

## Abstract for the AUSTROADS Bridge Conference 2025

### Title: Saving Bridges One Joint at a Time: Addressing the Challenges and Opportunities of Longitudinal Deck Joints in Bridge Widening

#### Authors

Geoff Thompson  
Associate, Bridges and Structures, Aurecon, Sydney, Australia

#### Synopsis

In the context of increasing demands on transport infrastructure and the growing importance of sustainability, the adoption of longitudinal deck joints in bridge widening projects presents both opportunities and challenges. This study completed in 2023, investigates the potential for longitudinal deck joints to be a viable solution when continuous deck options, such as concrete stitch pours, are not feasible. Utilising principles of Practice-Based Research, the investigation delves into three primary areas of concern: safety of bridge users, maintenance requirements and durability, and performance of the joint and structure. The research incorporates engagement with industry experts, investigation into existing recent detailing examples, and a design criteria workshop. Key findings include the consolidation of a practical set of design criteria and a 'best practice' detail for longitudinal deck joints.

Notably, the research addresses the critical safety concern of relative vertical steps, proposing a staggered approach based on the joint's alignment relative to traffic lanes. The outcomes suggest that, with appropriate detailing and adherence to specified criteria, longitudinal deck joints can offer a sustainable and less disruptive alternative to traditional widening methods. These insights have the potential to influence future bridge widening projects, particularly in highly constrained urban environments such as Sydney.