



NORTHCONNEX

Linking M1 Pacific Motorway with Hills M2 Motorway Sydney, New South Wales, Australia

Project: Infrastructures, Transportation, Admixtures, Waterproofing, UTT

Project Owner: NorthWestern Roads Group (comprising Transurban, Queensland Investment Corporation and Canada Pension Plan Investment Board) in partnership with the State and Federal Governments.

Construction: Lendlease and Bouygues Joint Venture

Mapei Products: Mapelastic TU system, Mapeplan TUS WL, Lamposilex, Planiseal 88

Total Surface Area: 500 000m²

Year of Project Commencement: 2015

Mapei Application: January 2018 – June 2019

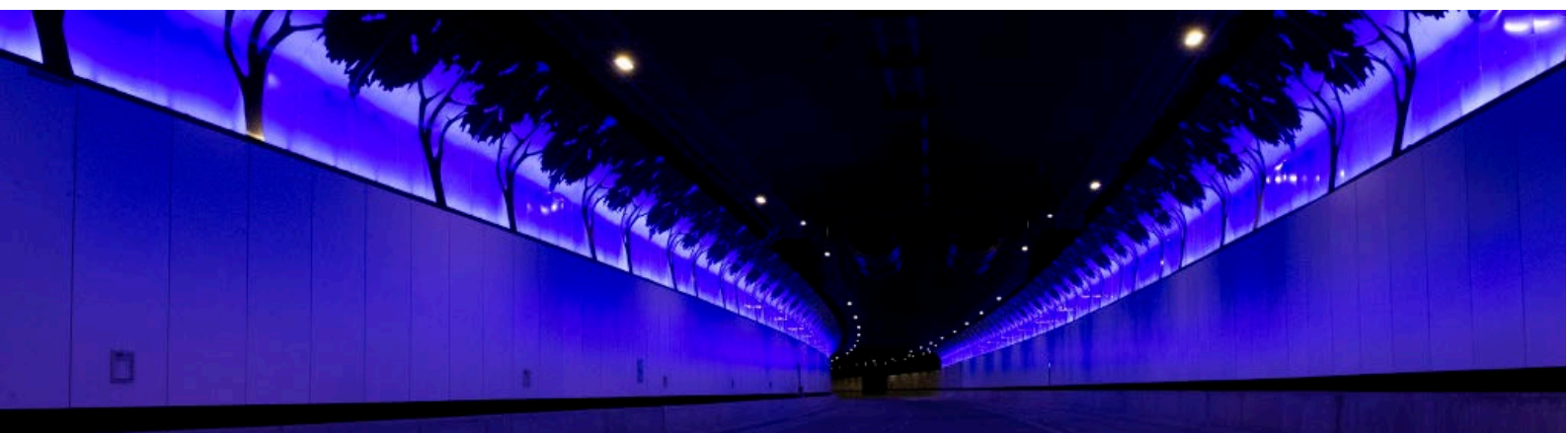
Year of Project Completion: 2020

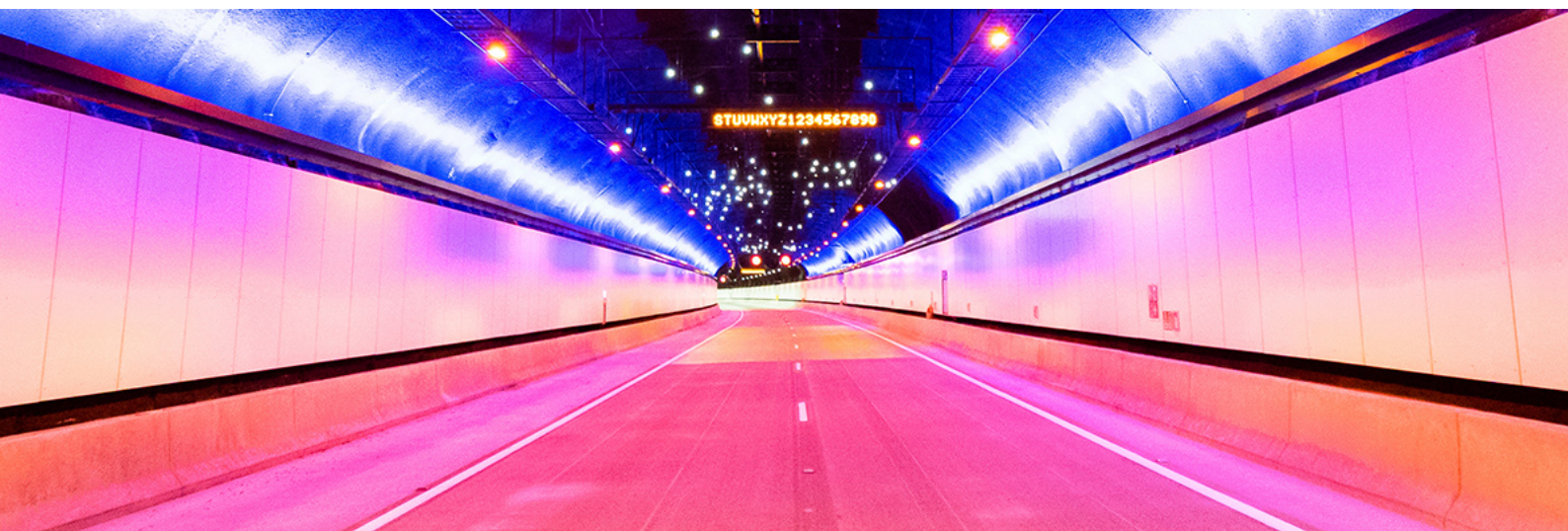
Project Overview:

The **NorthConnex** Tunnel is known as the 'missing link' in Australia's National Transport Network. Opening on 31st October 2020 as Australia's deepest road tunnel, reaching depths of 90 metres, it winds its way beneath north-west Sydney circumventing one of the most congested roads in Sydney, Pennant Hills Road to connect the M1 Pacific Motorway to the M2. **NorthConnex** avoids 21 sets of traffic lights which has improved the reliability of travel between the M1 and M2 and the Sydney to Brisbane Corridor. This makes the journey faster, safer, more reliable and more efficient, reducing operational and maintenance costs for national freight carriers, motorists, and long-distance transport operators.

This project has removed an average of more than 6,000 trucks a day off local roads, which has reduced heavy traffic congestion and associated noise along with improving local air quality on Pennant Hills Road and the surrounding traffic network. The dual road motorway tunnels are nine kilometres in length, each tunnel with the capacity to house three lanes, two large 3.5 metre lanes and an additional breakdown lane in case of an incident or emergency.

Awards: In an Australian first, **NorthConnex** features innovative lighting displays with stunning starscapes, trees and native birds highlighting the transition from the rural environment of the north to the urban environment of the city. The lighting displays were installed after extensive research to help keep drivers alert and engaged and ensure motorists can safely transition from bright daylight to the darker interior tunnel section. More recently the **NorthConnex** has been awarded at an international level, receiving a major honour at the **International Association of Lighting Designers Awards**. *"The Excellence Award recognises lighting design that reaches new heights, moves beyond the ordinary, and represents excellence in aesthetic and technical design achievement."*





Project Requirements:

Mapei's **Mapelastic TU System** delivered a distinct point of difference by providing a one-component ready to use polymeric sprayable membrane for the tunnels and underground structure waterproofing. The system allowed the **NorthConnex** team to self-apply over 2,500 square meters in a 12-hour period, saving valuable contractor application costs throughout the process. Once sprayed on to the substrate, **Mapelastic TU System** forms a flexible barrier and support, minimising the degrading effect of time, water, and weathering. It promotes excellent water-tightness characteristics, preventing the development of water migration on both membrane interfaces. Its tensile strength and waterproofing properties make the product particularly suitable for underground applications.

The single component liquid system was favoured for the project due to its Occupational Health and Safety benefits which features absolutely no dust or toxicity when the membrane is being installed.

Environmental advantages were also considered when selecting Mapei's products, a major benefit being that with Mapei's System there was minimal construction and product packaging waste, with 7690 steel 260kg drums all able to be recycled.



Lamposilex and **Planiseal 88** repair products were used before spraying the membrane to plug and patch any areas with water in-flows.

50, 000m² of **Mapeplan TUS WL**, a sheet membrane was the solution for a major intersection where there was high water ingress. Approximately 2 million kilos of **Mapelastic TU** spray was integrated with **Mapeplan TUS WL** to provide a complete waterproofing system. The waterproofing membrane consisting of a two-coat system covering over 500,000 square metres. This included two 9km tunnels and 5km of access tunnels.

The **NorthConnex** Project is the single largest spray applied membrane tunnel project completed anywhere in the world.

