

## Emergency management and prioritisation of Tasmanian bridge infrastructure through rapid Multi-Criteria Assessment

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As the face of emergency management continues to evolve, we face the humanitarian challenge of large-scale emergencies becoming more prevalent and presenting new threats to infrastructure underpinning our social and economic wellbeing. The need to plan for, prevent and mitigate the consequences of emergencies is greater than ever with increasing population growth, societal expectations, global disruption and uncertainty, and the hyper-connectivity of today's world which allows us to deliver the essential services on which we thrive.

Tasmania experienced a major flood event in June 2016 which had widespread impacts across the state, including loss of life and significant damage to critical infrastructure. The broad impacts and competing requests for urgent bridge infrastructure replacements during the event highlighted the need for the Department of State Growth to better understand the level of emergency bridge stock that would meet Tasmania's needs in a widespread emergency. Underpinning this was the need to establish an approach which allows bridge repairs and replacements to be coordinated and prioritised in an emergency such that road network impacts can be minimised and the safety of road users is ensured.

Jacobs was engaged by the Department of State Growth to undertake a Multi-Criteria Assessment (MCA) to establish a recommendation for emergency bridge stock that should be maintained by the Department into the future. Rapid, large-scale analysis of over 3,000 bridges was conducted using a Geographic Information System (GIS) to prioritise bridges based on their assessed level of importance in the road network and susceptibility to failure based on available bridge asset data. Critical bridges identified in the network were then assessed against various emergency scenarios to estimate the maximum combined length of bridges affected by the scenarios and a recommendation for the amount of emergency bridge stock required.