

'First-of-its-kind' railway footbridge opens to the public

January 31, 2023



A Shropshire village has had a major safety boost with the installation of a Network Rail designed eye-catching 'FLOW' bridge – a low carbon, lightweight and affordable safety solution.

Designed and funded by Network Rail's Research and Development (R&D) team, alongside leading industry specialists, the bridge aims to provide a faster, more sustainable, and affordable option to assist with the closure of dangerous railway foot crossings around the UK.

The first location to benefit from the prototype is a rural crossing, just north of Craven Arms, in the Shropshire hills, with the footbridge officially opening to the public at a community event last Friday (27 January).

The footbridge replaces an extremely high-risk level crossing that closed a number of years ago after it was deemed unsafe for use. This was due to the position of the loop – the layby to the side of the main track – at this location, which prevented pedestrians from having clear visibility of oncoming trains.

FLOW stands for fibre-reinforced polymer (FRP), lower cost, optimised design, working bridge, but the

name also underpins its striking and modular design.

The 21m long bridge, has been designed to save time and money – costing around 40 per cent less than traditional steel structures. No concrete is used in the foundations, reducing its carbon footprint, and it weighs half of a traditional steel bridge, meaning lower transportation and installation costs.

With the majority of construction taking place off site, installation is able to take place without disruption to passenger services.

The bridge is equipped with a real-time structural health monitoring system (SHM) which records how it performs, allowing future improvements to the design and more efficient maintenance, as well as tracking its use.

Andy Cross, programme manager at Network Rail Wales and Borders, played a key role in designing the bridge.

“The flow bridge was designed, first and foremost, as a safety solution but our teams have also gone above and beyond to create a quicker and more sustainable option for the future of the railway”, Andy said.

“Its versatile design means we have already started looking at fully accessible versions, with lifts and ramps, for other locations where that would be a suitable option.”

Nick Millington, interim route director at Network Rail Wales and Borders said: “We want to close as many dangerous level crossings as possible, and this new footbridge shows it can be done while saving tax-payers money and without the need to disrupt passengers’ journeys during installation.

“I’d like to thank everyone who contributed their time and effort to this innovative project.

“This prototype has the potential to transform railway crossings, making them safer, more affordable and fit for the future.”

Owen Thomas, R&D project manager at Network Rail said: “Thanks to the hard work of our research and development team at Network Rail, we’ve managed to create a prototype that demonstrates the versatility of composite materials in construction on the railway. Not only is FLOW durable and efficient but the design is also aesthetically pleasing which, I am glad to say, is the feedback we’ve had from the local community in Craven Arms.”

79-year-old Michael Starr, a local Rambler, is one of many who will benefit from the new footbridge, as it forms part of a popular walking route in the village.

Michael said: “I think the bridge is a fantastic addition to the community, providing connectivity, once again, to our beautiful local countryside. We used to have to detour around a mile on this walking route, after the level crossing was closed, so this really makes a difference.

“Network Rail has really listened to the community and showcased something for the future while maintaining safety on the railway.”

Network Rail collaborated with a number of small businesses on this project*, with Network Rail leading on the design and construction.

*Network Rail would like to thank everyone who contributed their time and efforts to FLOW:

Network Rail’s R&D team, NRDD, Network Rail Works Delivery, Foflo, Knight Architects, Jacobs, Sui Generis, KS Composites, JT Consulting, Q-Railing, Insenys and Balfour Beatty.

Photo and video credit: Network Rail