

Interactive comment on “Assessing flooding impact to riverine bridges: an integrated analysis” by Maria Pregolato et al.

Anonymous Referee #1

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The manuscript presents an integrated framework for the assessment of flood impact on riverine bridges and the road network they connect, with the merit of including all the most relevant aspects of the problem, from the hydraulic to the structural and road network ones. The methodology is demonstrated on a UK case study, and it is intended to be applicable also elsewhere. Most of the various steps in the methodology are based on approaches that can be applied to a generality of cases, except the structural analysis step. The structural analysis is tailored to a very specific type of bridge, hence diminishing the overall generality of the methodology. The manuscript should be then improved by splitting the structural analysis in a more general part, possibly suitable for a large variety of bridges including old constructions, and a more specific part needed for the present case study. Further improvement is needed in the analy-

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sis of the impact on the road network, where too simplistic assumptions are made. In particular, it is implicitly assumed that no parts of the network other than the bridge are impacted by the flood, and that the capacity of the alternative routes are not limited. These assumptions may bring to a strong underestimation of the impact, neglecting the possibility of severe traffic jamming on the alternative routes and the need to take even longer re-routing due to the unserviceability of the nearest ones.

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