

# Designing the rail track of the future

June 5 2015

---



Civil engineers from The University of Nottingham are helping to develop the railway track of the future which will be cheaper and quieter, last longer and be lower maintenance for rail network operators.

The £8.5m research programme links four universities (Nottingham, Southampton, Birmingham and Huddersfield) with industry partners including Network Rail to address the challenges of future railway [infrastructure](#).

The programme is called Track to the Future (T2F) and will run for five years from June 1 2015. It is funded primarily by a £5.2m Programme Grant from the Engineering and Physical Sciences Research Council (EPSRC), with the remainder coming through industry support and from the partner Universities.

## Rail track challenges

Track to the Future will address some of the completely new questions being asked as we push expectations of railway infrastructure performance to the limit. Railway track is being used more intensively as the frequency and speed of trains continue to increase. The time available for maintenance is decreasing and pressure is growing to reduce cost and environmental impacts, including noise and vibration. At the same time, climate change is imposing new pressures on old infrastructure, sometimes with major impacts on exposed coastal railways and vulnerable earthworks.

T2F aims to help infrastructure operators and owners develop low-maintenance, low-noise track to underpin the continued increase in train frequencies, speeds and operating hours.

## **"Exciting times"**

Professor Glenn McDowell, Head of The University of Nottingham's Department of Civil Engineering, said: "These are exciting times for the railway industry. We have a real opportunity to use advanced numerical modelling and experimental techniques to devise novel interventions that will lead to ballasted track requiring little or no maintenance. The potential financial savings are huge and ultimately the public will benefit from much improved track ride quality and a superior service.

Professor William Powrie, from the University of Southampton and lead academic on T2F, said: "We are addressing these key challenges through state-of-the-art experimental and analytical techniques, and the integration of advanced behavioural models in the areas of geomechanics, track systems, vehicle dynamics, noise and vibration.

"By extending our scientific knowledge and developing new analytical

tools, we will make it possible for engineers to design [railway track](#) systems that give longer, more reliable service at much reduced cost."

## Track to the future

The key research challenges that T2F will address are to develop low-maintenance, long-life track systems with optimised material use; to design crossings and transitions that improve vehicle behaviour through them and reduce damage; and to design and develop low-noise, low-vibration track.

**More information:** More detail can be found on the Track to the Future website, [www.t2f.org.uk](http://www.t2f.org.uk)

Provided by University of Nottingham

Citation: Designing the rail track of the future (2015, June 5) retrieved 26 April 2024 from <https://phys.org/news/2015-06-rail-track-future.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.