

US 50-BLUE MESA BRIDGE EMERGENCY REPAIR

Gunnison, Colorado

Located in a remote part of the Rocky Mountains, the Blue Mesa Reservoir is Colorado's largest body of water and a vital travel route with only two bridge crossings: Lake Fork Bridge and Blue Mesa Middle Bridge. In 2024, a safety inspection prompted by a FHWA mandate revealed a serious crack and weld defect in the Blue Mesa Middle Bridge, prompting an immediate and indefinite closure. This posed a major challenge, as the bridge is essential for local travel and tourism.

CDOT quickly brought in lead engineer Michael Baker International to develop both short- and long-term repair plans alongside contractor Kiewit to implement the design. The project was particularly complex due to the urgency, the remote location and the technical difficulty of repairing long-span steel bridges with fracture-critical components. CDOT staff, Michael Baker engineers, Kiewit contractors and Purdue University experts worked together to create an innovative fix called the "plinko plate" – a special design using offset holes and a steel overlay to contain future cracks before they become a safety concern.

Despite the scale of the project – over 20,000 design hours, 410 tons of steel, and more than 50,000 bolts – the team completed emergency repairs by July 4 and fully reopened both bridges before Thanksgiving. The project not only restored a critical transportation link but also introduced a new engineering solution that could benefit future bridge safety efforts nationwide.

