

Investigating Re-Use a Historical Masonry Arch Bridge

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Abstract : Historical masonry arch bridges built centuries ago have fulfilled their function until recent decades. However, from the beginning of 20th century, these bridges have remained inadequate as a result of increasing speed, size and capacity of the means of transport. Although new bridges have been built in many places, masonry bridges located within the city limits still need to be used. When the size and transportation loads of modern vehicles are taken into account, it is apparent that historical masonry arch bridges would be exposed to greater loads than their initial design loads. Because of that, many precautions taken either remain insufficient or damage these bridges. In this study, the history of Debbaglar Bridge, one of the historic bridges located in the city center of Aksaray/Turkey is presented and its existing condition is evaluated. Structural analysis of the bridge under present conditions and loads is explained. Moreover, the retrofit and restoration application prepared considering the analysis data is described.

Keywords : adaptive re-use, Aksaray debbaglar bridge, masonry bridge, reconstruction

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