

Russley Road upgrade

QUESTIONS AND ANSWERS

JULY 2017



The top section of Christchurch's architecturally designed 'gateway arches' is in place.

Known as the 'arch cap', it was put in place this week, with the help of an 180 tonne crane.

The arch cap weighs in at 13.5 tonne and connects the gateway arches, which now stand 27 metres above Memorial Avenue.

The arches and a major interchange are being constructed at the intersection of Russley Road and Memorial Avenue, near Christchurch Airport, as part of the \$112million State Highway 1 Russley Road Upgrade.

The gateway arches are set to become a powerful symbol for Christchurch and the wider Canterbury region.

The design, by Warren and Mahoney, was finalised after a competition and iwi input. It draws on the crossing of paths, the Southern Alps, braided rivers of the Canterbury Plains and the excitement of travel. It will leave a lasting impression on locals and travellers alike.

What are the arches made of and where were they made?

The arches are made of steel and were prefabricated in Napier by Eastbridge. The structure is made up of 30 separate pieces. Each piece was transported by road to the site in Christchurch arriving in lengths of up to 18 metres. The entire structure weighs 400 tonne.

How were the arches installed?

Arch sections began arriving on site in December 2016 and in January 2017 the project team began installing a 23-tonne 'knuckle' into place, the first of four.

The knuckles are the most vital parts of the structure, creating the lower curves and intersections for both of the arches. The knuckles also connect the arches with the 12 supporting piles which are each buried around 20 metres in the ground.

From here, each of the sections had to be welded together piece by piece. Nineteen metre-high temporary towers were used as a base for the welding and steel work to be completed.

Two 180 tonne cranes were also used to install the arches.

What did the project team have to factor in while constructing the gateway arches?

The McConnell Dowell/Downer joint venture contracted to construct the Russley Road Upgrade had to factor in wind, earthquake risk, camber, temperature and load developments in the arch and the bridge deck supporting it, both before and during construction.

Detailed assessments and planning started in 2016, followed by reviews and further assessments with the fabricator, Eastbridge, and designer, Aecom. All plans were peer reviewed to ensure any challenges were mitigated.

The team had to work hard and smart to piece together a very unique puzzle, at height. It was an intense process of evaluation and calculation for everyone involved.

Does anything else need to be done to the structure?

Once all assessments are complete the temporary steel lifting eyes and stressing plates will be removed. The project will receive its final coat of paint after winter.

What else needs to be done before the entire Russley Road upgrade is open to traffic?

The project is about 90 per cent complete. In August the temporary roundabout will be replaced with a permanent intersection, allowing traffic to travel under the bridge on Memorial Avenue. This change will allow the project team to complete the works on the bridge ramps.

Once this is finished the finishing touches such as kerb and channelling, safety barrier installation and landscaping will be carried out. The final asphalt surfacing will be completed in early 2018.



Find out more about this project at
www.nzta.govt.nz/russley-road