

## **Armadale Road to North Lake Road Bridge Project**

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The Armadale Road to North Lake Road Bridge project targeted congestion at the Kwinana Freeway, Armadale Road and Beeliar Drive interchange, then Perth's fifth most congested intersection, by directly connecting North Lake Road (to the west) with Armadale Road (to the east). This connection included a new bridge over the Freeway, a new trench structure and several further bridges and underpasses to complete grade separations and connect collector-distributor roads to residents and businesses.

Design of the bridge over Freeway adopted an innovative detail of Teeroff beams (wide precast trough beams) made continuous in-situ in a position 3.0m adjacent to the tops of piers. This detail enabled a total structural depth of just 2.0m for a main span of 49.04m, with beneficial minimisation to the extent and scope of civil works and tie-ins at both ends of the three-span bridge.

The "duck and dive" trench structure under Solomon Road roundabout is the first of its type for Western Australia, providing grade separated passage of Armadale Road under, with two curved bridges supporting sides of the roundabout.

The project made extensive and efficient use of precast concrete solutions for bridge, underpass and retaining structures – with MSE walls, tied walls and precast cantilever walls employed to best suit conditions.

Construction of the \$259 million project was successfully completed in Dec 2021 by the Armadale Access Alliance – comprising Laing O'Rourke, BG&E (Civil and Structural designers for the project) and Main Roads WA.