



# Tunnelling Operations

Construction of the Airport Link and Northern Busway (Windsor to Kedron) projects will require a combination of tunnelling techniques.

- **Tunnel Boring Machine (TBM)** tunnelling to excavate softer ground
- **Roadheader Machine** tunnelling to excavate areas with hard rock
- **Cut and cover** technique for excavation works closer to the surface

The overall length of tunnelling and techniques used will deliver the projects ahead of the State Government's original schedule, with less impact on traffic, the community and the environment. Each excavation method is chosen for its efficiency and suitability to the local geology.



Two TBMs will be launched from Toombul

### Will I hear noise from tunnelling?

Tunnelling activities will at times, under particular conditions, generate some regenerated noise. Regenerated noise occurs when vibration from tunnelling activities travels through the ground, into the foundation of the building and vibrates the flat surfaces, creating an audible noise.

The target goal for regenerated noise during tunnelling is 45 decibels, which is similar to the noise generated from a quiet office.

### Will I feel any vibration?

Vibrations are commonly experienced during construction. However the levels vary according to the depth of tunnelling and the surrounding environment. As a standard measure, the project will continue to conduct condition surveys where required, on directly affected properties along the project alignment.



Eleven roadheaders will be used on the project

### What factors influence the levels of noise and vibration?

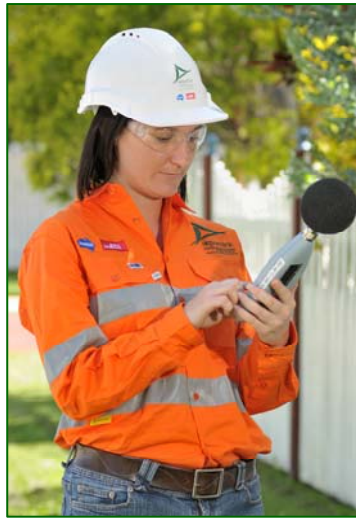
- Geology of the area
- Proximity to work site
- Foundations and design of the building

### Will noise and vibration be monitored?

Extensive noise and vibration modelling has been conducted along the tunnel alignment to predict likely noise and vibration impacts.

During tunnelling, noise and vibration monitoring will be undertaken to ensure noise and vibration is in line with anticipated levels.

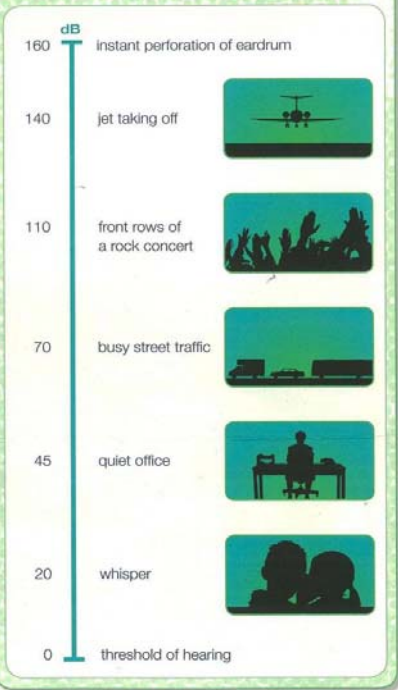
These results will be published each month on the Environment page of the project website [www.brisconnections.com.au](http://www.brisconnections.com.au)



### noise measurement

The measurement unit of noise is decibel (dB). To the human ear a 2dB increase in noise may only just be audible; however a 10dB increase in noise is sensed as doubling the noise.

The scale below provides indicators of typical noise levels from familiar sources.



### Tunnel Timeline

Mar 2009	Roadheader tunnelling commences at Truro St site, Windsor
Apr 2009	Roadheader tunnelling commences at Federation St site, Bowen Hills
July 2009	Roadheader tunnelling commences at Kedron
Nov 2009	First Tunnel Boring Machine (TBMs) arrives from Germany for assembly
Apr 2010	Second TBM arrives from Germany
May 2010	Completion of cut and cover structure and TBM launch box, Kalinga Park/Toombul
Jul 2010	First TBM begins tunnelling from Toombul to Lutwyche (eastbound mainline tunnel)
Aug 2010	Second TBM begins tunnelling from Toombul to Lutwyche (westbound mainline tunnel)
Mid 2011	TBM tunnelling completed
Mid 2012	Airport Link toll road complete
Mid 2012	Northern Busway (Windsor to Kedron) complete

### For further information about the projects:

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July 2009

