



METRO TUNNEL PROJECT

EXPANDING MELBOURNE'S UNDERGROUND RAIL NETWORK

UPDATE FOR THE BOTANICA
WEDNESDAY 9 NOVEMBER 2016

Melbourne Metro Rail Authority



EES UPDATE

METRO TUNNEL ENVIRONMENT EFFECTS STATEMENT (EES)



- Assessed **concept design** plus a performance-based approach to mitigating, managing impacts
- **Environmental Performance Requirements (EPRs)** developed by MMRA – define outcomes that must be achieved – enforced in contracts
- **Environmental Management Framework (EMF)** contains the EPRs
- An **Environmental Management System (EMS)** will track and monitor performance
- Supported by an **Independent Environmental Auditor**

METRO TUNNEL EES FEEDBACK & HEARINGS



METRO TUNNEL DESIGN CHANGES THROUGH EES PROCESS



- Removal of Fawkner Park as TBM launch site (Technical Note 16) – **saving 62 trees**
- Removal of the emergency access shafts in Fawkner Park and Domain Parklands (Technical Note 55) – **saving 7 trees** (and potentially a further 14 trees)
- Tunnels travelling under CityLink, rather than over CityLink (Technical Note 65) – **saving 46 trees**

METRO TUNNEL EES MILESTONES



| Key EES milestones | Timeframe |
|--|-------------------------------|
| Public Exhibition | 25 May – 6 July |
| Inquiry hearings | 22 August – 7 October 2016 |
| Minister for Planning decision on EES and PSA | Late 2016 / Early 2017 |

ENVIRONMENTAL PERFORMANCE REQUIREMENTS

METRO TUNNEL EPRs – DOMAIN

Some of the **Environmental Performance Requirements** relevant to Domain Precinct include:

- Monitoring dust and air quality, and addressing **air quality requirements** for stakeholders (AQ1)
- Managing transport impact and maintaining **vehicle and pedestrian access** (T1)
- Minimising impacts to **public open spaces** (LU1)
- Preparing and implementing a **Tree Protection Plan** for precinct (AR4)

METRO TUNNEL EPRs – DOMAIN



Environmental Performance Requirements relevant to Domain Precinct continued:

- Detailed **construction noise and vibration management plan** to document how EPRs will be met (NV B) such as:
 - Airborne Noise Guideline Targets (NV5)
 - Vibration dose values (NV9)(Not all EPRs are listed)

METRO TUNNEL DURING CONSTRUCTION



Examples of **monitoring and assessment** to be done include:

Noise monitoring

- Monitoring and assessment of **airborne noise**
- Assessing measure to **demonstrate compliance** with applicable Victorian noise standards, principally EPA Victoria's SePP N-1 and EPA 1254, or relevant alternatives

Vibration and ground-borne noise

- Structural **condition assessments** prior to construction of buildings and assets
- Monitoring and assessment of **vibration levels**

METRO TUNNEL TREES IN DOMAIN PRECINCT



At least two trees will be planted for every tree removed for the Metro Tunnel

AR1: Review potential tree impacts and provide for the **maximum tree retention** on both public and private land, and include a **tree removal protocol** that requires MMRA approval prior to removal

CH17: Replace removed trees as part of project delivery in accordance with relevant policy documents and to **re-establish valued landscape character** and in consultation with the City of Melbourne, the City of Port Phillip, the Shrine of Remembrance and Shrine Trustees and Heritage Victoria as applicable.

CH20: In consultation with VicRoads, Heritage Victoria and/or relevant local councils replace removed trees in St Kilda Road to **re-establish the boulevard formation**.

METRO TUNNEL AUDITING AND MONITORING



Role of the **Independent Reviewer** (PPP only):

- review design and construction, and monitor compliance with project scope and technical requirements as defined in the project contract
- certify that the PPP Contractor has achieved milestones, and monitor compliance with the project contract

Role of the **Independent Environmental Auditor** (all packages):

- Prior to commencement of work, review plans to ensure if implemented will comply with EPRs
- Conduct audits of the contractor's works to verify compliance with the Construction Environment Management Plans, Operational Environment Management Plan, Environmental Management Framework and EPRs
- Review the contractor's performance against the EPRs
- Prepare audit reports containing the results of audits

EARLY WORKS

METRO TUNNEL ENABLING AND EARLY WORKS PACKAGE



- **John Holland (JHG)** appointed as Early Works Managing Contractor
- Finalising program of works and mobilising team, stakeholder engagement
- **Enabling works** (eg: service proving) commenced in September
- **Domain:** electricity conduits, telecommunications, water mains, stormwater drain, sewers
- **Major Early Works** (eg: CBD shafts) post planning approvals

METRO TUNNEL ENABLING AND EARLY WORKS: INDICATIVE PROGRAM

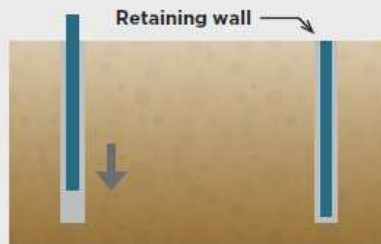


| Indicative Timing | Activity – Domain |
|-------------------|--|
| Late 2016 | <ul style="list-style-type: none"> • Continuation of service proving works • Minor service relocations in the Shrine grounds (enabling works) • Removal of up to 8 juvenile trees in the Shrine grounds (Dec-Jan) |
| Jan – June 2017 | <ul style="list-style-type: none"> • Relocation of services in Toorak Road West • Removal and safe storage of South African Soldiers Memorial • Installation of tramlines in Toorak Road West • Closure of Domain Road • Begin relocation of the Domain Road Sewer – shaft construction |
| June – Dec 2017 | <ul style="list-style-type: none"> • Continue relocation of Domain Road Sewer • Reconfiguration of St Kilda Road in preparation for station box construction |

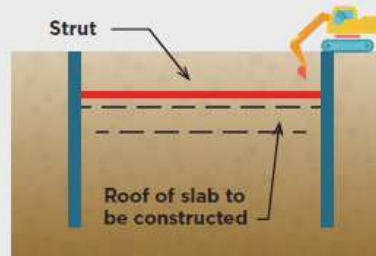
DOMAIN STATION CONSTRUCTION

METRO TUNNEL CUT AND COVER CONSTRUCTION

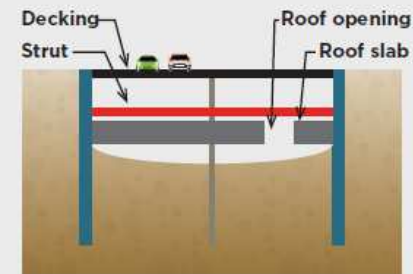
1. Installation of retaining wall



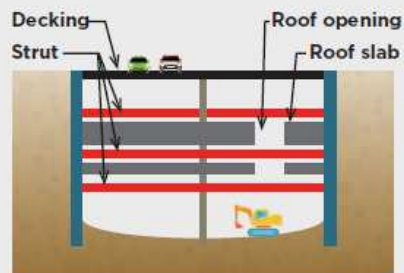
2. Excavation & installation of steel strut



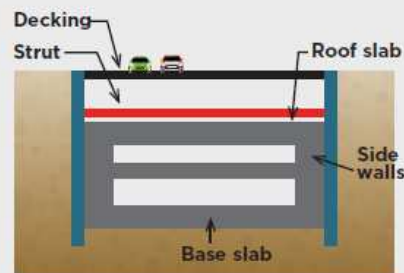
3. Installation of decking and roof slab



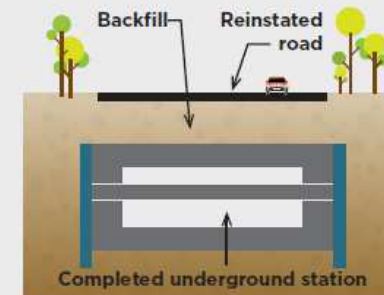
4. Construction of station box



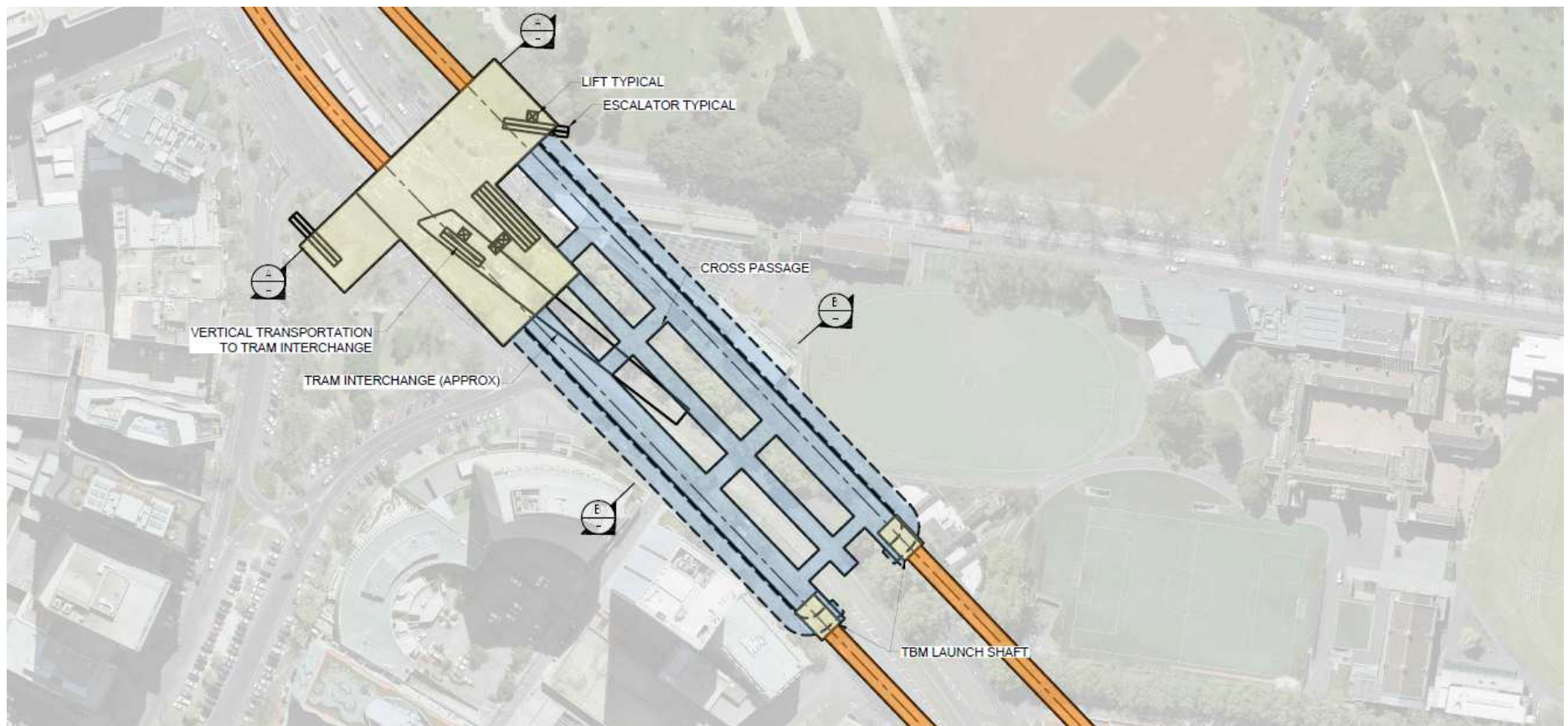
5. Installation of side walls and base slab



6. Backfilling and reinstatement



METRO TUNNEL BINOCULAR CONSTRUCTION



METRO TUNNEL KEY DIFFERENCES



| | Cut and cover | Mined Binocular |
|--|--------------------|--|
| Station depth (platform to surface) | 16 metres | 30 metres (Up to 50 metres under a mined cavern option) |
| Passenger travel time from platform to surface level | - | Increase of 26 - 30 seconds |
| Construction Programme | 53 months | + 4-6 months |
| Total volume of material to be removed (bulk earthworks) | 217,000 m3 | 296,000 m3 |
| Number trees to be removed | 191 | 176 |
| Truck movements | 17,360 round trips | 23,680 round trips |

METRO TUNNEL CUT AND COVER OPTION



The 'cut and cover' option is preferred:

- Better passenger outcomes – interchanging and vertical transport
- Pedestrian underpass providing improved safety for crossing St Kilda Road and accessing station platforms
- Improved operational outcome
- Better constructability in ground conditions
- Shorter construction duration by 4-6 months and less truck movements

CONSTRUCTION TIMELINE

METRO TUNNEL CONSTRUCTION TIMELINE

| Indicative Timing | Activity – Domain |
|--|--|
| Mid-late 2016 | <ul style="list-style-type: none"> • EES planning process • Appoint Early Works managing contractor • Commence relocation of utilities (Enabling Works) • Release Request for Tender for major PPP construction contract to 3 bidders |
| 2017 | <ul style="list-style-type: none"> • Comply with planning and environmental approval conditions • Complete relocation of utilities (Early Works) • Evaluation of PPP bids and award major construction contract |
| 2018 | <ul style="list-style-type: none"> • Commence mobilisation of major construction contractor • Begin construction of the Domain station box |
| 2019 | <ul style="list-style-type: none"> • Acoustic shed installed • Tunnel mining commences to CBD South and Eastern Portal • Construct civil and structural works in station and entrances |
| 2020-2021 | <ul style="list-style-type: none"> • Construct civil and structural works in station and entrances • Running tunnel mining complete |
| Civil construction largely complete in Domain i.e. 5 year ‘construction’ period (including early works) <u>not</u> 10 years | |

METRO TUNNEL TUNNEL & STATIONS FIT-OUT AND COMMISSIONING TIMELINE



| Indicative Timings | Activity – Domain |
|--------------------|---|
| 2022-2023 | <ul style="list-style-type: none">• Civil and Structural works completed• Rail systems and tunnel fit-out installation |
| 2024-2025 | <ul style="list-style-type: none">• Rail Systems and tunnel fit-out completed |
| 2025 | <ul style="list-style-type: none">• Complete system integration and operational readiness• Test and trial running |
| 2026 | <ul style="list-style-type: none">• Metro Tunnel operational |



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