

Rail researchers work on UK's first Tram-Train scheme

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The Institute of Railway Research investigates the interface problems facing the Sheffield-Rotherham Tram-Train scheme. Credit: University of Huddersfield

Under contract by Network Rail, a team of engineers at the University of Huddersfield's Institute of Railway Research (IRR) has been developing solutions for the problematic interface between a Tram-Train vehicle and two very different railway infrastructures.

The Tram-Train concept allows a railway [vehicle](#) to run in two operational modes; as an on-street tram serving city centres but also as a commuter train running on existing local rail network. This dual operation concept provides great flexibility and efficient use of railway infrastructure and connections.

Tram-Train first became popular in Germany and is now spreading rapidly through Europe. The Sheffield-Rotherham Tram-Train scheme represents the UK's first trial of the [concept](#) and has provided the project partners, the Department for Transport, Network Rail (NR), Northern Rail, Stagecoach Supertram (SST) and South Yorkshire Passenger Transport Executive with many challenges, as Dr Paul Allen, Assistant Director of the IRR and project manager, explains: "One of these challenges is the wheel-rail interface, key to the vehicles' safe operation and a major driver for the ongoing life-cycle maintenance costs of the system."

By applying advanced computer modelling techniques, the team at the IRR has been able to predict vehicle dynamic behaviour on both the tight radius curves (

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