

# Innovative railway footbridge design is unveiled

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A new design of bridge that could transform rail crossings across Britain will be unveiled by Network Rail at Rail Live.

The innovative circular bridge is set to revolutionise the way Network Rail builds footbridges over the tracks. Made from lightweight material, the environmentally friendly bridge can be installed in a matter of days, and its modern, modular design means it can be adapted to different locations. It also features built-in monitoring to assess usage and maintenance needs.

Andy Cross, Network Rail Programme Manager, said “We were able to take a different approach. This has allowed us to work with several small and medium-sized businesses, many of whom haven’t worked on railway projects before but have the skills and expertise to bring the concept of a lightweight, low-cost footbridge to life.

“In just 11 months we have developed a prototype bridge that is stunning in design, environmentally friendly and will take days and not weeks to install and thereby causing less disruption for the surrounding community.”

Network Rail currently has just one option when considering building a new footbridge or replacing an old one, the standard non-station footbridge design that is heavy, unattractive and expensive to deliver.

This new design is made from Fibre-Reinforced Polymer (FRP) – a lightweight material that is widely used in other industries, including the manufacture of aircraft and cars. The material is very strong but lightweight, leading to lower transport and installation costs.

It is hoped the ground-breaking design will be adopted across the country as part of a wider programme of work to transform how footbridges are built on the rail network in future, as well as providing an attractive alternative to repairing existing crossings. The next phase of the project involves developing sustainable procurement and construction options as well as a ramped version of the bridge.

The prototype has been trial built at a test centre in Long Marston, Warwickshire, and will go on show there at the 2021 RAIL Live event on June 16-17.

Network Rail's Research and Development (R & D) portfolio expects to invest over £350m in research, development & innovation through its five-year control period to March 2024 to drive improvements in efficiency and safety in the rail industry through new technology

The following organisations were all part of the project team that worked with Network Rail to help:

- Knight Architects – bridge architectural specialists who were able to come up with an exciting new concept that the team could turn into reality.
- Jacobs – who provided design expertise and independent checking of the Network Rail design.
- KS Composite – a UK-based manufacturer whose usual clients include F1 teams and prestige car manufacturers. They manufactured the bridge spine.
- Sui Generis – another UK based manufacturer who specialise in moulded components, including tractor bodywork. They made the deck units that clamp to the spine.
- Epsilon Optics – UK specialists in fibre-optic monitoring, who designed, manufactured and installed the monitoring system.
- Q-Railings – a UK-based glazing company, who usually install structural glazing and parapets to buildings.
- JT Consulting – who designed, manufactured and installed the Rapid Root foundation system.
- Flofo – who have provided virtual working platforms and new approaches to team working and monitoring the risks and opportunities of the project.

*Photo credit: Network Rail*