Pakenham East Depot Sustainability Report 2024

Pakenham East Depot FY24 Update

Over FY24 Pakenham East Depot achieved two major delivery milestones:

Completion of HCMT Fleet: The 70th HCMT has entered passenger service, marking the conclusion of the largest single train order in Victoria's history. These trains are notable for their inclusivity, accessibility, and advanced High-Capacity Signalling technology, which is integral to the upcoming Metro Tunnel.

Passenger Load Testing: The first passenger load tests were conducted with two High-Capacity Metro Trains (HCMTs). 42 1000-litre water tanks and nearly 6,000 15-litre water bottles per train were used to simulate the weight of around 2,000 passengers. This allowed for safe performance testing of the trains in the new Metro Tunnel, simulating peak-hour conditions with approximately 4,000 simulated passengers.

In addition to the above achievements, the Project also introduced High-Capacity Signalling to support the Metro Tunnel. The HCMTs are the only trains on the network to be fitted with High-Capacity Signalling and the only trains with capability to operate through the Metro Tunnel. This is also the first time this signalling has been integrated with an existing signalling system on a network anywhere in Australia. This signalling means the trains can safely move closer together allowing for more frequent services.

The Downer team will now undergo the long-term maintenance of the trains to ensure they remain reliable, comfortable, and safe for Melbourne's passengers.

Sustainability Performance

Pakenham East Depot commenced the implementation of the IS Operations rating at the start of 2023 and is currently part way through year 2 of the rating period. The following section reviews progress against the stated sustainability targets and objectives for Pakenham East Depot.

Sustainability Performance

Commitment	Target	Status	Details
Embed Sustainability into the Business	Achieve and 'Excellent' Operations IS Rating by 2026	In progress	▪ The Infrastructure Sustainability Rating Scheme is an industry-compiled voluntary sustainability performance rating scheme evaluating planning, design, construction, and operation of all infrastructure asset classes in all sectors linking industry, communities and commerce beyond regulatory standards. The IS Rating Scheme is developed and administered by the Infrastructure Sustainability Council (ISC). ▪ Currently the project is in Year 2 of implementing the Operations rating requirements and tracking well against the milestone schedule. Key activities include: ▪ 17.18 points verified at the time of reporting ▪ Year 1, round 1 verification complete and year 1 round 2 submission completed. ▪ All scheduled assurance activities were completed. ▪ Submission Plan submitted to ISC for verification. ▪ Year 2 submission planning commenced.
Support local community	Victoria apprenticeships during the maintenance phase of at least 2.5 per cent	In progress	▪ This target is required to be tracked in fifth year of maintenance payment phase, and every five years thereafter.

Sustainability Performance

Commitment	Target	Status	Details
Biodiversity restoration	20 per cent increase in vegetative cover and 20 per cent decrease in weed cover in the retained fauna habitat and conservation buffer within 15 years.	In progress	▪ Environment Protection and Biodiversity Conservation Act 1999 (EPBC) requirements have been met and 2023 EPBC Report approved. ▪ As reported in the Annual EPBC compliance report Pakenham East Depot is compliant with the conditions of the referral including the stated targets.
Support local community	Minimum of 80% local content (in accordance with Victorian Industry Participation Policy (VIPP) requirements) for trains.	In progress	▪ VIPP is scheduled to be tracked in the fifth year of full maintenance payment phase, and every five years thereafter.
	Significant decisions to be assessed through a multi-criteria analysis where at least one non-financial criterion is weighted at least 20 per cent.	On Track	▪ The project decision making process includes a multi-criteria analysis that considers environmental, social and economic aspects. The total of these non-financial criteria weightings is more than 20 per cent.
	All high impact subcontractors / suppliers will be evaluated for environment and sustainability management capability.	On Track	▪ The project tender evaluation process includes a multi-criteria analysis that considers environmental, social and economic aspects to assess high impact suppliers' sustainability management capability.

Sustainability Performance

Commitment	Target	Status	Details
Meeting legislative requirement	No regulatory infringements, including Penalty Infringement Notices and prosecutions. 100 per cent compliance with statutory approvals.	Achieved	▪ 0 Regulatory Infringements ▪ 100 per cent compliance with Statutory Approval
Environmental Management System	Complete internal environmental audits in accordance with the pre-planned audit schedule and pass the audits.	Achieved	▪ 100 per cent compliance with the Internal Audit Schedule and Management Reviews of the Environmental Management Systems.
Review Sustainability Performance	Review Sustainability Management Plan annually and the effectiveness of the Environmental Management System via management reviews twice a year.	Achieved	▪ Sustainability Management Plan review and the Environmental Management System review are compliant with the annual review schedule.
Economic Outcomes for the State	Achieve minimum reliability target of 50,000km MDBSAF (Mean Distance Between Service Affecting Failures). Achieve 100 per cent availability.	On track	▪ The Fleet Final Acceptance reliability target is 50,000 MDBSAF and is expected to be achieved by the end of 2024.

Sustainability Performance

Commitment	Target	Status	Details
Resource Optimisation	Achieve a reduction in water use.	In progress	▪ The project has commenced data collection and is implementing processes to identify opportunities for resource optimisation and waste minimisation. CASE STUDY: automated robotic cleaners and rail facility drones
Resource Optimisation	Achieve a reduction in GHG emissions.	In progress	
Resource Optimisation	Use the Asset Condition Information system to measure and monitor materials impact against the material use baseline	In progress	
Minimise Waste	Landfill diversion targets of: ▪ 80 per cent to <100 per cent by volume or weight of spoil ▪ 50 per cent to 90 per cent by volume or weight of inert and non-hazardous waste ▪ 40 per cent to 60 per cent by volume or weight of office waste	At risk	▪ The proposed landfill diversion targets have been identified as impractical due to how we perform operations at PED, the project team is reviewing how the targets are defined.
Continuous Improvement	Improve the IS Operations rating score annually for Year 1, Year 2, and Year 3	In progress	▪ The project has achieved 42 points to date. Additional credits will be targeted in years 2 and 3 to improve the operations ratings score.

Case Studies

Automated Robotic Cleaners and Rail Facility Drones

Automated Robotic Cleaners

Downer, in partnership with Deakin University, have developed autonomous cleaning robots for train maintenance.

Two autonomous cleaning robots have been developed:

- One for floor cleaning which undertakes scrubbing, mopping and vacuuming simultaneously, improving efficiency and reducing time taken to clean the train
- One for surface cleaning which completes a deep clean on the seats and windows.

Both robots can also detect vandalism, hazards and biohazardous materials, signalling to the cleaning staff for a remedy.

Automated Robotic Cleaners

Potential sustainability benefits

The Automated Robotic Cleaners use only water and steam to clean surfaces and floors. Initial visual inspections show that the quality of cleaning is equivalent to existing cleaning regimes. Over the next 12 months, we will work to quantify the potential benefit regarding:

- Water use compared to existing cleaning regimes
- Reduction in cleaning materials and products consumed during cleaning activities.
- Sanitation of surfaces compared to existing cleaning regimes
- Supporting cleaning staff

The robots also drive Industry 5.0 practices within the workforce by providing new skills in robotics, operations, and maintenance for cleaning staff.

Our Automated Robotic Cleaners better support workplace health and safety as they remove manual handling tasks for staff.

Rail Facility Drones

The Rail Facility Drone are integrated autonomous drones which include:

- Automatic docking systems.
- Advance sensors for rail infrastructure inspection and maintenance.
- Fully electric operations

Currently rail infrastructure in Victoria is inspected manually by using vehicles to drive along the infrastructure and inspect the infrastructure. This is a time-consuming task that involves workers being exposed to hazardous environments during inspections.

Rail Facility Drones

Potential sustainability benefits

Implementation of the Rail Facility Drone is expected to achieve improvements in the following areas:

- Reduction in greenhouse gas emissions due to the elimination of vehicle movements to complete the task.
- Increased lifecycle of the inspected infrastructure due to more accurate inspections of the rail infrastructure.
- Improved worker safety by eliminating touchpoints and worker exposure to hazardous environments.
- Upskilling of the workforce to operate the autonomous Rail Facility Drone.

Thank you

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