



COLLABORATION FOR CHANGE

Case Study: A Digital Approach

Embodied CO2e reduction
(tCO2e)

0

CATEGORY

PRODUCT	SYSTEM	PROJECT	CONCEPT
---------	--------	---------	---------

SUPPLY CHAIN

MANUFACTURING	PROCESSING	TRANSPORTATION	CONSTRUCTION
---------------	------------	----------------	--------------

REGION

WA	NT	SA	QLD
NSW	ACT	VIC	TAS

Profile

Organisation: Laing O'Rourke

Website: <http://Laingorourke.com>

About: Laing O'Rourke is a globally diverse engineering and construction group with a commitment to delivering exceptional value, founded on 170 years of experience.

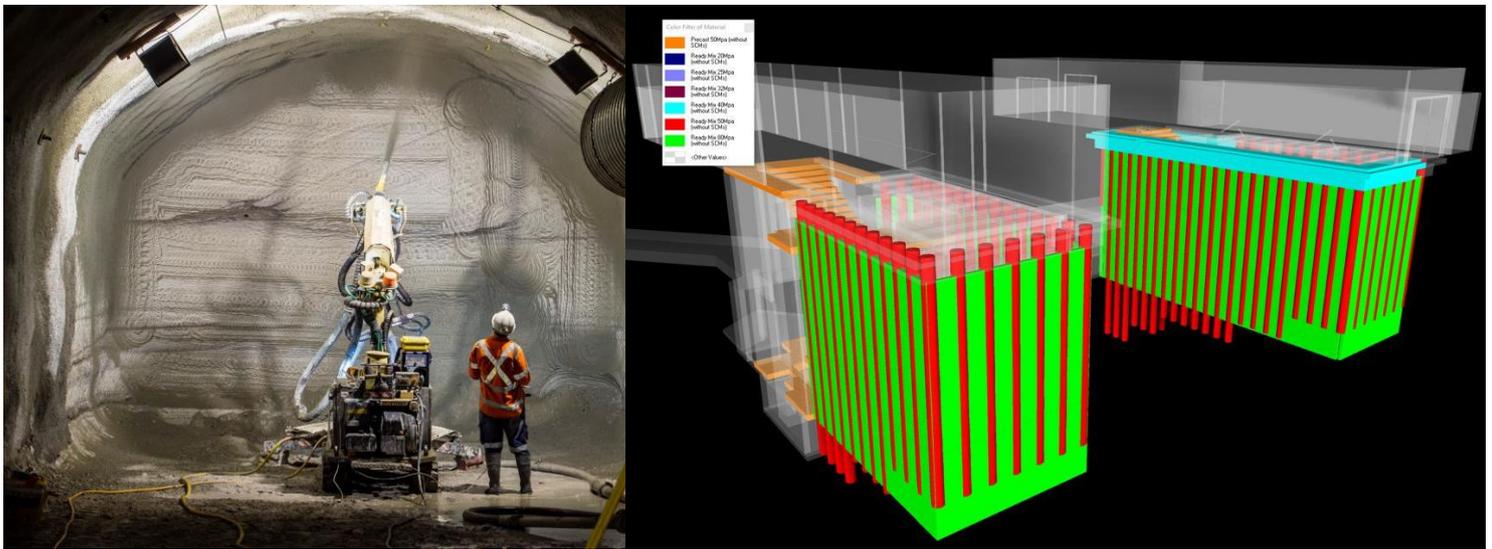
LAING O'ROURKE

Section 1: Opportunity

Laing O'Rourke has developed an innovative digital approach to measure and reduce the carbon impact of construction materials used across our projects.

Section 2: Solution

The digital approach links digital design models to lifecycle carbon analysis data to measure the lifecycle carbon footprint for the materials utilised to deliver a project. The process is tested and developed through the design stages and a baseline is established. After the baseline is determined, our project teams seek to achieve reductions in the size of the carbon footprint by altering design and material scenarios. The approach uses Navisworks and BIMsense to generate different carbon footprint scenarios. The output of the different scenarios is then analysed in a PowerBI dashboard.



Section 3: Lessons

This digital solution helps visualise the impact and opportunities to reduce carbon impacts from construction materials on our projects. It allows for rapid analysis of carbon impacts across different design and material scenarios allowing for quick decisions to be made to help significantly reduce carbon impacts. LOR has made further refinements to this process to support our primary objective of reducing carbon impacts on our projects and the solution has already been utilised on many of our construction projects across Australia and the United Kingdom.

Section 4 : Impact measurement

By utilising this digital solution, LOR has been able to optimise the quantities and type of construction materials utilised on our projects. An example of this is at our Central Station Project that by proposing a different design solutions via the model to optimise the quantity of ballast, saving 465m³ concrete which is being replaced by ballast materials. Another example, is the Timber Square Building located in London whereby the project team was able to demonstrate approximately 30% reduction in embodied carbon by proposed alternative material selections and design options in the model.

Disclaimer

The Materials Embodied Carbon Leaders Alliance (MECLA) has dedicated the work to the public domain by waiving all of his or her rights to the work worldwide under copyright law, including all related and neighboring rights, to the extent allowed by law. You can copy and distribute even for commercial purposes, without asking permission. In no way are the patent or trademark rights of any person affected by this nor are the rights that other persons may have in the work or in how the work is used, such as publicity or privacy rights. Unless expressly stated otherwise, MECLA makes no warranties about the work, and disclaims liability for all uses of the work, to the fullest extent permitted by applicable law. When using or citing the work, you should not imply endorsement by the author or the affirmer. The views expressed in this publication may not reflect the combined opinion of MECLA or any of its affiliated organisations. Whilst care has been taken to present the most accurate information, none of the authors, contributors, administrators, or anyone else connected with MECLA, in any way whatsoever, can be held responsible for any errors, omissions, or use of the information contained in or linked from this publication. All information is provided 'as is', with no guarantee of completeness, accuracy, timeliness or the results obtained from the use of this information. Information is intended for general informational purposes and users should obtain specific independent advice from professionals.