

Boxted Bridge - Questions and Answers

1. What is the condition of the bridge – is it repairable so that the bridge’s historic importance can be retained?

The possibility of repairing the current structure was explored during the early stages of the Option Study process, prior to considering the replacement of the structure. The structural form of the bridge, as well as its current condition, are prohibitive factors to undertaking effective structural repairs without replacing the structure as a whole. The bottom flanges of the transverse elements of the structure have deflected due to corrosion (refer to image 1). Replacing these elements would require the dismantling the inner deck apart from the main structural beams due to the configuration of the structure.

The main structural girders’ bottom flanges also present significant corrosion (refer to image 2). Due to the location and spacing of the rivets plate, bonding would not be effective to strengthen these elements and these beams would also require replacement.

In addition to the severely corroded steel beams, both abutments have large cracks from top to bottom (image 3 and 4). The north-east wingwall has also cracked and separated away from the abutment (image 5).

The rivets that give the structure its distinct look also prevent options to strengthen or effectively repair without the dismantling and replacing the entire deck.

Once these considerations were taken into account, the replacement options for the structure were included in the Option Study. Subsequent studies reflected this knowledge and also aim to address the additional issues that were being raised locally at the adjacent junction due to the tight highway space which has been a contributory factor in reported road traffic collisions.



Above - Image 1: Plate deflection of transverse beams



Above - Image 2: Corrosion of main edge girders



Above - Image 3: North Abutment



Above - Image 4: South Abutment



Above - Image 5: North-east wingwall

For these reasons Boxted Bridge is deemed to be unviable for repair, and it would be uneconomical to do so. Investigations conducted during the feasibility study stage determined the replacement option was the best possible solution once it was established that repairing the existing structure was no longer considered a viable option.

The bridge was constructed in 1897 and is nearing the end of its natural lifespan, as can be seen by the visual deterioration on the structure. Proposals are being considered for replacing the structure as a long-term solution, with inspections to monitor the condition of the structure increased from every two years to every six months in the meantime.

2. How do you expect a replacement bridge will look?

Results from ground investigations works carried out during November 2020 will inform the future design and foundation options for a replacement bridge. These will help us finalise the structure considerations for the proposed option and help us to understand possible improvements to resolve the existing road alignment and visibility constraints at the junction. While we continue to take this work forward we do envisage that a new bridge design will look visually similar to the existing bridge as can be seen in the computer-generated artist impression included below (image 6), which can be compared to a photograph of the existing bridge (image 7).

The bridge is in an Area of Outstanding Natural Beauty (AONB) and as such we are designing a replacement bridge to be as similar as possible to the existing bridge with as minimal change as possible to the aesthetics of the area



Above - Image 6 Computer generated artist impression of proposed bridge design

Below – Image 7 Existing structure



3. What requirements are Essex Highways following on highway loading and the proposed footprint of the bridge?

Replacing the bridge with a structure that can undertake full highway loading is not an Essex Highways requirement, but a requirement from current standards. Any departure from the codes of practice (including the Eurocodes) would have to be justified based on the benefits or risks provided by the solution.

A recent Road Safety Audit has highlighted that there is risk of head collisions to road users due to poor inter-visibility at the junction due to the skewed alignment and vertical profile of the bridge, which we aim to improve with our proposal. The data provided show a clear risk of all vehicles failing to negotiate the current junction and highlight even further the need for improvements required at the junction.

A slightly wider footprint/road profile would help alleviate the existing collision risk by improving visibility and the manoeuvrability of vehicles on the bridge and at the junction, outweighing the disadvantages of replacing the structure on its existing footprint.

4. Why are you proposing a wider structure – is this to accommodate larger loads and HGVs?

As outlined in (3) above, our recommendation is to replace the bridge with a slightly wider structure to minimise the risk of vehicle impact with the bridge and neighbouring private land which has been a long reported issue, and has been identified in the Road Safety Audit.

Our studies also recognise the difficulty that refuse collection and emergency service vehicles have when trying to navigate the junction currently.

We are not designing a slightly wider bridge to accommodate HGVs specifically, but are basing our design on the manoeuvre of a fire engine, keeping the visual appearance of the bridge as similar as possible to the existing structure.

It is intended that current signage to discourage the use of the route for non-suitable vehicles will remain in place. Use of advisory 'unsuitable for HGV' signage has worked reasonably well in discouraging HGVs from using these narrow roads.

5. Has the use of a structural weight restriction been considered to extend the life of Boxted Bridge?

The introduction of a permanent structural weight limit of 3 tonnes gross vehicle weight was considered as part of the Option Study. This was not recommended as a solution as it would only be a short/medium term measure, and not a long-term solution for Boxted Bridge which condition reflects it is coming to the end of its life and requires replacement.

The introduction of this weight restriction would prohibit any vehicle weighing over 3 tonnes gross weight from using the bridge whether they be HGVs, local farm machinery, vehicles delivering supplies (for example oil deliveries) to residents and businesses in the area as well as refuse lorries and emergency service vehicles.

Current signage already goes some way to minimise passing HGV traffic and as outlined in (4) above this is intended to stay.

6. Why is there no mention of any cycle/pedestrian provisions over the proposed new bridge?

There are no current plans to introduce a cycleway/footway over the bridge as there are no such provisions on the current bridge nor access routes on any surrounding roads to link them to. In addition, to introduce a cycleway/footway would require a much wider footprint than what we are currently proposing.

The bridge is in an Area of Outstanding Natural Beauty (AONB) and as such we are designing the proposed replacement bridge to be as similar as possible to the existing one, with as minimal change as possible to the aesthetics of the area.

7. It is understood that the two bridges adjacent to Boxted Bridge are substandard. Are these also being monitored?

It is correct that bridges 0371 Mill House and 0372 Island, which are within vicinity of Boxted Bridge, are substandard assets. Based on current information neither of these two structures are prioritised in the upcoming programme of works, however they are being monitored on the same frequency as Boxted Bridge.

Essex Highways have approximately 1500 structures in Essex, all of which are deteriorating with age. We have a very limited budget to address those which are suffering from structural issues so it is important that we assess them according to their need when prioritising works.

There are many stages that are carried out prior to undertaking structural works. This often includes increased monitoring assessments, option and feasibility studies, and design phases before beginning work planning. We also consider other major works in the area to minimise local inconvenience, before it is programmed and physical work can begin. All of these stages require the appropriate budget to be available which contributes to the lengthy process which can vary from scheme to scheme as it is often influenced by a number of other factors too.

8. How will you be seeking the views of the public on any new proposed bridge?

It is our full intention to keep the community informed as the project develops including regular updates on the '[Boxted Bridge, Wick Road, Boxted, Colchester](#)' webpage and we are engaging with the local parish council.

Given the level of public interest and feedback received, we will submit our proposal through the Essex County Council planning process.

The project team can be contacted by email: boxtedenquiries@essexhighways.org if you have a question or concern you wish to raise that has not already been answered on our pages. Use of this email address is preferred as it will enable the project team to manage and respond to incoming enquiries as efficiently as possible.