WARRINGAH FREEWAY UPGRADE-HIGH ST BRIDGE WIDENING AND RAMP

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ABSTRACT

Warringah Freeway Upgrade is a critical enabling works project for the current Western Harbour Tunnel and the future Beaches Link (WHTBL) projects. The upgrade will also resolve existing traffic issues with this northern approach to the Sydney Harbour Bridge and Tunnel. It will enable the WHTBL to deliver its connectivity and safety benefits for public transport, freight, and private vehicle customers, while improving the journey experience for existing Warringah Freeway users.

The High Street bridge widening and northbound entry ramp will provide an alternative entry to the Warringah Freeway northbound. This configuration will reduce traffic congestion in North Sydney and avoid the weaves issues that are currently experienced from the existing northbound entry from Berry Street.

The proposed bridge widening will add two traffic lanes and a shared user path to replace the existing footpath and accommodate the turning lanes to the new northbound entry ramp. The bridge widening consists of six 1000mm deep steel I girders with a composite concrete deck slab with an overall bridge deck length of 108m and comprises six spans over the Warringah Freeway and Sydney Harbour Tunnel. The ramp superstructure consists of steel I and box girders with a composite concrete deck slab with an overall bridge deck length of 96.59m comprising four spans. Together these structures form an elevated T-interchange.

The High Street bridge widening and ramp structure are being constructed over the busiest section of road in Australia. They also interface with the existing bridge that was constructed in the early 1960’s and are supported adjacent to the Sydney Harbour Tunnel that was constructed in the early 1990’s. This paper describes the challenges encountered during the design and construction of this major infrastructure, and presents the solutions and innovations adopted to deliver the works under difficult environmental, geotechnical and traffic management conditions.