



Tunnel entrance at The Bays Station site.

# Tunnelling update – Sydney Metro West Central Tunnelling Package

## November 2023

The NSW Government is delivering Sydney Metro West – a new underground metro railway which will double rail capacity between Parramatta and the Sydney CBD, link new communities to rail services and support employment growth and housing supply.

Sydney Metro West stations will be located at Westmead, Parramatta, Sydney Olympic Park, North Strathfield, Burwood North, Five Dock, The Bays, Pyrmont and Hunter Street in the Sydney CBD.

Sydney Metro has been granted planning approval to construct twin underground rail tunnels between Westmead and Hunter Street in the Sydney CBD for Sydney Metro West.

Acciona Ferrovial Joint Venture (AFJV) has been awarded the contract to deliver 11 kilometres of twin metro rail tunnels between The Bays and Sydney Olympic Park and excavate five new metro stations.

### Tunnelling overview

Two tunnel boring machines (TBMs) were launched from The Bays Station site earlier this year and are currently tunnelling under Five Dock. Tunnelling will continue to be carried out 24 hours a day, seven days a week. The average tunnel depth between The Bays and Sydney Olympic Park is 35 metres.

All material excavated by the TBMs is transferred via conveyor belts within the tunnel to a storage shed at The Bays Station site and then removed by trucks for reuse at various other sites across greater Sydney.

Once tunnel excavation is complete in a specific area, the tunnel invert (floor) is constructed behind it. This is then followed by the excavation of cross passages between the two tunnels, which is outlined in more detail on the back page of this newsletter.

## Tunnel boring machines

The two double-shield, hard rock TBMs were specially built for Sydney's geology to cut through the hard sandstone. What makes these two TBMs unique is that they include refurbished cutterheads, front shields and gripper shields from the mega boring machines used on the Sydney Metro City & Southwest project, that carved out the metro tunnels from Chatswood to Blues Point.

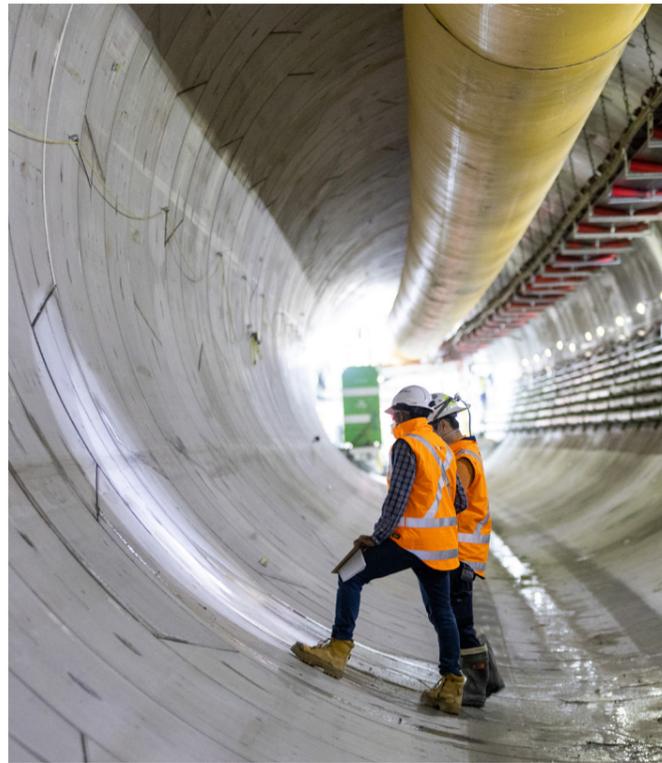
Each TBM is excavating up to 200 metres of tunnel each week and is expected to arrive at the metro station site in Sydney Olympic Park by late 2024.

## Excavation and tunnel lining

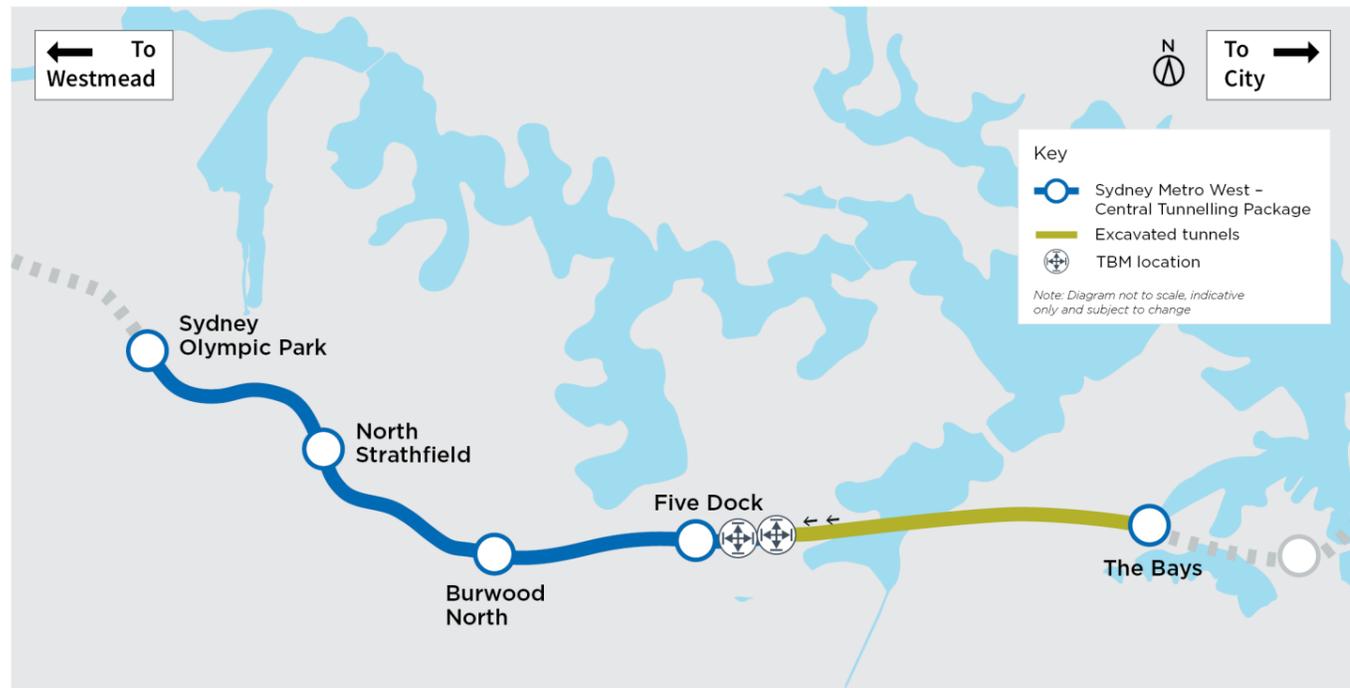
About two million tonnes of material will be excavated and removed from the tunnels via conveyors that run through the middle of the machines back to the entrance of the tunnels at The Bays Station site.

At the rear of the TBM shield there is a mechanism that inserts precast concrete segments to form, line and seal the tunnel as the TBM progresses along the tunnel alignment.

Over 70,000 concrete segments will be used to line the twin tunnels between The Bays and Sydney Olympic Park. The segments are being made at a purpose-built facility at Eastern Creek.



Quality assessments taking place inside the tunnel.



## Project alignment map

An interactive map is available where you can enter a property address to see the approximate distance to the tunnels. To view the interactive map visit [caportal.com.au/tfnsw/sydmetrowest/map](http://caportal.com.au/tfnsw/sydmetrowest/map)

To follow the progress of the Sydney Metro West tunnel boring machines visit [sydneymetro.info/sydney-metro/journey-sydney-metro-west-tunnel-boring-machines](http://sydneymetro.info/sydney-metro/journey-sydney-metro-west-tunnel-boring-machines)



Vertical conveyors at The Bays Station site.

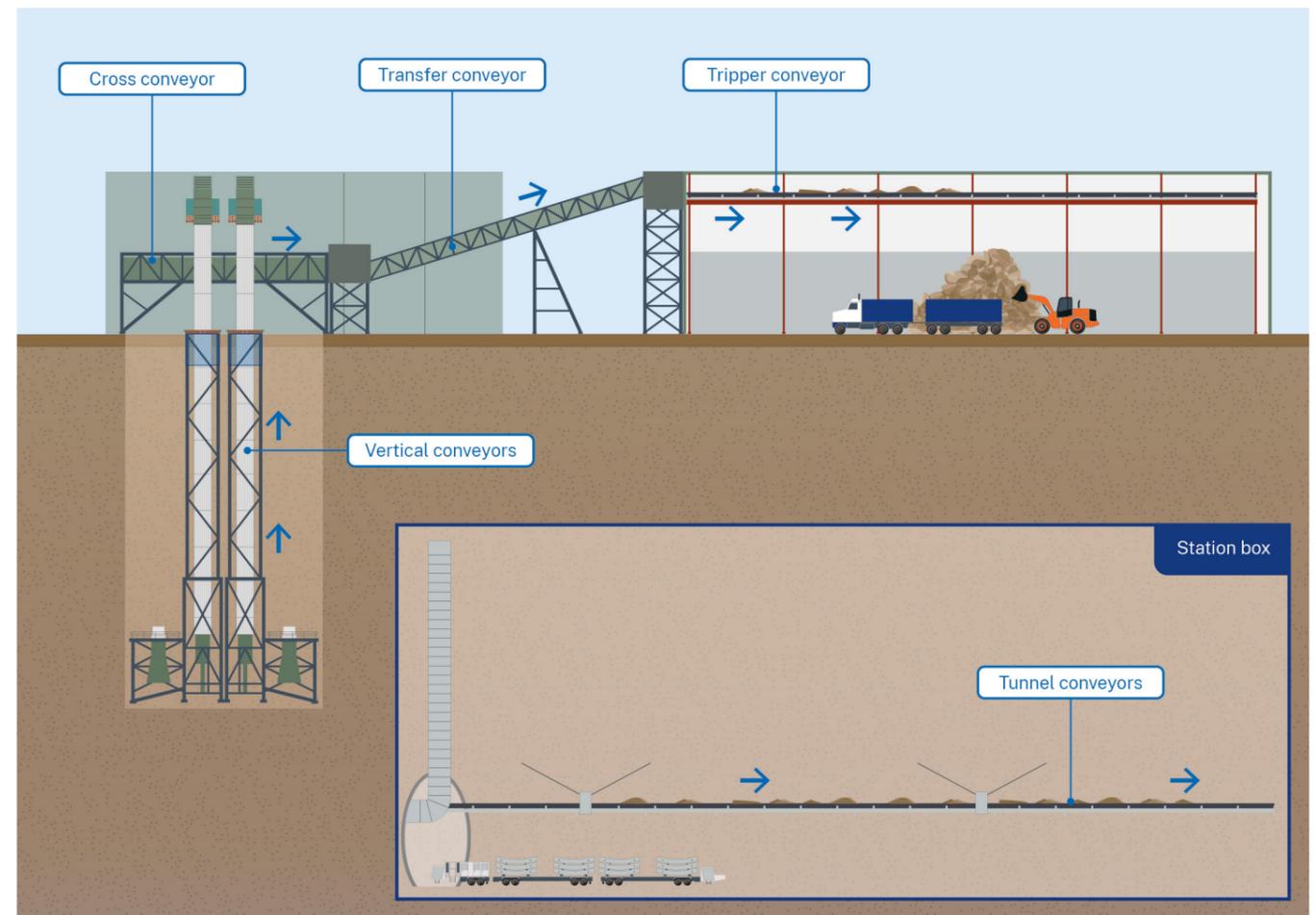
## Conveyor system

An extendable tunnel conveyor system has been installed to transport excavated material from each TBM to a storage shed located at The Bays Station site. The material is then loaded onto trucks and transported to other sites around Sydney.

The conveyor system includes a series of horizontal and vertical conveyors. The highest point of the conveyor system is 51 metres above the bottom of the station box.

The vertical conveyor bridge contains over 2750 bolts, nuts and washers that needed to be twisted to meet the design requirements before the structure could be lifted and installed over the station box.

The conveyor system can move up to 828 tonnes of excavated material per hour.



Conveyor system at The Bays Station site.



Cross passage excavation.

The Central Tunnelling Package virtual engagement room for Sydney Metro West is now live.

To learn more about important aspects of the project visit [caportal.com.au/afjv/ctp/virtual](http://caportal.com.au/afjv/ctp/virtual) or scan the QR code.



## Cross passages

A cross passage is a short tunnel that connects the two metro tunnels, located around every 240 metres along the tunnel alignment. Cross passages are an important safety feature that allow people to move from one tunnel to the other in the unlikely event of an emergency. Each cross passage is around five metres wide, six metres high and up to nine metres long.

Construction of cross passages will occur below ground after the TBMs have passed through the area. A remote-controlled excavator with a rock breaking hammer will be used to excavate the passages. Cross passage construction takes around four weeks to complete which includes excavation, lining, concreting and fit out work.

Cross passage construction will occur 24 hours a day, seven days a week. Specific notifications will be issued to properties located near cross passages between seven and 14 days before work starts.

## Property condition surveys for eligible properties

To give peace of mind to local residents and businesses, all properties 15 metres from the outer edge of the underground tunnels will be offered a free property condition survey before and after tunnelling work occurs in the area. A letter of offer is sent to eligible property owners around three months before the first TBM is expected to arrive.

## Vibration and ground-borne noise

Residents above and close to the tunnel alignment may experience some vibration and ground-borne noise. Levels of impact will vary based on geology, construction type of the building and individual sensitivities.

Expected vibrations are far lower than what could cause cosmetic damage. Ground-borne noise results from vibrations transmitted through the ground regenerating as a low frequency rumbling noise in buildings. Like vibration, ground-borne noise becomes noticeable as the TBM approaches and then goes under or past properties. It normally takes about two days for a TBM to pass under a property.

Regular monitoring will be undertaken to ensure noise and vibration is within the expected levels. For further information, you can read our Tunnelling Detailed Noise and Vibration Impact Statement (DNVIS) available at [acciona.com.au/sydney-metro-west-ctp](http://acciona.com.au/sydney-metro-west-ctp).

## BE TRUCK AWARE

Look out  
before you  
step out



## Contact us

If you have any questions or would like more information please contact our project team:

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