AUSTROADS 2025 BRIDGE CONFERENCE – PAPER ABSTRACT

<u>*Title*</u>: A unique solution for a complex bridge – Design and construction of The Crescent and CityWest Link Flyover

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Presenter: tba

Category: Bridge Analysis, Design and Assessment

Abstract:

The Rozelle Interchange connects the M4 motorway to the Anzac Bridge and the M8/M5 motorways to the City West Link and Victoria Road. It also has bypass of Victoria Road and provision for a connection to the Western Harbour Tunnel, due to open in 2028. It is considered one of the most complex motorway projects ever undertaken in Australia. The Rozelle Interchange comprises over 16km of road tunnels, ventilation tunnels and facilities, 10ha of new parklands, four cut and cover tunnel structures and 12 bridge structures. The 12 bridges included five active transport bridges and seven road bridges spanning over waterways, roadways, parkland and a light rail corridor. This paper will explore the design and the construction of Bridge 20_24 which provides a grade separated flyover for traffic turning right out of The Crescent into the City West Link.

The Rozelle flyover has six spans and an overall length of 235m and comprises a single steel box girder on a 68.5m plan radius and a curved vertical alignment. It spans over 10 traffic lanes, two other low level bridges carrying traffic over local waterways, and major utilities. The challenges in the design and construction of the Rozelle flyover included the erection of the steel box girders without disruption to the traffic below and without overstressing the low-level bridges with crane outrigger loads. The solution utilised the incremental launch method of construction with prefabricated box girder sections assembled on an elevated frame at the southern end and pushed out over the traffic using a launch carriage system using hydraulic rams. The bridge utilised several innovative ideas to achieve a unique and safe solution. This included launching the steel boxes with the deck and parapets in place, varying the deck thickness to partially correct the deflected deck profile and the use of specialised launch carriage system in the erection process. The bridge was successfully completed and opened to traffic in late 2023.

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Stephen is a Technical Executive with WSP Australia, and has over 35 years' experience as a consulting engineer in the area of transport infrastructure including roads, bridges, ports and railway structures throughout Australia and South East Asia.

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