

AUSTRALIA

ACTIVITY REPORT 2014

Australasian Tunnelling Society (ATS)

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The Australasian Tunnelling Society is a Technical Society of Engineers Australia (EA) and affiliated with the Australasian Institute of Mining and Metallurgy (AusIMM) and in New Zealand with the Institution of Professional Engineers New Zealand (IPENZ).

In 1973 the Institution of Engineers, Australia (now Engineers Australia) and the Australasian Institute of Mining and Metallurgy (AusIMM) collaborated in the formation of the Australian Tunnelling Association (ATA) to operate independently from AGS. Later in 1981 the name of the association was changed the Australian Underground Construction and Tunnelling Association (AUCTA). In late 2005 a New Zealand Chapter of the Technical Society was formed, and in order to better reflect its international membership, AUCTA changed its name to the Australasian Tunnelling Society (ATS).

The ATS has over 650 individual members, over 50 company Gold and Silver Members and four Platinum company sponsors.

The society has active Groups in Sydney, Brisbane, Melbourne, Perth and Auckland that meet regularly with presentation of technical sessions.

The society organizes a technical conference every 3 years and training courses every 2 years.

The society also encourages young engineers through the David Sugden award for writing a technical paper every year with the award of attending the next ITA Congress.

The society recognizes top professionals at its Conference every three years with the award of the Allen Neyland Award,



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WestConnex

The WestConnex will link the M4 to the M5 via Sydney Airport, integrating a 13km tunnel as part of the new plans. Construction will start in 2015 and as each stage is completed parts of the motorway will be opened with the final stage due to open in 2023. Another tunnel, running from Balmain to Lane Cove, is expected to support the 33km WestConnex motorway, making it easier for motorists to drive between Sydney's western suburbs and denser inner areas.

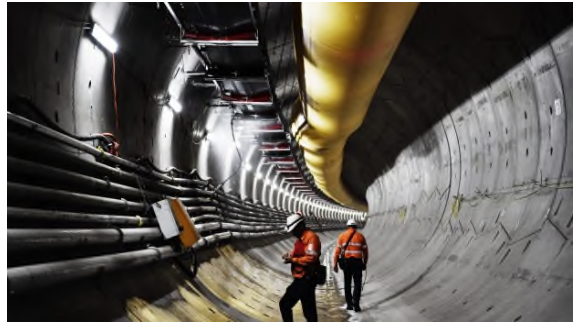
NorthConnex

Lend Lease has won the contract for the \$2.6 billion NorthConnex motorway in Sydney, giving the group its second controversial tunnel project in six months. The project will provide a link between the southern end of the M1 Pacific motorway at Wahroonga to the Hills M2 motorway at its existing Pennant Hills Road interchange. Lend Lease is in a joint venture with French entity Bouygues Construction to deliver the project on behalf of Transurban which will operate the road. Spanning 9km, NorthConnex will be the longest road tunnel project in Australia. Construction of the tunnel will begin in early 2015 and is expected to be completed in 2019.

North West Rail Link

The fourth North West Rail Link tunnel boring machine has started digging and has been named 'Maria', after 19th century Aboriginal rights advocate Maria Lock. Meanwhile on 21st January after 25,000 hours underground smashing through 206,000 tonnes of crushed rock in north-west Sydney, Elizabeth, the state's premier tunnel boring machine, punched through the walls of Norwest station in Baulkham Hills. The North West Rail Link is the first transport project in Australian construction history to use four Tunnel Boring Machines (TBMs). After starting four months early in September 2014, tunnelling is now well

underway to deliver Australia's longest railway tunnels.



twin 15 kilometre tunnels from Bella Vista to Epping

Perth bus tunnel

The City of Perth is unlikely to support plans for a "congestion-busting" bus tunnel under Wellington Street, saying it is based on flawed and exaggerated modelling and will undermine the vision for the area. The tunnel is intended as a second entry to the future Perth underground busport. Its entrance will be in the centre of Wellington Street with two traffic lanes either side.

Forrestfield-Airport rail link

The tunnels will be twin-bored, concrete-lined and 6.2m internal diameter. They will extend 7.1km from Guildford Road in Bayswater, where the link connects into the existing Transperth rail network, to Dundas Road in Forrestfield, where the rail line will emerge above ground. There will be three stations; Airport West station will be located underground in the Brearley Avenue road reserve, between Second Street and Dunreath Drive, close to the current Domestic Airport precinct. Parking for 500-1000 cars will be provided along with a bus interchange. The Consolidated Airport station will be near to the international terminal, just South of the airport control tower and the Forrestfield Station terminus will have parking for 2000-2500 cars and also a bus interchange. The project requires tunnelling beneath the Swan River as well as the two active runways at Perth International Airport.

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Expressions of interest in the project close on March 12. A contract is expected to be awarded in July next year, with construction due to be completed in 2020.

Melbourne East West Link

The East West Link is a proposed 18 kilometre tollway in Melbourne, Australia, to run from the western suburbs to the Eastern Freeway. The Victorian Coalition Government signed a \$5.3 billion contract with the East West Connect consortium in September 2014 to build the road, with work on the first stage scheduled to begin at the end of 2014 and completion by 2019. But a change in government at the November 2014 state election has now put the project in doubt, with the incoming Labour administration opposed to its construction.

Legacy Way tunnel

Legacy Way is Brisbane City Council's 4.6km road tunnel that will connect Brisbane's western and inner northern suburbs. It is the fourth project in Council's TransApex plan, designed to reduce congestion and increase connectivity on Brisbane's road network. The Legacy Way tunnel is now over the 80 per cent complete and traffic is expected to be using the road by April 2016. The Legacy Way project won the Environmental Mitigation Award at the 2014 International Road Federation Global Road Achievement Awards.

Bat Tunnel

The BaT (Bus and Train) project is a proposed new north-south tunnel that would deliver bus and rail together in a world-first design. It combines a railway and a busway in a single, double-decked, 15m-wide tunnel beneath the Brisbane River and Brisbane's central business district (CBD).

The project includes 3 new underground stations at Woolloongabba, George Street and Roma Street and an upgrade of Dutton Park Station. The \$5 billion bus and train tunnel project, running from Dutton Park in Brisbane's south to Spring Hill in the north, will help solve a bottleneck problem in the south east Queensland rail network. The BaT project would be a critical new link in south-east Queensland's public transport network by creating new major transport hubs across the city and inner city suburbs. The project tackles Brisbane's major public transport capacity challenges—the inner city rail network, the Merivale Bridge, the Cultural Centre bus precinct, Central Station and the Captain Cook Bridge. The Queensland Government (through the Department of Transport and Main Roads and Projects Queensland) is planning the project in partnership with Brisbane City Council.

Waterview Connection Project



Alice the tunnel-boring machine has completed the first of the twin road tunnels that will connect Auckland's Southwestern and Northwestern motorways as part of the Waterview Connection project. The New Zealand Transport Agency (NZTA) said it had taken just less than a year for Alice to complete her 2.4 kilometre underground journey from Owairaka to Waterview. She broke through into daylight on 29th September 2014. The tunnel is the tenth-largest diameter tunnel in the world. Once opened in early 2017, the \$1.4 billion 5km, six-lane motorway link will carry three lanes of

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southbound traffic up to 40 metres below Avondale and Waterview in the tunnel. On completion of the first drive Alice was turned around to bore the northbound tunnel.

Arras Tunnel

The Arras Tunnel in Wellington is part of the \$120-million dollar National War Memorial Park project, due to be completed in time for Anzac Day commemorations next year. The tunnel was officially opened by Culture and Heritage Minister Chris Finlayson on 28th September 2014 followed by a public walk through of the 150-metre long tunnel.

Grosvenor Decline Tunnel Project

In August 2014, major progress was made at a coal mine in Queensland, Australia, when a Robbins Dual Mode EPB/Rock TBM was successfully rolled out from the first of two access tunnels. The specialized machine is the first TBM to be used at a coal mine in Queensland. The 8.0 m (26.2 ft) Robbins machine and continuous conveyor system were chosen by project owner Anglo American for the Grosvenor Decline Tunnel Project, where it began excavation in December 2013 for two tunnels consisting of sedimentary hard rock up to 120 MPa UCS, mixed ground of mainly sand and clay, and coal seams.

