

# Delivering safer, faster connectivity for local communities

## Bridging Case Study



## Blades Bridge, Australia

**Customer:** Wollondilly Shire Council | **Solution:** Mabey Compact 200™

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## The Challenge

The original all-timber Blades Bridge in New South Wales had been installed in 1916, replaced in the 1950s, and strengthened in the 1990s. However, the bridge became severely dilapidated and in 2008 was closed when it was assessed by the University of Technology Sydney as being structurally unsafe. This presented a considerable inconvenience for local communities that were presented with an additional 15km to their journeys in and out of the park. Furthermore, the local authority's attempts to install a replacement was complicated by geological uncertainty caused by mining activity in the area.

## The Solution

A Mabey Compact 200™ (Mabey C200™) panel bridge was chosen as a replacement for the 18.3m span over the gorge, not only because of Mabey's ability to guarantee prompt delivery, but also the performance that the Mabey C200™ delivers. One of the challenges the new bridge would need to cope with was longitudinal movement of up to 700mm due to mining subsidence and upsidence.

A 4.2m wide single-lane carriageway was chosen as the roadway. It was decided to key bankseat abutments into the rock behind the existing timber bridge supports. One abutment was cast in situ, while the second was precast offline at site and lifted into position with the crane.

It was decided that new abutments would first be cast and placed in position. Meanwhile, the new panel bridge structural skeleton, formed from 3.048m modules, was assembled into two segments in the works yard by two inexperienced workers in just two days using a small crane and hand tools. This illustrates the simplicity of the design. The bridge segments were then loaded on to trucks and transported to the bridge site.

Once at the site the bridge segments were joined together before a crane was used to lift the structure into place and on to the pre-prepared abutments. The installation operation took approximately five hours. Once in position the all-steel roadway deck was installed followed by the parapets to complete the installation of the superstructure.

The total project cost was only A\$540,000 with the superstructure installed in just half a day.

## The Result

The replacement Blades Bridge has been a success and the coordinating engineer, Michael Nelson, at Wollondilly Shire Council was recognised for his role on the project when he was awarded the Institute of Public Works Engineering Australia (NSW) award for Public Works Leader of the Year. The new bridge was installed just one year and seven days after the old bridge was closed, and will provide many decades of reliable use.



**Mabey Bridge Limited, Unit 9, Lydney Harbour Estate, Lydney, Gloucestershire GL15 4EJ, United Kingdom**

Office: +44 (0)1291 623 801 Email: [mail@mabeybridge.com](mailto:mail@mabeybridge.com) [www.mabey.com](http://www.mabey.com)

