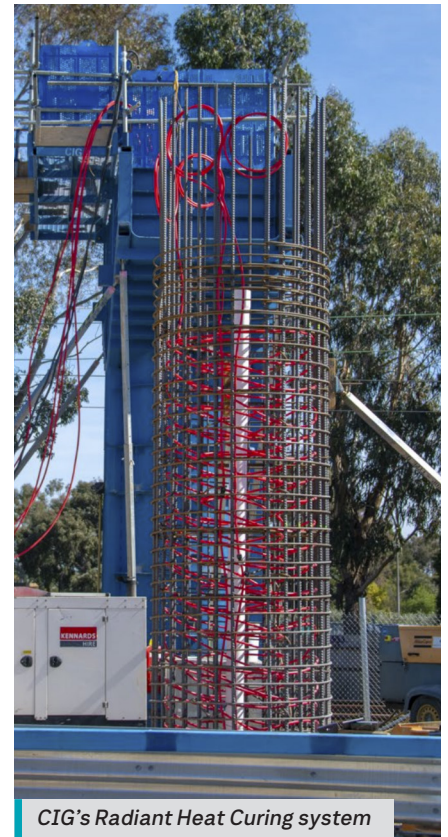
NWPA partnered with subcontractor Civil Infrastructure Group (CIG) to develop a method of accelerating concrete curing times, which CIG has now patented.

The system enables the fast 'in-situ' curing of concrete elements, allowing early stripping of formwork and falsework while maintaining the quality requirements of Australian and Department of Transport and Planning specifications. Controlled heat is applied internally by automatically pumping hot and cold water through PEX piping installed throughout the structure.

As part of the Preston level crossing removal project, 80 integrated piers and crossheads were constructed using this system. Typically, piers are constructed 'in-situ', and crossheads

are precast, however, these elements were cast monolithically, significantly reducing the duration and cost of the works.

The key benefit of this innovative system, combined with our Single-Line running construction method significantly reduced railway occupation time from 158 days to 40 days. This reduced disruption to the community and rail passengers, reducing total hours of replacement buses by 64% and the associated carbon emissions by 494 tonnes!



CIG's Radiant Heat Curing system

Low Carbon Paths and Pavements

The Glenroy team made a significant sustainability impact by using a carbon-neutral concrete product called 'ECOPact Zero' in combination with eMesh, a recycled plastic fibre reinforcement.

ECOPact Zero concrete is a carbon-neutral mix from concrete supplier Holcim. It has a high percentage of slag and fly ash, waste products that are used to replace Portland cement which has a high embodied carbon content. The remaining embodied carbon is offset by carbon credits purchased by Holcim.

ECOPact Zero concrete has no visible differences compared to conventional concrete. Approximately 378 m³ of this product was used on the Glenroy project across the Linear Park, Dowd Place, Hartington Street car park and Station Road car park. This initiative was estimated to reduce 113 tonnes of CO₂e compared to a standard mix with steel mesh reinforcement.

After achieving outstanding sustainability performance by implementing this design at Glenroy, the Preston project team also adopted both ECOPact Zero and eMesh for over 4000 m² of pavement, including shared use paths and bicycle-only paths.



eMesh construction works at Glenroy



Carbon neutral retaining walls at Pakenham

Carbon Neutral Retaining Sleepers

Reducing Greenhouse Gas (GHG) emissions is a key KPI for NWPA, and carbon-neutral materials go a long way to achieving the Alliance's goals.

The Pakenham team implemented carbon neutral precast sleepers for the retaining wall. The carbon emissions of the concrete products supplied by Humes were reduced using Supplementary Cementitious Material (SCM). The remaining emissions were offset by purchasing and surrendering a corresponding quantity of carbon offsets to achieve carbon neutrality. After evaluation and data analysis, the Pakenham project reduced carbon emissions by 150.4 tonnes.

Evidence Based Decision-Making for Value Creation

The NWPA team realised an objective and transparent method for calculating the value for money of sustainability initiatives initiated during the development phase. This sophisticated and flexible method can be adaptively applied to other projects and could be used across multiple disciplines when navigating similar decision-making challenges.

Prior to developing this system, determining an innovation's value for money was difficult, as decision-making processes were limited to qualitative assessment using basic multi-criteria analysis.

To address these concerns, NWPA created a framework consisting of two components to inform decision-making:

- Decision-Making Tool: using a Rank Sum method to prioritise a set of holistic lifecycle criteria.
- Carbon Valuation: introducing a valuation parameter to measure the long-term cost of carbon.

Using this method, NWPA will be able to assess how a sustainability initiative is tracking in relation to a set of holistic lifecycle and carbon valuation criteria. Value creation will be quantified at key points of the initiative's lifecycle, making it easier to determine if it is achieving value for money and aligning with sustainability KPIs.

The method provides quality and value for money assurance, as non-conforming or poor performing sustainability initiatives can be quickly identified and then corrected as required.

Adoption

The Alliance consistently targets step change innovations while simultaneously embedding innovations from previous projects into new projects, until they become business as usual.

The Sustainability team ensures NWPA standards are communicated to colleagues, subcontractors, stakeholders, and the wider industry so that new benchmarks can become standard practice across the industry. NWPA has also adopted initiatives from other alliances, some of which have already been rolled out at Glenroy, Preston and Pakenham.



Recycled Glass Sand

NWPA adopted Western Program Alliance's recycling innovation, saving an estimated \$14,950 and reducing the project's environmental footprint.

Sand was replaced with recycled glass for the backfill of subsoil drainage lines at Glenroy, resulting in the use of 460 tonnes of the recycled material across the car parks, roads and other precinct areas. As this initiative had been previously implemented, no significant challenges were faced, and the project achieved outstanding sustainability outcomes including:

- Using recycled glass sand products reduced the amount of virgin sand material used and the quantity of glass products sent to landfill.
- Working with recycled glass sand is safer than traditional bedding due to its lower silica content, lowering health risks to the project team.
- Mitigating potential supply chain issues, as current industry workload is causing virgin sand material to become increasingly hard to source.



Alternative Sediment Control Products

Adding value by adopting and improving on Southern Program Alliance's sediment control initiative.

Silt socks are predominately used for sediment control in Australia. Not only are they high maintenance, they are also non-recyclable and physically labour-intensive to manage.

Southern Program Alliance (SPA) introduced the Blackhawk filter mat to replace silt socks as an alternative sediment control method. These have the benefit of simple installation and fewer maintenance requirements.

Based on this initiative, the Preston team was inspired to implement the GuardDog Drain filter during the Preston Station precinct construction, to prevent sediment entry into adjacent stormwater drains.

The GuardDog Drain Filter - made from 100% recycled waste - was estimated to result in a total cost saving of \$34,170 per year. Additionally, the filter offered safety benefits by minimising the manual labour required to move heavy rock logs.

Across the Alliance, the different projects connect and collaborate by sharing deeply valuable, granular knowledge about how they have delivered better sustainability outcomes. The collaborative environment fosters the Alliance-wide adoption of effective initiatives to ensure sustainability excellence.



GuardDog Drain Filter



GuardDog Drain Filter installed at side-entry stormwater drain



Flying high above Preston Station

Legacy Excellence

NWPA views legacy excellence in sustainability as a process that continues to provide tangible community and environmental value, long after a project is completed.

We are always looking ahead, striving to inspire excellence and challenging ourselves to make each project better than the one before. With each improvement and demonstrated beneficial outcome,

we position ourselves to continue to lead by example and drive industry advancement in sustainability.

In the short and medium term, we will:

- Continue to influence and drive change in technical standards, for example the use of low carbon concrete
- Work with asset owners, for example MTM, to improve approval processes and streamline the use of sustainable materials
- Improve reporting tools and methods to implement and communicate sustainability, for example costing the long-term price of carbon.

In the longer term, NWPA demonstrates the significant advantages and improvements that can be achieved within the industry, through a strong program of resilient and effective commercial models and governance strategies. By prioritising sustainability and adopting effective governance structures, the industry can drive positive change, optimise performance, and contribute to a more sustainable future.

NWPA's best project is always the next one to be delivered.



Documenting the successful completion of Glenroy Station

What's Next

There are some exciting times ahead for NWP in 2023.

NWP's sustainability goals for the year ahead are driven by four principles: passionate advocacy, empowerment, excellence and dreaming big.

1. Passionately advocate for and target sustainability initiatives in the project development phase.
2. Empower and collaborate with key influencers, such as subcontractors, within each project to incorporate sustainability-related changes.
3. Achieve excellence by refining systems, frameworks, and methodologies to assist with leading sustainability-driven outcomes.
4. Encourage our project teams to dream big, and to pursue their aspirations with a positive mindset – to persevere through challenges, no matter how ambitious our goals might seem.

We're looking forward to applying these principles to the Pakenham project as it continues into the next stage of delivery, and the Keon Parade project, which will commence construction in 2023.

We remain committed to working towards decarbonisation.

Our decarbonisation targets align with and bolster the LXP and Victorian Government's broader strategy to cut greenhouse gas emissions, reduce carbon dependency and achieve net zero emissions by 2045. We aspire to drive significant transformation and innovation in the sustainable use of energy and materials.

We will utilise our infrastructure pipeline to play our part in a net zero future.

We will continue to lead in the implementation of Victoria's Recycled First Policy.

Our support for the Victorian Government's Recycled First Policy is robust. We will work tirelessly, through our materials and waste pipelines, to overhaul the state's recycling sector, grow domestic recycling capabilities, and fuel innovation. As a major player in the circular economy, we will drive significant change in the reuse of construction waste material.

We remain devoted to making Victoria the home of Australia's most sustainable infrastructure.



Bell Station in all its glory

Appendix 1: Sustainability Performance



Complete



In progress

Theme	Objectives	Target	2022 Status			
			Glenroy	Preston	Pakenham	Keon Parade
Governance	Be accountable and transparent on sustainability performance	Publicly report on our sustainability performance annually	✓	✓	✓	✓
	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	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	✓	✓	✓	✓
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	✓	✓	✓	✓

Theme	Objectives	Target	2022 Status			
			Glenroy	Preston	Pakenham	Keon Parade
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 – 40-60% by volume of office waste 	✓	✓	✓	✓
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 ISC-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	✓	✓	✓	✓

Theme	Objectives	Target	2022 Status			
			Glenroy	Preston	Pakenham	Keon Parade
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	✓	✓	✓	✓
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	✓	✓	✓	✓
Innovation	Develop innovative solutions and share learnings across LXP	Develop and implement at least five LXP endorsed innovations per project	✓	✓	✓	✓
Community	Support and enhance social, cultural and community wellbeing	Implement initiatives which will provide tangible benefits to local community groups	✓	✓	✓	✓
		Create opportunities for local business involvement during the delivery phase	✓	✓	✓	✓
		Minimise negative impact on the community and local businesses during construction and operation	✓	✓	✓	✓






Theme	Objectives	Target	2022 Status			
			Glenroy	Preston	Pakenham	Keon Parade
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				
		Pre-award evaluation to be utilised to assess sustainable performance of contractors prior to contract award				
		Subcontractors required to report against sustainability targets monthly				
		A minimum of 3% of the overall spend on goods, services and training devoted to social procurement				

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