

NTRO Rail Case Study

RECYCLED MATERIALS FOR FREIGHT RAIL

INTRODUCTION

Using more sustainable materials and reducing the use of virgin materials in construction and maintenance is more important than ever for the rail freight industry. As well as better environmental outcomes for all and a cleaner, greener planet, policy change around sustainability within construction projects is now emerging in several jurisdictions. This means there is a compelling need to ensure rail infrastructure projects meet the standards and specifications requiring proper and/or minimum use of recycled and sustainable materials. This project aims to better understand emerging materials options, applications and barriers, identify a harmonised list of focused areas for freight rail attention, a list of key materials for further development and/or field trials and deliver publicly available final outputs to assist future freight rail project procurement.

PROJECT OVERVIEW

The rail freight industry has an excellent opportunity to consolidate existing and emerging rail industry recycled and/or sustainable materials and supply chain options and turn this into consistent focus areas for attention and action.

With the growing understanding of the global impacts of human development and the need for more and more change towards sustainable infrastructure practices, there are many opportunities to use recycled or reused materials across many aspects of rail construction and maintenance. Policy change, such as the Victorian Government's Recycled First policy introduced in 2020, is happening around the nation – bringing about uniform approaches to the use of recycled and sustainable products on major transport infrastructure projects.

Optimised use of recycled materials like aggregates, glass, plastic, timber, steel, ballast, crushed brick, crumb rubber, reclaimed asphalt pavement and organics have already been demonstrated instead of virgin materials for various road and rail projects. In many cases, these sustainable alternatives have been shown to be superior-performing products with a better return on investment, as well as providing important environmental benefits.



METHODOLOGY

This work seeks to build on emerging initiatives by scanning global academic and grey literature to provide a current overview of existing rail construction and maintenance uses of recycled materials.

The literature review will be used as a background document for an Australasian and international rail industry stakeholder's survey/interview of current and emerging recycled and reused materials usage examples, types, volumes, practices, business case learnings (including cost benefit metrics, Whole of Life and End of Life costing).

After analysis of the survey feedback, a stakeholder workshop will be held to discuss and debate the available and emerging materials options, applications, apparent gaps and/or barriers, education materials, business cases and other considerations. The aim is to identify a harmonised list of focus areas for freight rail attention and top 3-5 list of materials for further development and/or field trials.

The survey interviews and workshop will also seek detail, debate and commentary on the status of barriers and challenges to recycled material application in freight rail.

The final workshop findings will then be part of a final set of deliverables including an overview report, stakeholder presentation and demonstration package of leading recycled and reuse material applications.

These final outputs will be made publicly available for freight rail project procurement and bidding contractors to further build a sustainable freight rail market.

THE SOLUTION DELIVERED

- Understanding of emerging materials options, applications and barriers.
- Publicly available final outputs to assist freight rail project procurement
- Final outputs/report to be delivered early 2022

PROJECT PARTNERS



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