NorthConnex is a nine kilometre tunnel that will link the M1 Pacific Motorway at Wahroonga to the Hills M2 Motorway at West Pennant Hills, removing around 5,000 trucks off Pennant Hills Road daily.

The tunnel motorway includes interchanges to the north and south to accommodate connections at either end of the project. When complete in 2019, it will link Sydney’s north to the orbital network and enable travel from Newcastle (M1) to Melbourne without a single set of traffic lights.

NorthConnex will also boost the state and national economies by providing more reliable journeys and shorter travel times for the movement of freight.

What machinery is used on the NorthConnex tunnels?

The project will be using 19 roadheaders to excavate the nine kilometres of twin tunnels and cross passages. The first two roadheaders on NorthConnex started operation at the Southern Interchange Compound in May 2016.

What is a roadheader?

A roadheader is an excavation machine that has a rotating, rock-cutting head on the front, mounted to a boom. When the underground rock is cut, a loading device transfers the rock onto a conveyor belt which runs the spoil onto haulage trucks. The machine travels on bulldozer style tracks and weighs about 100 tonnes.

Roadheaders are extremely powerful and advanced rock-cutting machines designed to continuously excavate roadways, tunnels and chambers. They are powered electro-hydraulically, so they don’t emit fumes. They are therefore well suited to underground construction projects.

Why are roadheaders being used and not tunnel boring machines?

When compared to tunnelling with tunnel boring machines (TBM), roadheaders have a clear advantage for the NorthConnex project as TBMs can only bore a round hole. Since the NorthConnex tunnel is a twin tunnel project designed to house a road, the diverse cutting range of a roadheader is needed to make the right cut while maintaining efficient spoil management.
Where did the roadheaders come from?
The majority of roadheaders used on the NorthConnex project are designed and built by Swedish engineering company Sandvik. These have extended fields of operation for mechanised tunnelling in hard and abrasive rock formations.

NorthConnex is using three separate models of roadheaders including the MT520, MT620 and MT720. All three are in the 100 tonne class and are designed for maximum efficiency and economy. They are also all modular in design, meaning they can be reprogrammed and have parts exchanged to suit particular tasks.

Where are the roadheaders being launched from?
Roadheaders will be deployed at four separate locations between the M1 and M2 motorways on the NorthConnex project; the Northern Interchange, Trelawney Street, Wilson Road and Southern Interchange compounds every three to four weeks until December 2016.

How deep do they tunnel and what distance do they travel?
The tunnels are up to a depth of 90 metres. Over half the tunnel is more than 60 metres deep, which is about the height of the Sydney Opera House. Additional tunnelling would be required for the on and off ramps at the northern and southern interchanges. The main tunnels would be generally excavated to around 14 metres wide with a height of about eight metres. The roadheaders will tunnel approximately 20 metres per week until tunnelling is complete in 2018.

What is a cross passage?
A cross passage is a connection between the two main tunnels. The NorthConnex project will have over 70 underground cross passages along the alignment to allow the safe passage of people and equipment between tunnels.

Will there be any noise or vibration impacts from tunnelling?
Depending on the ground condition, building type and existing background noise, it is possible that tunnel construction under your property may not be noticeable. You would not be able to actually hear the excavation equipment but ground borne noise generated by the work may be experienced in properties that are located very close to the on and off ramps where the depth is shallower. A low frequency rumble up to about 45dBA may be heard when excavation equipment is working beneath your property. This is the equivalent to the vibration of a passing truck.

It is anticipated some vibration may be felt during night time work around the portals. Residents would not experience vibration on a continuous basis and would only be affected for a short period while tunnelling activities are directly below or nearby.

More questions?
The NorthConnex project team is committed to working closely with you to inform you of upcoming work over the course of the project and to minimise impact from our construction activities.

For further information on NorthConnex please don’t hesitate to contact members of the project team.

Phone: 1800 997 057 (24 hours a day)
Email: enquiries@northconnex.com.au
If you would like to receive information from us by email, please visit www.northconnex.com.au or contact the project team and register your email address.

Mail: Locked Bag 1001, West Pennant Hills NSW 2125
Visit: NorthConnex Community Information Centre, 118 Yarrara Road, Pennant Hills, open weekdays from 9am to 5pm.

NorthConnex Website
Visit www.northconnex.com.au to stay in touch with the latest project information including construction progress and activities in your area.

Visit the interactive map on the website to view the depth and route of the main alignment tunnels:
https://gis.aecomonline.net/northconnex/map_view.html

If you require the services of an interpreter, please contact the Translating and Interpreting Service (TIS International) on 131 450 and ask them to call the NorthConnex Project Team on 1800 997 057 - the interpreter will then assist you with the translation.

TIS International business hours are 9am to 5pm Monday to Friday.

For more information:
1800 997 057 (free call) enquiries@northconnex.com.au www.northconnex.com.au