

Application of Remotely Piloted Aircraft Systems for Bridge Inspection and Assessment

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Transport for New South Wales (TfNSW) currently manages around 6500 bridges in NSW. These bridges are core infrastructures in the transportation network which require timely inspection and maintenance to keep the road user safe. Asset managers manage these bridge assets with inspection programs and schedules to ensure the bridge condition is captured and organise any potential rehabilitation/repair works. Recent developments in Remotely Piloted Aircraft Systems (RPAS) more commonly known as drones has had a big impact on delivering bridge inspections in a cost and time effective manner as well as improving engineer/inspector safety.

The current TfNSW Bridge Inventory and Inspection Policy states bridges should have a Level 2 bridge condition inspection at least every two years and if any significant structural issues are identified, an escalation to a Level 3 Structural Safety Assessment is to be conducted by a structural engineer.

Traditional Level 3 inspection procedures and practices were generally delivered by an engineer visiting the bridge site and conducting a visual structural inspection. This entailed bridge inspection equipment (scaffolding, cherry picker, etc.) and traffic management being organised and the recording of the inspection findings. Bridge inspections can be a time-consuming process and can take weeks for large bridges.

The recent use of drones for bridge inspections has enhanced our bridge inspection capabilities and has significantly improved the efficiency and safety of bridge inspections. Drones are now able capture high quality 4K video of the bridge to get an accurate idea of the structural condition as well as access previously inaccessible regions. Drone bridge inspections can be delivered more quickly and without some of the site setup costs associated with a traditional bridge inspection.

This paper catalogues the incorporation and application of drones and other technologies into the bridge inspection procedure and how it can improve bridge asset management.

