

Researchers solves Gold Coast light rail noise issues

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Institute of Railway Technology have helped to resolve noise problems with the new Gold Coast light rail passenger service.

Lessons learned through Monash University research into the reduction of wheel squeal noise of trains in Hong Kong has assisted the GoldLinQ consortium to resolve noise problems with the new Gold Coast light rail (GCLR) passenger service.

Director of the University's Institute of Railway Technology (IRT) Ravi Ravitharan said the design and constuct contractor of the new Gold Coast light rail system had approached the Institute to help solve a noise issue with the new light rail passenger system.

"Railway noise emissions are often a significant concern to residents living adjacent to railway tracks, particularly during the night hours," Mr Ravitharan said.

"Wheel squeal and flanging noise are often the main cause of annoyance to residents as the high pitch screeching is generally found at the high frequency end of the audible noise spectrum.

"During the trial period for the new light rail passenger system GoldLinQ was receiving complaints from local residents who lived close to the sections of the tracks."

A previous study undertaken in Hong Kong found wheel squeal to be directly related to friction characteristics between train and rail that exist at a slow speed when there were sharp curves.

"Through the research we were able to identify lowering the adhesion limit was an efficient way to control creep forces and energy dissipation in order to eliminate squeal noise," Mr Ravitharan said.

"By modifying the friction characteristics at the wheel-rail interface using specialised lubricants, wheel squeal and noise was completely eliminated during trials carried out on the GCLR network."

Project Engineering Manager Gold Coast Rapid Transit Alex Robinson said the Gold Coast light rail project had been experiencing some issues with wheel rail interface noise which was of a concern to residents living adjacent to the track.

"Monash University provided services to Bombardier Transport to measure the rail head profile and advise on issues surrounding the wheel squeal noise in these curves," Mr Robinson said.

"The team from the IRT recommended and tested the use of friction head modifiers at a couple of critical locations in Surfers Paradise which had a significant impact on reducing the [noise](#) at those locations.

"The work directly supported the successful commencement of passenger service in July."

Provided by Monash University

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