Case study

Think long term

The NorthConnex Project—a new way of doing business

NorthConnex is a 9km tolled tunnel linking the M1 Pacific Motorway at Wahroonga with the Hills M2 Motorway at the existing Pennant Hills Road interchange in Sydney's north.

It will be a key freight route, taking up to 5,000 trucks off Pennant Hills Road and the local road network. This will return suburban roads to their communities, reduce traffic congestion along the corridor and improve air quality in the area.

Transurban made a submission in 2012 under the NSW Government's unsolicited proposal regime to design, build, operate and finance this 'missing link' in Sydney's road network. In May 2013, the Government announced that the proposal had progressed to Stage 3 of the process, which would include a competitive tender to select a design and construction contractor.

Taking an innovative approach to the procurement process, Transurban gave tenderers the freedom to define the project's design, which resulted in:

→ A fast-tracked timeframe and turn around

→ Reduced cost for tenderers, and

→ Innovative solutions that met the strict $2.65 billion design-build cost.

Innovative design

The preferred design solution announced by the Government in March 2014 is practical and sustainable and meets the current and future needs of Sydney by including:

→ Three-lane tunnel capacity—initially two lanes in each direction with the ability to go to three

→ High clearance to reduce the likelihood of incidents with overheight vehicles and improve the efficiency of the tunnel's ventilation

→ Optimum road geometry—a smoother and flatter geometry, which will allow vehicles to maintain normal travel speed. This means better fuel efficiency, reduced emissions and less need for lane changing, and

→ Greater internal dimensions (height and width) than previous Sydney tunnel projects—this enables greater volumes of fresh air to move through the tunnel, reducing the build-up of emissions over its length.

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Community engagement

The Environmental Impact Statement (EIS) was on public display in July 2014 for a 60-day period. This gave the community and other stakeholders an opportunity to ask questions and provide feedback through the New South Wales Government's legislated planning approvals process. Information was shared through community briefings and meetings, a community information centre, the project website and the local distribution of materials. This engagement was essential to ensure all stakeholders were involved in the project's development.

One of the concerns raised during the consultation process was the proposed location of the ventilation outlets and the potential impacts on air quality and community health. The design of the tunnel requires these outlets to be located directly above the tunnel's exit portals.

To provide the community with further information about air quality and ventilation design, the project team held a dedicated Air Quality Forum in July 2014 with over 700 community representatives as well as local Members of Parliament. The forum consisted of presentations by independent experts focusing on tunnel ventilation systems, air quality and the health impact assessment followed by a Q&A session with the audience.

Well-designed ventilation outlets are very effective at dispersing tunnel emissions so they have no measurable impact at ground level. From an energy efficiency perspective, ventilation outlets operate best when they are located near tunnel exit portals. Air quality modelling that was undertaken specifically for the NorthConnex EIS which shows that the ventilation outlets will have a negligible impact on local air quality.

In addition, NorthConnex, like all other Sydney road tunnels, will have a management plan requiring ongoing monitoring of in-tunnel air quality. The air quality readings taken during the monitoring are transmitted directly to the tunnel's state-of-the-art ventilation system which makes real-time adjustments to air flow if required to ensure air quality in the tunnel meets the required standards.

Construction of NorthConnex is expected to begin in 2015 and the road open for use in 2019.

Please visit northconnex.com.au for more information.