

# Wanneroo Road Interchange



## Collaboration delivering outstanding result to improve WA intersection safety

National Precast Member PERMAcast is playing a part in a major upgrade to a busy intersection in Wanneroo, Western Australia. The upgrade will, when complete, improve traffic flow and road safety, transforming the Wanneroo Road and Joodalup Drive intersection from a four-way intersection into a free-flowing interchange. It is part of a major \$2.3 billion investment by the Commonwealth and Western Australian State Governments.

Being constructed in two stages, works on Stage one began in September 2018. Services have been relocated underground, drainage upgraded, and a new pavement and temporary roundabout have been constructed in preparation for Stage two. Recently commenced, Stage two sees the construction of a bridge running along Joondalup Drive which will also create an underpass on Wanneroo Road.

According to PERMAcast Managing Director Alberto Ferraro, PERMAcast worked cohesively with its client CPB Contractors to manufacture six specially designed piers with a 100 year design life for the new bridge.

Each of the piers weighed 40 tonnes. Measuring 3,500mm high by 6,500mm wide and 1,500mm thick, they were designed with radius faces, including compound curves, angles and tapers. The piers were heavily reinforced with 297 types of rebar profiles, weighing in at 380kg/m<sup>3</sup>.

Quality was the driving force behind precast being chosen for this project. As well, limited space on site perfectly suited off-site manufacture of the elements.

Mr Ferraro says that the piers were cast in two sections.

"The bottom sections were cast in-situ by CPB, using steel moulding that we designed specific to MRWA's requirements. 3D modelling software was used for an accurate and efficient result", he comments.

**Precast manufacturer**  
PERMAcast

**Builder**  
CPB Contractors

**Engineer**  
WSP

**Client**  
Main Roads Western  
Australia

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To meet the client's requirements and to ensure structural integrity of the piers when cast in these moulds, the design of the moulds was certified by a third party.

Steel was chosen for the moulds' manufacture – which was also undertaken by PERMAcast - due to the material's high stress capacity and the quality of finish that would be achieved once the moulds were removed. When fully assembled, the moulds weighed a total of five tonnes.

"Achieving a high quality of finish for the bottom sections, so they matched the factory cast bottom sections, was essential. Our involvement on site delivered that," Mr Ferraro says.

PERMAcast cast the top of precast concrete units in their Cardup factory using Ancon's BT couplers to allow for post installation of the starter bars. This inclusion was proposed by PERMAcast and later endorsed by the client.

"This is an example of how we work with our clients to propose easy and efficient solutions," said Mr Ferraro.

With a quality management system third party certified to ISO 9001:2008 and a history of manufacturing precast dating back to 2006, the company was confident it could meet client requirements while maintaining safety for both its staff and clients.

"Focusing on quality, safety and efficiency underpins everything we do, and this project was no exception".

Stage two of the project has commenced and is due to be completed by early 2020.



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