



KENSINGTON COMMUNITY REFERENCE GROUP

MEETING 8

3 DECEMBER 2019

INTAKE SUBSTATION DEVELOPMENT PLAN



Construction partner:



INTAKE SUBSTATION

- An essential piece of infrastructure that will provide power to the Metro Tunnel's rail tunnels and stations
- Will provide the high-voltage connection from the AusNet West Melbourne Terminal station on the western banks of the Moonee Ponds Creek to the site of the new North Melbourne Station
- Will be located in the Metro Trains Melbourne (MTM) Macaulay depot area, adjacent to the Craigieburn and Sunbury line rail corridors, the CityLink toll road bridge and the Moonee Ponds Creek Trail
- Currently a disused MTM building in this location.

EXISTING CONDITIONS



EARLY WORKS

- Early works, including some tree removal and demolition, are anticipated to start in the coming months following approval of the amended Early Works Plan (originally approved in January 2018)
- Early works activities may include:
 - Demolition of existing infrastructure (disused MTM building)
 - Site preparation, clearing and installation of hoarding/temp fence
 - Utilities service connection (directional boring under the Moonee Ponds Creek and the existing train tracks to install cable routes)
 - Ground excavation and grading
 - Piling



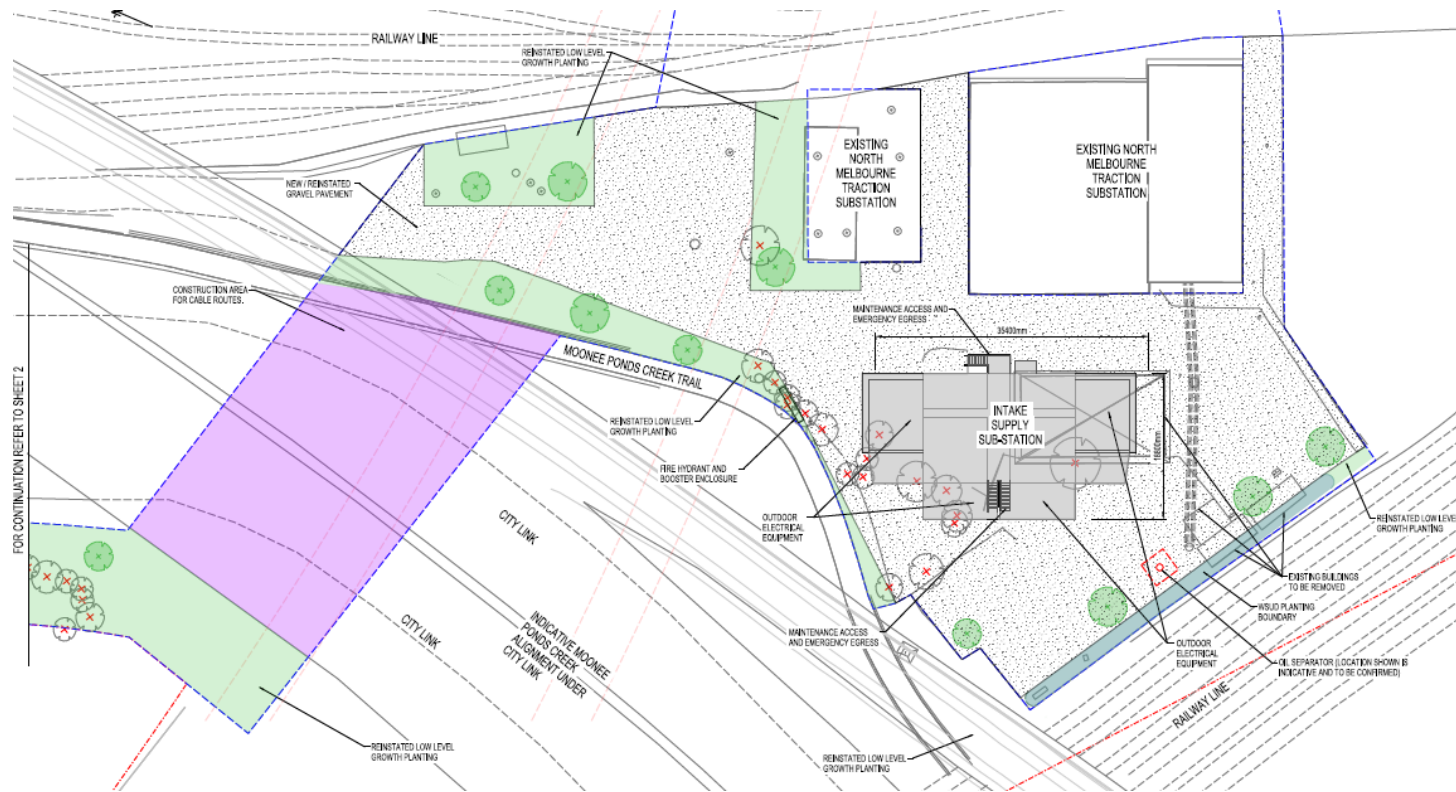
CONSTRUCTION

- Main construction expected to commence in March/April 2020, following approval of the Development Plan (targeted approval early March 2020)
 - Four months of external construction, followed by internal/electrical fit out
 - Tree removals will be required, subject to approvals
- Up to 41 trees requiring removal
 - Reinstatement will be undertaken in consultation with key stakeholders

WORKS AREA



GROUND FLOOR AND LANDSCAPE PLAN





NEXT STEPS

- Draft Development Plan – October 2019
- Stakeholder consultation – ongoing
- Draft Development Plan public display and comment period – 18 November to 6 December 2019
 - Available at **metrotunnel.vic.gov.au/planning**
 - Feedback can be submitted via online survey form on the project website



COMMUNITY UPDATE



DISCUSSION ITEMS

- Site amenity
- Dust mitigation
- Flooding within JJ Holland Park
- Cleaning of houses

COMMUNICATION AND ENGAGEMENT

Communication and engagement to support:

Out of hours works

- Offers of relocation & respite
- Targeted works notifications provided to directly impacted residents
- Works notifications provided to wider community and email update
- Meetings with stakeholders

Over-height detour traffic management

- Ongoing communication with Tennyson Street residents
- Regular updates on modifications to traffic management measures
- Undertaking additional monitoring to identify garbage collection vehicles to assist further refinements to the over-height detour

COMMUNICATION AND ENGAGEMENT

Notifications and communications

- Lloyd Street Business Estate reinstatement update (24 October)
- Kensington Monthly Construction Update (4 November)
- Advice of Lloyd Street overnight closure (12 November)
- Out of hours works update (15 November)
- Advice of extended concrete pour (22 November)

Door knocks, meetings, briefings and events

- Lloyd Street Business Estate drop-in information session (24 October)
- Lloyd Street Business Estate fortnightly progress meeting (25 October, 22 November)
- Urban design drop-in information sessions (16, 28, 30 October)
- City of Melbourne fortnightly progress meetings (28, 30 October, 11, 13, 25, 27 November)
- Extended concrete pour phone calls, door knocks, text updates (19, 21, 22, 24 November)
- Meeting with Kensington Association (26 November)
- KCCC monthly progress meeting (27 November)
- One-on-one meetings with community members and businesses throughout October and November.

URBAN DESIGN UPDATE

Summary

- Completion of three community information events in late October
- Overall, the current design was positively received
- Local community were receptive to the opportunity to engage with the project on a creative design treatment for the Childers Street floodwall

Urban designs will be finalised by late 2019, with further engagement on the floodwall to continue.





COMMUNITY ISSUES

Key issues raised in November

Generator noise

- Replaced generator powered light towers to green solar powered lighting towers
- Placed temporary fencing and noise blankets

Traffic management measures

- Further engagement with residents on traffic management measures
- Installation of speed detection signage
- Removal of speed cushions
- Traffic team on site overnight to engage with drivers directly

Construction vehicle movements

- Reviewed planning
- Reinforced messaging of stakeholder expectations

CRG SITE WALK





CONSTRUCTION UPDATE

CONSTRUCTION PROGRAM

Activity	Dec	Jan	Feb	Mar	Apr	May	Jun
Approach structure and embankment widening							
Decline structure - diaphragm wall (D-wall) works							
Decline structure - capping beam construction							
Decline structure – propping							
Decline structure – excavation, ground slab works and internal wall finishes							
Flood wall panel installation							
TBM retrieval shaft construction							
Cross passage ground improvement reinstatement							
Tunnelling from North Melbourne towards Kensington							
TBM retrieval							
Roof slab construction							

Program is indicative and subject to change

OUT OF HOURS WORKS

D-wall and capping beam works

- 6am – 2am, Monday to Friday
- 7am – 2am, Saturdays
- Ongoing until 18 January 2020

TBM retrieval shaft construction

- 24 hours, Monday to Friday (evening/night shift as required)
- 7am – 6pm, Saturdays
- 9am – 7pm, Sundays
- Ongoing until end-January 2020
- Changes to nighttime ambient levels
- Respite & relocation offers
- Additional mitigation measures developed:
 - Eliminate use of the Manitou post 6pm
 - Fixed lights (no lighting towers)
 - Routing of large trucks through LSBE to minimise need for reversing



WHAT'S BEEN COMPLETED

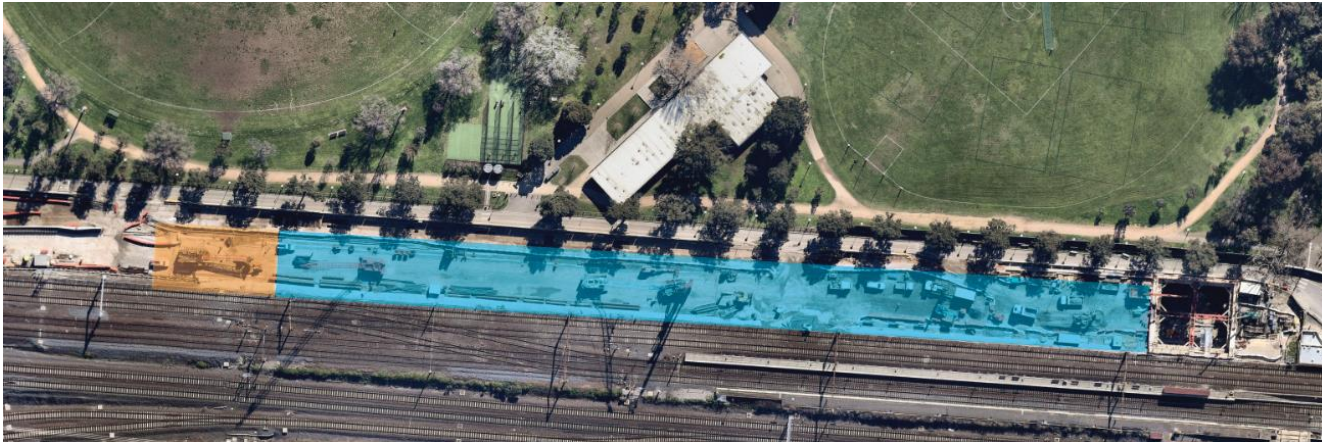
- Completed 60 of 148 D-wall panels
- Handover of Section 1 D-wall area so that capping beam installation can commence
- Excavation of TBM retrieval shaft
- TBM retrieval shaft base slab

TBM RETRIEVAL SHAFT BASE SLAB POUR



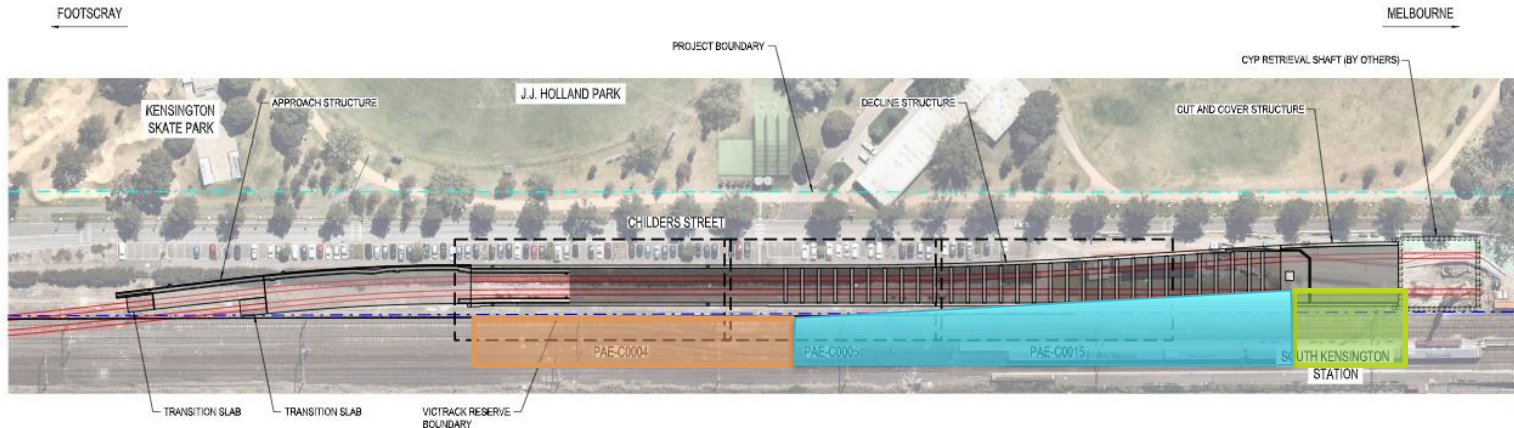
DECLINE STRUCTURE - CAPPING BEAM INSTALLATION

- Break back of excess concrete and guide walls, placement of steel, and concrete pours
- Undertaken in stages once areas of D-walls are completed
- Section one (orange area in map) commenced in mid-November and scheduled to be complete in early December.
- Expected completion for all capping beams by Q2 2020



DECLINE STRUCTURE - PROPPING

- Involves installation of 13 temporary props (orange area) for decline structure and 30 permanent concrete props (blue area) to be installed.
- An additional 8 temporary props will be required for construction of the roof slab (green area)
- Installation of props provides support to the d-walls and allows excavation of the tunnel entrance to commence
- Temporary steel props delivered to site and lifted into place
- Permanent props are both precast (constructed offsite) and cast in-situ (constructed onsite)
- Delivery and installation to commence in Mid-Jan 2020.





TUNNELLING

TBM PROGRESS

North Melbourne to Kensington

TBM Joan

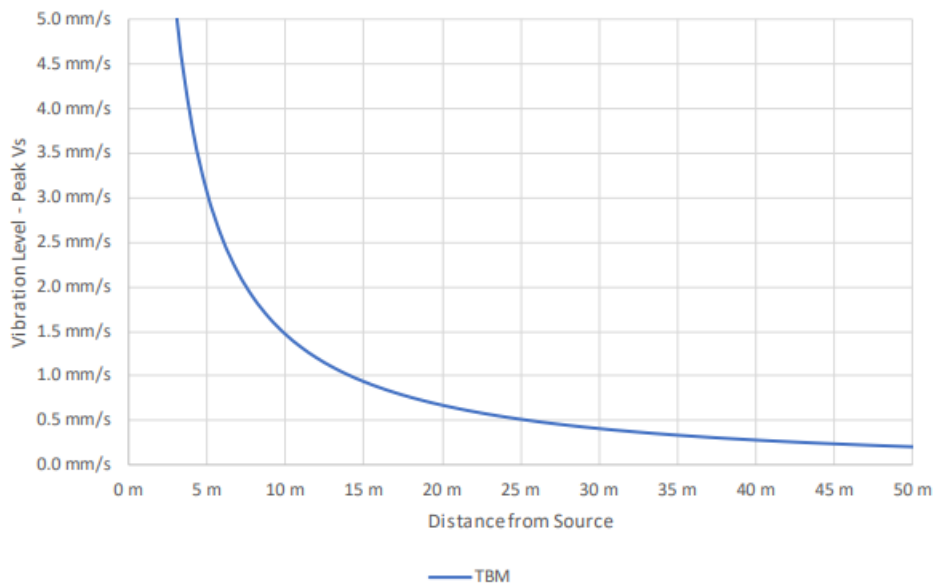
- 415 metres
- 240 rings installed

TBM Meg

- 165 metres
- 90 rings installed



TBM MODELLING - VIBRATION



Estimated level of vibration as a function of distance from the TBM cutter head

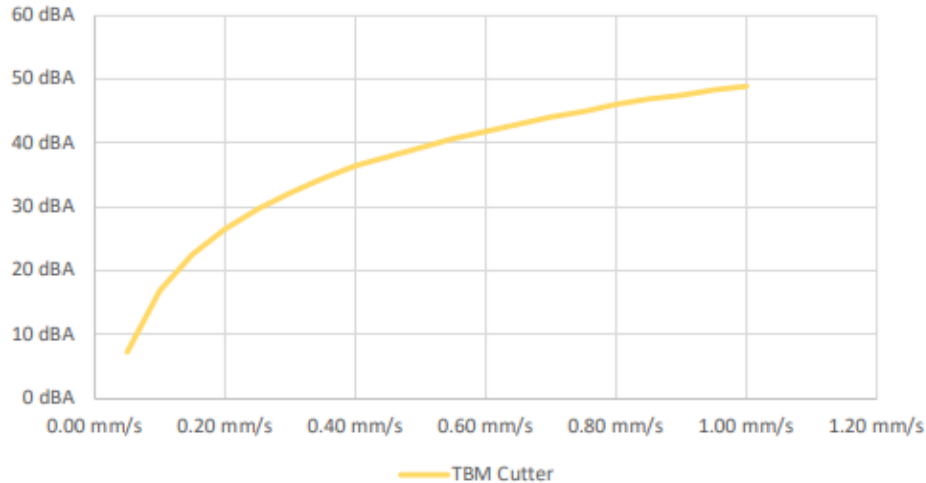
Note: this slide demonstrates the information that is inputted into the vibration action and regenerated noise modelling process to determine compliance with the relevant EPRs

Table NV8-1: Short-term vibration on structures

Type of structure	Vibration at the foundation, mm/s (Peak Component Particle Velocity)			Vibration at horizontal plane of highest floor at all frequencies
	1 - 10 Hz	10 - 50 Hz	50 - 100 Hz ¹	mm/s (Peak Component Particle Velocity)
Type 1: Buildings used for commercial purposes, industrial buildings and buildings of similar design	20	20 - 40	40 - 50	40
Type 2: Dwellings and buildings of similar design and/or occupancy	5	5 - 15	15 - 20	15
Type 3: Structures that have a particular sensitivity to vibration e.g. heritage buildings	3	3 - 8	8 - 10	8

EPR NV8 criteria

TBM MODELLING – REGENERATED NOISE



Time Period	Internal $L_{Aeq,15min}$, dB
Evening, 6pm to 10pm	40
Night, 10pm to 7am	35

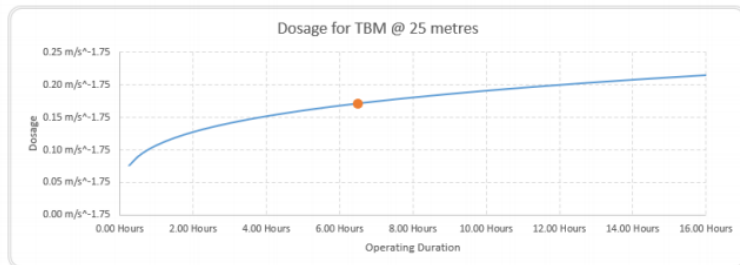
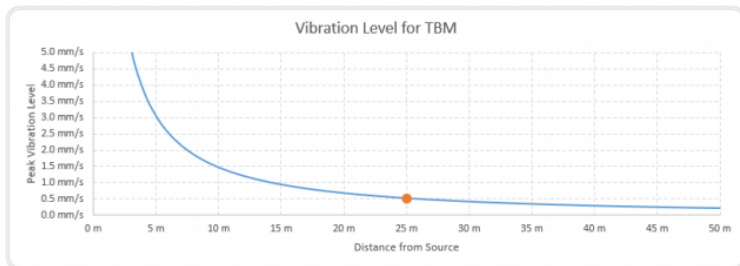
EPR NV13 criteria

Expected range of regenerated noise levels depending upon source vibration characteristics

Note: this slide demonstrates the information that is inputted into the vibration action and regenerated noise modelling process to determine compliance with the relevant EPRs

TBM MODELLING – HUMAN COMFORT (VDV)

EQUIPMENT: TBM
 Distance: 25 m
 Vibration Level: 0.51 mm/s
 Operation Time: 6.50 Hours
 Dosage: 0.17
 Crest Factor: 5



Example of the dosage calculations for estimating dosage based upon the peak vibration level in mm/s and the TBM operating schedule

Vibration Dosage Values	Estimated equivalent peak vibration level based upon frequency spectra
0.1 m/s ^{1.75}	0.4 mm/s
0.2 m/s ^{1.75}	0.8 mm/s
0.4 m/s ^{1.75}	1.4 mm/s
0.8 m/s ^{1.75}	2.4 mm/s

- Approximate peak vibration levels for equivalent vibration dosage values

Location	VDV (m/s ^{1.75})			
	Day 7:00am to 10:00pm		Night 10:00pm to 7:00am	
	Preferred Value	Maximum Value	Preferred Value	Maximum Value
Residences	0.20	0.40	0.10	0.20
Offices, schools, educational institutions, places of worship	0.40	0.80	0.40	0.80
Workshops	0.80	1.60	0.80	1.60

EPR NV11 criteria

Note: this slide demonstrates the information that is inputted into the vibration action and regenerated noise modelling process to determine compliance with the relevant EPRs

TBM RETRIEVAL

- TBM reception into individual compartment of Western Portal (shaft)
 - This will involve a reception seal and flooding the compartment prior to arrival
- Shield components to be lifted out of retrieval shaft and disassembled
 - Shield components to be transported back to North Melbourne site as oversized loads
 - Oversized loads to be transported at night in line with VicRoads permitting requirements
- TBM gantry (back up) facilities to be transported back to the North Melbourne site through the constructed tunnel
- TBM retrieval works to be undertaken both during the day and out of hours



TUNNELLING COMMUNICATIONS AND ENGAGEMENT

Communications to potentially impacted properties

- TBM arrival four week out letter
- One-on-one meetings
- Invitation to tunnelling information session
- TBM arrival one week out letter

Tunnelling information sessions – North Melbourne to Kensington

- Lloyd Street Business Estate – 10 December (TBC)
- Impacted residents – 12 December (TBC)
- Community drop-in session – 12 December (TBC)



OTHER ITEMS?

CHRISTMAS SHUTDOWN PERIOD

- Metro Tunnel Project will take a break from construction from **Friday 20 December**. Work will recommence on **Monday 13 January 2020***
- Security will monitor the site 24/7 during this time and over-height detour will be monitored by traffic team.
- 1800 105 105 available at any time for any immediate issues. Project teams will have on-call representatives for any high priority issues
- Hydroseeding completed in October on embankment area adjacent to Kensington Road, as a dust mitigation measure throughout the Christmas shutdown period
- RIA will be undertaking drilling works to install pressure relief boreholes from January 6 to 11. These works will take place during normal construction hours.





Western Portal

South Kensington

North Melbourne

Parkville

West Melbourne

The existing 'North Melbourne' station will be renamed West Melbourne.

Melbourne Central

Flagstaff

Southern Cross

Flinders Street

State Library

Parliament

Town Hall

Anzac

Richmond

South Yarra

Eastern Portal

Cranbourne / Pakenham Line

Sunbury Line