

The Essex County Council (Wick Road, Boxted - Bridge No. 0059) Prohibition of Motorised Vehicles (and Restriction of Other Traffic) Order 202*

Statement Of Reasons

Boxted Bridge is located on Wick Road, Stoke by Nayland, Boxted. The structure is within the village of Boxted, the area falls within the Dedham Vale National Landscape, and its main use is mostly to access surrounding villages between Boxted, Essex and Suffolk.

In June 2023 a Principal Inspection (a thorough, close-up examination of all accessible parts, within touching distance, to detect defects, assess condition, and identify maintenance needs, going beyond simple visual checks to ensure safety and longevity) was carried out, after which the structure was deemed as an 'Immediate Risk Structure' and has been closed to all users ever since. It is apparent that the condition of the primary and secondary elements have since deteriorated as highlighted below:

- The riveted plate girders (both the main edge girders and the secondary transverse girders in the deck) are exhibiting significant corrosion with section loss through both the webs and flanges throughout. These section losses affect the capacity of the structure and are also present at critical locations such as the supports and at mid-span. In areas of the east edge girder, the bottom flange has deteriorated completely with total section loss. There is section loss present at multiple stiffeners on both main edge girders with width losses of approximately 20-60%.
- A rivet head has become detached from the 1st transverse beam from the south side, at the end of the bottom flange plate (the bottom flange comprises three layers of plates riveted together).
- The bottom flange plates riveted to the transverse beams are significantly deflected (due to corrosion) at the ends of each plate throughout the deck, measuring between 20mm to a maximum of 80mm from transverse beams' bottom flanges. The plates are most affected on the east side, at the 3rd and 6th beam from the south.
- Several rivet heads within the secondary elements (transverse beams) which are subject to expansive corrosion have deteriorated further and are at increased risk of failure as the corrosion is expanding.
- The east edge girder had rotated inwards by 65mm measured midspan. The west edge girder had rotated inwards by 30mm measured at the north end.

The structure was assessed in 1992 in accordance with BD 21/84. The assessment found the superstructure to have a live load capacity of 3 tonnes, but this rating assumed that there is sufficient 'U-frame' action providing beneficial restraint for the edge girders against buckling. The structure was monitored following the assessment as no weight restriction (structural or environmental) was implemented. A re-review of the 1992 assessment was undertaken by Ringway Jacobs/Essex Highways in November 2024, which recommended that the bridge should remain closed considering the assessment result and the condition based on the 2023 Principal Inspection, where the defects, including unexpected outward rotations of the girders, were considered as evidence of the 'U-frame' action being ineffective.

A Proving Load Test was undertaken in September 2025, in accordance with Design Manual for Roads and Bridges (DMRB) CS463.

Based on the measurements from the Proving Load Test, it is concluded that there is sufficient justification to re-open the bridge to pedestrian and cyclist traffic over a 2 metre wide path through

the centre of the bridge. The movements and recovery during the load test were reasonable, with acceptable magnitudes of displacement and evidence of 'U-frame' action. Moreover, the day-to-day pedestrian loads will be significantly smaller than the applied test load.

However, considering the number of unknowns and a few unexpected results, monitoring of the structure is considered essential, for the lateral movement of the top flanges and any abutment settlement.

In summary, following a principal inspection in June 2023, the bridge was close for all users (including under the structure), due to the finding of the inspection being considered as evidence of the U-Frame action being ineffective. In September 2025, loading testing was carried out which justifies re-opening the bridge to pedestrians and cyclists only.

Following the implementation of the pedestrian and cyclist access only over the bridge, wider signage for access will be considered. As part of the consultation process, Suffolk County Council will be consulted.

The benefit of the proposal is that it will provide a safe pedestrian and cyclist route.