

## LEGACY WAY TUNNEL

### PROJECT SUMMARY

Client: Transcity JV

Location: Brisbane

Duration: 3 Years

Value: \$ 5 M

#### Major Challenges Overcome:

- Water ingress
- Fast tunnel construction rate
- Access



#### LEGACY WAY TUNNEL 2015

Our service offered on this project was wider than smaller project, however it can be summarised as follows:

- ✓ Crack injection
- ✓ Concrete repair
- ✓ Waterproofing
- ✓ Structural strengthening
- ✓ Concrete repairs
- ✓ Waterstops
- ✓ Grouting
- ✓ Jointing Works

#### *The Project*

Legacy Way Tunnel is a 4.6-kilometre-long tunnel joining the Western Freeway at Toowong to the Inner-City Bypass at Kelvin Grove. Construction started mid-2012 and it was opened on 25 June 2015. Legacy Way was named to honour the men and women of the Australian Defence Force. One cent from every toll collected on Legacy Way will be donated to Legacy Charity.

#### *Scope of Work*

Epoxy Solutions was commissioned to carry out defect repair work. After proving our capability and quality of work to the engineers at Transcity JV and the client, Brisbane City Council, Epoxy Solutions was asked to provide many structural remedial solutions to structures such as the remediation of the deep beam that supports the ICB above the Eastern Portal and the corbels supporting the corbel slab in both tunnels.



Various types of cracks were repaired using various methods. Quality checks were done through destructive testing. Our attention to detail and carrying out the tasks methodically, led to almost 10 Km of successful crack injection. The photo below shows low pressure injection in a slab.



The photo below shows some low-pressure injection in the tunnel



The photo below shows a deep beam below the ICB that was successfully injected using various methods, including high pressure.



The photo below shows a core taken 1000 mm in the beam. Note the epoxy throughout the crack



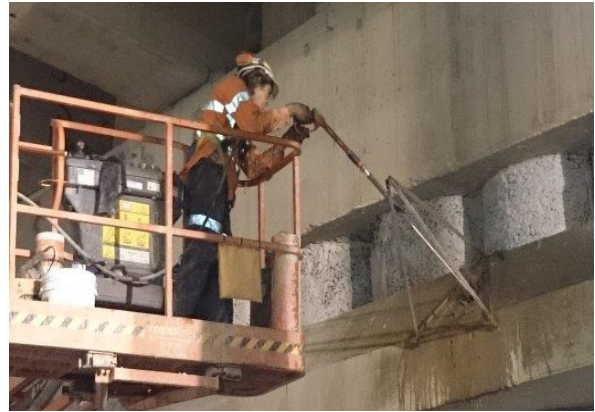
As most of the work was done underground, groundwater was a common problem that had to be managed. Epoxy Solutions adopted various methods to inject a closed and open cell foam in various places. This was often done to slow or stop water, so a more permanent solution could be implemented.



Work was also done on the surface in both portals, vent towers and other associated structures such as bridges. The photos below show concrete repairs done in the entrance to the western portal.



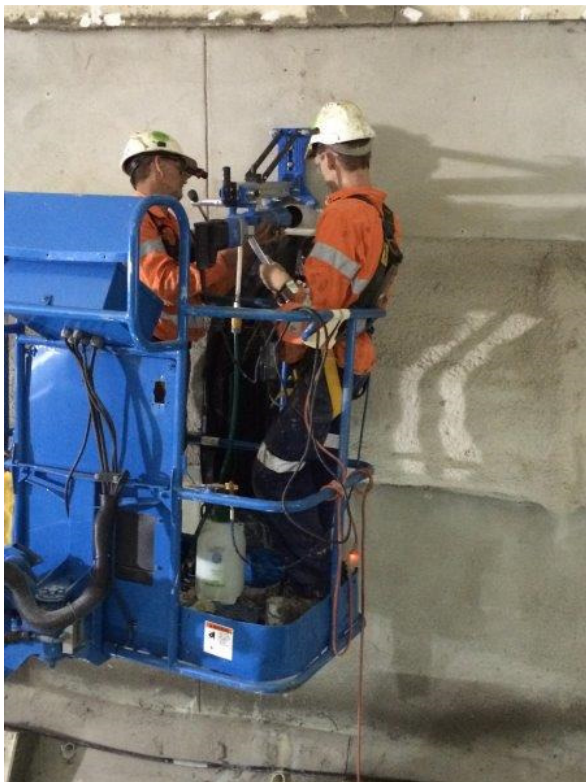
Our engineers worked closely with the designers and site engineers to solve many issues. One of these issues were the removal and grouting of temporary anchor strands. The photos below show some of this work. The challenging part was to cut the strands about half a meter in the corbel while the strands were imbedded in a flammable substrate.



The photo below shows Russel Terrace bridge that we lifted/jacked to install the epoxy grout.



We also carried out core drilling to install new drains to assist in dewatering. The photos below show the coring and completed drains.



Sealing exterior and interior expansion joints for the following structures:

- ✓ Concrete road base
- ✓ Footpaths
- ✓ Crash barriers
- ✓ Vent tower segments
- ✓ Precast and in-situ concrete structures

The photo below shows the lower rings of the Vent Stack with joint sealant.

