23 Environmental Management Framework

23.1 Introduction

This section presents the Environmental Management Framework (EMF) that has been developed for Melbourne Metro. The EMF provides a transparent and integrated governance framework to manage environmental aspects as described in this EES for the design, construction and operational phases of the project. The EMF includes the recommended Environmental Performance Requirements that define the project-wide environmental outcomes that must be achieved during design, construction and operation of Melbourne Metro (regardless of the design solutions adopted). Once approved, compliance with the EMF and the Environmental Performance Requirements will be enforced by MMRA through the contractual arrangements for delivery of the project.

The recommended Environmental Performance Requirements have been developed through the EES to address the identified environmental risks and impacts. The performance-based approach that forms the Environmental Performance Requirements aims to achieve outcomes that provide a net community benefit, while allowing for a delivery model with sufficient flexibility to encourage innovation by the private sector to determine how any recommended Environmental Performance Requirements would be achieved. The EMF outlines clear accountabilities for the delivery and monitoring of the achievement of the Environmental Performance Requirements so that the environmental effects and hazards of the project would be managed.

Design and management measures incorporated into the Concept Design, together with implementation of and compliance with the EMF and the Environmental Performance Requirements would ensure compliance with statutory requirements during design, construction and operation. The contractual arrangements for delivery of the EMF and Environmental Performance Requirements would be in the form of Project Contracts between MMRA and the contractors delivering the different parts of Melbourne Metro.

The EMF requires that the contractors develop and implement an Environmental Management System (EMS) certified to AS/NZS ISO 14001:2015 *Environmental management systems — Requirements with guidance for use* and consistent with relevant legislation, policy and guidelines and MMRA's Environmental Policy. The purpose of the EMS is to ensure that works are planned and performed so that the adverse effects on the environment are either avoided or minimised and are carried out in accordance with the approved Environmental Performance Requirements.

The EMS will provide a structured approach for monitoring the implementation of Construction Environmental Management Plans (CEMPs) for project delivery and the Operations Environmental Management Plan (OEMP) for the tunnels and stations. The EMS, CEMPs and OEMP can then be audited throughout the project as a mechanism for continuous improvement. Refer to Sections 23.7 and 23.8 for a description of the management plans and requirements for ongoing monitoring of their implementation.

The development of the EMF is guided by the EES Scoping Requirements, relevant legislation, policy and guidelines, and has been informed by the environmental risk assessment and specialist environmental impact assessment studies completed for the EES. The risk assessment has been undertaken in accordance with the risk management standard AS/NZS/ISO31000:2009 and would be maintained throughout the project in accordance with the MMRA EMS.

23.1.1 Works Covered by the EMF

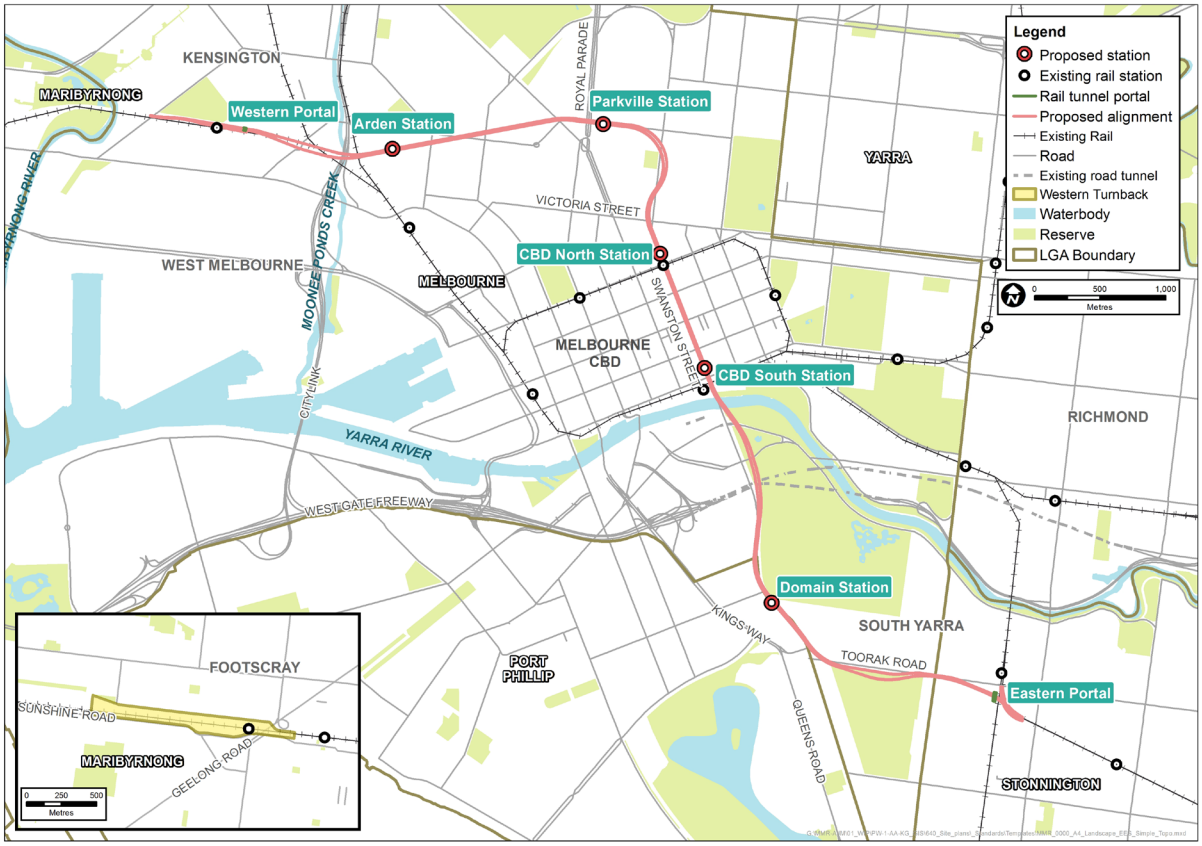
The infrastructure proposed for construction of Melbourne Metro and assessed in this EES includes:

- Twin nine-kilometre rail tunnels from Kensington to South Yarra, travelling beneath Swanston Street in the Melbourne CBD and connecting the Sunbury and Cranbourne/Pakenham railway lines
- Five new underground stations at Arden, Parkville, CBD North, CBD South and Domain, with CBD North and CBD South stations featuring direct interchanges with the existing Melbourne Central station and Flinders Street Station respectively
- A new transport interchange at Domain
- Rail tunnel portals (entrances) at Kensington and South Yarra.

The project would also require track work (a turnback) at West Footscray to enable trains using the Sunbury Line to turn around before reaching Sunbury and head back through the Melbourne Metro tunnels.

The project includes the operation of the five new stations and tunnels; however, it does not include the operation of the whole rail network. Figure 23-1 shows a broad schematic plan for the principal inner Melbourne components of Melbourne Metro.

Figure 23-1 Melbourne Metro Rail Project components covered by the EMF



23.2 Scoping Requirements and EMF Structure

The EES Scoping Requirements relevant to the EMF include the following draft evaluation objective:

- *Environmental Management Framework – To provide a transparent framework with clear accountabilities for managing environmental effects and hazards associated with construction and operation phases of the project, in order to achieve acceptable environmental outcomes.*

The EMF outlined in this chapter addresses this objective in the following sections:

- Governance framework and roles and responsibilities to provide a transparent framework for accountability (Section 23.3 and 23.4)
- Environmental risk and impact assessment for identifying potential environmental effects and hazards to be managed (Section 23.5)
- Recommended Environmental Performance Requirements to achieve acceptable environmental outcomes (Section 23.6)
- Document hierarchy to outline how the EMF would be implemented (Section 23.7)

- Environmental Management System for achieving compliance with CEMPs (Section 23.7.1)
- Evaluation and compliance requirements, including monitoring, reporting and auditing (Section 23.8)
- Contingency measures to address identified environmental, social and business risks during construction and operational phases (Section 23.9).

23.3 Governance Framework

As discussed in Chapter 1, the Victorian Government has announced the procurement strategy for Melbourne Metro, which is structured around four works packages:

- A Managing Contractor for early works together with procurement by Utility Service Providers and Yarra Trams
- An Availability Public Private Partnership (PPP) for the tunnels and stations
- Competitive alliance for rail infrastructure associated with the eastern and western portals and the western turnback
- Competitive alliance for rail systems for high capacity signalling, rail systems integration and commissioning (outside the scope of the EES).

For each works package, a contractor would be appointed under the contractual framework applicable to the respective procurement model (Project Contract). MMRA would administer each Project Contract on behalf of the State Government.

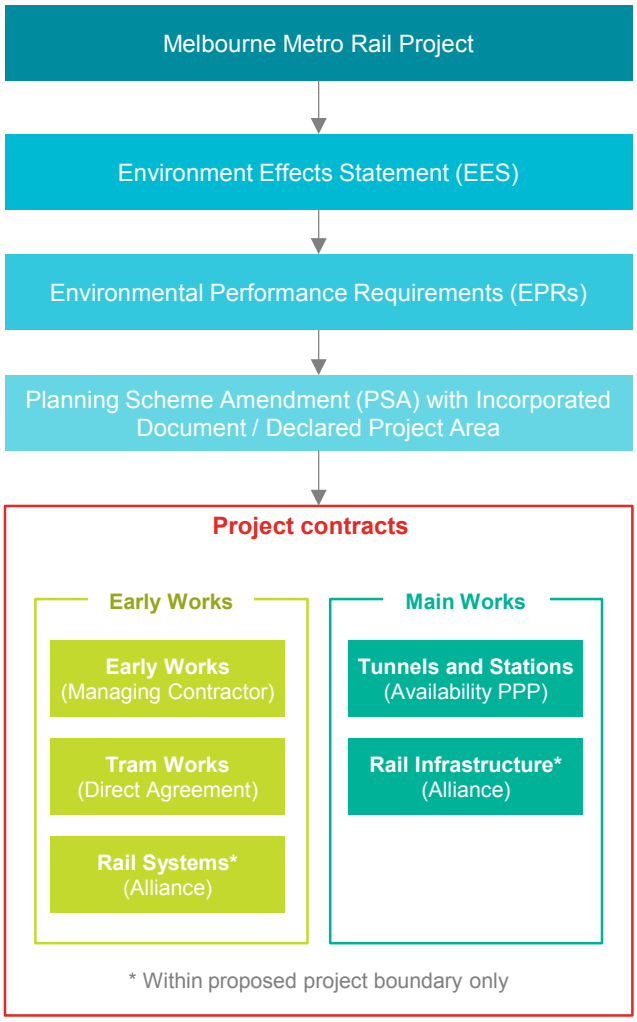
Project Contracts would detail the applicable contractor's obligations for delivery of the relevant works. Project Contracts would require each contractor to:

- Comply with the EMF
- Comply with the Environmental Performance Requirements
- Comply with the MMRA EMS
- Develop, implement and maintain a project specific EMS, CEMP for the project and site Specific Environmental Implementation Plans (SEIPs) for the design and construction phases, where applicable.

The PPP contractor would also have to develop, implement and maintain an OEMP for the elements of the infrastructure for which they would be responsible.

The governance framework for Melbourne Metro is presented in Figure 23-2.

Figure 23-2 Governance framework



A description of each procurement package is provided in Table 1-3 of Chapter 1 *Introduction* of this EES. The Rail Systems and Rail Infrastructure Alliances are proposed to include wider network works that have not been assessed in this EES and for which assessment and approvals would be undertaken separately.

The procurement process for each works package would include the requirement for bidders to develop outline EMPs (as part of the bid submission) for construction and operation (for tunnels and stations). These outline EMPs would enable the contractors to demonstrate their approach to achieving compliance with the EMF. MMRA would review and assess the outline EMPs against the requirements of the EMF.

Following contract award and prior to construction commencing, the successful contractors would be required to develop and implement a project specific EMS and CEMP to meet the requirements of this EMF and the MMRA EMS. The successful PPP contractor would maintain elements of the infrastructure delivered for Melbourne Metro and would also have to develop and implement an OEMP to meet the requirements of the EMF.

The EMS, CEMP and OEMP would describe in detail how the contractor would meet the approved Environmental Performance Requirements and approval conditions and identify, manage and mitigate environmental risks arising during design, construction and operation. Specific requirements for the contractor's documentation are outlined in Section 23.7.

MMRA would audit the early works contractors and Rail Infrastructure Alliance to assess compliance with the Environmental Performance Requirements and conformance with the EMS and CEMPs.

The auditing of the PPP contractor would be done independently, as is required for a PPP contract, and is described below:

- The PPP contract would have an Independent Reviewer and Independent Environmental Auditor
- An Independent Reviewer would be appointed jointly by MMRA and the PPP contractor to review the CEMP, OEMP, contractor documentation and environmental audit reports, and to monitor the contractor's compliance with the EMF
- An Independent Environmental Auditor would also be appointed by the PPP contractor to undertake environmental audits of compliance with the approved CEMP, OEMP and approval conditions. The Independent Environmental Auditor would be required to prepare audit reports and provide these to MMRA, the Independent Reviewer, the Minister for Planning and other Regulators and agencies (as appropriate).

23.4 Roles and Responsibilities

MMRA, on behalf of the State Government, is the proponent for this project and is responsible for delivering Melbourne Metro by 2026, in line with the requirements and objectives of PTV and the Victorian Government.

MMRA is an Administrative Office established under the Office of the Coordinator General and is one of several agencies assisting the State Government to achieve its integrated transport policy objectives. The MMRA Chief Executive Officer is accountable to the Minister for Public Transport, reporting to the Secretary of the Department of Economic Development, Jobs, Transport and Resources.

MMRA is responsible for overseeing and engaging contractors and consultants for all aspects of the project including planning and development of a project Concept Design, site investigations, stakeholder engagement, obtaining planning approvals and procurement, through to construction delivery and project commissioning.

Fulfilling the responsibilities and accountabilities across all elements of the EMF involves MMRA, contractors and regulators. The contractors' responsibilities would be included as contractual conditions in Project Contracts. The contractors would also be responsible for activities conducted by their sub-contractors.

At the completion of construction and project commissioning, PTV would become responsible for the ongoing operation and maintenance of the train services and infrastructure delivered by Melbourne Metro, other than any infrastructure which is to be operated and maintained by the PPP contractor for the term of the PPP contract.

The key roles and responsibilities are shown in Table 23–1.

Table 23–1 Roles and responsibilities for environmental management

Organisation	Responsibility
Minister for Planning	• Endorse the EMF and approved Environmental Performance Requirements
Regulators and Agencies	• Receive audit reports from MMRA and the Independent Auditor as to compliance with relevant approval conditions • Administer and determine compliance with project approvals
MMRA	• Obtain applicable principal statutory approvals including the Planning Scheme Amendment, Cultural Heritage Management Plan and heritage permits • Establish the EMF • Develop and implement the MMRA EMS, in accordance with ISO 14001:2015 • Develop and monitor compliance with the Environmental Performance Requirements across all Project Contracts • Engage an Independent Reviewer jointly with the PPP contractor • Together with each contractor for each of the Project Contracts develop and submit the required plans to comply with the PSA conditions • Review and approve CEMPs and SEIPs for each Project Contract, and assist the Independent Reviewer with approval of the CEMP, SEIPs and OEMP for the PPP contract • Prior to commencement of work, verify that the contractor has complied with the relevant Environmental Performance Requirements • Review the contractor's performance against the approved Environmental Performance Requirements and take corrective action as necessary • Undertake environmental audits to measure the contractor's performance and compliance
PTV	• Operate the train services using the infrastructure delivered by Melbourne Metro, in accordance with the approved Environmental Performance Requirements • Undertake maintenance of the infrastructure delivered by Melbourne Metro, other than any infrastructure which is to be operated and maintained by the PPP contractor for the term of the PPP contract

Organisation	Responsibility
Project Contractors	• Comply with the EMF, legislative and approval requirements • Obtain any additional permits from regulatory authorities (other than the approvals that would be obtained by or jointly with MMRA) • Develop and implement a project specific EMS, certified to ISO 14001:2015 and compliant with the MMRA EMS • Prepare a CEMP, SEIPs and associated work method statements • Provide adequate resources to establish, implement, maintain and improve the CEMP, SEIPs and the EMS • Implement and maintain compliance with the Environmental Performance Requirements • Undertake environmental audits against compliance • Prior to commencement of work, ensure that all sub-contractors have complied with the relevant Environmental Performance Requirements and the CEMP • Review of sub-contractors' performance against the Environmental Performance Requirements and CEMP, and take corrective action as necessary • PPP contractor: Prepare an OEMP and associated work method statements, and provide adequate resources to establish, implement, maintain and improve the OEMP • PPP contractor: Appoint an Independent Environmental Auditor • PPP contactor: Undertake operation and maintenance of the infrastructure delivered by Melbourne Metro that is to be operated and maintained by the PPP contractor for the term of the PPP contract (tunnels and stations)
Independent Reviewer (For PPP contract)	• Review and approve the CEMP, SEIPs and the OEMP for the PPP contract • Prior to commencement of work, verify that the PPP contractor has complied with the relevant Environmental Performance Requirements • Review the PPP contractor's performance against the Environmental Performance Requirements and take corrective action as necessary • Prepare reports on the PPP contractor's compliance with the EMF and provide these to MMRA and the contractor • Prepare a quarterly report summarising the PPP contractor's compliance with the EMF and provide to MMRA and the contractor
Independent Environmental Auditor (For PPP contract)	• Prior to commencement of work, verify that the PPP contractor has complied with the relevant Environmental Performance Requirements • Conduct audits of the PPP contractor's works to assess compliance with the CEMP, OEMP, EMF and Environmental Performance Requirements • Review the PPP contractor's performance against the Environmental Performance Requirements and take corrective action as necessary • Prepare audit reports containing the results of audits

23.5 Risk and Impact Assessment

Environmental risks and impacts have been identified and assessed through the specialist investigations for the EES and a detailed environmental risk assessment process. As described in Chapter 4 of the EES, the objective of the environmental risk assessment is to identify key social, environmental and business risks associated with construction and operation of the project, and to develop management and mitigation measures to reduce these risks. Technical Appendix B *Environmental Risk Assessment Report* contains further detail on the risk assessment and the complete risk register developed for the EES.

The environmental risk assessment developed for the EES forms a key component of the EMF. This risk assessment would be 'live' and updated periodically to reflect the project status and any new information arising.

As part of their EMS, the contractors would be required to develop a detailed environmental risk assessment based on the detailed design of the project and consider the risks identified in the EES. The risk assessment would be required to be consistent with AS/NZS ISO 31000:2009 *Risk management – principles and guidelines*. The contractors would be required to maintain a current risk register which would be 'live', adopting regular reviews and updating the register in response to changes to design, construction or operational activities, work methods, new technology, legislation and policy, or the occurrence of incidents or complaints.

23.6 Environmental Performance Requirements

Melbourne Metro will be delivered in accordance with approved Environmental Performance Requirements. Environmental Performance Requirements define the project-wide environmental outcomes that must be achieved during design, construction and operation of Melbourne Metro (regardless of the design solutions adopted).

This performance-based approach of the Environmental Performance Requirements aims to achieve outcomes that provide a net community benefit, while allowing for a delivery model with sufficient flexibility to encourage innovation by the private sector to determine how any recommended Environmental Performance Requirements would be achieved.

Many Environmental Performance Requirements require consultation to be undertaken with relevant stakeholders. The extent of consultation and outcomes would be documented to demonstrate compliance with the Environmental Performance Requirements. In instances where an Environmental Performance Requirement necessitates the involvement of a 'responsible authority', this is defined as the relevant responsible authority for the requirement specified. The responsible authority may be the Minister for Planning, local council, Melbourne Water, VicRoads, etc.

Proposed mitigation measures identified in this EES to avoid, reduce or offset environmental impacts form the basis of the recommended Environmental Performance Requirements for Melbourne Metro. These measures have been recommended by specialists through the EES assessment process.

The approach adopted to assess environmental risks and impacts and develop the Environmental Performance Requirements is described in Chapter 4 *EES Assessment Framework and Approach*. Specific requirements are discussed in the relevant sections of Chapters 8 to 22 of this EES.

The recommended Environmental Performance Requirements are presented in Table 23–2. They cover the following subject areas:

- Aboriginal cultural heritage
- Air quality
- Aquatic ecology and river health
- Arboriculture
- Business
- Contaminated land and spoil management
- Greenhouse gas emissions
- Groundwater
- Ground movement
- Historical cultural heritage
- Land use and planning
- Landscape and visual
- Noise and vibration
- Surface water
- Social and community
- Terrestrial flora and fauna
- Transport
- Urban design.

The EMF, including all recommended Environmental Performance Requirements, would be implemented through Project Contracts for the delivery of Melbourne Metro. Under the proposed planning scheme controls for Melbourne Metro, the EMF and Environmental Performance Requirements would also need to be approved by the Minister for Planning.

The EMF and the Environmental Performance Requirements will be updated by MMRA prior to awarding the contracts to ensure all approval conditions of the planning controls applied under the Planning Scheme Amendment as specified by the Minister for Planning are captured.

Table 23–2 Recommended Environmental Performance Requirements

Draft EES Evaluation Objective	EPR no.	Environmental Performance Requirement	Precinct	Timing	Risk No.
Environmental Management Framework					
Environmental Management Framework: To provide a transparent framework with clear accountabilities for managing environmental effects and hazards associated with construction and operation phases of the project, in order to achieve acceptable environmental outcomes	EM1	Develop a program to set out the process and timing for development of an Environmental Management System, Construction Environmental Management Plan (CEMP), Site Environment Implementation Plans, Operations Environmental Management Plan (OEMP) and other plans as required by the Environmental Performance Requirements and as relevant to any stage of the project. The program must include consultation with Councils, Heritage Victoria, the Roads Corporation, Melbourne Water, Public Transport Victoria, and the Environment Protection Authority and other stakeholders as relevant.	All	Design/ construction/ operation	-
	EM2	Prepare and implement an Environmental Management System that is certified to ISO 14001:2015 *Environmental Management Systems – requirements with guidance for use* for construction and operation. Prepare a Construction Environmental Management Plan (CEMP), Site Environment Implementation Plans, Operations Environmental Management Plan (OEMP) and other plans as required by the Environmental Performance Requirements and as relevant to any stage of the project. The CEMP should be prepared in accordance with EPA Publication 480, Environmental Guidelines for Major Construction Sites (EPA 1996).	All	Design/ construction/ operation	-
	EM3	Appoint an Independent Environmental Auditor (for PPP contract only) to undertake environmental audits of compliance with the approved CEMP, Environmental Performance Requirements and approval conditions.	All	Construction	-

Draft EES Evaluation Objective	EPR no.	Environmental Performance Requirement	Precinct	Timing	Risk No.
Transport					
Transport connectivity – To enable a significant increase in the capacity of the metropolitan rail network and provide multimodal connections, while adequately managing effects of the works on the broader transport network, both during and after the construction of the project	T1	**Road Transport (Construction Phase)** Develop and implement a transport management plan(s) in consultation with the relevant road management authorities to minimise disruption to traffic, car parking, pedestrian and bicycle movements during construction, including but not limited to: • Management of any temporary or permanent full or partial closure of traffic lanes including (but not limited to): – Childers Street, Kensington – Royal Parade, Grattan Street and Barry Street, Parkville – Franklin Street, A'Beckett Street and Little La Trobe Street at CBD North – Flinders Street and Flinders Lane at CBD South – Linlithgow Avenue, Melbourne – St Kilda Road, Domain Road, Albert Road at Domain – Toorak Road at Fawkner Park – Osborne Street, William Street in South Yarra • Monitoring of travel behaviour changes caused by construction works, including pre-construction baseline data and periodic reporting on behaviour change. Use this data as an input to the design of transport networks following construction • Traffic management plan(s) must be developed recognising other projects operating concurrently, where relevant • Provision for a minimum of one lane for traffic in each direction on St Kilda Road to be maintained throughout the construction within the Domain station precinct • Potential routes for construction vehicles travelling to and from all Melbourne Metro construction work sites, recognising sensitive receptors • Provision of suitable routes for vehicles to maintain connectivity for road users to JJ Holland Park, South Kensington station and to the medical and educational facilities adjacent to the Parkville construction work site	All	Construction	T001 to T007

Draft EES Evaluation Objective	EPR no.	Environmental Performance Requirement	Precinct	Timing	Risk No.
		• Provision of alternative routes for trucks accessing the 50 Lloyd Street Business Estate, Kensington • Provision of alternate parking where possible to replace parking lost from Childers Street, Laurens Street, Grattan Street, Domain Road, St Kilda Road and Albert Road during construction and preventing parking at undesignated locations on local roads • Provision of car parking for construction workers where possible • Provision of suitable routes for cyclists and pedestrians to maintain connectivity and safety for roads and shared paths to provide continued access, including (but not limited to): Childers Street, JJ Holland Park, South Kensington station, Laurens Street, Grattan Street, Swanston Street, Franklin Street, Flinders Street, St Kilda Road, Albert Road, Domain Road, Toorak Road and Fawkner Park • Provision of complementary improvements to Kings Way, Canterbury Road and other roads to accommodate additional traffic that may use these roads and to assist traffic flow in St Kilda Road for the duration of the works • In consultation with emergency services, develop suitable measures to ensure emergency service access is not inhibited as a result of Melbourne Metro construction worksites • Special arrangements for delivery or removal of large loads.			

Draft EES Evaluation Objective	EPR no.	Environmental Performance Requirement	Precinct	Timing	Risk No.
	T2	**Public Transport (Construction Phase)** • Develop and implement a plan for occupying railway land and tracks at the western portal, eastern portal and western turnback that minimises the disruption to railway services during construction. Plan to be developed to the satisfaction of VicTrack and MTM • Provide suitable routes for pedestrians to maintain connectivity, including DDA access, for users of South Kensington station, Melbourne Central station, Flinders Street Station and around all construction sites generally • Develop and implement measures to minimise disruption to the tram and bus networks resulting from the construction of Melbourne Metro in consultation with the relevant road management authorities and to the satisfaction of PTV, including (but not limited to): – Options to divert the 401, 402, 403, 505 and 546 bus services – Tram routes on La Trobe Street and Swanston Street – Tram routes on Flinders Street and Swanston Street – Tram operations on Toorak Road and the diversion of the No. 8 tram route – Periodic closures of Royal Parade tram route – Tram routes on St Kilda Road – Disruption to other tram routes through Domain tram stop – Bus replacement services for disrupted rail customers.	All	Construction	T001 to T005, T008
	T3	**Active Transport (Construction Phase)** • Develop and implement transport management measures in consultation with relevant authorities for cyclists and pedestrians to maintain connectivity throughout construction for road and shared path users including (but not limited to): JJ Holland Park, South Kensington station, Laurens Street, Grattan Street, Franklin Street (including RMIT facilities), Swanston Street, Flinders Street, St Kilda Road, Domain Road, Domain Parklands, Albert Road, Toorak Road, Fawkner Park, Osborne Street, William Street and Chapel Street • Implement active control at construction work site access points to maintain safety by avoiding potential conflicts between trucks, pedestrians and cyclists • In consultation with the City of Melbourne, provide suitable routes for cyclists and pedestrians throughout construction to and maintain connectivity for road and shared path users around JJ Holland Park and South Kensington station.	All	Construction	T001 to T005

Draft EES Evaluation Objective	EPR no.	Environmental Performance Requirement	Precinct	Timing	Risk No.
	T4	**Travel Demand Strategy** • In advance of construction works, MMRA to develop and implement a travel demand management strategy and appropriate tools to promote specific transport behaviour changes in response to road, bicycle and pedestrian paths closures/modifications and to reduce traffic congestion around construction sites, particularly in the vicinity of the Parkville and Domain precincts where road closures and restrictions are proposed. The strategy must be consistent with the MMRA Community and Stakeholder Engagement Plan.	All	Construction	T001 to T007
	T5	**Road Transport (Operational Phase)** • Design all roadworks and shared path works to relevant design standards to maintain safety of movement in consultation with the relevant road management authorities as required • Develop and implement a plan to reinstate car parking on Childers Street, Kensington and Laurens Street, North Melbourne in consultation with the relevant road management authorities that: – Minimises the permanent loss of parking where possible – Ensures re-instated car parking does not encroach on JJ Holland Park – Considers opportunities for replacement of any net loss of parking at nearby locations – Reduces the risk of overflow parking in local streets from South Kensington station and activities at JJ Holland Park – Replaces loading zones to service the needs of the existing businesses in the precinct where disrupted during construction • Develop and implement a plan for the reinstatement of Grattan Street, Parkville in consultation with the relevant road management authorities that includes: – Optimal replacement of car parking spaces along Grattan Street to service the needs of the hospitals and the university, including the retention or replacement of specific short-term and DDA compliant parking – Optimal design of the road network around Grattan Street associated with the changed demands and network changes on Grattan Street and Royal Parade/Elizabeth Street • Develop and implement a plan for the future use of the Franklin Street road reserve in consultation with the relevant road management authorities that includes: – Optimising the design of the road network following the closure of Franklin Street between Swanston Street and Bowen Street	All	Operation	T009 to T011

Draft EES Evaluation Objective	EPR no.	Environmental Performance Requirement	Precinct	Timing	Risk No.
		– Monitoring the change in travel patterns around the area associated with the closure of Franklin Street • Optimise the design of the reinstated St Kilda Road and apply the road users hierarchy in consultation with the relevant road management authorities to: – Reduce delays and congestion – Maintain safe operations through the precinct – Determine the optimal parking provision in the area and replace any lost parking where possible.			
	T6	**Public Transport (Operational Phase)** • Review, with PTV, the bus services in the areas around Arden, Parkville, CBD North, CBD South and Domain stations including a review of the route 401 bus frequency that will have reduced demand following implementation of Melbourne Metro • Optimise the design of Melbourne Metro stations to ensure integration with existing and planned future uses and so that they will provide connections: – Between the new Parkville station and the new tram stop on Royal Parade – For interchange between the new CBD North station and the existing tram and bus services along La Trobe Street and Swanston Street – For interchange between the new CBD South station and the existing tram services along Flinders Street and Swanston Street – Between the new Domain station and the new island platform trams stop in the centre of St Kilda Road and connections to the tram services along Domain Road • Review, with PTV and Yarra Trams, the bus and tram services in the area to optimise the functionality of the CBD North and South stations and to reduce the reliance on the Swanston Street tram corridor.	All	Operation	T009 to T010

Draft EES Evaluation Objective	EPR no.	Environmental Performance Requirement	Precinct	Timing	Risk No.
	T7	**Active Transport (Operational phase)** • Develop and implement a permanent shared use path along the northern side of Childers Street, Kensington in conjunction with the relevant road management authority and the land manager prior to the removal of the shared use path on the southern side • Where practicable to do so, re-instate on-road bicycle lanes and bicycle parking provisions removed during construction in cooperation with the relevant road management authority and the local council • Review the provision of safe and effective bicycle lanes in and around the Melbourne Metro station sites in cooperation with the road authority and the local council • Provide wayfinding information to enhance connectivity for pedestrians and public transport users including (but not limited to) the following locations: – Between Melbourne Central station and the new CBD North station – The underground connection between Flinders Street Station and the new CBD South station.	All	Operation	T009 to T010
Greenhouse Gas					
Transport connectivity – To enable a significant increase in the capacity of the metropolitan rail network and provide multimodal connections, while adequately managing effects of the works on the broader transport network, both during and after the construction of the project	G1	Develop and implement a Sustainability Management Plan to meet, as a minimum, the Melbourne Metro sustainability targets, including achieving the specified ratings under the Infrastructure Sustainability Council of Australia's Infrastructure Sustainability Rating Tool and the Green Star Design and As Built Melbourne Metro Rail Tool.	All	Design/ Construction / Operation	GH001, GH002
	G2	Monitor and report on how each of the best practice GHG abatement measures and sustainability initiatives identified in the Concept Design is implemented in the detailed design of the project and whether any additional measures not included in the Concept Design are feasible.	All	Design	GH001, GH002

Draft EES Evaluation Objective	EPR no.	Environmental Performance Requirement	Precinct	Timing	Risk No.
Land Use and Planning					
Built environment – To protect and enhance the character, form and function of the public realm and buildings within and adjacent to the project alignment, and particularly in the vicinity of project surface structures, having regard to the existing and evolving urban context	LU1	Develop and implement measures for construction and operation of Melbourne Metro that aim to minimise impacts to the development and/or operation of existing land uses, including: • Limiting the permanent change of use within existing public open space • Minimising footprints of construction sites and permanent infrastructure on public land • Minimising impacts to existing public open spaces and recreational facilities and the users of these facilities, including (but not limited to): JJ Holland Park, University Square, City Baths, City Square, Federation Square, the Shrine of Remembrance and the Shrine Reserve, Domain Parklands, Edmund Herring Oval, Fawkner Park and the Albert Road Reserve. Such measures must be developed in consultation with affected land managers for public land.	All	Construction / Operation	LU001 to LU008
	LU2	Development of the project is to have regard to the relevant Open Space Master Plans (including but not limited to, the Domain Parklands and Fawkner Park Master Plans) in designing and constructing above-ground infrastructure for the tunnels. Consultation must occur with land managers and/or agencies responsible for the implementation of the relevant Open Space Master Plans.	All	Construction / Operation	LU002, LU005, LU006
	LU3	Design and construction of Arden station must consider the ongoing strategic planning of the Arden-Macaulay Urban Renewal Area and include consultation with the Metropolitan Planning Authority, City of Melbourne and any other relevant agencies.	3 – Arden station	Design/ Construction	LU007, LU008
	LU4	Prior to the development of the detailed design of all permanent structures, prepare and implement strategies in accordance with the Melbourne Metro Urban Design Strategy and relevant planning schemes that cover: • Community identity and cultural strategy • Wayfinding, signage and advertising The strategies must be developed in consultation with relevant local councils and land managers.	All	Design	
	Also refer to the following Environmental Performance Requirements for 'Land Use Planning': B1, SC2, SC4, LV2				

Draft EES Evaluation Objective	EPR no.	Environmental Performance Requirement	Precinct	Timing	Risk No.
Business					
Social, community, land use and business: To manage effects on the social fabric of the community in the area of the project, including with regard to land use changes, community cohesion, business functionality and access to services and facilities, especially during the construction phase	B1	Reduce the disruption to businesses from direct acquisition or temporary occupation of land, and work with business and land owners to endeavour to reach agreement on the terms for possession of the land.	All	Design	B006
	B2	Prepare a business disruption plan to manage impacts to non-acquired businesses and to engage with business, property owners and the community throughout construction. The plan shall include: • Timely information on key project milestones • Changes to traffic conditions and duration of impact • A project construction schedule developed in coordination with transport authorities and local councils and in consultation with businesses to minimise cumulative impacts of this and other projects • Plans for notifying customers of proposed changes to business operations, including the setting of suitable timeframes for notification prior to commencement of works • Measures to ensure access to businesses is maintained for customers, delivery and waste removal unless there has been prior engagement with affected businesses (including mutually agreed mitigation measures as required). This could include the installation of directional and business signage to assist customers • Process for registering and management of complaints from affected businesses.	All	Construction	B001, B002, B004, B005, B007, B008, B009
	B3	Following consultation with potentially affected businesses and prior to main works or shaft construction commencing, prepare management plans to minimise dust, noise and vibration impacts during construction, as per AQ1, NV1 and NV4.	All	Construction	B003
	B4	Maintain vehicular and pedestrian access to hospital emergency departments at all times during construction and to other key health and medical facilities where practicable.	All	Construction	B001, B004
	B5	Develop a stop work contingency plan for Class 1 emergencies (as defined in the *Emergency Management Act 2013*) in consultation with medical institutions in the Parkville precinct in the event that Melbourne Metro construction works are required to cease.	4 – Parkville station	Design/ Construction	B001, B004
	Also refer to the following Environmental Performance Requirements for 'Business': T1, SC2, LU1, AQ1, NV1				

Draft EES Evaluation Objective	EPR no.	Environmental Performance Requirement	Precinct	Timing	Risk No.
Social and Community					
Social, community, land use and business: To manage effects on the social fabric of the community in the area of the project, including with regard to land use changes, community cohesion, business functionality and access to services and facilities, especially during the construction phase	SC1	Reduce the disruption to residences from direct acquisition or temporary occupation.	All	Pre-construction	SC028, SC029, SC030, SC031
	SC2	Prior to main works or shaft construction in areas affected, develop a relocation management framework that allows for a uniform approach across the project for the voluntary (temporary) relocation of households subject to: • Construction activities likely to unduly affect their amenity (e.g. out of hours works or sustained loss of amenity during the day for shift workers) • Loss of access.	All	Pre-construction	SC001, SC004, SC005, SC006, SC009
	SC3	Prior to main works or shaft construction, develop and implement a community and business involvement plan to engage potentially affected stakeholders and advise them of the planned construction activities and project progress. The plan must include: • Measures to minimise impacts to the development and/or operation of existing facilities • Measures for providing advance notice of significant milestones, changed traffic conditions, periods of predicted high noise and vibration activities • Process for registering and management of complaints • Measures to address any other matters which are of concern or interest to them. The plan would consider each precinct and station location in detail. Stakeholders to be considered in the plan include (but are not limited to): • Municipalities • Potentially affected residents • Potentially affected businesses • Recreation, sporting and community groups and facilities • Royal Melbourne Hospital, Victorian Comprehensive Cancer Centre, Peter Doherty Institute and other health and medical facilities • The University of Melbourne	All	Pre-construction	SC001 to SC023, SC027, SC032 to SC038, SC041, SC043, SC044, SC045

Draft EES Evaluation Objective	EPR no.	Environmental Performance Requirement	Precinct	Timing	Risk No.
		• RMIT • Fawkner Park Children's Centre and Kindergarten • South Yarra Senior Citizens Centre • Other public facilities in proximity.			
	SC4	Prior to main works or shaft construction commencing, work with the City of Melbourne to identify possible alternative areas of public open space for community use during the construction phase to minimise the impacts of loss of existing public open space that are to be utilised as construction worksites.	All	Pre-construction	SC007, SC019, SC024, SC034
	SC5	Work with relevant local councils to plan for and coordinate with key stakeholders during major public events.	All	Construction	SC007, SC013, SC033
	SC6	Develop a relocation strategy for sports clubs and other formal users of directly impacted recreational facilities.	All	Construction	SC024, SC025
	SC7	In consultation with key stakeholders and in accordance with the Melbourne Metro Urban Design Strategy, relevant statutory approvals and other relevant requirements, re-establish sites impacted by construction works, including (but not limited to): • Childers Street, Kensington • JJ Holland Park • Royal Parade and Grattan Street, Parkville • The south western entrance of the proposed CBD South station • St Kilda Road boulevard • Edmund Herring Oval • Fawkner Park and Fawkner Park Tennis Facility • Osborne Street Reserve • South Yarra Siding Reserve • Lovers Walk • The South African Soldiers War Memorial. (See related Environmental Performance Requirement LV2.)	All	Construction	SC033, SC035, SC039, SC040, SC041

Draft EES Evaluation Objective	EPR no.	Environmental Performance Requirement	Precinct	Timing	Risk No.
	SC8	In consultation with the City of Melbourne, improve community access to open or recreational space within the CBD by identifying potential opportunities to return as much land as possible used for construction to permanent public open space at City Square and Federation Square. Plans must be in accordance with the Melbourne Metro Urban Design Strategy.	6 – CBD South station	Design/ Construction	SC014
	SC9	In consultation with the City of Melbourne, develop a plan to utilise part of the Franklin Street road reserve for public open space post-construction. Plans must be in accordance with the Melbourne Metro Urban Design Strategy.	5 – CBD North station	Design/ Construction	SC014
	Also refer to the following Environmental Performance Requirements for 'Social and Community': T1, LU1, AR2, LV1, LV2, LV3				
Air Quality					
Amenity: To minimise adverse air quality, noise or vibration effects on the amenity of nearby residents and local communities, as far as practicable, especially during the construction phase	AQ1	Develop and implement plan(s) for dust management and monitoring, in consultation with EPA, to minimise and monitor the impact of construction dust. The plan must address monitoring requirements for key sensitive receptors, including (but not limited) to: • Residential and commercial properties • Hospitals and research facilities within the Parkville precinct • Universities, including The University of Melbourne and RMIT • Schools, including Melbourne Grammar School (Wadhurst Campus) and Christ Church Grammar School • Public parks including the Shrine of Remembrance Reserve and JJ Holland Reserve. Undertake air modelling for construction to inform the dust management plan.	All	Construction	AQ001 to AQ010
	AQ2	Manage construction activities to minimise dust and other emissions in accordance with EPA Publication 480, Environmental Guidelines for Major Construction Sites (EPA 1996).	All	Construction	AQ001 to AQ010
	AQ3	Control the emission of smoke, dust, fumes and other pollution into the atmosphere during construction and operation in accordance with the SEPPs for Air Quality Management and Ambient Air Quality.	All	Construction / Operation	AQ001 to AQ010

Draft EES Evaluation Objective	EPR no.	Environmental Performance Requirement	Precinct	Timing	Risk No.
Noise & Vibration					
Amenity: To minimise adverse air quality, noise or vibration effects on the amenity of nearby residents and local communities, as far as practicable, especially during the construction phase	NV1	Develop and implement a plan to manage construction noise in accordance with EPA Publication 1254 Noise Control Guidelines.	All	Construction	NV001
	NV2	For construction works conducted between CBD South station and Domain station, comply with the requirements of the Notification of Referral Decision for the Melbourne Metro Rail Project (EPBC 2015/7549, dated 22 September 2015) under the EPBC Act for vibration monitoring and measurement, as follows: • Conduct pre-construction dilapidation surveys of the nearest Commonwealth Heritage listed structures to the construction activity, including the Former Guardhouse (Block B), to record structural condition and structural integrity prior to commencement of tunnelling • Conduct vibration monitoring at the commencement of tunnelling in geological conditions that are similar to those at Victoria Barracks in order to quantify the actual tunnel boring machine vibration characteristics (level and frequency) for comparison to the values derived from the literature and the German DIN (DIN 4150) target • Conduct continuous vibration monitoring at the nearest Victoria Barracks heritage structures to the construction activity, including the Former Guardhouse (B Block), to assess the actual tunnelling vibration for acceptability, taking into account both the vibration frequency and condition of structures, until monitoring of vibration at the Former Guardhouse (B Block) shows measurements equivalent to preconstruction vibration readings at the Former Guardhouse (B Block) • If monitoring conducted according to the above demonstrates the condition of heritage structures may be degraded as a result of vibration, ground vibration must be reduced by adjusting the advance rate of the tunnel boring machine until monitoring of vibration at the Former Guardhouse (B Block) shows consistent measurements equivalent to preconstruction vibration readings at the Former Guardhouse (B Block).	1 – Tunnels (between CBD South station and Domain station)	Construction	NV002, NV014

<table>
<tr><th>Draft EES Evaluation Objective</th><th>EPR no.</th><th>Environmental Performance Requirement</th><th>Precinct</th><th>Timing</th><th>Risk No.</th></tr>
<tr><td></td><td>NV3</td><td>Appoint an acoustic and vibration consultant to predict construction noise and vibration (through modelling) and update the modelling to reflect current construction methodology, site conditions and specific equipment noise and vibration levels (this will require noise and vibration measurements). The model would be used to determine appropriate mitigation to achieve the Environmental Performance Requirements.

The acoustic and vibration consultant will also be required to undertake noise and vibration monitoring to assess levels with respect to Guideline Targets specified in the Environmental Performance Requirements. Where monitoring indicates exceedances of Guideline Targets, apply appropriate management measures as a soon as possible.</td><td>All</td><td>Construction</td><td>NV001 to NV029</td></tr>
<tr><td></td><td>NV4</td><td>Develop and implement a communications plan to liaise with potentially affected community stakeholders and land owners regarding potential noise and vibration impacts. The plan shall include procedures for complaint management.</td><td>All</td><td>Construction</td><td>NV001 to NV029</td></tr>
<tr><td></td><td>NV5</td><td><u>Airborne Construction Noise Guideline Targets (Internal)</u>

Implement management actions if construction noise exceeds the internal noise levels below for Highly Sensitive Areas (based on AS/NZS 2107:2000) and a noise sensitive receptor is adversely impacted.

<table><tr><th>Highly Sensitive Area</th><th>Maximum Internal Construction Noise Level $L_{Aeq,\ 15\ mins}$</th></tr><tr><td>Intensive Care Wards</td><td>45</td></tr><tr><td>Operating Theatres</td><td>45</td></tr><tr><td>Surgeries</td><td>45</td></tr><tr><td>Wards</td><td>40</td></tr></table></td><td>All</td><td>Construction</td><td>NV001</td></tr>
</table>

<table>
<tr><th>Draft EES Evaluation Objective</th><th>EPR no.</th><th>Environmental Performance Requirement</th><th>Precinct</th><th>Timing</th><th>Risk No.</th></tr>
<tr><td></td><td>NV6</td><td>
<u>Vibration Guideline Targets for Structures</u>
Implement management actions if due to construction activity, the following DIN 4150 Guideline Targets for structural damage to buildings (for short-term vibration or long-term vibration) are not achieved.
Short-term vibration on structures
<table>
<tr><th rowspan="2">Type of structure</th><th colspan="3">Vibration at the foundation, mm/s (Peak Component Particle Velocity)</th><th>Vibration at horizontal plane of highest floor at all frequencies</th></tr>
<tr><th>1 to 10 Hz</th><th>10 to 50 Hz</th><th>50 to 100 Hz[1]</th><th>mm/s (Peak Component Particle Velocity)</th></tr>
<tr><td>Type 1: Buildings used for commercial purposes, industrial buildings and buildings of similar design</td><td>20</td><td>20 to 40</td><td>40 to 50</td><td>40</td></tr>
<tr><td>Type 2: Dwellings and buildings of similar design and/or occupancy</td><td>5</td><td>5 to15</td><td>15 to 20</td><td>15</td></tr>
<tr><td>Type 3: Structures that have a particular sensitivity to vibration e.g. heritage buildings</td><td>3</td><td>3 to 8</td><td>8 to 10</td><td>8</td></tr>
</table>
Notes
1 At frequencies above 100 Hz, the values given in this column may be used as minimum values.
2 Vibration levels marginally exceeding those vibration levels in the table would not necessarily mean that damage would occur and further investigation would be required to determine if higher vibration levels can be accommodated without risk of damage.
3 For civil engineering structures (e.g. with reinforced concrete constructions used as abutments or foundation pads) the values for Type 1 buildings may be increased by a factor of 2.
4 Short-term vibration is defined as vibration which does not occur often enough to cause structural fatigue and which does not produce resonance in the structure being evaluated.
</td><td>All</td><td>Construction</td><td>NV002, NV003, NV014, NV015, NV016, NV017</td></tr>
</table>

<table>
<tr><th>Draft EES Evaluation Objective</th><th>EPR no.</th><th>Environmental Performance Requirement</th><th>Precinct</th><th>Timing</th><th>Risk No.</th></tr>
<tr><td></td><td></td><td>
Long-term vibration on structures
<table>
<tr><th>Type of Structure</th><th>Vibration Velocity, mm/s (Peak Component Particle Velocity) in horizontal plane at all frequencies</th></tr>
<tr><td>Buildings used for commercial purposes, industrial buildings and similar design</td><td>10</td></tr>
<tr><td>Dwellings and buildings of similar design and/or occupancy</td><td>5</td></tr>
<tr><td>Structures that have a particular sensitivity to vibration, e.g. heritage buildings</td><td>2.5</td></tr>
</table>
Notes
1 Vibration levels marginally exceeding those in the table would not necessarily mean that damage would occur and further investigation is required would be required to determine if higher vibration levels can be accommodated without risk of damage.
2 Long-term vibration means vibration events that may result in a resonant structural response.
</td><td></td><td></td><td></td></tr>
<tr><td></td><td>NV7</td><td>Undertake condition assessments of above and below ground utility assets and establish construction vibration limits with asset owners.
Monitor vibration during construction to demonstrate compliance with agreed vibration guideline targets. Take remedial action if limits are not met.</td><td>All</td><td>Construction</td><td>NV002, NV003, NV014, NV015, NV016, NV017</td></tr>
</table>

<table>
<tr><th>Draft EES Evaluation Objective</th><th>EPR no.</th><th>Environmental Performance Requirement</th><th>Precinct</th><th>Timing</th><th>Risk No.</th></tr>
<tr><td></td><td>NV8</td><td><u>Vibration Guideline Targets for Underground Infrastructure</u>
Implement management actions if the following DIN 4150 Guideline Targets for buried pipework/underground infrastructure from construction are not achieved.
<table><tr><th>Pipe material</th><th>Vibration Velocity, mm/s (PPV)</th></tr><tr><td>Steel</td><td>100</td></tr><tr><td>Clay, concrete, reinforced concrete, prestressed concrete, metal</td><td>80</td></tr><tr><td>Masonry, plastic</td><td>50</td></tr></table>Notes
1 These values may be reduced by 50% when evaluating the effects of long-term vibration on buried pipework.
2 It is assumed pipes have been manufactured and laid using current technology (however it is noted that this is not the case for the majority of buried pipework potentially affected by Melbourne Metro).
3 Compliance with is to be achieved with asset owner’s Utility Standards.</td><td>All</td><td>Construction</td><td>NV002, NV003, NV014, NV015, NV016, NV017</td></tr>
</table>

<table>
<tr><th>Draft EES Evaluation Objective</th><th>EPR no.</th><th>Environmental Performance Requirement</th><th>Precinct</th><th>Timing</th><th>Risk No.</th></tr>
<tr><td></td><td>NV9</td><td><u>Vibration Dose Values (VDVs) (Human Comfort)</u>
Implement management actions if the following Guideline Targets (VDVs) (based Table 1 in BS6472-1:2008) for continuous (as for TBMs and road headers), intermittent, or impulsive vibration are not achieved.
<table><tr><th rowspan="3">Location</th><th colspan="4">VDV (m/s$^{1.75}$)</th></tr><tr><th colspan="2">Day
7:00am to 10:00pm</th><th colspan="2">Night
10:00pm to 7:00am</th></tr><tr><th>Preferred Value</th><th>Maximum Value</th><th>Preferred Value</th><th>Maximum Value</th></tr><tr><td>Residences</td><td>0.20</td><td>0.40</td><td>0.10</td><td>0.20</td></tr><tr><td>Offices, schools, educational institutions, places of worship</td><td>0.40</td><td>0.80</td><td>0.40</td><td>0.80</td></tr><tr><td>Workshops</td><td>0.80</td><td>1.60</td><td>0.80</td><td>1.60</td></tr></table>Notes
1 The Guideline Targets are non-mandatory; they are goals that should be sought to be achieved through the application of feasible and reasonable mitigation measures. If exceeded then management actions would be required.
2 The VDVs may be converted to PPVs within a future noise and vibration construction management plan</td><td>All</td><td>Construction</td><td>NV004, NV005, NV006, NV018, NV019, NV020, NV021</td></tr>
</table>

<table>
<tr><th>Draft EES Evaluation Objective</th><th>EPR no.</th><th>Environmental Performance Requirement</th><th>Precinct</th><th>Timing</th><th>Risk No.</th></tr>
<tr><td></td><td>NV10</td><td><u>Vibration-sensitive Equipment Guideline Targets</u>
Implement management actions if the following ASHRAE equipment vibration Guideline Targets or measured background levels (whichever is higher) are exceeded for vibration-sensitive equipment during construction and operation at Parkville and CBD North stations.
<table><tr><th>Equipment requirements</th><th>Curve</th></tr><tr><td>Bench microscopes up to 100x magnification; laboratory robots</td><td>Operating Room</td></tr><tr><td>Bench microscopes up to 400x magnification; optical and other precision balances; co-ordinate measuring machines; metrology laboratories; optical comparators; micro electronics manufacturing equipment; proximity and projection aligners, etc</td><td>VC-A</td></tr><tr><td>Microsurgery, eye surgery, neurosurgery; bench microscope at magnification greater than 400x; optical equipment on isolation tables; microelectronic manufacturing equipment such as inspection and lithography equipment (including steppers) to 3mm line widths</td><td>VC-B</td></tr><tr><td>Electron microscopes up to 30,000x magnification; microtomes; magnetic resonance images; microelectronics manufacturing equipment such as lithography and inspection equipment to 1mm detail size</td><td>VC-C</td></tr><tr><td>Electron microscopes at magnification greater than 30,000x; mass spectrometers; cell implant equipment; microelectronics manufacturing equipment such as aligners, steppers and other critical equipment for phot-lithography with line widths of ½ micro m; includes electron beam systems</td><td>VC-D</td></tr><tr><td>Unisolated laser and optical research systems; microelectronics manufacturing equipment such as aligners, steppers and other critical equipment for photolithography with line widths of ¼ micro m; includes electron beam systems</td><td>VC-E</td></tr></table>Notes
1 The proponent may undertake consultation with the users and agree alternative Guideline Targets.</td><td>4 – Parkville station
5 – CBD North station</td><td>Construction / Operation</td><td>NV008, NV009</td></tr>
</table>

<table>
<tr><th>Draft EES Evaluation Objective</th><th>EPR no.</th><th>Environmental Performance Requirement</th><th>Precinct</th><th>Timing</th><th>Risk No.</th></tr>
<tr><td></td><td>NV11</td><td><u>Ground-borne (internal) Noise Guideline Targets for Amenity</u>
Implement management actions as determined in consultation with potentially affected land owners to protect amenity at residences, sleeping areas in hospital wards, student accommodation and hotel rooms where the following ground-borne noise Guideline Targets (from the NSW Interim Construction Noise Guideline) are exceeded during construction.<table><tr><th>Time Period</th><th>Internal $L_{Aeq,15min}$, dB</th></tr><tr><td>Evening, 6pm to 10pm</td><td>40</td></tr><tr><td>Night, 10pm to 7am</td><td>35</td></tr></table>Notes
1 Levels are only applicable when ground-borne noise levels are higher than airborne noise levels.
2 The noise levels are assessed at the centre of the most affected habitable room.
3 Management actions include extensive community consultation to determine acceptable level of disruption and provision of respite accommodation in some circumstances.</td><td>All</td><td>Construction</td><td>NV025, NV026, NV027, NV028, NV029</td></tr>
<tr><td></td><td>NV12</td><td><u>Blasting</u>
Comply with Australian Standard AS2187.2-2006, Explosives – Storage and use Part 2 – Use of explosives for all blasting
For Highly Sensitive Areas, hospital wards, operating theatres and Bio-resources and areas with vibration-sensitive equipment which are not covered in AS2187.2-2006, develop a plan in consultation with facilities owners that:
Avoids damage to vibration-sensitive equipment
Minimises adverse impact on Highly Sensitive Areas and Bio-resources.</td><td>4 – Parkville station</td><td>Construction</td><td>NV017, NV019</td></tr>
</table>

Draft EES Evaluation Objective	EPR no.	Environmental Performance Requirement	Precinct	Timing	Risk No.
	NV13	To protect the amenity of Bio-resources and sensitive research during construction and operation, the following criteria apply: • Background noise should be kept below 50 dB and should be free of distinct tones (internal) • Short exposure should be kept to less than 85 dB (internal). **Notes** 1 The levels above should take into consideration the frequency threshold for the Bio-resource under consideration. 2 Higher levels may be acceptable if it can be shown that the Bio-resource under consideration is exposed to higher levels and is not adversely impacted by them.	4 – Parkville station 5 – CBD North station	Construction / operation	NV012
	NV14	Appoint an acoustic and vibration consultant to predict noise and vibration and determine appropriate mitigation to achieve the Environmental Performance Requirements. The acoustic and vibration consultant would also be required to undertake commissioning noise and vibration measurements to assess levels with respect to the Environmental Performance Requirements.	All	Operation	NV030 to NV038

<table>
<tr><th>Draft EES Evaluation Objective</th><th>EPR no.</th><th>Environmental Performance Requirement</th><th>Precinct</th><th>Timing</th><th>Risk No.</th></tr>
<tr><td></td><td>NV15</td><td><u>Victorian Passenger Rail Infrastructure Noise Policy (PRINP)</u>
Avoid, minimise or mitigate rail noise where the following PRINP (April 2013) Investigation Thresholds are exceeded during operation:
<table>
<tr><th>Time</th><th>Type of Receiver</th><th>Investigation Thresholds</th></tr>
<tr><td>Day
(6am – 10pm)</td><td>• Residential dwellings and other buildings where people sleep including aged persons homes, hospitals, motels and caravan parks
• Noise sensitive community buildings, including schools, kindergartens, libraries</td><td>65 dBL_{Aeq} and a change in 3 dB(A) or more
or
85 dBL_{Amax} and a change in 3 dB(A) or more</td></tr>
<tr><td>Night
(10pm – 6am)</td><td>• Residential dwellings and other buildings where people sleep including aged persons homes, hospitals, motels and caravan parks</td><td>60 dBL_{Aeq} and a change in 3 dB(A) or more
or
85 dBL_{Amax} and a change in 3 dB(A) or more</td></tr>
</table>
Notes
1 If an investigation shows that the thresholds are not exceeded, then no further action is considered under the PRINP.
2 L_{Amax}, is defined as maximum A-weighted sound pressure level and is the 95 percentile of the highest value of the A-weighed sound pressure level reached within the day or night.
3 For Melbourne Metro the location of assessment is at 1m from the centre of the window of the most exposed external façade.</td><td>All</td><td>Operation</td><td>NV031</td></tr>
<tr><td></td><td>NV16</td><td>For operation, comply with State Environment Protection Policy (Control of Noise from Commerce, Industry and Trade) No. N-1 (SEPP N-1). This does not apply to trains and trams.</td><td>All</td><td>Design/ Operation</td><td>NV032, NV035</td></tr>
</table>

<table>
<tr><th>Draft EES Evaluation Objective</th><th>EPR no.</th><th>Environmental Performance Requirement</th><th>Precinct</th><th>Timing</th><th>Risk No.</th></tr>
<tr><td></td><td>NV17</td><td><u>Ground-borne Noise Guideline Targets for Operation</u>
Where operational ground-borne noise trigger levels are exceeded for sensitive occupancies as shown in the table below (trigger levels are based on the Rail Infrastructure Noise Guideline, 17 May 2013 (RING(1)), assess feasible and reasonable mitigation to reduce noise towards the relevant ground-borne noise trigger level.
<table>
<tr><th>Sensitive land use</th><th>Time of day</th><th>Internal noise trigger levels</th></tr>
<tr><td rowspan="2">Residential</td><td>Day
(7am-10pm)</td><td>40 dBL_{ASmax} and an increase in existing rail noise level by 3 dB(A) or more</td></tr>
<tr><td>Night
(10pm-7am)</td><td>35 dBL_{ASmax} and an increase in existing rail noise level by 3 dB(A) or more</td></tr>
<tr><td>Schools, educational institutions, places of worship</td><td>When in use</td><td>40-45 dBL_{ASmax} and an increase in existing rail noise level by 3 dB(A) or more</td></tr>
<tr><td>Hospitals(bed wards and operating theatres)</td><td>24 hours</td><td>35 dB(A) L_{ASMax}</td></tr>
<tr><td>Offices</td><td>When in use</td><td>45 dB(A) L_{ASMax}</td></tr>
<tr><td>Cinemas and Public Halls</td><td>When in use</td><td>30 dB(A) L_{ASMax}</td></tr>
<tr><td>Drama Theatres</td><td>When in use</td><td>25 dB(A) L_{ASMax}</td></tr>
<tr><td>Concert halls, Television and Sound Recording Studios</td><td>When in use</td><td>25 dB(A) L_{ASMax}</td></tr>
</table>
Notes
1 RING provides trigger levels for residential and schools, educational institutions and places of worship, but does not provide guidance on acceptable ground-borne noise levels for other types of sensitive receivers. Ground-borne noise trigger levels for other types of sensitive occupancies have been devised based on RING and industry knowledge.
2 Specified noise levels refer to noise from heavy or light rail transportation only (not ambient noise from other sources).</td><td>All</td><td>Operation</td><td>NV038</td></tr>
</table>

<table>
<tr><th>Draft EES Evaluation Objective</th><th>EPR no.</th><th>Environmental Performance Requirement</th><th>Precinct</th><th>Timing</th><th>Risk No.</th></tr>
<tr><td></td><td></td><td>3 Assessment location is internal near to the centre of the most affected habitable room.
4 L_{ASmax} refers to the maximum noise level not exceeded for 95% of the rail pass-by events.
5 For schools, educational institutions, places of worship the lower value of the range is most applicable where low internal noise levels is expected.
6 The values for performing arts spaces may need to be reassessed to address the specific requirements of a venue.</td><td></td><td></td><td></td></tr>
<tr><td></td><td>NV18</td><td><u>Vibration Guideline Targets for Operation</u>
During operation, achieve the Guideline Targets (based on Table 1 in BS6472-1:2008) or background levels (whichever is higher) for vibration as follows:
<table>
<tr><th rowspan="2">Location</th><th colspan="4">VDV (m/s$^{1.75}$)</th></tr>
<tr><th colspan="2">Day
7:00am to 10:00pm</th><th colspan="2">Night
10:00pm to 7:00am</th></tr>
<tr><th>Preferred Value</th><th>Maximum Value</th><th>Preferred Value</th><th>Maximum Value</th></tr>
<tr><td>Residences</td><td>0.20</td><td>0.40</td><td>0.10</td><td>0.20</td></tr>
<tr><td>Offices, schools, educational institutions, places of worship</td><td>0.40</td><td>0.80</td><td>0.40</td><td>0.80</td></tr>
<tr><td>Workshops</td><td>0.80</td><td>1.60</td><td>0.80</td><td>1.60</td></tr>
</table>
Notes
1 The Guideline Targets are non-mandatory; they are goals that should be sought to be achieved through the application of feasible and reasonable mitigation measures.
2 Compliance with these values implies no structural damage due to operation.</td><td>All</td><td>Operation</td><td>NV034</td></tr>
</table>

Draft EES Evaluation Objective	EPR no.	Environmental Performance Requirement	Precinct	Timing	Risk No.
Aboriginal Cultural Heritage					
Cultural Heritage – To avoid or minimise adverse effects on Aboriginal and historical cultural heritage values	AH1	Comply with a Cultural Heritage Management Plan approved under the *Aboriginal Heritage Act 2006* and prepared in accordance with the Aboriginal Heritage Regulations 2007.	All	Construction	AH001 to AH007
Historical Cultural Heritage					
Cultural Heritage – To avoid or minimise adverse effects on Aboriginal and historical cultural heritage values	CH1	Design permanent and temporary works to avoid or minimise impacts on the cultural heritage values of heritage places. Consult as required with Heritage Victoria and/or the responsible authority (as applicable).	All	Detailed design	All
	CH2	To avoid or minimise impacts on the cultural heritage values of heritage places: • Perform works in accordance with the following noise and vibration and ground movement Environmental Performance Requirements as related to heritage places: NV2, NV5, NV6, NV11, GM2, GM4, GM5, GM6 • Undertake condition assessments of heritage places prior to commencement of construction where located within the identified vibration and ground settlement zones of sensitivity and monitor as per NV6, GM4 and GM5. Should damage occur to a building or structure on the Victorian Heritage Register or that is subject to a Heritage Overlay as a result of works, undertake rectification works in accordance with accepted conservation practice (with reference to the Australia ICOMOS Burra Charter 2013) to the satisfaction of Heritage Victoria or the responsible authority, as applicable.	All	Prior to and during construction	HH03
	CH3	Prior to construction, undertake archival photographic recording in accordance with Heritage Victoria Technical Note: Photographic Recording for Heritage Places and Objects where heritage places are to be demolished or modified.	All	Prior to construction commencing	HH04, HH05, HH06, HH07, HH08, HH09, HH10, HH13, HH14, HH15, HH16, HH22, HH23, HH26, HH27, HH28, HH29, HH32

Draft EES Evaluation Objective	EPR no.	Environmental Performance Requirement	Precinct	Timing	Risk No.
	CH4	Prior to construction of main works or shafts that affect heritage structures or places, develop detailed methodology in accordance with Australia ICOMOS Burra Charter and to the satisfaction of Heritage Victoria or the responsible authority (as applicable) where heritage fabric is required to be dismantled, stored and reconstructed. Work is to be documented and overseen by an appropriately qualified conservation practitioner.	1 – Tunnels 3 – Arden station 6 – CBD South station 7 – Domain station	Prior to construction, reinstatement at an appropriate time during or after the main construction works	HH04, HH17, HH19, HH23, HH25, HH27, HH31
	CH5	Prior to construction of main works or shafts that affect heritage structures or places, develop and implement appropriate protection measures for heritage places and objects including sculptures, memorials, monuments and associated heritage fabric where retained in proximity to works. This is to be done to the satisfaction of Heritage Victoria or the responsible authority (as applicable).	All	Prior to construction commencing	HH04, HH05, HH18, HH25, HH26, HH29, HH31
	CH6	To the satisfaction of Heritage Victoria: • Develop archaeological management plans to manage disturbance of archaeological sites and values affected by the project • Undertake investigation in accordance with the Guidelines for Investigating Historical Archaeological Artefacts and Sites, Heritage Victoria 2014 (as amended or updated) and to the satisfaction of the Executive Director, Heritage Victoria. Develop and implement a protocol for managing previously unidentified historical archaeological sites discovered during project works.	All	Pre-construction	HH01, HH02
	CH7	To the satisfaction of Heritage Victoria and the responsible authority, develop and implement a heritage interpretation strategy as part of detailed design as a whole which seeks to explore historical and Aboriginal cultural heritage themes. This must include (but not be limited to) the exploration of opportunities for interpretation at Arden station (referencing the use of this land for railways workshops and sidings), and at CBD South station (referencing the Port Phillip Arcade and the early Port Phillip Club Hotel).	All	Design/ Construction	Specific risks include HH13 and HH23 but the opportunities apply across the project.

Draft EES Evaluation Objective	EPR no.	Environmental Performance Requirement	Precinct	Timing	Risk No.
	CH8	To the satisfaction of Heritage Victoria and the responsible authority (as applicable), undertake all underground service works beneath or within heritage places or tree protection zones (TPZs) for trees as part of heritage places to avoid, minimise and mitigate impacts to the heritage fabric.	All	Construction	HH33, HH34
	CH9	To the satisfaction of Heritage Victoria and the responsible authority (as applicable), ensure new development is responsive to heritage places in terms of height, massing, form, façade articulation and materials.	All	Detailed design	HH05, HH06, HH08, HH18, HH20, HH21, HH22, HH24, HH26, HH27,
	CH10	To the satisfaction of the responsible authority, ensure no direct impact on heritage buildings on the former Glueworks site in Kensington.	2 – Western portal	Construction	HH12
	CH11	To the satisfaction of the responsible authority, retain and protect Langford Street pumping station (part of proposed Moonee Ponds Creek and Infrastructure Precinct) as part of the design for the new substation.	3 – Arden station	Detailed design	HH14
	CH12	To the satisfaction of Heritage Victoria and the responsible authority, replace removed Elm trees in Royal Parade as part of project delivery using appropriate species and re-establish the boulevard formation. Provide suitable soil conditions to facilitate the growth of new trees to reach the size of the existing mature trees in the boulevard.	4 – Parkville station	Construction	HH15, HH16
	CH13	To the satisfaction of Heritage Victoria, in detailed design ensure the eastern Parkville station entry is set no less than 8-10 metres from the original Gatekeeper's Cottage and an appropriate boundary treatment is retained or re-established for the heritage building.	4 – Parkville station	Detailed design	HH18
	CH14	To the satisfaction of the responsible authority, in detailed design for the CBD South station, incorporate the Charles Bush sculpture into the design for the new building on the Port Phillip Arcade site, preferably in a prominent position on the Flinders Street façade.	6 – CBD South station	Detailed design	HH23

Draft EES Evaluation Objective	EPR no.	Environmental Performance Requirement	Precinct	Timing	Risk No.
	CH15	In the event the permanent relocation of the Burke and Wills Monument from its current site is required, resolve the final location of the monument to the satisfaction of the appropriate responsible authority and/or in consultation with the City of Melbourne prior to the commencement of construction.	6 – CBD South station	Detailed design	HH25
	CH16	Integrate the bluestone pillar and cast iron fencing at the corner of Grattan Street and Royal Parade into the design for the station entry and surrounds in consultation with the University of Melbourne.	4 – Parkville station	Detailed design	HH19
	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. Policy documents are as follows: • Domain Parklands: Domain Parklands CMP (in preparation, context, draft 2015-16) and the Domain Parklands Masterplan (in preparation) • Shrine of Remembrance: Shrine of Remembrance CMP (Lovell Chen, 2010) or any future review and the Shrine of Remembrance Landscape Improvement Plan (rush Wright Associates, 2010) • South African Soldiers Memorial Reserve: Any relevant CMP for the South African Soldiers Memorial • Fawkner Park: Fawkner Park Conservation Analysis (Hassell, 2002) and the Fawkner Park Masterplan (City of Melbourne, 2005).	1 – Tunnels 7 – Domain station	Construction	HH04, HH05, HH06, HH07, HH08, HH09, HO27, HH29, HH30
	CH18	To the satisfaction of Heritage Victoria, review the siting and design of the eastern Domain station entry in detailed design to ensure it is as recessive as possible in this location and has only a limited presence on the edge of the Reserve. The design needs to allow for the maintenance of an appropriate setting to the Macpherson Robertson Memorial Fountain.	7 – Domain station	Detailed design	HH26

Draft EES Evaluation Objective	EPR no.	Environmental Performance Requirement	Precinct	Timing	Risk No.
	CH19	To the satisfaction of Heritage Victoria, review the siting and design of the western Domain station entry in detailed design to ensure the South African Soldiers Memorial has an appropriate landscaped setting if relocated on this site. If no appropriate setting can be established, consider options for relocation of the memorial to an alternative site.	7 – Domain station	Detailed design	HH27
	CH20	To the satisfaction of the City of Melbourne, City of Port Phillip and/or the responsible authority, as applicable replace removed trees in St Kilda Road to re-establish the boulevard formation.	7 – Domain station	Detailed design	HH28
	CH21	Retain and protect the Cross Street Electrical Substation in situ within or abutting proposed construction site.	9 – Western turnback	Construction	HH35
	Also refer to the following Environmental Performance Requirements for 'Historical Cultural Heritage': NV2, NV5, NV6, NV11, GM2, GM4, GM5, GM6				
Arboriculture					
Landscape, visual and recreational values – To avoid or minimise adverse effects on landscape, visual amenity and recreational values as far as practicable	AR1	During detailed design, review potential tree impacts and provide for maximum tree retention where possible. Prior to construction of main works or shafts, develop and implement a plan in consultation with the relevant local council that identifies all trees in the project area which covers: • Trees to be removed or retained • Condition of the trees to be removed • Options for temporary re-location of palms and reinstatement at their former location or another suitable location.	All	Design/Pre-construction	AR001, AR002, AR014, AR003
	AR2	Reinstate quality soils to sufficient volumes to support long-term viable growth of replacement trees.	All	Construction	AR001, AR002, AR003, AR014,

Draft EES Evaluation Objective	EPR no.	Environmental Performance Requirement	Precinct	Timing	Risk No.
	AR3	Re-establish trees to replace loss of canopy cover and achieve canopy size equal to (or greater than) healthy, mature examples of the species in Melbourne. Consult with the City of Melbourne, the City of Port Phillip, the City of Stonnington, the Shrine of Remembrance and Shrine Trustees and Heritage Victoria as applicable. Policy documents that must be followed to re-establish trees and valued landscape character include: • The City of Melbourne's Tree Retention and Removal Policy and Urban Forest Strategy • The City of Port Phillip's Community Amenity Local Law No. 1 and Greening Port Phillip – An Urban Forest Approach • The City of Stonnington's General Local Law 2008 (No 1) and City of Stonnington Street Tree Strategy • Any associated precinct plans • Specific policies of the Domain Parklands Conservation Management Plan (CMP), for trees within Domain Parklands • Shrine of Remembrance: Shrine of Remembrance CMP (Lovell Chen, 2010) or any future review and the Shrine of Remembrance Landscape Improvement Plan (rush Wright Associates, 2010) • South African Soldiers Memorial Reserve: Any relevant CMP for the South African Soldiers Memorial • Fawkner Park Conservation Analysis (Hassell, 2002) and the Fawkner Park Masterplan (City of Melbourne, 2005) • The preferred future character of the University of Melbourne, for trees in the grounds of the University of Melbourne.	All (except Western turnback)	Construction	AR001, AR002, AR003, AR014,

Draft EES Evaluation Objective	EPR no.	Environmental Performance Requirement	Precinct	Timing	Risk No.
	AR4	Prior to construction commencing of main works or shafts in affected areas, prepare and implement Tree Protection Plans for each precinct in accordance with AS4970-2009 Protection of Trees on Development Sites, addressing the detailed design and construction methodology of the project. Within precincts 1, 4 and 7 a Tree Protection Plan must be developed for each heritage place as relevant to the satisfaction of Heritage Victoria or the responsible authority.	All (except Western turnback)	Construction	AR001 to AR005, AR007 to AR012, AR014
	AR5	For City of Melbourne trees that are to be retained and protected, a bank guarantee or bond of the trees value will be held against the approved Tree Protection Plan for the duration of the works in accordance with the city of Melbourne Tree Retention and Removal Policy.	1 – Tunnels 2 – Western portal 3 – Arden station 4 – CBD North station 5 – CBD South station 6 – CBD South station 7 – Domain station	Construction	AR004 to AR005, AR007 to AR012

Draft EES Evaluation Objective	EPR no.	Environmental Performance Requirement	Precinct	Timing	Risk No.
Landscape and Visual					
Landscape, visual and recreational values – To avoid or minimise adverse effects on landscape, visual amenity and recreational values as far as practicable	LV1	Design permanent and temporary works in consultation with local councils and the Office of Victorian Government Architect to comply with the Melbourne Metro Urban Design Strategy. The design shall avoid or minimise visual impacts on sensitive receptors and maintain broader landscape character values, particularly in relation to: • Tunnels: Queen Victoria Gardens, Fawkner Park • Western portal: JJ Holland Park • Parkville station: University of Melbourne, Victorian Comprehensive Cancer Centre, Royal Melbourne Hospital, University Square • CBD North station: Royal Melbourne Institute of Technology, the State Library • CBD South station: St Paul's Cathedral, Federation Square, City Square and Flinders Street Station • Domain station: The Shrine of Remembrance, Albert Road Reserve, Domain Parklands • Eastern portal: South Yarra Siding Reserve.	All	Construction / Operation	LV001 to LV050
	LV2	Develop and implement a plan in consultation with the Office of Victorian Government Architect, local councils and other land managers to comply with the Melbourne Metro Urban Design Strategy to re-establish public open space, recreation reserves and other valued places disturbed by temporary works. The plan must include, but not be limited to a methodology for storage, reinstatement or replacement of existing public art, monuments and public infrastructure such as poles, bins, and other street furniture.	All	Construction / Operation	LV001 to LV050
	LV3	Develop and implement measures to minimise light spillage during construction to protect the amenity of adjacent neighbourhoods, parks and community facilities.	All	Construction	LV001 to LV025

Draft EES Evaluation Objective	EPR no.	Environmental Performance Requirement	Precinct	Timing	Risk No.
Contaminated Land and Spoil Management					
Hydrology, water quality and waste management: To protect waterways and waterway function and surface water and groundwater quality in accordance with statutory objectives, to identify and prevent potential adverse environmental effects resulting from the disturbance of contaminated or acid-forming material and to manage excavation spoil and other waste in accordance with relevant best practice principles	C1	Prior to construction of main works or shafts, prepare and implement a Spoil Management Plan (SMP) in accordance with MMRA's Spoil Management Strategy and relevant regulations, standards and best practice guidance. The SMP shall be developed in consultation with and to the satisfaction of the EPA. The SMP will include but is not limited to the following: • Applicable regulatory requirements • Identifying nature and extent of spoil (clean fill and contaminated spoil) across all precincts • Roles and responsibilities • Identification of management measures for handling and transport of spoil for the protection of health and the environment • Identification, design and development of specific environmental management plans for temporary stockpile areas • Identifying suitable sites for re-use, management or disposal of any spoil • Monitoring and reporting requirements • Identifying locations and extent of any prescribed industrial waste (PIW) and characterising PIW spoil prior to excavation • Identifying suitable sites for disposal of any PIW. The SMP shall include sub-plans as appropriate, including but not limited to an Acid Sulfate Soil and Rock (ASS/ASR) Management Sub-Plan (Refer to C2).	All	Construction	CL001, CL016, CL021 to CL026, CL043, CL048, CL049
	C2	Prepare and implement an Acid Sulfate Soil and Rock (ASS/ASR) Management Sub-Plan prior to construction of the project as a sub-plan of an overarching SMP in accordance with the regulations, standards and best practice guidance and to the satisfaction of EPA. This sub-plan will include the general requirements of the SMP and also: • Identify locations and extent of any potential ASS/ASR • Characterise ASS/ASR spoil prior to excavation • Identify and implement measures to prevent oxidation of ASS/ASR wherever possible • Identify suitable sites for re-use, management or disposal of any ASS/ASR.	All	Construction	CL002, CL005, CL006, CL018, CL044, CL046

Draft EES Evaluation Objective	EPR no.	Environmental Performance Requirement	Precinct	Timing	Risk No.
	C3	Prior to construction of main works or shafts, undertake a remedial options assessment (ROA) for contaminated land. The assessment must: • Consider the outcomes of further investigations • Interpret groundwater permeation and VOC results • Present and take account of the outcomes of risk assessments • If required, identify remedial options in accordance with relevant regulations, standards and best practice guidance and to the satisfaction of EPA. If required, as an outcome of the ROA, prepare a remedial action plan and integrate the remediation approach into the design in accordance with relevant regulations, standards and best practice guidance and to the satisfaction of EPA.	All	Construction / Operation	CL008, CL010, CL013, CL027, CL030, CL033, CL036, CL039, CL040, CL050, CL052, CL054, CL056, CL058
	C4	Prior to construction of main works or shafts commencing, prepare and implement a health, safety and environmental plan for the management of hazardous substances. The plan must include but not be limited to: • Consideration of the risks associated with exposure to hazardous substances for employees, visitors and general public • The identification of methods to control such exposure in accordance with relevant regulations, standards and best practice guidance and to the satisfaction of WorkSafe and EPA • Method statements detailing monitoring and reporting.	All	Construction	CL015, CL042, CL059

Draft EES Evaluation Objective	EPR no.	Environmental Performance Requirement	Precinct	Timing	Risk No.
Groundwater					
Hydrology, water quality and waste management: To protect waterways and waterway function and surface water and groundwater quality in accordance with statutory objectives, to identify and prevent potential adverse environmental effects resulting from the disturbance of contaminated or acid-forming material and to manage excavation spoil and other waste in accordance with relevant best practice principles	GW1	Design the tunnel and underground structures so that they minimise groundwater drawdown during construction and operation to minimise impacts on groundwater dependent values, ground movement and contamination plume migration.	All	Design	GW001 to GW059
	GW2	Develop a groundwater model for the detailed design phase to predict impacts associated with any changes to construction techniques or operational design features proposed during detailed design, and reconfirm that the Environmental Performance Requirements and mitigation measures are sufficient to mitigate impacts from changes in groundwater levels, flow and quality. Undertake monitoring during construction to ensure that predictions are accurate and mitigation measures are appropriate.	All	Design	GW001 to GW059
	GW3	Develop and implement a Groundwater Management Plan (GMP) detailing groundwater management approaches to address the predicted impacts to groundwater dependent values during construction. The GMP must be based on the detailed design phase groundwater model, and should include the following details: • Approach to collection, treatment and disposal of groundwater collected during construction in accordance with the MMRA Groundwater Disposal Strategy • Identifying and if necessary, specifying mitigation measures to protect groundwater dependent vegetation during periods of drawdown • An approach identified in consultation with the EPA so that contaminant migration cause no significant impacts on beneficial uses and vapour intrusion into underground structures, and establish appropriate monitoring networks to confirm effectiveness of approach • Methods for minimising drawdown in areas of known PASS and establishing appropriate monitoring networks to confirm effectiveness of approach	All	Construction	GW001 to GW059

Draft EES Evaluation Objective	EPR no.	Environmental Performance Requirement	Precinct	Timing	Risk No.
		• Methods for minimising drawdown at any existing recharge bores, and establishing appropriate monitoring networks to confirm effectiveness of mitigation • Groundwater drawdown trigger levels for groundwater dependant values at which additional mitigation measures must be adopted • Design, operation and management of groundwater injection borefields • Contingency measures if impacts occur at existing active groundwater bores and surface water bodies • Contingency measures should unexpected groundwater conditions be encountered. The GMP must satisfy the EPA and relevant water authorities that groundwater dependent values would be protected. The GMP should also address MMRA's sustainability requirements where appropriate.			
	GW4	Use the Groundwater Disposal Strategy and GMP to obtain a Trade Waste Agreement with the relevant Water Retailers for groundwater disposal.	All	Construction / Operation	GW055, GW056
	GW5	Develop and implement a groundwater monitoring plan as part of the GMP that details sufficient monitoring of drawdown to verify that no significant impacts occur from potential: • Contaminant migration on the beneficial uses of groundwater at third party properties caused by drawdown and vapour intrusion to underground structures • Activation of PASS and groundwater acidification • Reduction in access to water for bore owners in the area around the project • Reduction in access to groundwater for trees– particularly in the Tunnels precinct between CBD South and Domain stations, and the CBD South station and eastern portal precincts • Change in groundwater levels in any existing recharge bores that may be present in the area around the project.	All	Construction	GW017, GW019, GW021, GW025, GW027, GW028, GW029, GW030, GW033, GW038, GW039, GW045, GW046
	Also refer to the following Environmental Performance Requirements for 'Groundwater': GM1, AE3, AE6				

Draft EES Evaluation Objective	EPR no.	Environmental Performance Requirement	Precinct	Timing	Risk No.
Ground Movement and Land Stability					
Land Stability – To avoid or minimise adverse effects on land stability that might arise directly or indirectly from project works	GM1	Develop and maintain geological and groundwater models (as per GW2) which: • Use monitored ground movement and ground water levels prior to construction to identify pre-existing movement • Inform tunnel design and the construction techniques to be applied for the various geological and groundwater conditions • Assess potential drawdown and identify trigger levels for implementing additional mitigation measures to minimise potential primary consolidation settlement • Assess potential ground movement effects from excavation and identify trigger levels for implementing additional mitigation measures to minimise potential ground movement effects.	All	Design/ Construction	GM001 to GM025
	GM2	Design and construct the permanent structures and temporary works to limit ground movements to within appropriate acceptability criteria (to be determined in consultation with relevant stakeholders) for vertical, horizontal, and angular deformation as appropriate for project activities during the construction and operational phase.	All	Design/ Construction / Operation	GM001 to GM025
	GM3	Develop and implement a ground movement plan for construction and operational phases of the project that: • Addresses the location of structures/assets which may be susceptible to damage by ground movement resulting from Melbourne Metro works • Identifies appropriate ground movement impact acceptability criteria for buildings, utilities, trains, trams and pavement after consultation with the various stakeholders • Identifies mitigation measures to ensure acceptability criteria can be met • Identifies techniques for limiting settlement of buildings and protecting buildings from damage • Addresses additional measures to be adopted if acceptability criteria are not met such as reinstatement of any property damage • Addresses monitoring ground movement surrounding proposed Melbourne Metro works and at the location of various structures/assets to measure consistency with the predicted model • Consult with land and assets owners that could potentially be affected and where mitigation measures would be required.	All	Construction / Operation	GM001 to GM025

Draft EES Evaluation Objective	EPR no.	Environmental Performance Requirement	Precinct	Timing	Risk No.
	GM4	Conduct pre-construction condition surveys for the assets predicted to be affected by ground movement. Develop and maintain a data base of as-built and pre-construction condition information for each potentially affected structure, specifically including: • Identification of structures/assets which may be susceptible to damage resulting from ground movement resulting from Melbourne Metro works • Results of condition surveys of structures, pavements, significant utilities and parklands to establish baseline conditions and potential vulnerabilities • Records of consultation with landowners in relation to the condition surveys. • Post-construction stage condition surveys conducted, where required, to ascertain if any damage has been caused as a result of Melbourne Metro.	All	Construction	GM001 to GM025
	GM5	Adopt construction techniques for Melbourne Metro to limit ground movement to within appropriate acceptability criteria (to be determined in consultation with relevant stakeholders).	All	Construction	GM001 to GM025
	GM6	For properties and assets affected by ground movement, undertake any required repair works.	All	Construction	GM001 to GM025
	Also refer to the following Environmental Performance Requirements for 'Ground Movement and Land Stability': GW1, GW3, CH2				

Draft EES Evaluation Objective	EPR no.	Environmental Performance Requirement	Precinct	Timing	Risk No.
Surface Water					
Hydrology, water quality and waste management: To protect waterways and waterway function and surface water and groundwater quality in accordance with statutory objectives, to identify and prevent potential adverse environmental effects resulting from the disturbance of contaminated or acid-forming material and to manage excavation spoil and other waste in accordance with relevant best practice principles	SW1	For all precincts (with the exception of the western turnback) design permanent and temporary works and, if necessary, develop and implement emergency flood management measures for the tunnels, tunnel portals, access shafts, station entrances and Arden electrical substation to provide appropriate protection against floodwaters and overland stormwater flows. This would be informed by a flood immunity risk assessment that considers a range of events, and to the requirements and satisfaction of the responsible authority.	All (except western turnback)	Construction / Operation	SW001 to SW003, SW005, SW007, SW009, SW010, SW011, SW014, SW015, SW018, SW019, SW022, SW024, SW025, SW027, SW029, SW030 to SW032
	SW2	For all precincts: • Maintain existing flood plain storage capacity potentially impacted by the project, to the requirements and satisfaction of the responsible authority • Permanent and associated temporary construction works must not increase flood levels that result in an additional flood risk to the requirements and satisfaction of the responsible authority • Ensure permanent and associated temporary works do not increase flow velocities that would potentially affect the stability of property, structures or assets, and/or result in erosion during operation or construction, to the requirements and satisfaction of the responsible authority • Undertake modelling of the design of permanent and temporary works to demonstrate the resultant flood levels and risk profile to the satisfaction of the responsible authority.	All	Construction / Operation	SW004, SW006, SW008, SW012, SW013, SW016, SW017, SW020, SW021, SW023, SW026, SW028, SW033, SW034
	Also refer to the following Environmental Performance Requirements for 'Surface Water': AE6				

<table>
<tr><th>Draft EES Evaluation Objective</th><th>EPR no.</th><th>Environmental Performance Requirement</th><th>Precinct</th><th>Timing</th><th>Risk No.</th></tr>
<tr><td colspan="6">Aquatic ecology and river health</td></tr>
<tr><td rowspan="2">Hydrology, water quality and waste management: To protect waterways and waterway function and surface water and groundwater quality in accordance with statutory objectives, to identify and prevent potential adverse environmental effects resulting from the disturbance of contaminated or acid-forming material and to manage excavation spoil and other waste in accordance with relevant best practice principles.

Biodiversity – To avoid or minimise adverse effects on native terrestrial and aquatic flora and fauna, in the context of the project's components and urban setting</td><td>AE1</td><td>Fully integrate the stormwater treatment system into the design of Melbourne Metro for construction [all precincts] to ensure that stormwater entering a receiving water body complies with SEPP (Waters of Victoria).

The best practice performance objectives for achieving compliance with SEPP (Waters of Victoria) during the construction phase are described below:

<table><tr><th>Pollutant type</th><th>Receiving water objective</th><th>Current best practice performance objective(1)</th></tr><tr><td>Suspended solids</td><td>Comply with SEPP</td><td>Effective treatment of 90% of daily run-off events (e.g. <4 months ARI). Effective treatment equates to a 50 percentile suspended solids concentration of 50 mg/L.

This can be achieved by installing a sediment pond(s) to remove 95% of sediment down to 125 µm for a 1 year ARI.</td></tr><tr><td>Litter</td><td>Comply with SEPP</td><td>Prevent litter from entering the stormwater system.</td></tr><tr><td>Other pollutants</td><td>Comply with SEPP</td><td>Limit the application, generation and migration of toxic substances to the maximum extent practicable.</td></tr></table>
Notes
1 Best practice performance objectives are based on the Best Practice Environmental Management Guidelines for Urban Stormwater – CSIRO.</td><td>All</td><td>Construction</td><td>AE001, AE007, AE008</td></tr>
<tr><td>AE2</td><td>Best practice sedimentation and pollution control measures must be applied to protect waterways in accordance with Best Practice Environmental Management: Environmental Guidelines for Major Construction Sites – EPA publication 480 (1996) and in accordance with an approved construction environmental management plan.

Measures should include: vehicle wheel wash and rumble bars at worksite egress points, appropriate placement of material stockpiles and chemical storages, covered loads, street sweeping and water quality monitoring, where required.</td><td>All</td><td>Construction</td><td>AE001, AE007, AE008</td></tr>
</table>

Draft EES Evaluation Objective	EPR no.	Environmental Performance Requirement	Precinct	Timing	Risk No.
	AE3	During construction, discharge tunnel, station box and portal construction water to sewer. Where groundwater interception during construction is predicted to occur, dewatering is to be managed so that groundwater is not released to stormwater or sensitive surface water bodies (refer to related GW4).	All (except Western turnback)	Construction	AE002
	AE4	Where ground treatment works are required in waterways, design and implement methods that prevent discharge of sediments into the water column.	1 – Tunnels	Construction	AE003
	AE5	Design the Arden electrical substation (as per SW1) to provide appropriate protection against floodwaters during operation, to prevent the release of contaminants to Moonee Ponds Creek.	3 – Arden station	Design/ Operation	AE012
	AE6	During operation, discharge tunnel drainage water to sewer, unless otherwise agreed by EPA and Melbourne Water. Where groundwater interception during operation is predicted to occur, disposal is to be managed so that contaminated water is not released to stormwater or sensitive surface water bodies (refer to related GW4).	1 – Tunnels	Operation	AE010

<table>
<tr><th>Draft EES Evaluation Objective</th><th>EPR no.</th><th>Environmental Performance Requirement</th><th>Precinct</th><th>Timing</th><th>Risk No.</th></tr>
<tr><td></td><td>AE7</td><td>Fully integrate the stormwater treatment system into the design of the western portal and eastern portal to ensure that stormwater entering a receiving water body complies with SEPP (Waters of Victoria). The best practice performance objectives for achieving compliance with SEPP (Waters of Victoria) during the operations phase are described below:
<table>
<tr><th>Pollutant type</th><th>Receiving water objective</th><th>Current best practice performance objective(1)</th></tr>
<tr><td>Suspended solids (SS)</td><td>Comply with SEPP (not to exceed the 90th percentile of 80 mg/L) (2)</td><td>80% retention of the typical urban annual load</td></tr>
<tr><td>Total phosphorus (TP)</td><td>Comply with SEPP (base flow concentration not to exceed 0.08 mg/L) (3)</td><td>45% retention of the typical urban annual load</td></tr>
<tr><td>Total nitrogen (TN)</td><td>Comply with SEPP (base flow concentration not to exceed 0.9 mg/L) (3)</td><td>45% retention of the typical urban annual load</td></tr>
<tr><td>Litter</td><td>Comply with SEPP (No litter in waterways) (2)</td><td>70% reduction of typical urban annual load (4)</td></tr>
<tr><td>Flows</td><td>Maintain flows at pre-urbanisation levels</td><td>Maintain discharges for the 1.5 year ARI at pre-development levels</td></tr>
</table>
Notes
1 Best practice performance objectives are based on the Best Practice Environmental Management Guidelines for Urban Stormwater – CSIRO.
2 An example using SEPP (Waters of Victoria), general surface waters segment.
3 SEPP Schedule F7 – Yarra Catchment – urban waterways for the Yarra River main stream.
4 Litter is defined as anthropogenic material larger than five millimetres.
Sedimentation and pollution control measures must be applied to protect waterways in accordance with industry best practice. This shall include water quality monitoring, where required.</td><td>2 – Western portal
8 – Eastern portal</td><td>Operation</td><td>AE009</td></tr>
</table>

Draft EES Evaluation Objective	EPR no.	Environmental Performance Requirement	Precinct	Timing	Risk No.
Terrestrial flora and fauna					
Biodiversity – To avoid or minimise adverse effects on native terrestrial and aquatic flora and fauna, in the context of the project's components and urban setting	FF1	Where 'unavoidable' native vegetation (as defined under relevant policy) needs to be removed, meet the requirements of the *Permitted Clearing of Native Vegetation – Biodiversity Assessment Guidelines*.	All	Construction	TE005, TE006
	FF2	Develop and implement measures to avoid the spread or introduction of weeds and pathogens during construction, including vehicle hygiene.	All	Construction	TE001, TE002, TE005, TE006
	FF3	Prior to site clearance for construction, all vegetation being removed is to be inspected by a suitably experienced and qualified environmental officer for habitat features and fauna occupancy. Where non-listed species (native and exotic) are encountered, any individuals will be encouraged to leave the tree or vegetation. Where nests/young are encountered, they will be relocated to a similar tree (or habitat) in close proximity. Prior to site clearance for construction, develop a translocation plan for the management of listed fauna species if encountered.	All	Construction	TE001 to TE006
	Also refer to the following Environmental Performance Requirements for 'Terrestrial Flora and Fauna': AR3, AE1, AE2, AE3, AE4, AE5, AE6, AE7, AE8, NV4				

23.7 Environmental Management Documentation

23.7.1 Overview

The EMF is made up of a number of key pieces of documentation from MMRA (on behalf of the State Government) and the contractor, as well as relevant legislation and approvals that must be complied with (refer to Figure 23-3). At the State level, MMRA would be the owner and administrator of the Environmental Performance Requirements, MMRA Environmental Policy, MMRA EMS and statutory decisions and approvals.

The Environmental Vision stated in the MMRA Environmental Policy is:

> *"to be an industry leader in managing the environmental impacts of delivering major infrastructure projects".*

The MMRA EMS (aligned to *AS/NZS ISO 14001: 2015 Environmental management systems – requirements with guidance for use*) would outline and track compliance with the environmental management responsibilities for all parties including the delivery contractors (the contractors). Additional MMRA strategies and plans include the Cultural Heritage Management Plan (currently under development), the Urban Design Strategy and the Community and Stakeholder Engagement Plan.

MMRA would also be responsible for administering the Project Contracts on behalf of the State Government in accordance with its EMS and procedures.

The contractors would each be required to develop and implement a project-specific EMS for construction of the project that is certified to AS/NZS ISO 14001: 2015 and consistent with the MMRA EMS. The purpose of the EMS would be to establish a system whereby environmental risks and impacts are managed and there is a process for identifying opportunities of continual improvement across the project.

MMRA together with the contractors would prepare plans to comply with the approval conditions of the planning controls applied under the Planning Scheme Amendment. Each contractor would also be required to prepare a Construction Environmental Management Plan (CEMP), Site Environment Implementation Plan(s) (SEIPs) and a Traffic Management Plan for the construction phase. For the operations phase, the PPP contractor would be required to prepare an Operations Environmental Management Plan (OEMP).

A detailed description of the key documentation elements of the EMF is provided in Table 23–3.

Figure 23-3 Environmental Management Framework

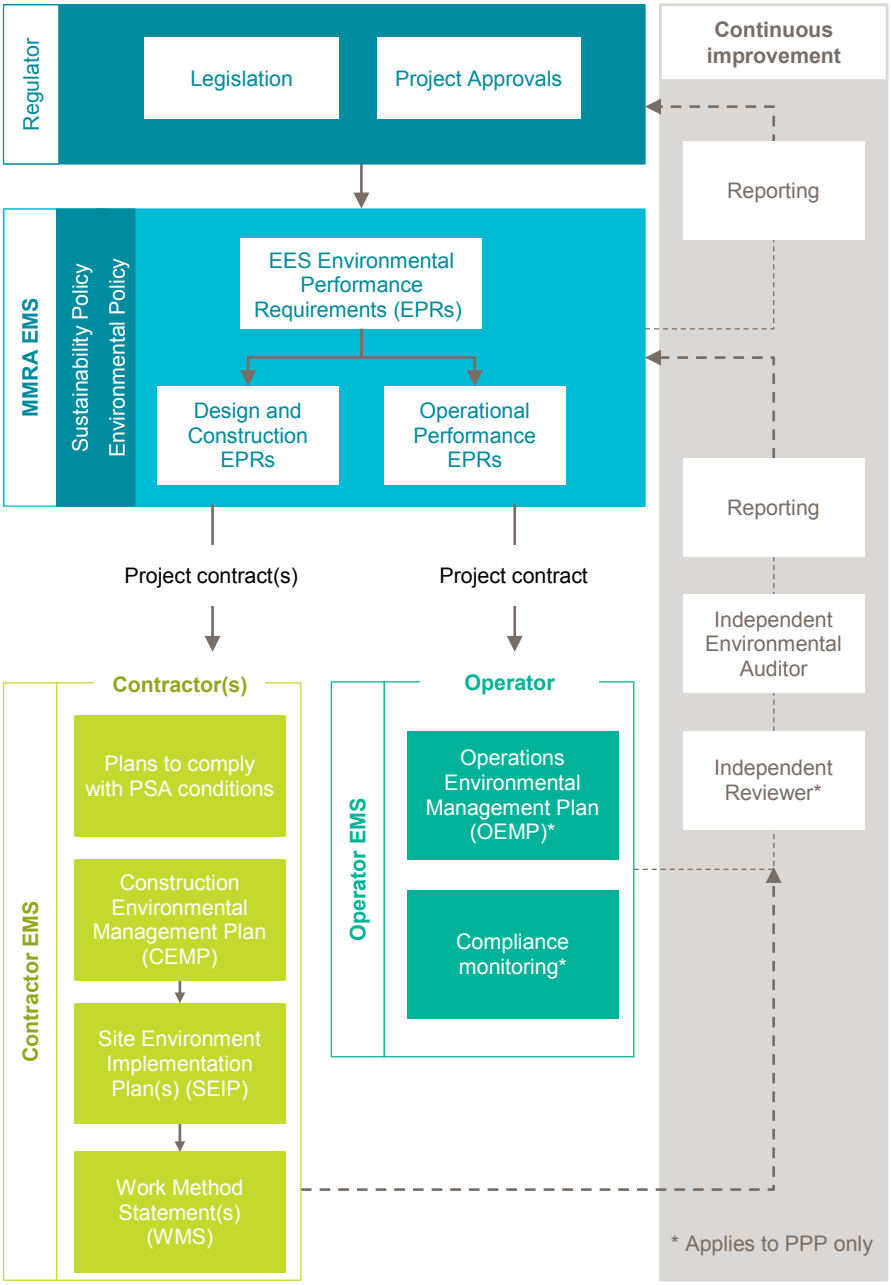


Table 23–3 Environmental Management Documentation

Documentation	Description
State (MMRA)	
Environmental Performance Requirements	Environmental Performance Requirements (Table 23–2) developed through the EES.
Decisions and Approvals	• Minister's Assessment of the EES • Approval of a planning scheme amendment to implement specific planning controls for the project • EPBC Act referral decision (not a controlled action, if undertaken in a particular manner) • Cultural Heritage Management Plan • Heritage approvals • Other secondary consents obtained with detailed plans from the contractors.
MMRA EMS	EMS aligned to *AS/NZS ISO 14001: 2015 Environmental management systems – requirements with guidance for use* setting out policies, plans, procedures and activities, forming a systematic method of managing the environmental aspects of the project. The MMRA EMS Manual shall comprise: • MMRA Environmental Policy • Environmental management responsibilities for all parties, particularly the responsibilities of the yet to be engaged delivery contractor (the contractor) • Processes and responsibilities for environmental risk assessment • A schedule containing the Environmental Performance Requirements • Compliance register • Internal and external audit program.
Urban Design Strategy	The Melbourne Metro Urban Design Strategy provides urban design guidance relating to the design, procurement and implementation of the Melbourne Metro. It is intended to: • State the broad urban design expectations for Melbourne Metro • Ensure the landscape and visual impacts identified in the EES are addressed in a way that maximises the project's positive contribution to Melbourne • Set out design criteria that, along with further detailed content, will inform the technical specifications for project's procurement phase.

Documentation	Description
State (MMRA) and contractor	
Plans to comply with the Incorporate Document	MMRA and the contractors would prepare the detailed plans required to comply with planning scheme amendment conditions including a CEMP, SEIP and TMP as relevant to any stage of the project. Development plans would be prepared for surface works as required by conditions of the Incorporated Document. The plans would be prepared in consultation with agencies relevant to each plan including Councils, Heritage Victoria, EPA, Melbourne Water, Public Transport Victoria, Office of Victorian Government Architect (OVGA) and VicRoads. Plans would be developed once the detailed design and refined construction methodology is prepared by each contractor. Relevant agencies would be consulted on the details and complying with their requirements.
Contractors	
EMS	The contractor's EMS would be required to be certified to *AS/NZS ISO 14001: 2015 Environmental management systems – requirements with guidance for use.* The EMS would be aligned to the requirements of the MMRA EMS.
Construction Environmental Management Plan (CEMP)	The CEMP would reflect the requirements of the EMF and EPA Publication No. 480, *Environmental Guidelines for Major Construction Sites*. The CEMP would be developed to take into account: • Each construction site's environmental features • The nature of the works to be undertaken • Potential environmental impacts as identified in the EES and activity specific environmental risks • Permits and/or approvals and related conditions • The findings of environmental investigations undertaken by or on behalf of MMRA • The findings of any environmental investigations undertaken by the contractor. The contractor may choose to develop one CEMP for the entire project or individual CEMPs for each precinct or component of the works. Similarly, the contractor may choose to address all of the above environmental impacts within one CEMP or a series of sub-plans for each environmental value. The exception to this is where an Environmental Performance Requirement requires the development of a specific management plan.

Documentation	Description
Operations Environmental Management Plan (OEMP) (for PPP contract)	The PPP contractor or franchisee as relevant would develop an OEMP to reflect the requirements of the EMF and would consider: • The nature of operational activities and environmental features of each station and components of the tunnels being operated • Identification of the environmental issues to be managed and the measures to be taken to meet the Environmental Performance Requirements • Compliance with approval conditions and legislation • Interface with existing stations at Flinders Street and Melbourne Central • Emergency and incident management The contractor may choose to have separate or a consolidated OEMP for the different elements of the infrastructure, depending on the impacts to be managed.
Traffic Management Plan (TMP)	The TMP would provide the means by which the contractor would minimise disruption to traffic, car parking, pedestrian and bicycle movements during construction.
Site Environment Implementation Plans (SEIPs)	Site specific plans identifying site-specific environmental control measures to be implemented.
Work Method Statements	Description of work activities, approvals required and risk assessment and control measures.
Records and Checklists	• Monitoring and inspection records • Checklists (e.g. environmental site inspection checklist) • Records (e.g. training/competency records, waste transport and disposal certificates).

23.7.2 Change Management

Revisions to MMRA and contractor documentation may be required as a result of changes in activities and work practices, changes to legislation, risks, or as a result of findings from internal or external audits, incidents or complaints. The contractors' EMS, CEMP and OEMP would be controlled documents and would be developed, approved, implemented and revised in accordance with Table 23–4.

The contractor would be required to submit all major revisions to environmental documentation to MMRA for approval. Major revisions are defined as changes that affect work practices, roles and responsibilities, environmental risks and overall project delivery. Minor revisions are defined as addressing typographical errors, formatting and other administrative detail.

An outline of the review and approval requirements for the key environmental management documents of the EMF is provided in Table 23–4.

Table 23–4 Environmental documentation approval requirements

Document and Version	Description	Minister for Planning	Independent Reviewer for PPP	MMRA for other contracts*
EMF and Environmental Performance Requirements – Initial version	Initial EMF and Environmental Performance Requirements approved as part of the EES	Approval required		
EMF and Environmental Performance Requirements – Subsequent versions	Major revisions to the EMF or Environmental Performance Requirements	Approval required		Review and evaluate OVGA Design Review
Outline CEMP	Outline CEMP provided during bidding			Review and evaluate
EMS	Contractor EMS provided at contract award		Review required	Review, evaluate and approve
CEMP	Full CEMP, including work method statements, addressing MMRA comments on the outline EMP. An initial version to be provided for review and a final version for approval.		Review required	Review and evaluate
Implementation of approved CEMP	CEMP is to be implemented prior to carrying out substantial works and audited for compliance		Review required	Review and evaluate
OEMP	Full OEMP, including work method statements. An initial version to be provided for review and a final version for approval.		Review and approve	Review and evaluate
TMP	Full TMP. An initial version to be provided for review and a final version for approval.		Review and approve	Review and evaluate
Minor revision of CEMP,TMP or OEMP	Change to clarify or improve environmental management practices or to add new obligations and associated controls. No increase in or introduction of new environmental risks		Approval required	Review, evaluate and approve
Major revision of CEMP, TMP or OEMP	Significant change to environmental management practices, work methods or scope that result in increased or new environmental risks or impacts		Approval required	Review, evaluate and approve

* MMRA would engage with key stakeholders, including councils, as required.

23.8 Evaluating Environmental Performance Outcomes

The contract specifications would include compliance requirements for the contractor including monitoring, reporting to the MMRA and relevant government agencies, and internal and external environmental auditing. A summary of these compliance requirements is provided in this section.

The MMRA EMS would describe the project's environmental compliance system, including:

- Definitions of what constitutes a non-conformance
- Requirement for a non-conformance tracking register
- Timeframes and responsibilities for addressing non-conformances
- Detailed procedures for monitoring, auditing and reporting.

23.8.1 Monitoring

A range of monitoring programs would be specified in each contractor's CEMP and the PPP contractor’s OEMP to enable conformance to and measurement of delivery of Environmental Performance Requirements. The parameters to be monitored and the frequency of monitoring would reflect regulatory requirements and the level of potential risk to the environment. Monitoring would include periodic inspections of construction works areas and assets constructed.

The CEMP would be required to be reviewed regularly to verify that:

- The monitoring frequency is sufficient to identify any significant non-conformances that have occurred
- The range of parameters being monitored is adequate (this is particularly relevant if an activity has led to an incident or complaint)
- Changes to programmed construction activities are adequately covered by the monitoring programs.

Any proposed modifications to monitoring programs would be submitted to MMRA for approval prior to being implemented.

The contractors would hold responsibilities for the ongoing management of baseline and monitoring data to ensure the transparency and accountability of environmental management.

MMRA would be responsible for checking that baseline and other monitoring data meet the monitoring requirements of the MMRA EMS and ensuring that the stored electronic data sets are electronically readable.

Results of monitoring would be made available upon request to relevant interested parties to contribute to the improvement of environmental knowledge more widely.

23.8.2 Reporting

Performance against each contractor's CEMP would be reported to the MMRA and relevant government agencies as appropriate. The CEMP would describe the reporting and external notification requirements in detail, including what needs to be reported and to whom and the timeframe for reporting.

Reporting and notification requirements would include, but not be limited to:

- The contractor would be required to prepare monthly environmental performance reports to MMRA and the Independent Reviewer for the PPP contract. This report would include external and internal audit findings, monitoring results and incidents and non-compliances
- Quarterly project activity report containing summary of key project activities
- Notification to the Office of Aboriginal Affairs Victoria and DELWP if a potential Aboriginal site or artefact is identified
- Notification to Heritage Victoria and DELWP if a heritage artefact is discovered.

23.8.3 Audits

Internal audits would be undertaken (by both MMRA and the appointed contractors) to monitor environmental performance, and to ensure continued conformance with ISO14001.

External audits would be conducted to monitor environmental performance for each work package, and to ensure continued conformance with ISO14001. For the PPP contract, these external audits would be undertaken by the Independent Environmental Auditor appointed the PPP contractor. The other work packages would be required to undertake external auditing in accordance with their EMS.

MMRA's implementation of the MMRA EMS would be audited annually using an independent auditor.

Audits would be scheduled for all Melbourne Metro work packages (such as early works, Tunnels and stations, Rail systems and Rail infrastructure) to ensure project activities are in accordance with the MMRA EMS, Environmental Performance Requirements and the contractor CEMP. The audit scope would be prepared prior to each audit. In summary, audits would evaluate:

- Conformance with EMS/EMP requirements
- Compliance with Environmental Performance Requirements

- Responses to non-conformances, incidents and complaints received
- Effective implementation of monitoring programs.

The audit schedule would be determined on an annual basis for each work package and would take into account the following:

- The timing of the proposed works
- The nature of the proposed works including consideration of the level of associated risk
- Incident investigation outcomes
- Previous audit outcomes
- Management review outcomes.

Conformance would be assessed through observation of project activities, interviews and review of records. Records would include the following:

- Environmental monitoring, process monitoring and management performance monitoring results
- Inspection and audit reports
- Soil and waste management records
- Surveys
- Meeting minutes.

As a minimum, internal audits would be scheduled to coincide with the commencement of key activities and the use of key equipment, and on a quarterly basis (and more frequently where necessary) through the delivery of each work package. External audits would be scheduled on a quarterly basis (and more frequently where necessary) through the delivery of each work package.

The results of each audit would be presented in an audit report (the template to which will be agreed with MMRA at project commencement).

23.9 Contingency Measures

The CEMP and OEMP would be required to include appropriate contingency measures to address identified environmental, social and business risks during construction and operational phases. Contingency measures may be required to take effect in the event that monitoring or auditing (or any other means) identifies:

- Unforeseen issues; or
- Issues which are foreseeable but not expected to occur; or
- Impacts which are expected but which prove greater than anticipated.

Contingency measures would be developed to comply with relevant regulations, standards and industry best practice guidelines.

Examples of potential contingency measures include protocols for managing the discovery of previously unidentified historical archaeological sites and a plan to address the containment, treatment and disposal of any fuel and chemical spills. Contingency measures will also be a key part of the Cultural Heritage Management Plan for managing the discovery of previously unidentified Aboriginal Heritage sites.