



PARKVILLE COMMUNITY REFERENCE GROUP

2 FEBRUARY 2018

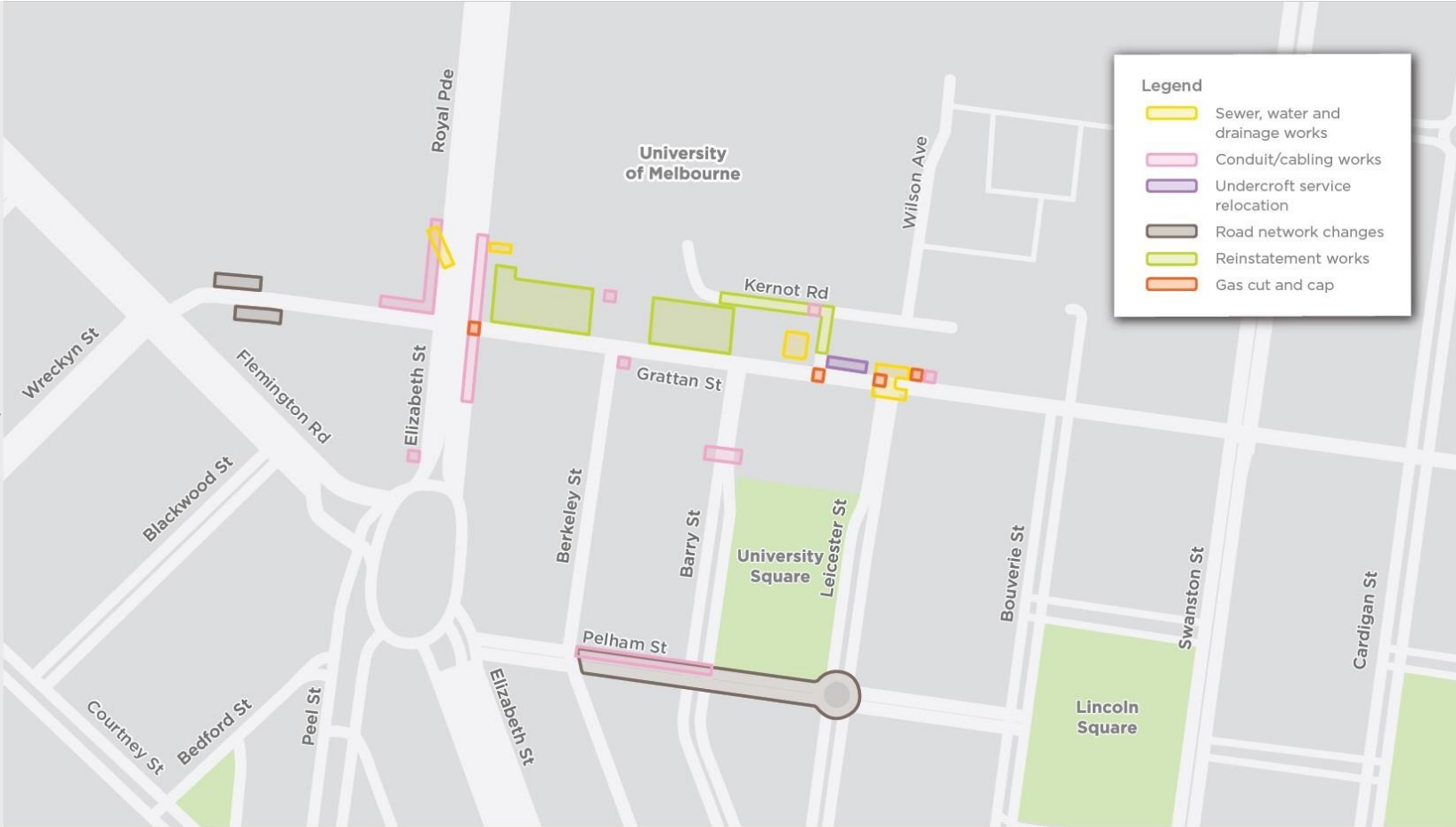




EARLY WORKS UPDATE

JOHN HOLLAND

METRO TUNNEL PARKVILLE SERVICES



Parkville CRG





AGENDA

- Draft Development Plan update
- Upcoming traffic changes – Grattan Street closure
- Pre-construction planning and environment preparation
- MMRA presentation – response to public submissions
- Tunnel design
- 2018 high level construction milestones

DRAFT DEVELOPMENT PLAN FEEDBACK



**480 info
session
attendees**



**3100+
webpage
visits**



**1507
responses
provided**



**Newspaper
advertisements**



**32,500
letters to
households
and
businesses**



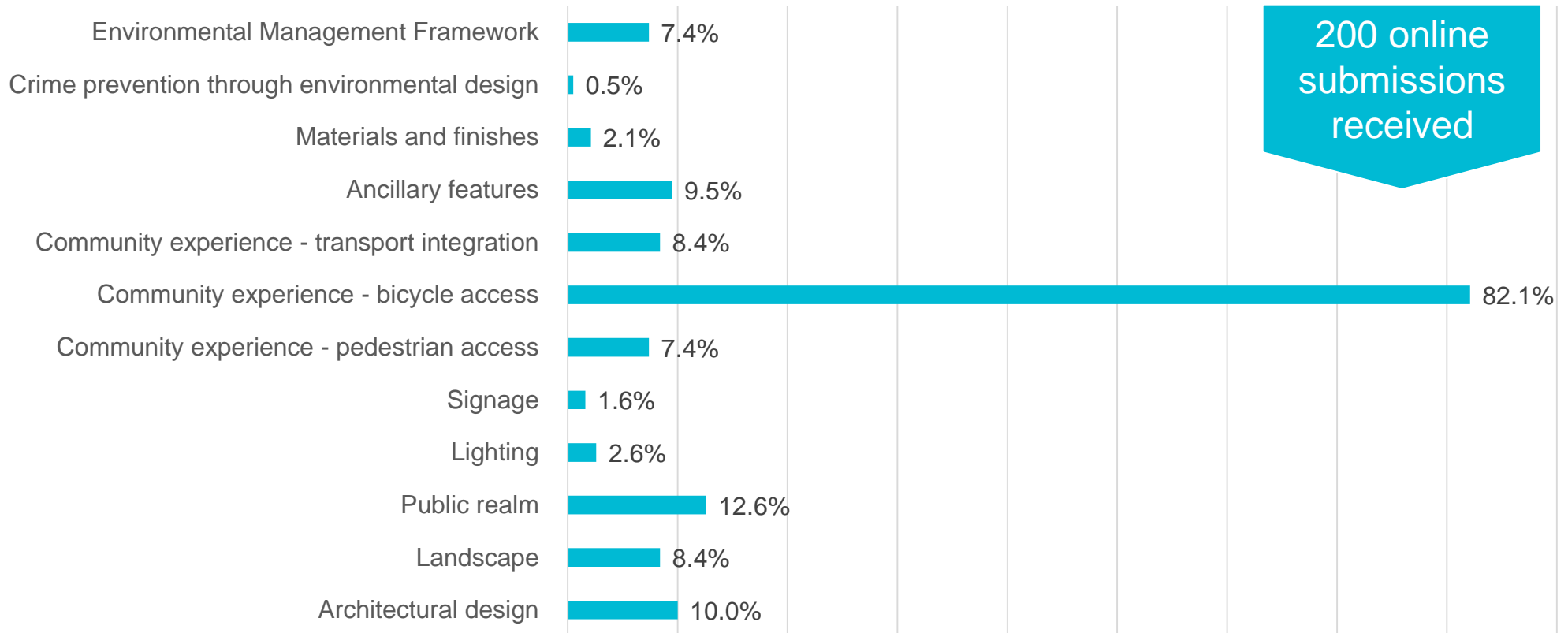
**stakeholder
meetings**



**e-
newsletters**

WHAT WE HEARD – DEVELOPMENT PLAN

Most frequent topics of feedback on the Parkville Development Plan



DRAFT DEVELOPMENT PLAN REVIEW PROCESS

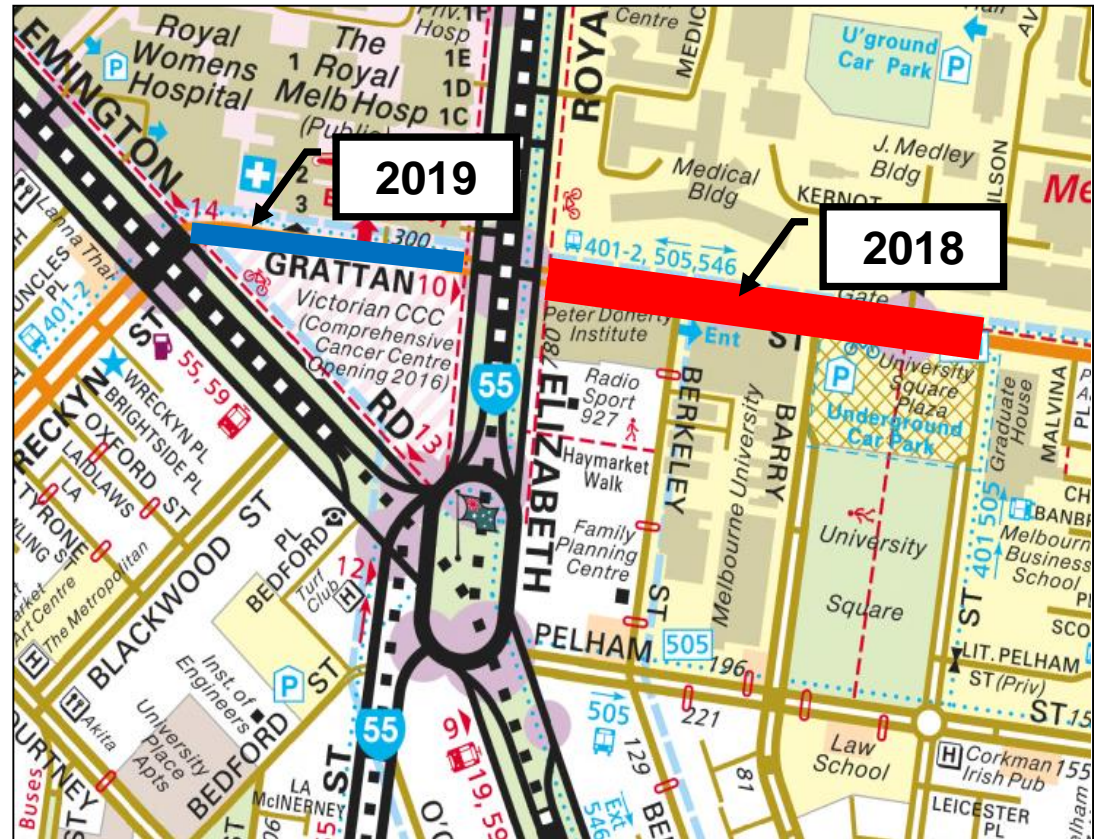
- CYP reviewing each submission received – line by line
- CYP preparing comment and response register as part of consultation summary
- CYP Consultation Summary submitted to the Minister for Planning for consideration via Department of Environment, Land, Water and Planning
- An approved Development Plan is required before main works start.

Current Program

- Ministerial approval – early April 2018
- Approval doesn't signal end of process – design development and stakeholder consultation continues.

GRATTAN STREET CHANGES

- Works on Grattan Street for up to 5 years for Parkville Station
- From mid February 2018, Grattan Street will be closed between Royal Parade and Leicester Street
- From January 2019, Grattan Street closed westbound between Flemington Road and Royal Parade
- Changes to vehicle, cyclist and pedestrian access will be implemented progressively.
- The first stage will involve closing Grattan Street to vehicles between Royal Parade and Leicester Street.
- This will be followed by changes to pedestrian and cycling routes.

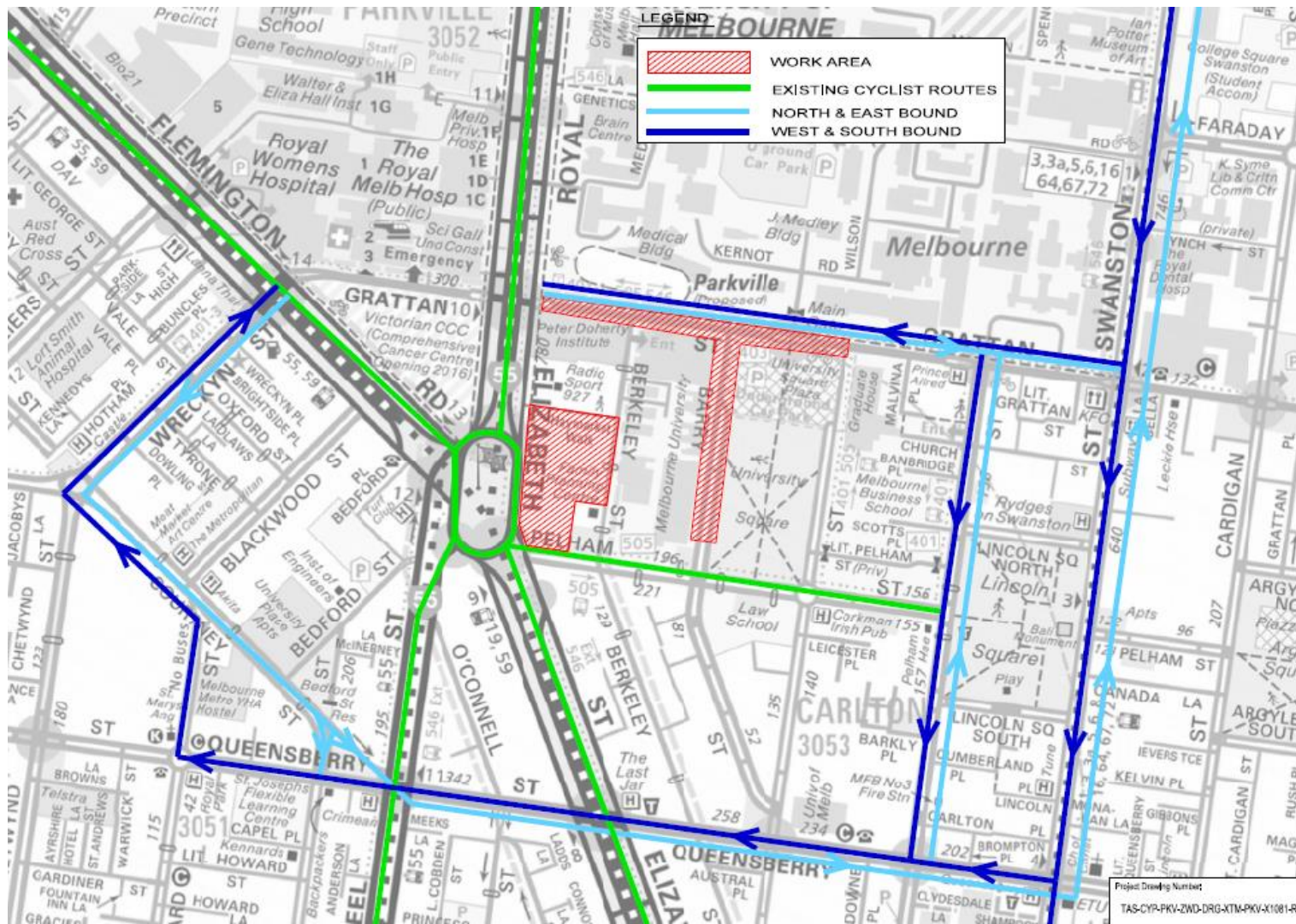


NETWORK ENHANCEMENTS



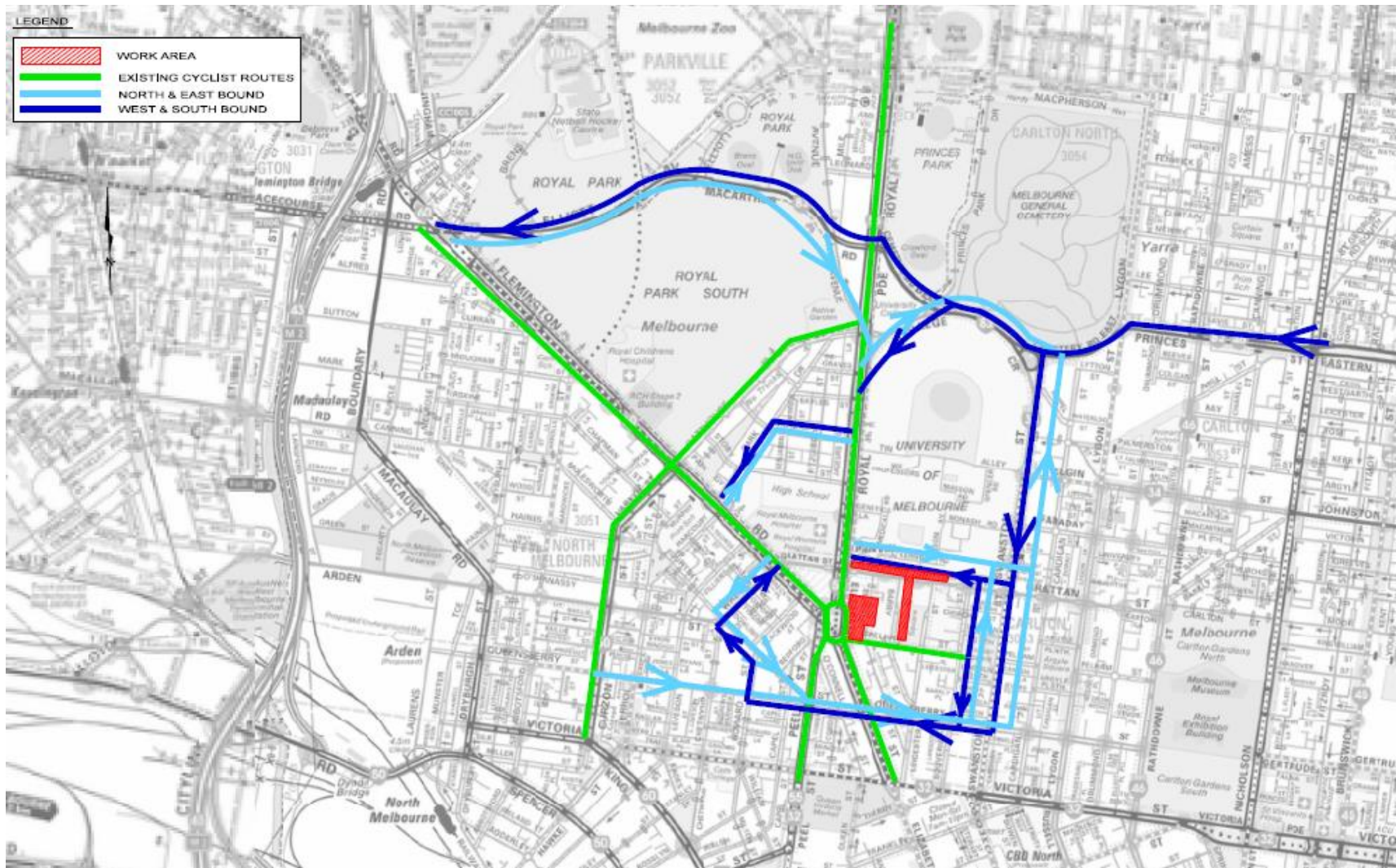
- Upgrade of Queensberry St to two lanes in each direction
- Peak hour parking changes on College Crescent, Swanston St and Peel St to improve intersection performance
- Maintain bicycle network on Queensberry St, Peel St and Rathdowne St
- Permanent overhead VMS boards for real-time travel information
- CCTV camera and Bluetooth device installations
- Signal timing changes at key intersections

CYCLIST DIVERSION ROUTES: FEB - APRIL

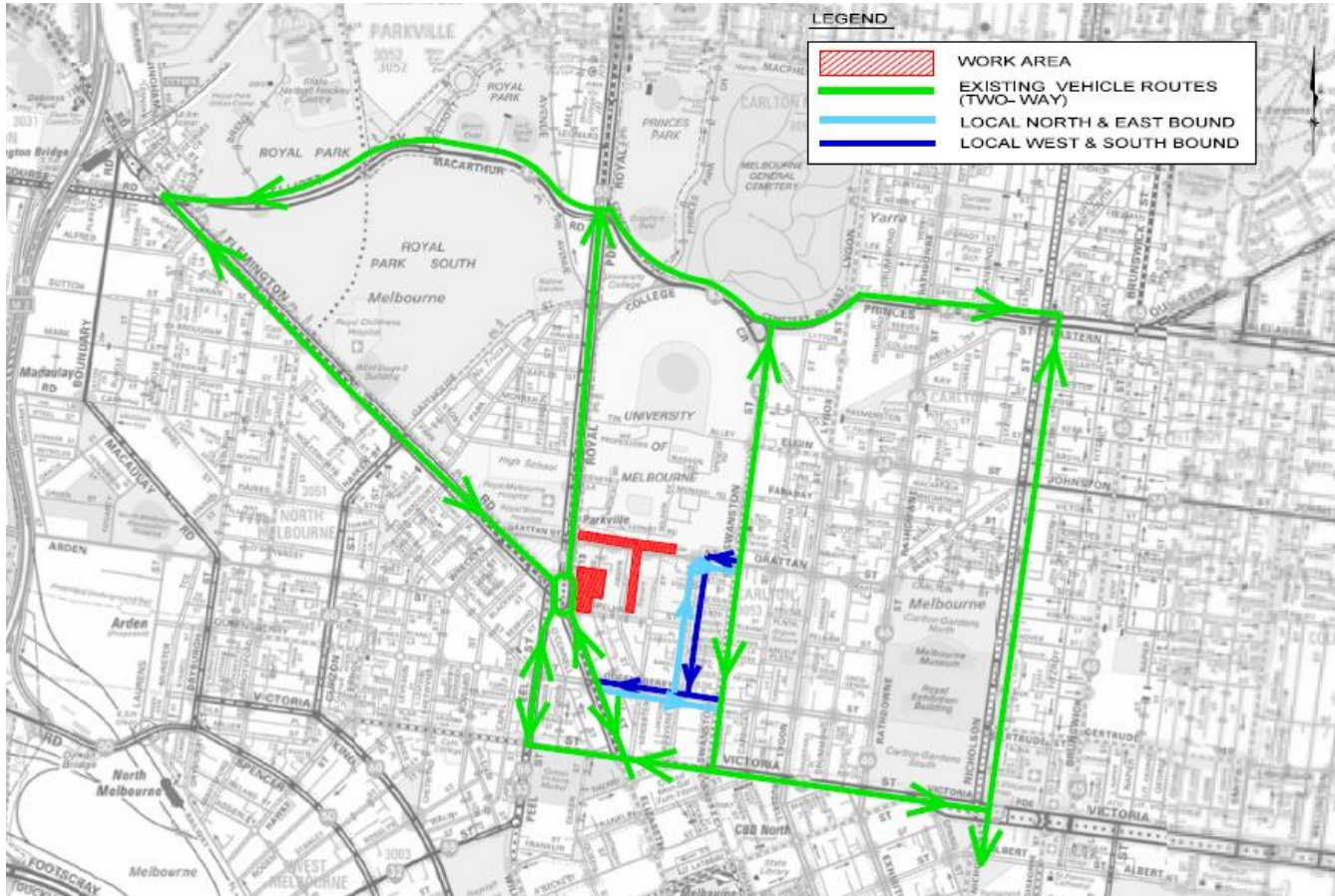


- VMS boards at decision points
- 4 real-time travel information signs
- Supplemented by static signage
- Way finding signage for cyclists
- Shared User Path to be maintained on north side of Grattan Street, until an alternative path is established on UoM land (circa 3 months)

CYCLIST DIVERSION ROUTES : FEB - APRIL

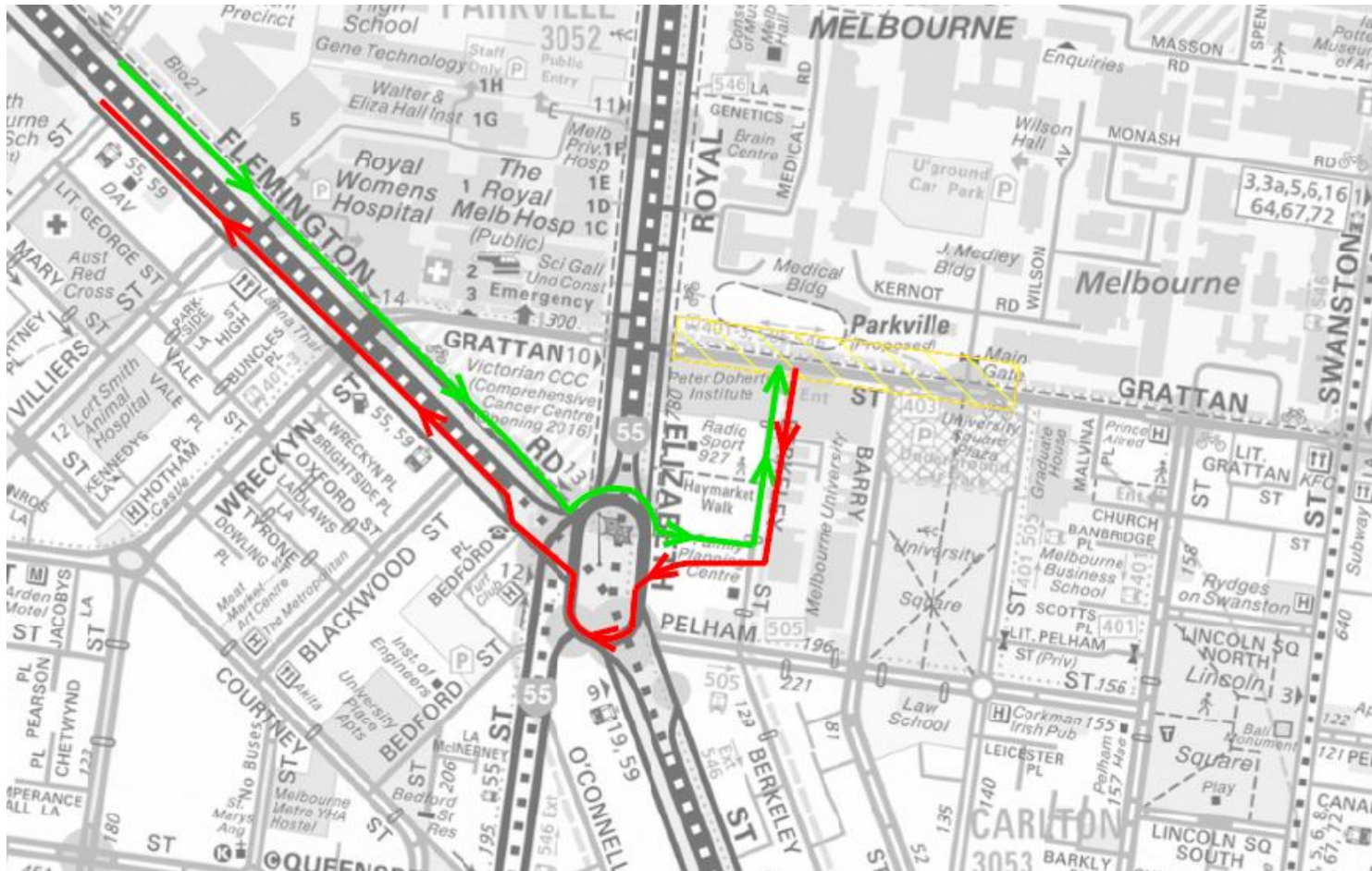


VEHICLE DIVERSION ROUTES



- VMS boards at decision points
- 4 real-time travel information signs
- Supplemented by static signage
- Way finding signage for cyclists
- Allow up to 10 mins extra travel time
- Bluetooth network used to monitor delays
- Access and functionality of Berkeley maintained

PRIMARY TRUCK ROUTES



Provision for access will be made at:

- Royal Pde
- Barry Street
- Grattan Street (Leicester Intersection)

For deliveries and emergency vehicles.

Typically this will be controlled access gates

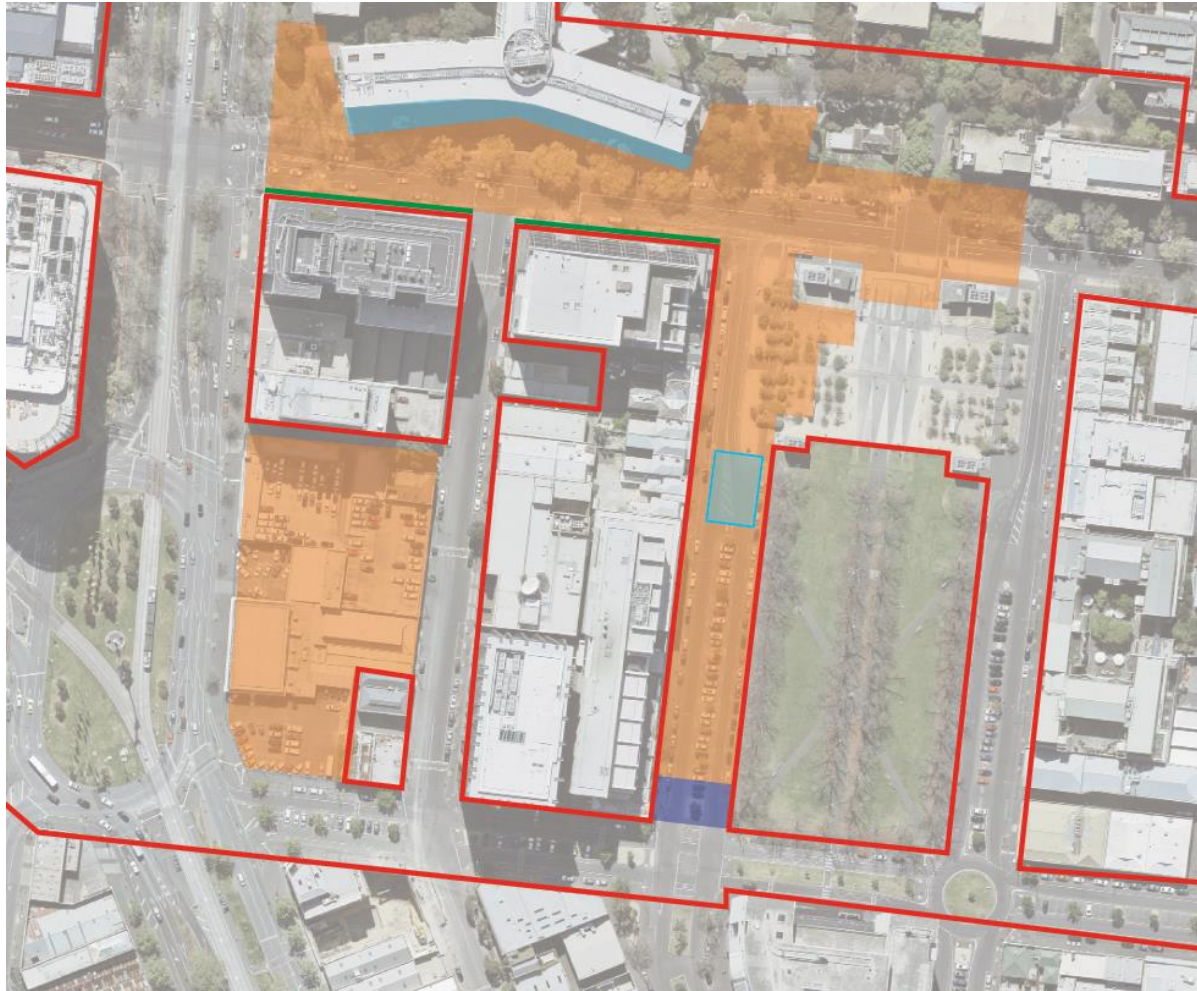
Station excavation to start in September 18, resulting in a significant increase in trucking movements.

EARLY WORKS - ENVIRONMENTAL MANAGEMENT

- Early Works are referred to as works that can commence prior to the approval of Development Plans.

Type of Early Works	Applicable to Precinct	Timing
<i>Utility Service Relocations</i>		
Utility Service Relocations	Yes	March 2018 (East of Royal Parade, as required)
<i>Site Preparation Works</i>		
Monument and Plaque Removal/Relocation	Yes	April 2018 – Pending Heritage Permit approval.
Tree Removal	Yes	Late Feb 2018
Road and Transport Network Changes	Yes	19 th Feb 2018 (pending approvals)
Shaft Construction	No	
Property Demolition Works	No	
Associated construction activities	Yes	21 st Feb 2018

TREE REMOVAL



- Clearing commencement following closure of Grattan Street
- Subject to approval by City of Melbourne
- Notifications to be undertaken 14 days prior clearing
- Fauna/habitat surveys included
- Only clearing works relevant to early works
- Removing portion of trees for CoM

SITE ENVIRONMENTAL IMPLEMENTATION PLAN

- These documents provide summary of the site level content of the CEMP and management plans that is specific to a particular precinct
- Information in the plans may include but are not limited to the following:
 - Precinct activities
 - Spill kit locations
 - Sensitive stakeholders
 - **Heritage areas including non-Aboriginal heritage sites**
 - **Vegetation that requires protection**
 - **Traffic routes**
 - Re-fuelling points
 - Wash down bays
 - **Environmentally sensitive areas on or near a project site**
 - Locations of environmental controls
 - Buffer zones or ‘no-go zones’
 - **Monitoring locations.**
- Control measures identified in the SEIPs must be installed and fully operational prior to commencement of any works to which the relevant SEIP relates.

PRE-CONSTRUCTION PLANNING AND ENVIRONMENT PREPARATION



- Stage 1: New Jersey Barriers (Day 1)
- Stage 2: Temporary Fencing - Grattan St. West (Week 1)
- Stage 3: Temporary Fencing - Grattan St. East (Week 2)

Note:

- (1) Site sheds to be placed in Barry Street in Week 1
- (2) Access to site is managed via the established road closure points – limited to construction vehicles only with exception of Gate 10 for UoM and deliveries to properties on Barry St.



PUBLIC SUBMISSIONS

Arden to Parkville Tunnel alignment

Total number of submissions: 23 (20 residents, 2 community groups and 1 land owner)

- Predominately from residents, or land-owners located above, or adjacent to the tunnel alignment

Key concerns

- Property damage and amenity impacts from construction and operation.
- Ground-borne noise and vibration from construction and operation.
- Requests to change both vertical and horizontal alignments to minimise extent of impact.

Construction Noise and Vibration

- Construction noise and vibration levels should be guideline targets, not mandatory.
- EPRs should adequately manage the impact of ground-borne noise.
- Pre-construction surveys to be performed at all properties within the Project Land.

Operation Noise and Vibration

- Ground-borne noise and vibration targets can be achieved and should be mandatory limits.

Ground Movement

- Risk of impacts from the tunnel alignment through North Melbourne are acceptable
- EPRs provide a sound framework for managing any impacts.
- Pre and post condition surveys of potentially affected buildings and structures as well as mitigation measures.

Construction Noise and Vibration

- EPRs to require modelling of detailed design.
- Include a specific EPR requiring monitoring of noise and vibration during construction.
- EPRs to require pre-construction surveys to be offered and performed only where landowners agree.

Operation Noise and Vibration

- Noise and vibration trigger levels should be framed as guideline targets, not as mandatory limits.
- Ground-borne noise should be mitigated at source due to difficulty in applying effective measures at receptor premises.
- Modelling of detailed design to demonstrate mitigation measures will achieve noise targets.
- Allow for potential to change design if modelling suggests targets would not be met.

Ground Movement

- Supported IAC recommendations and included minor adjustments to EPRs.

- Noise and vibration modelling must be undertaken during detailed design phase to determine appropriate mitigation measures during commissioning and operation.
- Guideline Target levels take into account baseline monitoring results at each location.
- Noise and vibration monitoring during construction to assess levels with respect to Guideline Target levels.
- Guideline Targets for short and long term vibration on structures.
 - Where land owners agree, pre-construction condition surveys must be performed at all properties.
 - May be appropriate to modify guideline targets for particular structures following condition surveys.

- Sets Guideline Target levels for operational ground-borne noise.
- If Target levels are exceeded, mitigation measures to be implemented to achieve as close as practicable.

Sensitive land use	Time of day	Internal ground-borne noise Guideline Targets
Residential	Day (7am-10pm)	40 dBL _{ASmax} and an increase in existing rail noise level by 3 dB(A) or more
	Night (10pm-7am)	35 dBL _{ASmax} and an increase in existing rail noise level by 3 dB(A) or more
Schools, educational institutions, places of worship	When in use	40-45 dBL _{ASmax} and an increase in existing rail noise level by 3 dB(A) or more
Hospitals (bed wards and operating theatres)	24 hours	35 dB(A) L _{ASMax}
Offices	When in use	45 dB(A) L _{ASMax}
Cinemas and Public Halls	When in use	30 dB(A) L _{ASMax}
Drama Theatres	When in use	25 dB(A) L _{ASMax}
Concert halls, Television and Sound Recording Studios	When in use	25 dB(A) L _{ASMax}

- Sets Guideline Target levels for operational vibration to be achieved.
- Goals to be achieved through the application of feasible and reasonable mitigation measures.

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

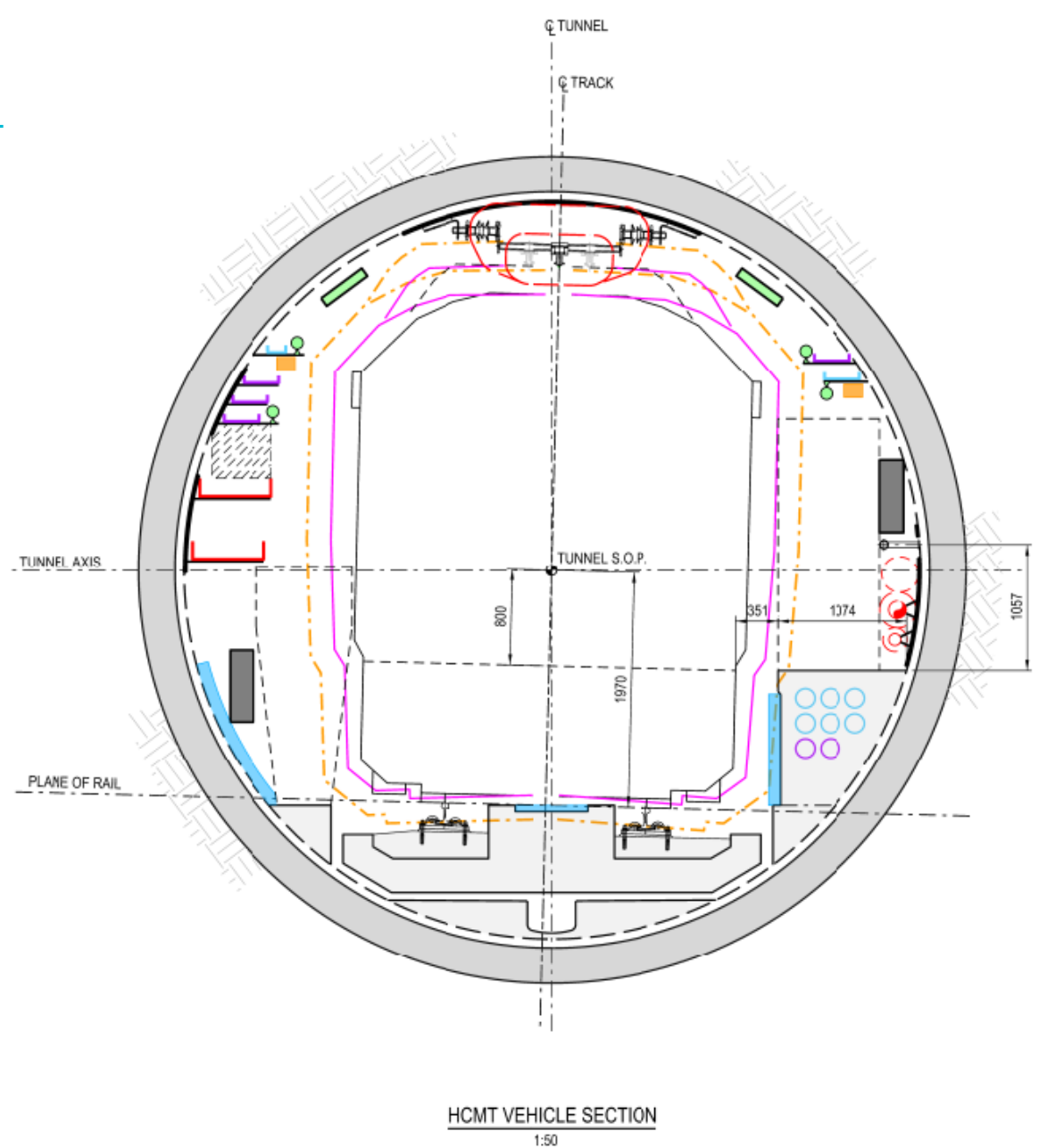
- Develop and maintain geological models to monitor ground movement and inform tunnel design and construction techniques
- Conduct pre-construction condition surveys for assets predicted to be affected by ground movement.
- For properties and assets affected by ground movement, undertake any required repair works or other actions as agreed with the landowner.

- Draft EPRs presented by MMRA through the EES were heavily scrutinised by public and stakeholders submissions.
- IAC found the Noise and Vibration and Ground Movement EPRs were generally suitable whilst recommending a number of changes.
- The Minister for Planning gave in-principle support for MMRA's draft EPRs and the IAC recommendations, however proposed a number of changes aimed at clarifying the approach.
- The Minister for Planning approved the version of the EPRs that include the changes made through his assessment.

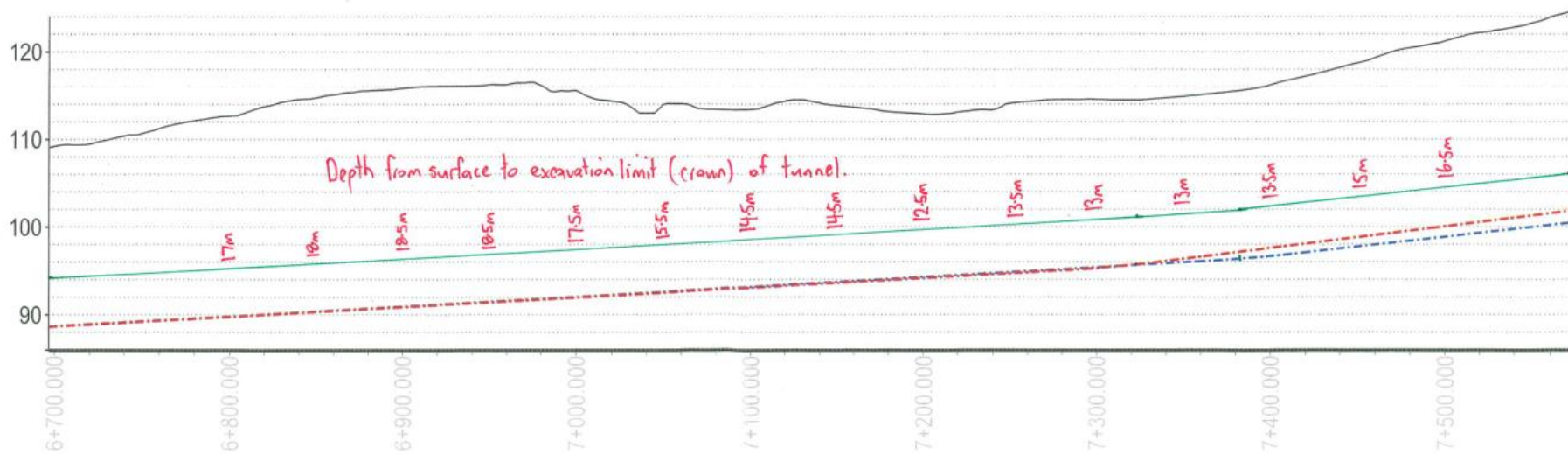
TUNNEL DESIGN

Tunnel Cross Section

- 6.3m internal diameter
- 6.9m external diameter
- Cross passages every 244 to 250m



Tunnel Alignment Comparisons - North Melbourne



--- MMRA (ASM) Reference Design — Excavation limit of tunnel

TUNNEL – PREPARATION WORKS

STUDIES

- Evaluation of Structures and Foundations along Tunnel alignment (ongoing)
- Further Geotechnical investigations along alignment (ongoing)
- Settlement and consolidation evaluations (ongoing)
- Tunnel Confinement Pressure Studies (ongoing)
- Dilapidation and Condition Surveys of structures prior to tunnel boring machine passage (in plan)

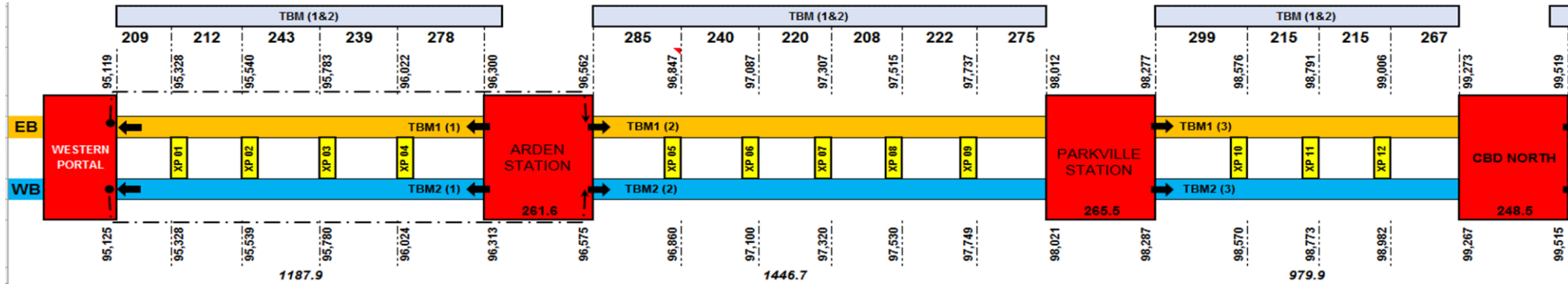
INSTRUMENTATION and MONITORING

- Installation of ground (settlement) and groundwater (wells) monitoring systems
- Baseline and tendency measurements prior to TBM Passage
- Instrumented Plots

TUNNEL – CONTROLLED BORING PROCESS

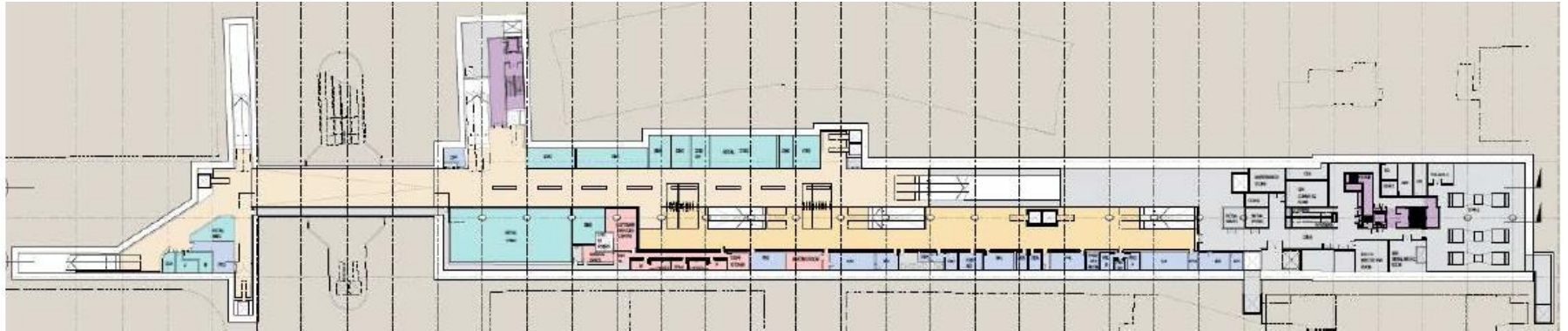
- WB and EB TBM drives towards West Portal first
- Very challenging ground conditions (soft ground) in first drives beneath busy rail corridor (western drives)
- The TBM selection and design takes into account the most difficult ground conditions and the lowest cover of the project which is in the western drives
- Drives between Arden and Parkville are in significantly more competent ground (Melbourne Formation) and generally greater depths than the western drives
- Instrumented Plots to validate TBM parameters
- Initial western drives will prove a controlled tunnelling process prior to the TBM reaching the area between Curzon and Villiers Streets
- Permit to Tunnel process will be undertaken daily using real-time settlement and TBM data to correlate real ground response against the confinement studies and optimize TBM operation to minimize impact to the surrounding environment.

TUNNELING KEY CONSTRUCTION MILESTONES



	2018	2019												2020												
	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
1. TBM Arrival at Arden Site	♦	♦																								
2. TBM Tunnelling from Arden Station to Western Portal																										
3. TBM Tunnelling from Arden Stn to Parkville Stn																										
4. Expected Tunneling between Curzon and Villiers Street (both TBM's)																										
5. TBM Passage through Parkville Station																										
6. TBM Tunnelling from Parkville Stn to CBD North Stn																										

2018 HIGH LEVEL CONSTRUCTION MILESTONES



	2018												2019										
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV
Install Barriers & Hoarding		█																					
Construct Site Offices and Amenities		█	█																				
Construct Noise Barriers			█	█																			
Station Piling (Permanent/Temporary)				█	█	█	█	█	█	█													
Excavation to Roof Level									█	█													
Excavate and Strut to Formation										█	█	█	█	█	█	█	█	█	█	█	█	█	



FUTURE KEY DATES

- 2020 Tunnelling Boring Machine
- 2021 Grattan Street West Road opens
- 2022 Tram stop Royal Pde
- 2023 Grattan Street Est opens