

- Option 1 Meet outside St. Pauls Cathedral at the corner of Swanston Street and Flinders Lane at 09:00 (limit of 20 – this option involves a lot of walking).
- Option 2 Meet at ANZAC Station stop at 09:15 where the trams stop travelling towards the suburbs. This option does the same walks as option 1 and then visits the foyer of Town Hall Station at 1500 before visiting the Metro HQ for an update.
- Option 3 This option involves either the 09:00 or the 15:00 session at the Metro HQ plus the visit to the foyer at Town Hall Station only, therefore no walking required except at the foyer and the walk to Tunnel HQ. Those on option 3 can of course join us for lunch at the Lion Hotel. Please let the booking officer know if you intend to join us for lunch.
- 10:20 Participants in option 1 depart City & option 2 ANZAC Station by tram for Melbourne University (times will vary for both groups)
- 10:50 Walk to Parkville station site for an inspection.
- 11:10 Travel by 401 bus to North Melbourne station.  
Walk to the new Arden station site for an inspection.  
Continue walking along Arden Street to Abbotsford Street.
- 12:00 Travel by tram route 57 to Melbourne Central station.
- 12:30 Lunch at the Melbourne Central Lion Hotel. Around 12:30
- 14:00 After lunch, both groups walk to the Library Station site for an inspection. Then group 1 travels by tram to ANZAC Station where their tour ends while group 2 starts their visit to the foyer of Town Hall Station.

This is the third time this Tour has been run, last time was nearly 1 year ago on Tuesday 6<sup>th</sup> of June 2022. It was a wet day and the walking sections were not completed last year.

**If you get separated from the group, you can ring Hugh Waldron 0499 176 770 or Geoff Wallace on 0412 056 033 on the day.**

We leave the Metro Headquarters in Swanston St & catch a Tram up Elizabeth St to Melbourne University & walk to Parkville Station, site then catch the bus to North Melbourne Station.

We walk to the Arden Station Site and then continue along Lauren St to Arden St to Abbotsford St to catch the Tram 57 back into the City.

We eat at the Lion Hotel in Melbourne Central.

After lunch we walk across the road to look at Library Station Site.

Option 1 Group get Tram down to Anzac Station.

Option 2 Group go down St Pauls at Swanston & Flinders Lane for 15:00 look at Town Hall Station & Metro Tunnel Headquarters talk.

TBM breakthrough and retrieval

In mid-February 2020, the first tunnel boring machine (TBM), Joan, arrived at the TBM retrieval shaft adjacent to South Kensington station. In mid-March 2020, the second TBM, Meg, also arrived and broke through into the shaft at Childers Street.

When the TBM cutterhead 'broke through' into the retrieval shaft, the shaft was filled with water to balance groundwater levels while the final section of the tunnel is constructed. After the water was drained, the TBM cutterhead was retrieved. Water was pumped back to the water treatment plant at the Arden Station site via the TBM.

The TBM cutterhead and front shield sections were cleaned and disassembled using high pressure cleaners and hand tools before being removed from the retrieval shaft and loaded onto trucks using a crane. The rear (gantry) sections of the TBM travelled back to the Arden Station site through the constructed tunnel.



Western Portal overhead view showing Cutting Heads about to be retrieved & taken back to Arden Station site by truck for reuse on next tunnel to be bored.



Arden Station showing framework to support the arches as they are being installed.



Workers in the Tunnel showing the size of Tunnel. Big build website.



Arden St Station Entrance arches completed. Photo by GWa

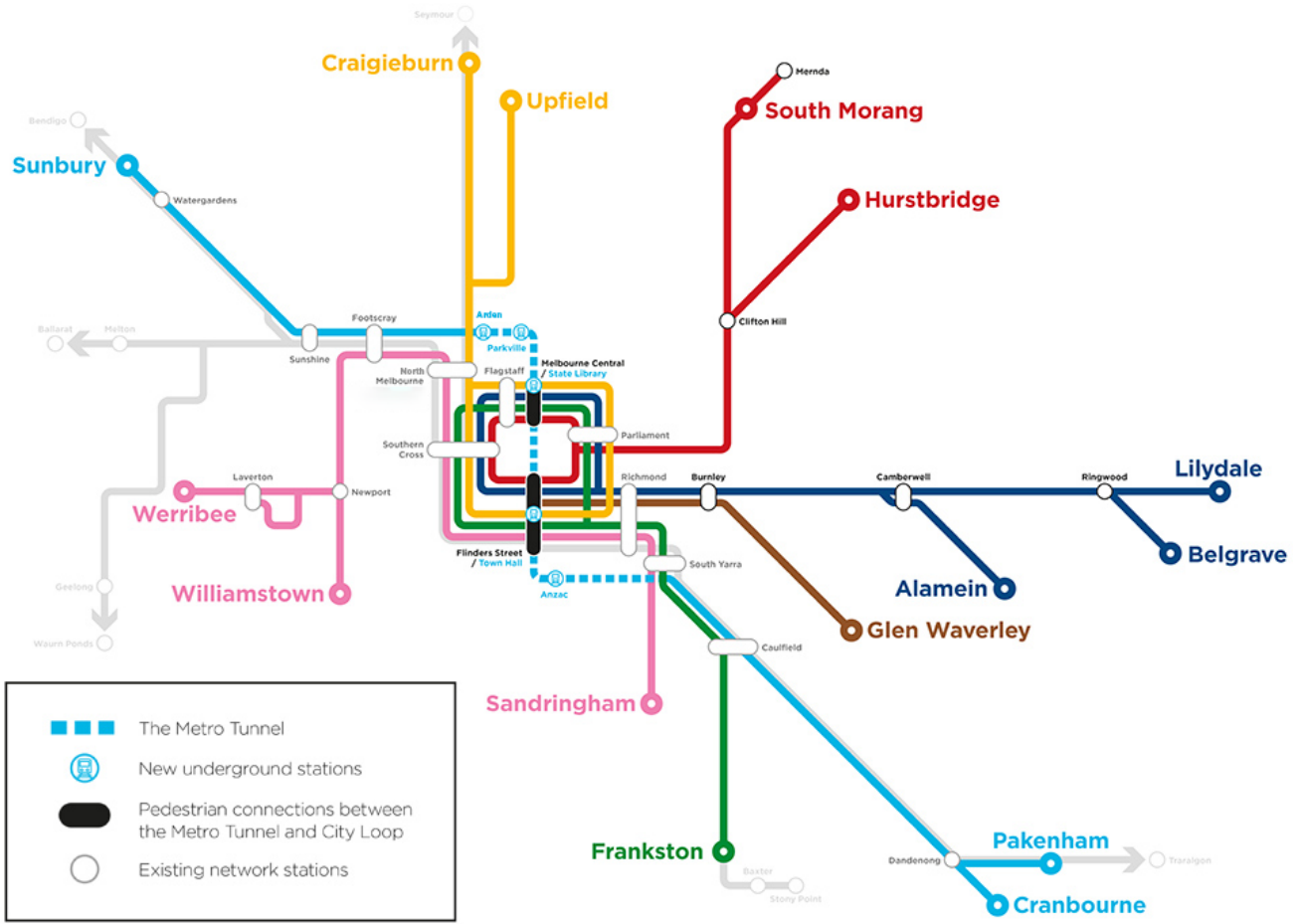
## Arden Station

The new Arden Station will echo North Melbourne's rich industrial history and character.

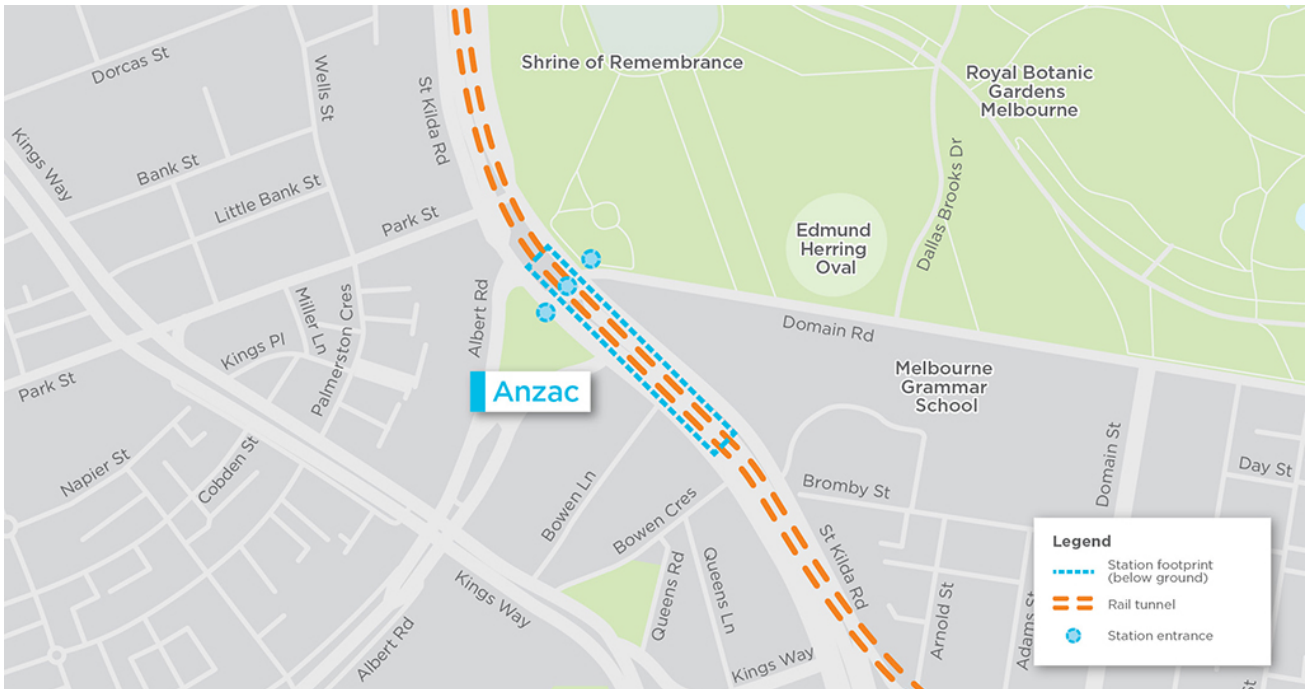
The station's key architectural feature will be a massive brick archway, made up of 15 individual arches, 52 precast concrete segments and 104,000 bricks, that will serve as the station's landmark entrance.

The archway's bricks are locally made in Victoria and then constructed into precast segments at a facility in South Australia – the only precast concrete business in Australia with the capacity for such logistically challenging work. Each brick is hand-cut to fit into the arches and then secured to the concrete segments using stainless steel ties, mesh and epoxy. Each segment weighs between 45 and 50 tonnes.

The 15 main arches are made up of these individual segments, slotting together to create the arch structure. There are 34 different segments, each requiring complex mould changes to shape key elements of the entrance including door openings and ticket windows.



Suburban Rail Network after Metro Completed 2026?



Anzac Station.

Each arch segment is created using a pre-cast concrete and steel mould into which the concrete is poured and the brick segments are set.

The arches' steel reinforcement cages are custom built to the design of each concrete frame. The cages are placed into the moulds before the segments are poured.

An extensive set of steel formwork was set up on location to support installation of the arches. The arch segments were delivered to the Arden Station site progressively and installed during the second half of 2021.

Work is ongoing to late 2022 to finish construction of the station entrance.

## TBM Progress

FOUR huge tunnel boring machines have finished 20 months of digging under Melbourne to create two nine kilometre-long, 6.3metre-high rail tunnels lined with around 250,000 tonnes of concrete for the Metro Tunnel Project.

The work included tunnelling just 1.5metres underneath the City Loop as trains continued to run, as well as digging 12 metres under the Yarra River bed and around seven metres below the Burnley Tunnel.

TBM Meg arrived at the Town Hall Station site 25 metres under Swanston and Collins streets, following Millie, Joan and Alice, which have broken through at the station over the past month.

TBMs Joan and Meg – dug their final 670 metres under Swanston Street from the State Library Station site over the past three months. TBMs Millie and Alice – began tunnelling in December to complete their final 1.8km leg under St Kilda Road and the Yarra River.

It's been a large task for the four machines, which have tunnelled on six separate legs between Kensington and South Yarra, installing more than 55,000 curved concrete segments to create a waterproof tunnel lining.

The TBMs have dug as deep as 40 metres below ground (under the northern end of Swanston Street) and tunnelled through basalt rock, gravel and silt and clay. After starting work progressively from August 2019, the TBMs tunnelled an average of 90 metres a week, with TBM Alice recording the best rate of 195 metres in a single week.

The machines have removed 600,000 cubic metres of rock and soil, or around one third of the total 1.8 million cubic metres to be excavated for the entire project – enough to fill the MCG 1.2 times.

While the TBMs have finished the rail tunnels between the project's five stations, road-headers – huge digging machines excavating the CBD station caverns – are still at work digging the final section of tunnels alongside the platforms at Town Hall Station.

With their work in Melbourne finished, the four TBMs are being dismantled underground and retrieved, with the 'skin' of each TBM shield to remain in the tunnels to form part of the permanent lining. The remaining components will be assessed for potential reuse on other tunnelling projects.

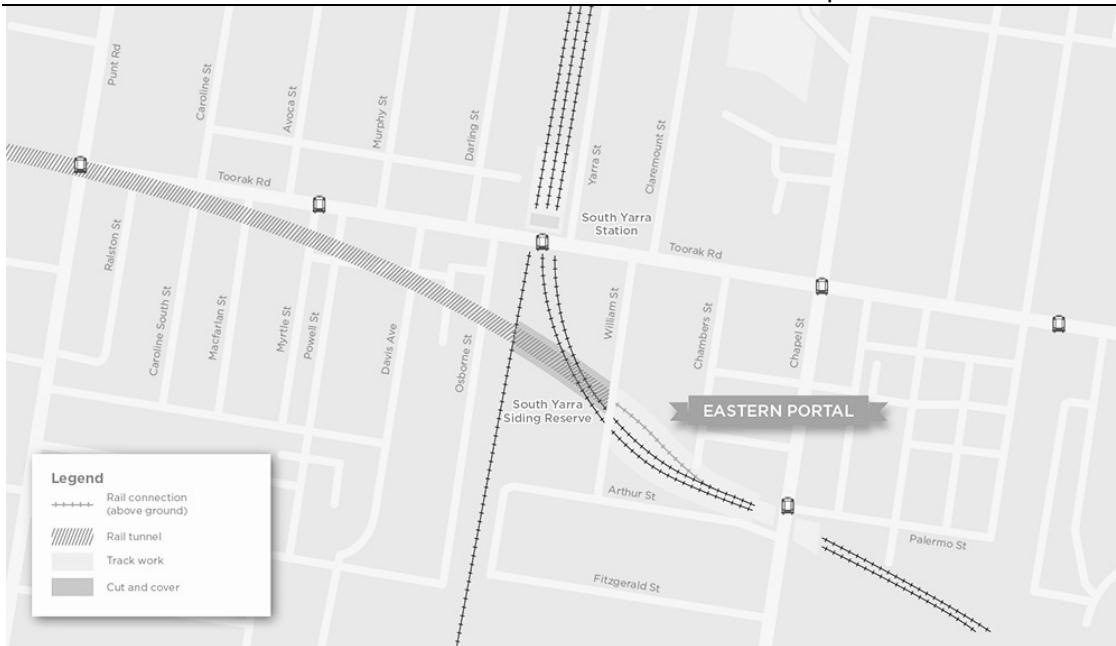
Attention now turns to the next phase of works on the project, with construction well underway on the 26 cross passages – the short tunnels that connect the main tunnels and are an important safety feature for passengers should an incident occur. With the tunnel entrances at South Yarra and Kensington completed, work has also begun to connect the entrance structures to the tunnels.

Transport Infrastructure Minister Jacinta Allan said this was a "huge milestone" for the team at Metro Tunnel.

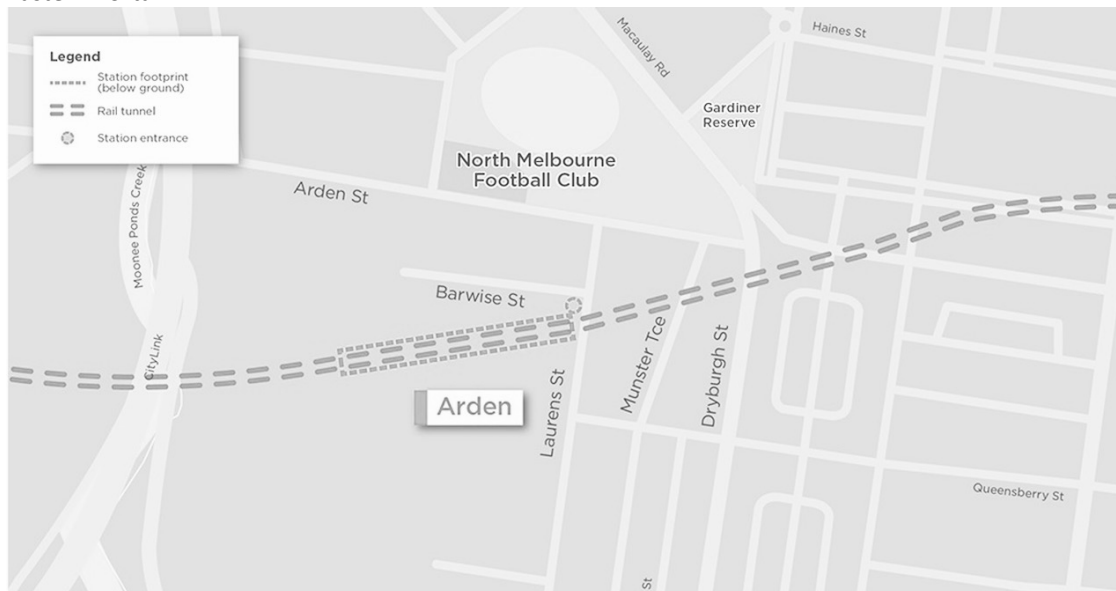
"This vital project is a year ahead of schedule but there's still with a huge amount of work to be done to finish the stations and get the tunnel ready to deliver more trains, more often," Allan said.

"Projects like the Metro Tunnel will connect key locations including the Parkville Medical and Education precinct, St Kilda Road and the Arden Precinct to the Rail Network for the first time and is supporting thousands of jobs."

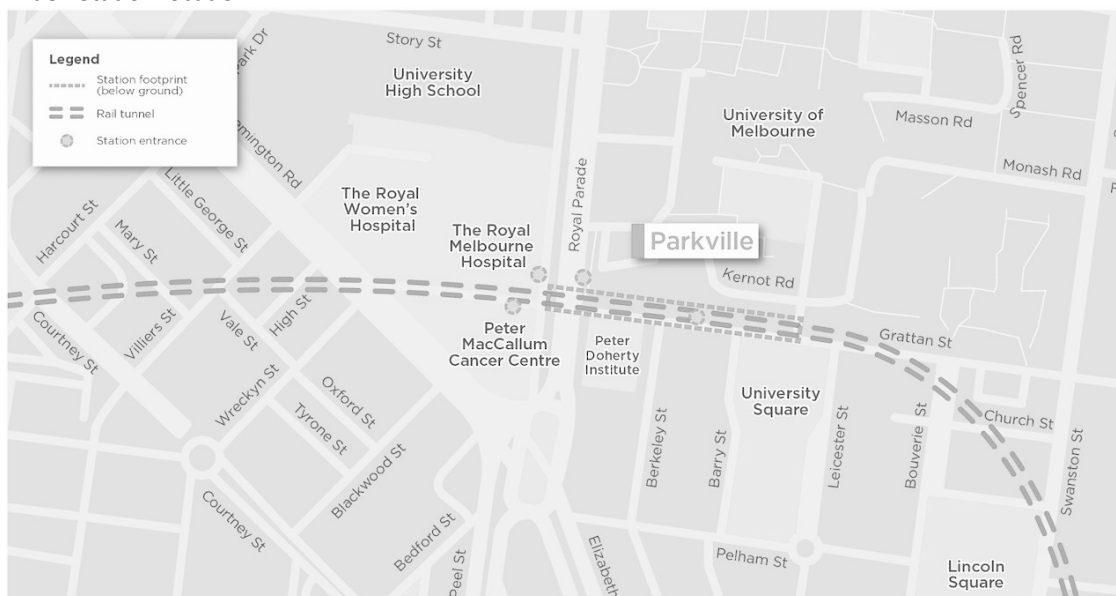
Association of Railway Enthusiasts Luncheon Outing Group (LOG)  
 #21 Metro Tunnel HQ & Site Visits 4<sup>th</sup> April 2023



Eastern Portal.

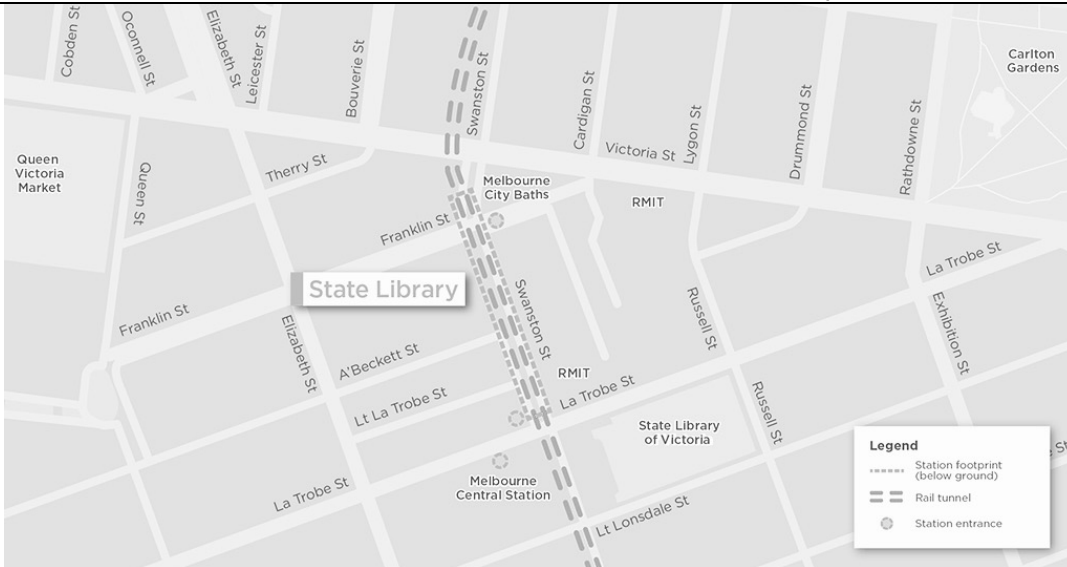


Arden Station location.

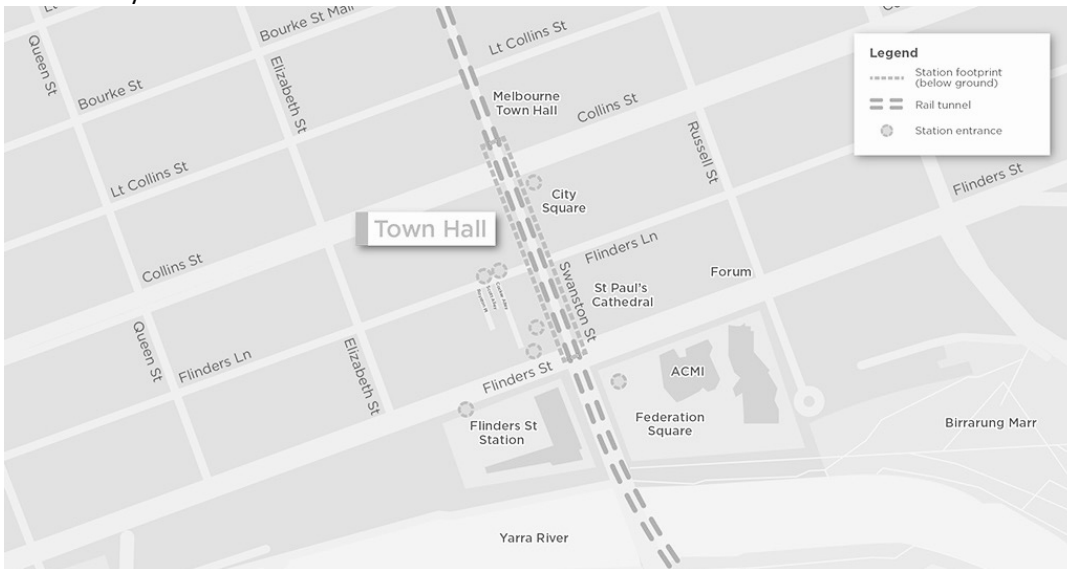


Parkville Station location.

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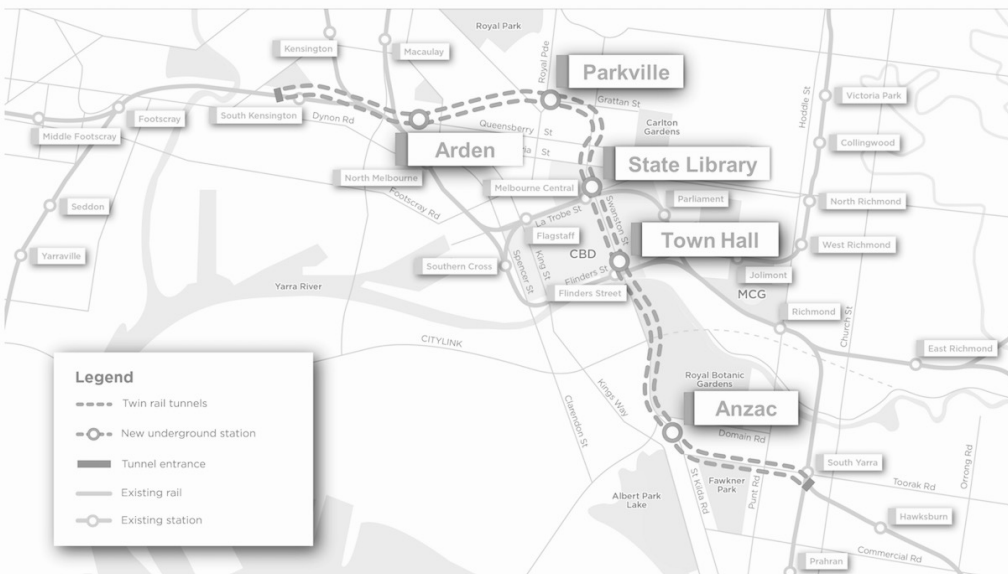


State Library Station location.



Town Hall Station location.

### Metro Tunnel route



Information from <https://bigbuild.vic.gov.au/projects/metro-tunnel> and Photo by Geoff Wallace GWA  
 Notes compiled by Geoff Wallace  
 E&OE