



Acoustics 2019

Sound Decisions: Moving forward with Acoustics

Acoustic Design for the Melbourne Metro Tunnel Project

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ABSTRACT

The Melbourne Metro Tunnel Project is currently under construction, and is one of Australia's largest public infrastructure projects with a project value of over \$11 billion. It includes 5 major new underground railway stations, and a pair of 9-kilometre single-track tunnels running underneath Melbourne's inner-north-west suburbs, CBD, and inner south-east suburbs. The tunnel alignment is near to a range of sensitive residential and commercial receivers and particularly sensitive medical and research precincts in Parkville and at RMIT. The acoustics, noise and vibration engineering is being undertaken by a team of 10 engineers (Arcadis Arup WSP JV) and includes 5 key areas of work: design of tunnel acoustic treatments for control of in-carriage noise, vibroacoustic design to control ground-borne noise and vibration affecting sensitive receivers, station acoustic design, noise control for fixed station infrastructure, and construction noise and vibration management. This paper provides an overview of these key aspects of the acoustic design for the project, and provides an insight into the key design challenges and design approaches adopted by the acoustic engineering team, as well as the practical aspects of working on a large infrastructure project with multiple stakeholders and approval pathways.