



Artist's impression of Burwood North Station.

Excavation continues at Burwood North Station site

June 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, with a target travel time of about 20 minutes between the two centres.

Sydney Metro West stations have been confirmed 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 Ferrovia 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.

Burwood North construction site

Burwood North Station will be located at the corner of Burwood and Parramatta roads, with entrances on both the north and south sides of Parramatta Road.

At the northern construction site excavation is continuing on the station box which will be 32 metres deep and at the southern construction site excavation will soon begin on a 14 metre deep shaft. An underground pedestrian link is being built that connects the two sites under Parramatta Road.

An acoustic shed has been built over part of the station box site which will house major tunnelling activity. An underground rail crossover cavern is under construction to the west of the station box. This is where trains will be able to change to the other track so maintenance work can be carried out with minimal interruption to services.



Entrances to the underground pedestrian tunnel (left) and crossover cavern (centre) are located inside the excavated station box.

Underground pedestrian tunnel.

Tunnelling progress

Both the underground pedestrian walkway and the crossover cavern are built using roadheaders. Roadheaders are powerful rock cutting machines that are often used for road and rail tunnel projects.

With their highly advanced computer systems, roadheaders can accurately excavate in a wide range of rock formations. Using a rotating cutter head attached to a boom, they can freely swing from side to side or up and down.

The cutter head looks like a pineapple with 30 tungsten carbide teeth that are capable of cutting through rock three times harder than concrete. Like an excavator, a roadheader has a crawler track which allows it to move forward as it cuts away the rock face. The excavated material is moved through the middle section of the roadheader via two conveyors into bins for removal offsite.

Underground pedestrian walkway

Two new station entrances will be located on Burwood Road, to the north and south of Parramatta Road. An underground pedestrian walkway will provide direct access to the station from the south side of Parramatta Road.

A roadheader was used to tunnel under Parramatta Road to create the pedestrian walkway, which is about 60 metres long and 8 metres below ground. Over 2,390 cubic metres of material was removed to construct the walkway and the final concrete lining is now being installed.

Piling now complete

AFJV recently completed the final pile on the Central Tunnelling Package at North Strathfield metro station.

Having started piling operations in early 2022, the team has invested over 250,000 hours across 15 months to build the geotechnical components of five station sites.

The construction utilised eight piling rigs and thirteen drilling rigs for the following tasks:

- A total of 1,958 piles for foundations
- A total of 31,283 metres of drilling for the installation of 895 ground anchors



A piling rig at the North Strathfield metro station site.



Crossover cavern entrance.

Station box excavation.

Crossover cavern progress

The crossover cavern is being built using two road headers. The main function of the cavern will be to allow trains to change to the other track so maintenance work can be carried out with minimal interruption to services.

The crossover cavern is around 145 metres long, 14 metres high and 24 metres wide. To date almost 17,000 cubic metres of excavated material has been removed and the cavern is about 50 per cent complete.



The southern construction site where a 14 metre deep shaft will soon be excavated.

Station box progress

Major work on the station box excavation is continuing. The station box will be 197 metres long, 27 metres wide and 32 metres deep. To date almost 92,000 cubic metres of excavated material has been removed from the station box which is around 60 per cent complete.

Shaft progress

Excavation of a shaft about 14 metres deep at the southern construction site is to facilitate a second entry to Burwood North Station south of Parramatta Road.

Piling is now complete on this site and capping beam work is underway. Piling is the construction of underground reinforced concrete columns that provide the vertical and horizontal support to the shaft. The capping beam ties together the top of the piles which were previously installed around the shaft perimeter.

Because of the small site footprint, a turntable is being installed to allow spoil trucks to enter and exit via Burwood Road. Excavation is due to start at the southern site in June 2023.

Construction timeline

We are here				
Early to late 2022	Mid 2022 to late 2023	Early 2023 to late 2024	Early 2024	Early 2025
Site establishment and demolition	Shaft and station box excavation	Crossover cavern excavation and lining	Tunnel boring machine arrival	Site handover for station construction

Six month construction look ahead

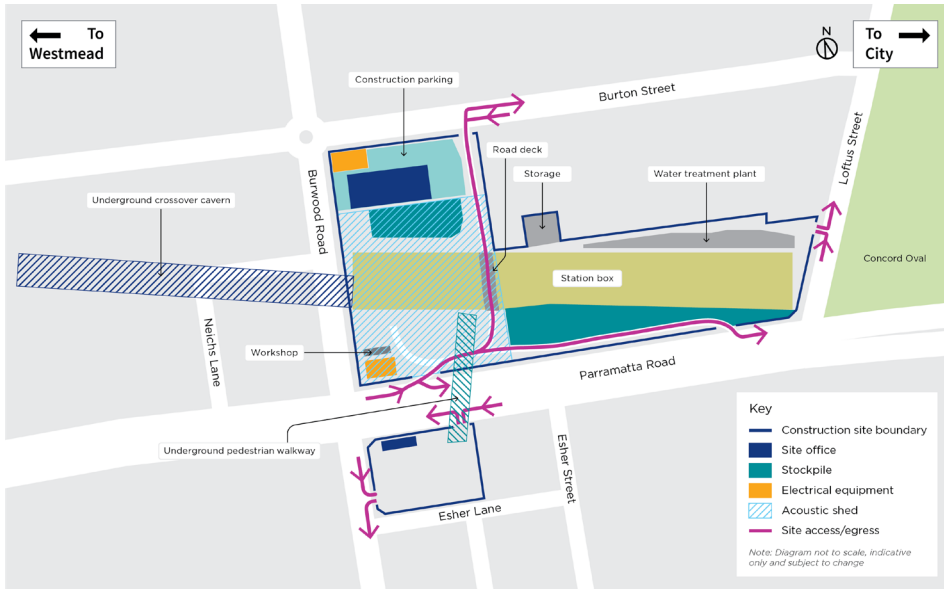
Activity (subject to change)	Jun	Jul	Aug	Sep	Oct	Nov
Utility investigations, relocations and installations	●	●	●			
Nozzle excavation	●					
Station box excavation	●	●	●			
Crossover cavern excavation and lining	●	●	●	●	●	●
Southern shaft anchors, capping beam and excavation	●	●	●	●	●	●

Construction activity ●

Construction hours

Standard construction hours
Monday–Friday 7am to 6pm,
Saturday 8am to 6pm

Tunnelling and removal of excavated material
24hrs per day 7 days per week but only the site entry and exit on Parramatta Road can be used between 10pm and 7am



Burwood North Station site layout.

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 or scan the QR code.



Tunnel boring machines

The two double-shield, hard rock TBMs were specially built by world-leading TBM manufacturers Herrenknecht 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.

Each TBM is expected to excavate around 200 metres of tunnel each week and arrive at the Burwood Station site by early 2024.

TBM fast facts:

- Each TBM weighs almost 1,300 tonnes, equivalent to three Boeing 747 jets
- 165 metres long, longer than two Airbus A380s
- Approximately seven metres in diameter
- 38 disc cutters per cutterhead, each more than 48 centimetres in diameter
- Heaviest pieces of the TBM are the front shield and gripper shield which weigh approximately 280 tonnes each.

Travel times from Burwood North Station



- minutes to **Parramatta**
- minutes to **Sydney Olympic Park**
- minutes to **Hunter Street**



Assembly of the first tunnel boring machine inside the station box at The Bays.

Have your say

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

1800 612 173 Community infoline open 24 hours

MetrotunnelsAFJV@transport.nsw.gov.au

Sydney Metro West

PO Box K659, Haymarket NSW 1240



Translating and interpreting service

If you need help understanding this information, please contact the Translating and Interpreting Service on 131 450 and ask them to call us on 1800 612 173.



Access information in over 100 languages.

Download **Sydney Metro Connect** from the App store or get it on Google Play.