METROTUNNEL

ENVIRONMENTAL MANAGEMENT FRAMEWORK

DECEMBER 2019

MELBOURNE METRO RAIL AUTHORITY

VICTORIA State Government

DOCUMENT AND VERSION STATUS

Version	Date	Author & Title	Purpose for Issue
1	26/3/2017	Melbourne Metro Rail Authority	Approved EMF (Part 1 and 2 combined)
2	22/12/2017	Melbourne Metro Rail Authority	Various administrative updates
3	01/08/2018	Rail Projects Victoria	Various administrative updates
4	17/12/2019	Rail Projects Victoria	Updates to EPR AE3 as requested by Cross Yarra Partnership

Table of Contents

LIST OF TABLES

FIGURES

1 Introduction

1.1 Statutory context

This document presents Part 1 of the Environmental Management Framework (EMF) for the Melbourne Metro Rail Project (Melbourne Metro or the Project). Publicly, the Project is also referred to as the Metro Tunnel Project however in this document it is referred to as either Melbourne Metro or the Project to align with the Environment Effects Statement (EES), which informed the content of this EMF.

The use and development of land for the purposes of the Project is authorised and regulated by the 'Melbourne Metro Rail Project – Incorporated Document' (May 2018) (Incorporated Document) that has been incorporated into the Melbourne, Stonnington, Port Phillip and Maribyrnong planning schemes. Clause 4.8 of the Incorporated Document sets out the requirements of an EMF for the Project.

The Incorporated Document enables the EMF to be prepared and approved by the Minister for Planning in stages or parts, and amended from time to time with the approval of the Minister.

The EMF responds to the requirements of Clause 4.8 of the Incorporated Document in the following manner:

- Clause 4.8.1 requires the EMF to include Environmental Performance Requirements (EPRs) that address the matters listed in that clause. The EPRs for the Project can be found at Section 6 of this EMF.
- Clause 4.8.2 of the Incorporated Document requires that the RIMG and BSGC form part of the EMF.
- Clause 4.8.3 requires the EMF to set out the process and timing for preparing the Environmental Management System(s), Construction Environmental Management Plan(s), Site Environmental Implementation Plan(s) and the plans listed in Appendix 2 of the Incorporated Document. The process for preparing these Plans is set out at Sections 4.2 and 4.3 of this EMF, and the timing for the preparation of these plans is set out in Section 4.4.
- Clause 4.8.4 requires the EMF to identify the authority responsible for approval of each plan required under the Incorporated Document and EPRs, in accordance with the Table at Appendix 2 of the Incorporated Document. This information is set out in Section 4.3 of the EMF.
- Clause 4.8.5 requires the EMF to identify the requirements for monitoring, reporting and auditing of compliance with the EPRs, the Incorporated Document and the plans set out in Appendix 2 of the Incorporated Document. These requirements are addressed in Section 4.5 of this EMF.

The EMF is based on, and closely mirrors, the consultation version of the EMF included as Chapter 23 of the EES for Melbourne Metro. It does however vary from Chapter 23 insofar as it records Rail Projects Victoria's (RPV) – *previously named Melbourne Metro Rail Authority* – responses to the assessment of the environmental effects of the Project, and addresses the requirements of the Incorporated Document listed above.

The EMF must be approved by the Minister for Planning prior to the commencement of buildings and works (other than preparatory works) under the Incorporated Document. The use and development of the Project must be carried out in accordance with the approved EMF.

1.2 Stages of the EMF

The EMF comprises:

- Responses to clauses 4.8.1, 4.8.3, 4.8.4 and 4.8.5 of the Incorporated Document,

- Environmental Performance Requirements (see Section 6).
- The Residential Impact Management Guidelines (RIMG).
- The Business Support Guidelines for Construction (BSGC).

It should also be noted that Part 4.4 of this EMF has been updated to include indicative timing for the Public-Private Partnership (PPP). Once contracts have been entered into and indicative timing established for the Rail Infrastructure Alliance (RIA) and Rail Systems Alliance (RSA) packages, it is intended to resubmit an amended EMF in substantially the same form as this version of the EMF including the dates for the preparation and approval of the plans for the RIA and RSA packages (refer to Section 2 for description of the Contracts for each work package).

1.3 Purpose of the EMF

This EMF provides a transparent and integrated governance framework to manage the environmental aspects of the Project identified in the EES for the Project and in the Minister for Planning's Assessment of the Project's environmental effects.

The EPRs that form part of the EMF have been developed through the preparation of the EES and RPV's consideration of submissions made on the EES, the report of the Independent Advisory Committee, and the Minister for Planning's Assessment. The performance-based approach that underpins the EPRs provides for sufficient flexibility to encourage innovation by the private sector to determine how the standards contained in the EPRs will be achieved. The EMF outlines clear accountabilities for the delivery and monitoring of the EPRs so that the environmental effects of the Project will be managed.

The EMF requires that the delivery 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 RPV'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 EPRs. Contractors may already operate with an accredited EMS and this EMF requires contractors to specifically apply their EMS, and modify if required, for the delivered of works for the Project.

The EMS will provide a structured approach for monitoring the implementation of Construction Environmental Management Plans (CEMPs) and other plans required to comply with the EPRs and Incorporated Document for project delivery, as well as the Operations Environmental Management Plan (OEMP) for the tunnels and stations.

The contractor's compliance with the EMS, CEMPs and OEMP can then be audited throughout the project as a mechanism for continuous improvement. Refer to Sections 4 and 4.5 of this EMF for a description of the management plans and requirements for ongoing monitoring of their implementation.

1.4 Project overview

This EMF applies to:

a) the use and development of Project Land for Project purposes as described in clauses 4.1 - 4.4 of the Incorporated Document; and

b) Flood Storage Works as described in clause 2.1 of the 'Melbourne Metro Rail Project: Compensatory Flood Storage – Incorporated Document' dated July 2018.

Note: when referenced throughout the EMF, the term 'Incorporated Document' applies to the 'Melbourne Metro Rail Project Incorporated Document', and where the context requires to the 'Melbourne Metro Rail Project: Compensatory Flood Storage – Incorporated Document'.

An overview of the Project to which this EMF applies, is provided below.

The infrastructure proposed for construction of Melbourne Metro 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.
- 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 Minister's Order of 20 November 2015 (Gazette No S361) confirmed that the listed enabling works were excluded from assessment under the *Environment Effects Act 1978*, and are therefore not subject to the conditions of the Incorporated Document or this EMF. Works that are preparatory works under clause 4.13 of the Incorporated Document are subject to the relevant requirements of the Incorporated Document but may be carried out prior to approval of the EMF by the Minister for Planning.

The Project includes the operation of the five new stations and tunnels; however, it does not include the operation of the trains that will use Melbourne Metro line from Sunbury to Cranbourne/Pakenham. Figure 1 shows a broad schematic plan for the principal inner Melbourne components of Melbourne Metro.

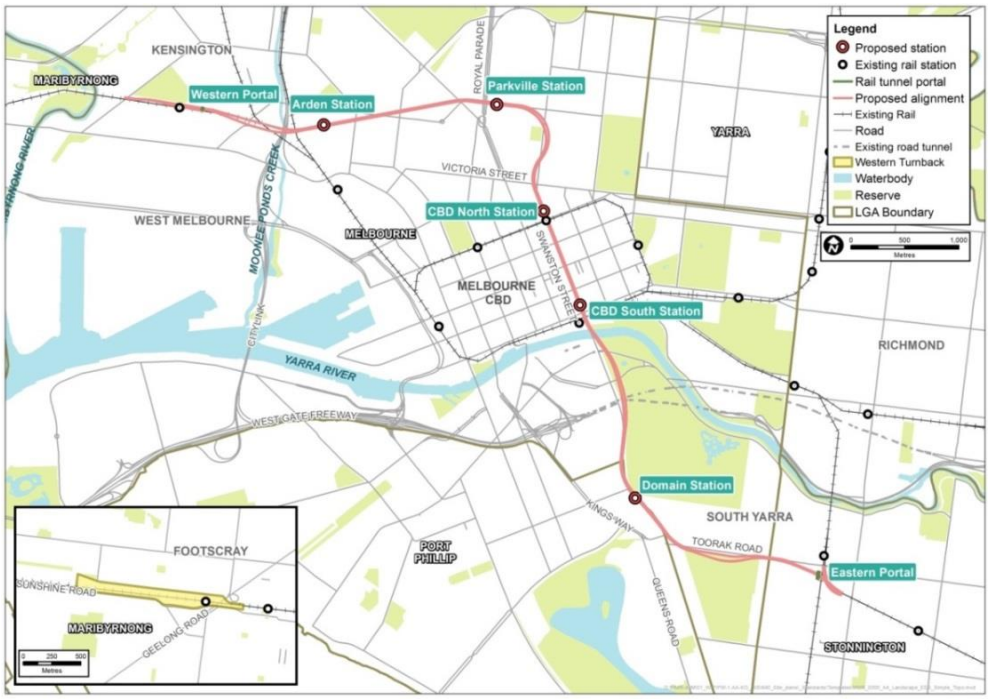

Figure 1 - Melbourne Metro components covered by the EMF

2 Contract Structure

This section outlines the Victorian government's contract structure and procurement strategy for the Project. The governance framework established by these contracts will, together with the statutory obligations and requirements of the Incorporated Document, ensure implementation of this EMF.

The Victorian government has determined the procurement strategy for Melbourne Metro, which is structured around four works packages that will be procured separately:

- An Early Works package including works by a Managing Contractor, and Yarra Trams, and works to be undertaken by Utility Service Providers
- 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 signaling, rail systems integration and commissioning (which also covers areas outside the scope of the EES project boundary).

A description of each procurement package is provided in Table 1:

Table 1 - Melbourne Metro works packages

Works package	Procurement model	Description
Early works **Utility service relocations and protection, and works to prepare construction sites**	Managing Contractor	The State has engaged a head contractor (the Managing Contractor) who in-turn engages sub-contractors to deliver the works or self-performs certain aspects of the works. The Managing Contractor is responsible for administering the sub-contracts and accepts some delivery risks. The Early Works Contractor is also responsible for delivering the enabling works which the Minister for Planning determined were not part of the project to be assessed through the EES, and which are expected to be completed in late 2017.
Early works **Tram infrastructure works**	Yarra Trams led	As part of the tram franchise arrangements, the State has entered into Project Agreements with the trams franchisee (Yarra Trams), which provide for Yarra Trams to deliver infrastructure works on behalf of the State.
Early works **Utility service relocations, monument/plaque relocation, road and transport network changes, and works to prepare construction sites**	Public Private Partnership (PPP) (availability-based)	Early works to be undertaken by the PPP contractor, once appointed, in accordance with an early works plan prepared by the PPP contractor.
Tunnels and stations **Main tunnelling works, construction of five underground stations, tunnels, station fit-out, mechanical and electrical systems, TBM extraction shafts at the portals, and specific station operations and maintenance services for the infrastructure delivered.**	Public Private Partnership (PPP) (availability-based)	In an 'availability-based' PPP, a private party (usually a consortium) designs, builds and finances the facilities, and also operates and maintains them to specified standards over an agreed term (usually 15 to 30 years).

Works package	Procurement model	Description
Rail infrastructure **Works at the eastern and western portals including cut and cover tunnelling, decline structures and local reconfiguration and realignment of exiting lines. Construction of western turnback.**	Competitive Alliance	Alliance contracting is a form of relationship contracting in which the State collaborates with one or more non-owner parties to share risks and responsibilities in designing and delivering a construction project. The alliances will be structured as competitive target outturn cost (TOC) alliances, whereby TOCs are developed competitively by more than one bidder. (Rail infrastructure works within the portals and western turn back are within the scope of the EES. Rail infrastructure works across, the broader network will be subject to obtaining the necessary approvals required.)
Rail systems **Rail systems design (including conventional signalling and High Capacity Signalling, train and power control systems, and ICT), installation works, rail systems integration and commissioning.**	Competitive Alliance	As for Rail Infrastructure Alliance. (Rail systems within the tunnels, stations, portals and western turn back are within the scope of the EES. Rail systems across the broader network will be subject to obtaining the necessary approvals required.)

The Rail Systems Alliance (RSA) and Rail Infrastructure Alliance (RIA) are also proposed to include wider network works that have not been assessed in the EES and are not authorised or regulated by the Incorporated Document, and hence these wider network works are not subject to this EMF. Separate environmental and planning assessments and approvals for these wider network works will be sought as required.

For each works package, a contractor will be appointed under the contractual framework applicable to the respective procurement model (Project Contract). RPV will administer each Project Contract on behalf of the State Government. Project Contracts will detail the applicable contractor's obligations for delivery of the relevant works.

Project Contracts will require each contractor to:

- Comply with the requirements of the Incorporated Document, including obtaining approval of, and implementing, Early Works Plans or Development Plans as relevant, and complying with the Urban Design Strategy
- Comply with the EMF
- Comply with the EPRs and address the requirement to prepare plans to document the approach to compliance (noting that each contractor will have their own plans)
- Comply with the RPV 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
- Develop a Community and Stakeholder Engagement Plan (CSEMP) consistent with RPV CSEMP.

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

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

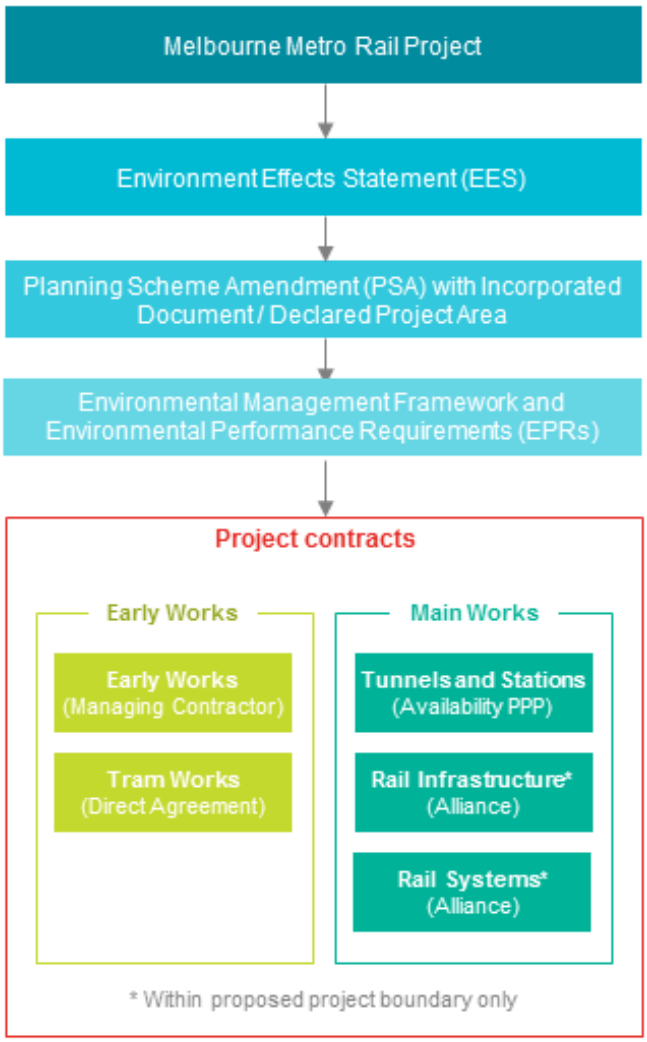

Figure 2 - Governance framework

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

Following contract award and prior to construction commencing, the successful contractors will be required to develop and implement a project specific EMS (or apply their existing EMS to the specific activities for construction of the Project) and CEMP to meet the requirements of this EMF and the RPV EMS. The successful PPP contractor will 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 will describe in detail how the contractor will meet the approved EPRs 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 4.

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

- The PPP contract will require an Independent Reviewer to be appointed by the State and jointly engaged by RPV and the PPP contractor. The role of the Independent Reviewer will be to review design and construction activities, review and approve (with RPV) contractor documentation (as detailed in Section 5.3) and to monitor compliance with project scope and technical requirements as defined in the Project Contract. Consistent with normal market practice, the Independent Reviewer will certify that the PPP contractor has achieved milestones, and monitor compliance with the Project Agreement.
- An Independent Environmental Auditor will also be appointed by the PPP contractor to undertake environmental audits of compliance with the approved CEMP, OEMP and approval requirements. This will include the investigation of complaints to indicate non-conformance with the EPRs.
- Separate Independent Environmental Auditor(s) will be appointed for each of the Early Works, RIA and RSA work packages

For the PPP contract the role of the Independent Environmental Auditor is additional to the Independent Reviewer. The Independent Environmental Auditor will undertake environmental audits of compliance with plans require to comply with the EPRs and Incorporated Document prior to implementation as well as project activities to verify compliance with the EMF (and EPRs), environmental management plans and approval requirements. This will also include the investigation of complaints that may highlight instances of non-conformance with the EPRs. The Independent Environmental Auditor will be required to prepare audit reports and provide these to RPV, the Independent Reviewer (for the PPP contract), the Minister for Planning and other Regulators and agencies (as appropriate). Further detail is provided in Section 3.

3 Roles and Responsibilities

This section outlines general roles and responsibilities for environmental management in the construction and operation of Melbourne Metro. Roles and responsibilities for preparing and approving specific management plans required under the Incorporated Document are set out in Sections 4.2 and 4.3 of this EMF.

RPV, on behalf of the State Government, is responsible for delivering Melbourne Metro in line with the requirements and objectives of Public transport Victoria (PTV) and the Victorian Government.

RPV is an Administrative Office in relation to the Department of Economic Development, Jobs, Transport and Resources (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 RPV 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 (DEDJTR).

RPV is responsible for overseeing and engaging contractors and consultants for all aspects of the project. This includes site investigations, stakeholder engagement, preparing the EES that informs subsequent statutory approvals, obtaining key planning approvals and procurement, through to construction delivery and project commissioning. The RPV also supports the Secretary of DEDJTR in their capacity as project authority under the *Major Transport Projects facilitation Act 2009*, which is charged with statutory responsibility for delivering Melbourne Metro.

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

At the completion of construction and project commissioning, PTV will become responsible for the ongoing operation and maintenance of the train services and infrastructure delivered as part of 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 for environmental management are shown in Table 2.

Table 2 - Roles and responsibilities for environmental management

Organisation	Responsibility
Minister for Planning	• Approve the EMF and EPRs, and any amendments to these. • Approve the Urban Design Strategy, Development Plans, Early Works Plans, Business Support Guidelines for Construction (BSGC), Residential Impact Mitigation Guidelines (RIMG), and any amendments to these, as required by the Incorporated Document • Approve the RPV Community and Stakeholder Engagement Management Framework.
Regulators and Agencies	• Receive audit reports from RPV and the Independent Environmental Auditor as to compliance with relevant approval requirements • Administer and determine compliance with project approvals.
RPV	• Obtain applicable principal statutory approvals including the Planning Scheme Amendment, Cultural Heritage Management Plan and some heritage permits, where it is more appropriate for RPV to seek these consents. • Establish the EMF, including the Residential Impact Mitigation Guidelines and the Business Support Guidelines for Construction for approval by the Minister for Planning as required by the Incorporated Document. • Establish the Urban Design Strategy, and the Community and Stakeholder Engagement Management Framework for approval by the Minister for Planning, as required by the Incorporated Document and EPRs

Organisation	Responsibility
	• Develop and implement the RPV EMS, in accordance with ISO 14001:2015 • Monitor compliance with the EPRs across all Project Contracts, and comply with the EPRs applicable to RPV • Appoint an Independent Reviewer to be engaged 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 requirements of the Incorporated Document and this EMF • Review and approve contract documentation for each Project Contract in accordance with Table 5 of Section 4 of this EMF, including the CEMPs, SEIPs, Transport Management Plans, Operations Environmental Management Plan (for PPP), Business Disruption Plans and Construction Noise and Vibration Management Plans as required by the Incorporated Document • Review the Community and Stakeholder Engagement Management Plan (CSEMP) for each Project Contract • Prior to commencement of work, verify that the contractor has complied with the relevant EPRs • Engage an Independent Environmental Auditor for each of the RIA and RSA contracts • Review the contractors' performance against the approved EPRs and take corrective action as necessary.
PTV	• Operate the train services using the infrastructure delivered by Melbourne Metro, in accordance with the approved EPRs • 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.
Project Contractors	• Comply with the EMF, (including the EPRs, RIMG, BSGC and CSEMF), legislative and approval requirements • Obtain any additional permits from regulatory authorities (other than the approvals that would be obtained by or jointly with RPV) • Develop and implement a project specific EMS or apply their existing EMS to the specific activities for the Project, that is certified to ISO 14001:2015 and compliant with the RPV EMS • Prepare a CEMP, SEIPs and associated work method statements, and other plans required by the Incorporated Document, EPR or project contracts • Develop a CSEMP consistent with RPV's CSEMF approved by the Minister for Planning in accordance with EPR SC3 • Provide adequate resources to establish, implement, maintain and improve the CEMP, SEIPs and the EMS • Implement and maintain compliance with the EPRs • Undertake environmental audits to confirm compliance with the EMF, EPRs and plans required by the Incorporated Document • Prior to commencement of work, ensure that all sub-contractors have complied with the relevant EPRs, CEMP and plans required to comply with the EPRs and Incorporated Document, where relevant • Review of sub-contractors' performance against the EPRs 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 • *Early Works and PPP contractors*: Appoint an Independent Environmental Auditor

Organisation	Responsibility
	• *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, Transport Management Plans, Operations Environmental Management Plan, Business Disruption Plans and Construction Noise and Vibration Management Plans (and other documents as set out in Section 2 for the PPP contract) Note: these are the Independent Reviewer's responsibilities in relation to the EMF only. This description does not include all the Independent Reviewers responsibilities for the PPP contract.
Independent Environmental Auditor (For Early Works, PPP, RIA and RSA contracts)	• Prior to commencement of work, verify that the contractor has complied with the relevant EPRs, this EMF and the Incorporated Document • Conduct audits of the contractor's works to assess compliance with the CEMP, OEMP (for PPP contract only), EMF, EPRs and plans required by the EPRs and Incorporated Document • Prepare a 6 monthly report summarising the PPP contractor's compliance with the EMF and provide to RPV and the contractor. • Prepare audit reports containing the results of audits • Review complaints which may highlight instances of non-conformance with applicable EPRs.

4 Environmental management plans and documentation

4.1 Overview

This section provides an overview of how the environmental management systems and plans required under this EMF will be documented. In particular, it describes the process for preparing the systems and plans, who is responsible for preparing and approving them, and when they are envisaged being prepared and approved.

The EMF will be implemented through a series of environmental management systems and plans that will be documented and prepared by RPV (on behalf of the State Government) and by the contractors. These plans will also be designed to implement and achieve compliance with RPV's Environmental Vision and with relevant legislation and the other requirements of the Incorporated Document (refer to Figure 3).

The Environmental Vision stated in the RPV Environmental Policy is:

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

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

At the State level, RPV will be the owner and administrator of the EPRs, RPV Environmental Policy, RPV EMS and statutory decisions and approvals. RPV will also be responsible for administering the Project Contracts on behalf of the State Government in accordance with its EMS and procedures.

The contractors will each be required to develop and implement a project-specific EMS, or demonstrate how they will apply their existing EMS to the specific activities for construction of the Project. The Contractors must have an EMS that is certified to AS/NZS ISO 14001: 2015 and consistent with the RPV EMS. The purpose of the EMS will be to establish a system whereby environmental risks and impacts are managed and ensure there is a process for identifying opportunities of continual improvement across the project.

RPV together with the contractors (as relevant) will prepare plans to comply with the approval requirements of the planning controls applied under the Incorporated Document. Each contractor will also be required to prepare Early Works Plans or Development Plans (as relevant), as well as a Construction Environmental Management Plan (CEMP), Site Environment Implementation Plan(s) (SEIPs), Transport Management Plans, Business Disruption Plan and Construction Noise and Vibration Management Plan as set out in Appendix 2 of the Incorporated Document (plus other plans required by the EPRs) for the construction phase. For the operations phase, the PPP contractor also will be required to prepare an Operations Environmental Management Plan (OEMP).

RPV and the contractors will develop and implement environmental management plans and programs generally in accordance with the processes in Part 4.2 (Table 4), the approval requirements in Part 4.3 and the timing set out in Part 4.4.

There are three levels of plans required for delivery of Melbourne Metro as detailed in Appendix 2 of the Incorporated Document and summarised in Table 3 below.

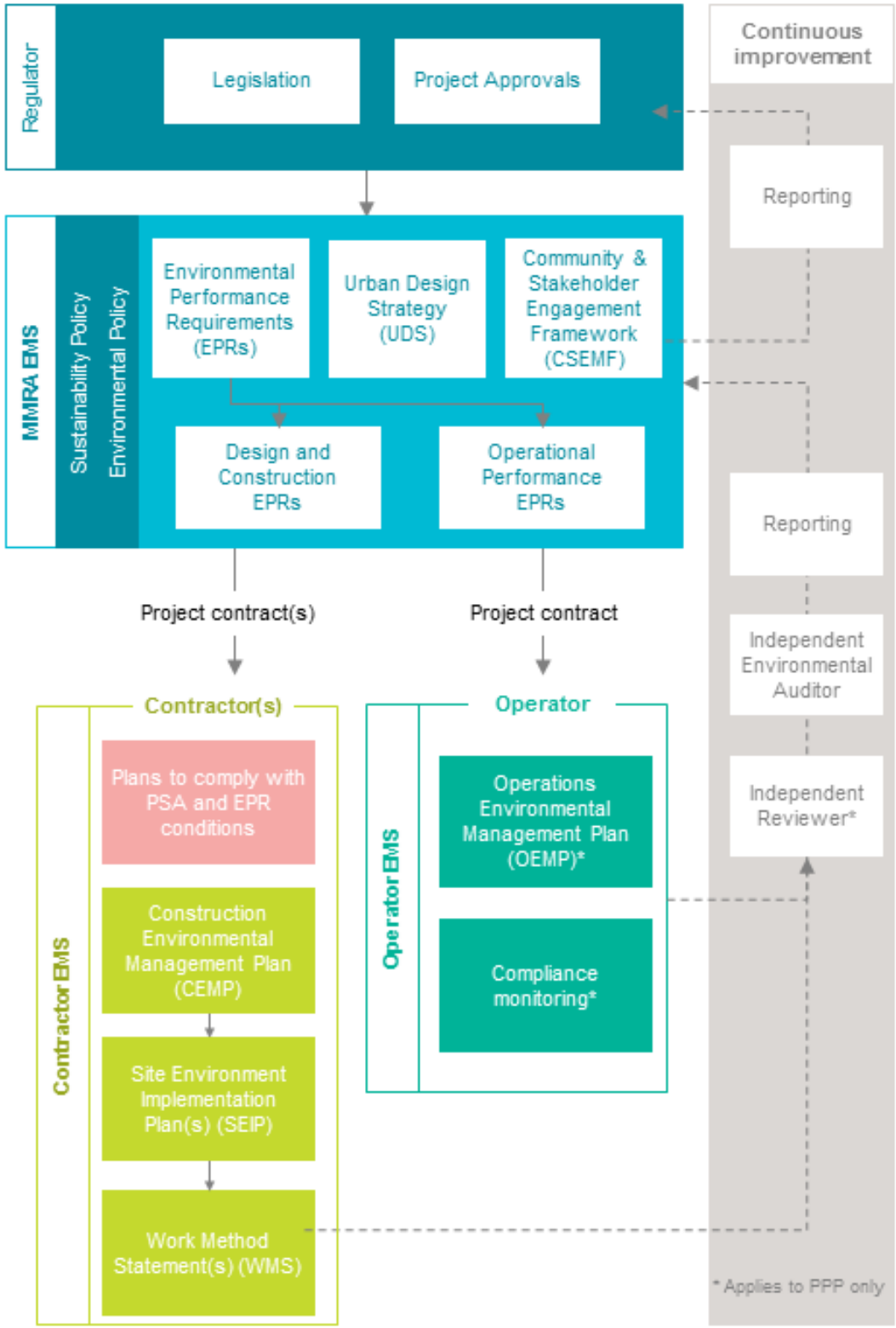

Figure 3 - Environmental Management Framework

Table 3 - Levels of Environmental Management Framework Documentation

Description	Plans
1 Strategic Framework and Development Plans	
Plans that set the strategic direction and governance of the project	Environmental Management Framework with EPRs Residential Impact Management Guidelines (RIMG) (Appendix A of the EMF) Business Support Guidelines (BSG) (Appendix B of the EMF) Urban Design Strategy Early Works Plan Development Plans Community and Stakeholder Engagement Management Framework
2 Management of broad impacts	
Plans to guide specific programs or works in order to manage potential impacts on the community broadly	Construction Environmental Management Plan(s) Site Environment Implementation Plans Transport Management Plan(s) Operations Environmental Management Plan Business Disruption Plan(s) Construction Noise and Vibration Management Plan
3 Technical plans	
All other plans required by EPRs. These plans would describe the chosen contractor's methods of implementing the EMF and other regulatory requirements rather than the strategic direction and governing requirements for the Project, or matters of less broad community impact.	

A detailed description of the key documentation elements of the EMF is provided in Section 4.2 and Table 4 below.

4.2 Process for developing key plans

The key environmental management documents and the process for developing plans are outlined in Table 4 below.

1. In addition to the description and responsibility for preparing and complying with the plans outlined in Table 4, EPR EMF2 requires (among other things) a program to be developed that sets out the process and timing for development of an EMS, CEMP, SEIP, OEMP and other plans as required by the EPRs and as relevant to any stage of the Project. It is envisaged that this program will:
    - Identify relevant agencies for consultation and the nature and extent of consultation that is required for the EMS and each of these plans;
    - Identify statutory requirements and EPRs relevant to each agency; and
    - Seek the views of each agency on relevant matters addressed by the plan.

The program for preparation of plans for Early Works is provided in Section 4.4.

Table 4 - Key Environmental Management Documentation

Documentation	Description
State of Victoria (RPV)	
Environmental Management Framework (EMF)	This document provides the governance framework to manage environmental aspects as identified through the EES process, including the Minister for Planning's Assessment, for the design, construction and operational phases of the Project.
Environmental Performance Requirements (EPRs) (part of the EMF)	EPRs (Table 7) have been developed through the EES and associated consultation processes, and to reflect the Minister for Planning's assessment of the EES and the requirements of the Incorporated Document. EPRs define the project-wide environmental outcomes that must be achieved during design, construction and operation of Melbourne Metro (regardless of the solutions adopted).
Other Decisions and Approvals that RPV is responsible for obtaining	• Approval of a planning scheme amendment to implement specific planning controls for the project, including an Incorporated Document (Amendment GC45, gazetted on 5 January 2017; Amendment GC67, gazetted on 8 June 2017; Amendment GC82, gazetted on 26 June 2018) • EPBC Act referral decision (not a controlled action, if undertaken in a particular manner) (Obtained, 22 September 2015) • Cultural Heritage Management Plan (approved 10 January 2017, amended 25 May 2018). • Some Heritage approvals (under the *Heritage Act 2017*).
Residential Impact Mitigation Guidelines for Construction (part of the EMF)	This document provides a framework for Melbourne Metro contractors to address residual impacts on residential amenity so far as is reasonably practicable and appropriate. The Guidelines will be at Appendix A in Part 2 of this EMF.
Business Support Guidelines for Construction (part of the EMF)	Outline the proactive measures and support services that RPV and the appointed construction contractors may deliver to support businesses that experience impacts during construction of Melbourne Metro. The Guidelines will be at Appendix B in Part 2 of this EMF.
RPV EMS	RPV is implementing an 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 RPV EMS Manual comprises: • RPV 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 EPRs • Compliance register • Internal and external audit program.
RPV Community and Stakeholder Engagement Framework (CSEMF)	Sets out the principles and framework for the community and stakeholder engagement for all contractors for the Project, in accordance with EPR SC3. ***Note** – this document is referred to as the Community and Stakeholder Engagement Management Plan (CSEMP) in Appendix 2 of the Incorporated Document. As this is an RPV prepared document to be applied to the whole project and across all work packages, the document contains the principles and approaches to be adopted by contractors. Therefore this document prepared by RPV has been called a 'Framework' (CSEMF) rather than a plan so it distinguishes it from the plans (CSEMP) that will be prepared by contractors.*

Documentation	Description
Urban Design Strategy (UDS)	The Melbourne Metro Urban Design Strategy provides urban design guidance relating to the design, procurement and implementation of 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.
Contractors	
Environmental Management System (EMS)	The contractor's EMS will 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 RPV EMS. Each contractor's EMS will be developed (or their existing EMS specifically applied to the project) through the procurement phase for approval prior to commencement of works. Each contractor's EMS will include consultation with Councils, Heritage Victoria, the Roads Corporation, Melbourne Water, Public Transport Victoria, and the Environment Protection Authority and other stakeholders as relevant when developing the plans required to comply with the EPRs and Incorporated Document (as required by EPR EMF2).
Development Plans	Each contractor must prepare and obtain Minister for Planning approval of Development Plans for specified Project works, as required by the Incorporated Document.
Early Works Plans	Each contractor must prepare and obtain approval of Early Works plans for Early Works, as required by the Incorporated Document.
Construction Environmental Management Plan (CEMP)	Each contractor must prepare a CEMP as relevant to any stage of the project, as referred to in Appendix 2 of the Incorporated Document and in accordance with applicable EPRs. 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 approval requirements • The findings of environmental investigations undertaken by or on behalf of RPV • The findings of any environmental investigations undertaken by the contractor. The contractor may choose to develop one CEMP for its entire package of works 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 EPR requires the development of a specific management plan. A CEMP will be developed once the detailed design and refined construction methodology is prepared by each contractor. A CEMP will be prepared in consultation with agencies relevant to each plan including relevant Council/s, Heritage Victoria, the Roads Corporation, Melbourne Water, Public Transport Development Authority and the Environment Protection Authority and key affected stakeholders, as required under the Incorporated Document and any relevant EPR. ***Note** – not all plans required by the EPRs or the Incorporated Document will be sub-plans to the CEMP. The structure of plans and sub-plans will be determined by the Contractors to allow for an integrated approach to addressing and managing impacts across the various plans.*

Documentation	Description
Operations Environmental Management Plan (OEMP) (for PPP contract)	The PPP contractor or franchisee as relevant will 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 EPRs • Compliance with approval requirements 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.
Transport Management Plan/s (TMP)	The TMP(s) will document the means by which the contractor will minimise disruption to traffic, car parking, pedestrian and bicycle movements during construction and address the requirements of relevant EPR. Typically called a Traffic Management Plan, for Melbourne Metro, it is referred to as a Transport Management Plan to ensure all modes of active and passive transport are considered. A TMP will be developed once the detailed design and refined construction methodology is prepared by each contractor. A TMP will be prepared in consultation with the Traffic and Transport Works Group and agencies relevant to each plan including relevant Council/s, Heritage Victoria, the Roads Corporation, Melbourne Water, Public Transport Development Authority and the Environment Protection Authority and affected stakeholders as relevant, as required under the Incorporated Document and any relevant EPR.
Business Disruption Plan (BDP)	The BDP will document the means by which the contractor will manage potential impacts to non-acquired businesses, commercial property owners and not-for-profit organisations as well as ensure appropriate engagement with local councils, businesses, property owners and the community throughout construction. This may be a separate plan or integrated with the Contractors CSEMP.
Construction Noise and Vibration Management Plan (CMVMP)	The CNVMP must comply with and address Noise and Vibration EPRs, be informed by the modelling undertaken by the acoustic and vibration consultant in accordance with NV3, and updated where required following monitoring in accordance with NV4, and must include (but not be limited to): • Identification of sensitive receivers along Melbourne Metro's alignment • Details of construction activities and an indicative schedule for construction works, including the identification of key noise and/or vibration generating construction activities (based on representative construction scenarios, including at ancillary facilities) that have the potential to generate noise and/or vibration impacts on surrounding sensitive receivers.
Site Environment Implementation Plans (SEIPs)	Individual plans identifying site-specific environmental control measures to be implemented. SEIPs would be developed once the detailed design and refined construction methodology is prepared by each contractor. SEIPs would be prepared in consultation with agencies relevant to each plan including Council/s, Heritage Victoria, the Roads Corporation, Melbourne Water, Public Transport Development Authority and the Environment Protection Authority, as required under the Incorporated Document and any relevant EPR.
Work Method Statements	Description of work activities, approvals required and risk assessment and control measures.

Documentation	Description
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).

4.3 Approvals and Change Management

An outline of the review and approval requirements for the key environmental management documents of the EMF is provided in Table 5.

Revisions to RPV and contractor documentation may be required as a result of changes in activities and work practices, results of monitoring, changes to legislation, risks, or as a result of findings from internal or external audits, incidents or complaints. The contractors' EMS, CEMP and OEMP (and other plans as required by the EPRs) will be controlled documents and will be developed, approved, implemented and revised in accordance with Table 5.

Table 5 - Key Environmental documentation approval requirements

Document and Version	Description	Minister for Planning	PPP		Other contracts
			Independent Reviewer	State of Victoria (RPV)	State of Victoria (RPV)
EMF with EPRs, RIMG and BSGC, and UDS – Initial version	Initial EMF and EPRs, RIMG and BSGC Initial version of the UDS	Approve			
EMF with EPRs, RIMG and BSGC, and UDS – Subsequent versions	A revision to the EMF or EPRs, RIMG and BSGC A revision to the UDS	Approve			
Contractors EMS	Contractor EMS		Review and evaluate	Review and evaluate	Review and evaluate
CEMP - Outline	Outline CEMP provided during bidding			Review and evaluate	Review and evaluate
CEMP	Full CEMP, including work method statements, addressing RPV comments on the outline CEMP.		Approve	Approve	Approve
Implementation of approved CEMP	CEMP is to be implemented prior to carrying out substantial works and audited for compliance		Review and evaluate	Review and evaluate	Review and evaluate
OEMP	Full OEMP, including work method statements.		Approve	Approve	N/A
Transport Management Plans (TMP)	Full TMP.		Approve	Approve	Approve

Document and Version	Description	Minister for Planning	PPP		Other contracts
			Independent Reviewer	State of Victoria (RPV)	State of Victoria (RPV)
Early Works Plans, or Development Plans	These plans are to be approved by the Minister for Planning in accordance with the requirements of the Incorporated Document	Approve	Review and evaluate	Approve	Review and evaluate
Site Environment Implementation Plans (SEIPs)	SEIP(s) for each relevant site		Approve	Approve	Approve
Community and Stakeholder Engagement Management Framework (CSEMF) and Plan (CSEMP)	Minister for Planning approves overarching framework with subsequent precinct based plans prepared by each Contractor and approved by RPV (and Independent Reviewer for PPP's) RPV CSEMF required by EPR SC3 Contractor CSEMP - Required by EPR SC4	Approve (CSEMF)	Approve	Approve	Approve
Construction Noise and Vibration Management Plan (CNVMP)	CNVMP - Required by EPR		Approve	Approve	Approve
Minor revision of each Contractors CEMP,TMP, OEMP, SEIP, BDP, CSEMP, CNVMP	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		Review and evaluate	Review and evaluate	Review and evaluate
Major revision of each Contractors CEMP, TMP, OEMP, SEIP, BDP, CSEMP, CNVMP	Significant change to environmental management practices, work methods or scope that result in increased or new environmental risks or impacts		Approve	Approve	Approve
Major revision of RPV CSEMF	Significant change to the principles or approach to engagement within the EMF.	Approve			
Technical Plans	These plans are reviewed and/or approved by RPV or the Independent Reviewer. Initial version and any subsequent revisions will be reviewed and/or approved		Review and evaluate	Review and evaluate	Approve

Plans required by the EPRs, other than the plans specifically listed in Table 4, will be reviewed/approved as follows:

- For Early Works, RIA and RSA these plans will be approved by the State of Victoria as party to the relevant contract (Melbourne Metro Rail Authority)
- Where prepared by the PPP contractor, these plans will be reviewed and commented on by both the State of Victoria (Melbourne Metro Rail Authority) and the Independent Reviewer under the PPP review procedures, and written confirmation provided that the plan (including those specifically listed in Table 4) complies with all statutory approvals, the Incorporated Document and the EPRs.

4.4 Timelines for development and approval of plans

Indicative timing for development of RPV's Environmental Management System and for the key plans for the Early Works Managing Contractor and the Public-Private Partnership (Tunnels and Stations) is set out in Table 6.

The timing for preparing plans for the Rail Infrastructure Alliance and Rail Systems Alliance is to be determined with the relevant Project Contractor, once appointed, and will be included in a future update to the EMF to be submitted to the Minister for Planning for approval.

Table 6 - Indicative timing for development of the RPV EMS and key plans

Environment Management Framework Plan / System	Action	Early Works Managing Contractor	Tunnels and Stations PPP Contractor
Environment Management Systems			
Environment Management System Implementation (Applies to all works packages)	RPV to finalise EMS(s) implementation	January 2017	
	Confirm RPV EMS protocols and processes in consultation with Early Works contractor	March 2017	
	Implementation and commencement of operation of the RPV EMS	April 2017	
Strategic Framework and Development Plans			
Early Works Plans	Consultation with agencies, utility service providers and key stakeholders (as appropriate) on Early Works Plans	December 2016 - February 2017	November – December 2017
	Public inspection and comment on a clearly identifiable Project website	February 2017	November – December 2017
	Updates and refinement of the Early Works plans following consultation	March 2017	December 2017 – January 2018
	Submission of Early Works Plans to the Minister for Planning	March 2017	December 2017 – January 2018
RPV Community and Stakeholder Engagement Management Framework (Applies to all works packages)	Submission of RPV CSEMF to the Minister for Planning	February 2017 (Approval March 2017)	
Urban Design Strategy (Applies to all works packages)	Submission to the Minister for Planning	January 2017 (Approval February 2017)	

Environment Management Framework Plan / System	Action	Early Works Managing Contractor	Tunnels and Stations PPP Contractor
Development Plans	Consultation with agencies, utility service providers and key stakeholders (as appropriate) on Development Plans		Consultation from August 2017
	Public inspection and comment on a clearly identifiable Project website		November – December 2017
	Updates and refinement of the Development Plans following consultation		From December 2017
	Submission of Development Plans to the Minister for Planning		From March 2018
Management of broad impacts			
Construction Environmental Management Plan	Managing Contractor Plan approved by RPV with consultation to be undertaken in accordance with the requirements of relevant EPRs	Before works start in April 2017	Before relevant CYP Early Works start February 2018
Site Environment Management Plans	Managing Contractor Plan - Draft Site Environment Management Plans prepared following consultation with agencies and key stakeholders on the CEMP and associated sub-plans (as appropriate)	December - February 2017	November – December 2017
	Managing Contractor - Final Site Environment Management Plans updated and approved by RPV.	Before works start in April 2017	Before relevant CYP Early Works start February 2018
Community and Stakeholder Engagement Management Plan	Managing Contractor - submission of plan to RPV for approval	December - February 2017	November 2017 – January 2018
Transport Management Plan/s (T1)	Consultation to be undertaken in accordance with the requirements	December - February 2017	Consultation from November 2017 – ongoing as required

Environment Management Framework Plan / System	Action	Early Works Managing Contractor	Tunnels and Stations PPP Contractor
	of the relevant EPRs and submitted to RPV for approval		To be approved prior to commencement of relevant CYP Early Works from February 2018
Business Disruption Plan	Consultation to be undertaken in accordance with the requirements of the relevant EPRs and submitted to RPV for approval	December - February 2017	Consultation from November – December 2017
Construction Noise and Vibration Management Plan	Consultation to be undertaken in accordance with the requirements of the relevant EPRs and submitted to RPV for approval	December - February 2017	Consultation from November 2017 – ongoing as required To be approved prior to commencement of relevant CYP Early February 2018
Technical Plans required by the EPRs			
Managing Contractor – technical plans as required by the EPRs for works being undertaken by Managing Contractor	Plans to be prepared as required by the EPRs, prior to works and following consultation in accordance with the requirements of relevant EPRs. Submitted to RPV for review.	December - February 2017	Prior to commencement of relevant CYP Early Works or Main Works in 2018
Note (1) – *all plans are prepared to address Broad Impacts and the Technical Plans are to be audited by the Independent Environmental Auditor for compliance with the EPRs and Incorporated Document before being submitted to RPV for review (PPP contract) or approval (other contracts).*			

4.5 Contingency Measures

The CEMP, plans required to comply with the Incorporated Document and EPRs, and OEMP (for PPP) will 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 will 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.

5 Evaluating Environmental Performance

This section identifies the requirements for monitoring, reporting and auditing of compliance with the EPRs, the Incorporated Document and the plans listed in Appendix 2 of the Incorporated Document.

Each contract will specify compliance requirements for the contractor including monitoring, reporting to the RPV and relevant government agencies, and internal and external environmental auditing. The process and timing for consultation with agencies in respect of implementation of the CEMP, SEIP and TMP in particular will be addressed in the program to be developed in accordance with EPR EMF2.

A summary of these compliance requirements is provided in this section. The RPV EMS will 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, including the handling of complaints in relation to non-conformances with EPRs, the Incorporated Document and the Appendix 2 Plans of the Incorporated Document.

5.1 Monitoring

A range of monitoring requirements will be specified in each contractor's CEMP and other plans required to comply with the Incorporated Document and EPRs, as well as the PPP contractor's OEMP. The parameters to be monitored and the frequency of monitoring will reflect regulatory requirements and the level of potential risk to the environment. Monitoring will include periodic inspections of construction works areas and assets constructed.

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

- The monitoring frequency is sufficient to identify any significant non-conformances with the EPRs, Incorporated Document or Appendix 2 plans 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 will be submitted to RPV for approval prior to being implemented. The contractors will be responsible for the ongoing management of baseline and monitoring data to ensure the transparency and accountability of environmental management.

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

5.2 Reporting

Performance against each contractor's CEMP and other plans required to comply with the Incorporated Document and EPRs will be reported to the RPV and relevant government agencies as appropriate. The CEMP will describe the reporting and external notification requirements, including what needs to be reported and to whom, and the timeframe for reporting.

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

- The contractor will be required to prepare monthly environmental performance reports to RPV (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 Aboriginal Victoria and DELWP if a potential Aboriginal site or artefact is identified
- Notification to Heritage Victoria and DELWP if a heritage artefact is discovered.

5.3 Audits

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

External audits will be conducted to monitor environmental performance for each work package, and to ensure continued conformance with ISO14001. These audits will be undertaken by an Independent Environmental Auditor appointed for each work package. RPV's implementation of the RPV EMS will be audited annually using an independent auditor.

Audits will be scheduled for all Melbourne Metro work packages (such as early works, Tunnels and stations, Rail systems alliance and Rail infrastructure alliance) to ensure project activities are in accordance with the Incorporated Document, the RPV EMS, EPRs and the contractors CEMP and the plans listed in Appendix 2 of the Incorporated Document.

The audit scope will be prepared prior to each audit. In summary, audits will evaluate:

- Conformance with EMS requirements
- Compliance with EPRs, the plans set out in Appendix 2 of the Incorporated Document and any other plans required to comply with the EPRs
- Responses to non-conformances, incidents and complaints received
- Effective implementation of monitoring programs
- Compliance with the Incorporated Document.

The audit schedule will be determined on an annual basis for each work package and will 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
- Complaints received, particularly if related EPRs and indicate instances of non-conformances
- Previous audit outcomes
- Management review outcomes.

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

- Environmental monitoring, process monitoring and management performance monitoring results
- Inspection and audit reports
- Soil and waste management records
- All monitoring records as required by the EPRs including noise, vibration, air, etc.

- Surveys
- Meeting minutes.

As a minimum, internal audits will 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 will be scheduled on a quarterly basis (and more frequently where necessary) through the delivery of each work package.

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

6 Environmental Performance Requirements

6.1 Context

This section summarises the rationale and approach adopted in preparing the EPRs for Melbourne Metro, and sets out the EPRs in Table 7. The EMF and the EPRs have been updated by RPV to address the Ministers Assessment and ensure all conditions of the Incorporated Document have been addressed.

Melbourne Metro will be delivered in accordance with approved EPRs that define the project-wide environmental outcomes that must be achieved during design, construction and operation of Melbourne Metro (regardless of the solutions adopted). This performance based approach allows for a delivery model with sufficient flexibility to encourage innovation by the private sector to determine how any recommended EPRs would be achieved.

The EES presented a risk based assessment of environmental effects of the project, in accordance with the EES Scoping Requirements. Potential mitigation measures were typically included in the EES as examples of how an environmental effect could be mitigated and to illustrate how an EPR could be implemented. However, the EES generally did not mandate or commit to a particular mitigation or management outcome. In the same manner, the EPRs do not typically mandate or require a particular mitigation or management solution. Instead, the EPRs will be implemented by applying a risk-weighted assessment of the nature and extent of the relevant environmental effects, and the most practicable means of mitigating and managing those effects where required. This will ensure the management and mitigation measures are proportional to the effect they are designed to address and achieve the outcome prescribed by the EPR.

The Incorporated Document requires the Project to be constructed and operated in accordance with the EPRs approved by the Minister for Planning. Each contractor will comply with the EPRs and prepare necessary plans prior to commencement of their scope of work to document the approach to compliance with each EPR. Each contractor will therefore have their own plans for compliance with EPRs (Refer to Section 2 for a description each work package contract).

The EPRs describe different stages of work by which the EPRs must be implemented. These stages include project works, main works or shafts, main works, and relevant works. Definitions of each stage are provided in the Glossary in Section 7.

6.2 Consultation required by the EPRs

Many EPRs require consultation to be undertaken with relevant stakeholders. The extent of consultation and outcomes will be documented to demonstrate compliance with the EPRs. In instances where the EPRs necessitate the involvement of a ‘relevant 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, or Heritage Victoria.

Consultation required under the EPRs may include meetings, workshops and exchange of documentation and correspondence between RPV or its contractors and stakeholders, but will not necessarily require the submission of written documentation or draft plans for formal comment to any particular stakeholder.

Where an EPR is expressed as requiring or being subject to the agreement of a stakeholder, RPV must use reasonable endeavours to reach agreement with that stakeholder to satisfy the EPR. If RPV uses such reasonable endeavours but is unable to reach an agreement with the stakeholder, it may submit a request to the Minister for Planning to amend or remove the relevant EPRs (as part of the EMF) under clause 4.8.7 of the Incorporated Document. Such a request must be accompanied by a written explanation of the reasonable endeavours used by RPV in reaching an agreement on the subject matter of the EPR, and the stakeholders’ responses.

6.3 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 was 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 of the EES contains further detail on the risk assessment and the complete risk register developed for the EES.

As part of their EMS, the contractors will 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 will be required to be consistent with AS/NZS ISO 31000:2009 Risk management – principles and guidelines. The contractors will be required to maintain a current risk register which will be considered a 'live' document, 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.

The risk assessment will link risks to the relevant EPRs to define the standard of management to be achieved to manage potential impacts. If through review of the risk assessment additional or modified EPRs are required, the EPRs will be revised and re-submitted to the Minister for Planning for approval (as described in Table 4).

Table 7 - Environmental Performance Requirements

No	Environmental Performance Requirements	Precinct	Timing
Environmental Management Framework (EMF)			
EMF1	1. Prior to commencement of Project works, prepare and implement an Environmental Management System (EMS) that is certified to ISO 14001:2015 Environmental Management Systems – requirements with guidance for use for construction and operation.	All	All stages
EMF2	1. Prepare a Construction Environmental Management Plan (CEMP), Site Environment Implementation Plans (SEIP), Operations Environmental Management Plan (OEMP) and other plans as required by the Environmental Performance Requirements (EPRs) and as relevant to any stage of the Project. 2. Develop a program to set out the process and timing for development of an EMS, CEMP, SEIP, OEMP and other plans as required by the EPRs and as relevant to any stage of the Project. 3. The process for development of and implementation of the CEMP, the SEIP and OEMP must include consultation with Councils, Heritage Victoria, the Roads Corporation, Melbourne Water, Public Transport Victoria (PTV)/DEDJTR (Transport), the Environment Protection Authority (EPA) and other stakeholders as relevant. These consultation processes must be described in the program. Plans are to be reviewed in accordance with the EMF. 4. The CEMP should be prepared in accordance with EPA Publication 480, *Environmental Guidelines for Major Construction Sites* (EPA 1996).	All	All stages
EMF3	1. Prior *to* commencement of Project works, appoint an Independent Environmental Auditor to audit proposed plans, as required in the Incorporated Document, so as to ensure the plans comply with the EPRs and to undertake environmental audits of compliance with the approved CEMP, SEIP, OEMP (the OEMP is for Public Private Partnership (PPP) only), EPRs and approval conditions.	All	Construction / Operation
EMF4	1. Prior to commencement of Project works, develop and implement a process for the recording, management and resolution of complaints from affected stakeholders consistent with Australian Standard AS/NZS 10002: 2014 *Guidelines for Complaint Management in Organisations*. 2. The complaints management approach will be documented in the Community and Stakeholder Engagement Management Framework required under EPR SC3 and be integrated with the Proponent and Contractors' own EMS'. The complaints management system will address requirements of the Business Support Guidelines for Construction (BSGC). (See EPR B2).	All	Construction

<table>
<tr><th>No</th><th>Environmental Performance Requirements</th><th>Precinct</th><th>Timing</th></tr>
<tr><td colspan="4">Aquatic Ecology and River Health (AE)</td></tr>
<tr><td>AE1</td><td>1. Fully integrate the stormwater treatment system into the design of Melbourne Metro (all precincts) for construction to ensure that stormwater entering a receiving water body complies with SEPP (Waters of Victoria).
2. 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>
Note
(1) Best practice performance objectives are based on the Best Practice Environmental Management Guidelines for Urban Stormwater – CSIRO.</td><td>All</td><td>Design / Construction</td></tr>
<tr><td>AE2</td><td>1. 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 CEMP.
2. Control measures may 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></tr>
<tr><td>AE3</td><td>1. During construction, discharge all tunnel, station box and portal construction water to sewer subject to sewer capacity.
2. Where sewer capacity constraints exist at CBD North and CBD South, discharge to surface waters in accordance with SEPP (Waters). Prior to commencement of discharge to surface waters, a plan detailing the monitoring and management measures for the activity must be developed and implemented in consultation with EPA Victoria.</td><td>All (except Western turnback)</td><td>Construction</td></tr>
</table>

<table>
<tr><th>No</th><th>Environmental Performance Requirements</th><th>Precinct</th><th>Timing</th></tr>
<tr><td></td><td>(See EPR GW3).</td><td></td><td></td></tr>
<tr><td>AE4</td><td>1. Where ground treatment works are required in waterways, design and implement methods that prevent discharge of sediments into the water column.</td><td>1 – Tunnels</td><td>Design / Construction</td></tr>
<tr><td>AE5</td><td>1. Design the Arden electrical substation so that it is appropriately protected against floodwaters during operation (see EPR SW1), to prevent the release of contaminants to Moonee Ponds Creek.</td><td>3 – Arden</td><td>Design / Operation</td></tr>
<tr><td>AE6</td><td>1. During operation, discharge tunnel drainage water to sewer, unless otherwise agreed by EPA and Melbourne Water and in compliance with SEPP (Waters of Victoria).
2. Where groundwater interception during operation is predicted to occur, disposal is to be managed so that contaminated water is not released to stormwater or to sensitive surface water bodies (see EPR GW4).</td><td>1 – Tunnels</td><td>Design
Operation</td></tr>
<tr><td>AE7</td><td>1. Fully integrate the stormwater treatment system into the design of all precincts and portals to ensure that any stormwater entering a receiving water body complies with SEPP (Waters of Victoria).
<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></td><td>All</td><td>Design / Operation</td></tr>
</table>

No	Environmental Performance Requirements	Precinct	Timing
	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.* 2. Sedimentation and pollution control measures must be applied to protect waterways and habitat areas such as periphery surrounding Moonee Ponds Creek in accordance with industry best practice. This must include water quality monitoring, where required.		
Aboriginal Cultural Heritage (AH)			
AH1	1. 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	All
Air Quality (AQ)			
AQ1	1. Prior to commencement of Project works, develop and implement plan(s) for dust management and monitoring, to minimise and monitor the impact of construction dust. Develop the plan(s) in consultation with EPA and the owners of key sensitive equipment or locations, and advise the community of the plan, in accordance with the contractors Community and Stakeholder Engagement Plan (see EPR SC4). 2. The plan(s) must: a) Set out air quality criteria and outline the justification for those criteria for above ground construction works. b) Be informed by air modelling of construction activities, which should identify the main dust sources and the location of sensitive land uses. Air modelling for particulate dispersion must include construction ventilation discharges, and assess for both dust particulates and respirable crystalline silica. c) Be informed by a human health risk assessment, conducted by a suitably qualified professional, for high risk construction activities which may generate possible airborne contaminants of potential concern, including: dust, respirable crystalline silica, asbestos, Aspergillus spores (Precinct 4 only) and any other common industrial contaminants within dust (such as metals and polycyclic aromatic hydrocarbons). d) Describe the proposed dust management and monitoring system including (but not necessarily limited to):	All	Construction

No	Environmental Performance Requirements	Precinct	Timing
	i. Routinely reviewing weather model predictions. ii. Continuous monitoring and real-time alert systems in the event of measured exceedances. iii. Protocols for record-keeping. iv. Protocols to ensure that site personnel advise the site manager if excessive dust emissions are observed. e) Describe the mitigation measures that will be implemented to ensure compliance with air quality criteria. f) Address monitoring requirements for key sensitive receptors, including (but not limited) to: i. Residential and commercial properties, including ACMI. ii. Hospitals and research facilities within the Parkville precinct. iii. Heritage listed places sensitive to dust including St Pauls Cathedral and the Melbourne City Baths. iv. Universities, including The University of Melbourne and RMIT. v. Schools, including Melbourne Grammar School (South Yarra Campus) and Christ Church Grammar School. vi. The Arts Centre Melbourne and National Gallery of Victoria. vii. Public parks and outdoor public recreational areas including the Shrine of Remembrance Reserve and JJ Holland Reserve.		
AQ2	1. 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
AQ3	1. 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
Arboriculture (AR)			
AR1	1. During detailed design, review any potential tree impacts and achieve the maximum possible tree retention on both public and private land, including retaining all valuable habitat linkages or corridors where practicable. 2. Trees to be removed during early works must only be those associated with early works. 3. Comply with any requirements of Heritage Victoria if the trees are on the VHR.	All	Design / pre-construction

No	Environmental Performance Requirements	Precinct	Timing
	4. Prior to commencement of Project Works, develop and implement a plan in consultation with the relevant local council that identifies all trees in the Project Area which covers: a) Trees to be removed or retained. b) Condition and significance of the trees to be removed. c) Options for temporary re-location of palms and reinstatement at their former location or another suitable location. d) Options for re-location of all trees and, if feasible for the tree species, reinstatement of the trees at their former location. 5. The plan should include a tree removal protocol established in consultation with the City of Melbourne, the City of Port Phillip, the City of Stonnington, the Shrine of Remembrance and Shrine Trustees, University of Melbourne and Heritage Victoria as applicable that includes a process for RPV approval of trees prior to removal.		
AR2	1. Reinstate quality soils to sufficient volumes to support long-term viable growth of replacement trees. Ensure ongoing supply of water to tree root zones, especially during their establishment stage. Employ water sensitive urban design principles (WSUD) where possible.	All	Construction / operation
AR3	1. Develop a tree replacement program to re-establish lost canopy cover and achieve canopy size equal to (or greater than) healthy, mature examples of the removed species in Melbourne. 2. Establish protocols to govern the use of advanced and super-advanced trees, where such use is appropriate to re-establish canopy and valued landscape character in a way that balances long term viability of the tree with immediate impact. 3. Consult with the City of Melbourne, the City of Port Phillip, the City of Stonnington, the Shrine of Remembrance and Shrine Trustees, University of Melbourne and Heritage Victoria as applicable. 4. When re-establishing trees, regard should be had to the following documents where relevant: a) The City of Melbourne's *Tree Retention and Removal Policy* (2012) (excluding sections 8.2 and 8.3) and *Urban Forest Strategy*, *South Yarra Urban Forest Precinct Plan*, *Central City Urban Forest Precinct Plan, Carlton Urban Forest Precinct Plan* and *Kensington Urban Forest Precinct Plan.* b) The City of Port Phillip's Community Amenity Local Law No. 1 and *Greening Port Phillip – An Urban Forest Approach.* c) The City of Stonnington's General Local Law 2008 (No 1) and City of Stonnington *Street Tree Strategy.* d) Any associated precinct plans.	All (except western turn back)	Construction

No	Environmental Performance Requirements	Precinct	Timing
	e) Specific policies of the *Domain Parklands Conservation Management Plan*, for trees within Domain Parklands. f) Shrine of Remembrance Conservation Management Plan (Lovell Chen, 2010) or any future review and the Shrine of Remembrance Landscape Improvement Plan (Rush Wright Associates, 2010). g) South African Soldiers Memorial Conservation Management Plan (Context, 2016). h) The preferred future character of the University of Melbourne, for trees in the grounds of the University of Melbourne. 5. The re-establishment of trees must also consider the contribution that the replacement trees can make to the creation of habitat corridors and linkages where this is possible. (See EPRs CH13 and CH18 as appropriate).		
AR4	1. Prior to commencement of construction of any Project works that could affect trees, prepare and implement Tree Protection Plans for each precinct in accordance with AS4970-2009 *Protection of Trees on Development Sites*. The plans must respond to the detailed design and construction methodology of the Project and ensure that trees proposed to be retained are adequately protected from the impact of construction or related activities. 2. Where a Tree Protection Plan is required for a heritage place, the plan must be developed in consultation with Heritage Victoria or the relevant council (as applicable).	All (except western turn back)	Design / Construction
AR5	1. 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*.	All (except Eastern Portal and Western turnback)	Construction
Business (B)			
B1	1. 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. 2. Provide businesses with adequate notice (as required under the relevant legislation) of any need for relocation, as a result of the Project including the termination of leases of public or private land where the displacement is a direct consequence of the Project.	All	Design / Construction
B2	1. Prior to commencement of relevant works, prepare a business disruption plan consistent with the contractors Community and Stakeholder Engagement Management Plan (SC4) to:	All	Design / Construction

No	Environmental Performance Requirements	Precinct	Timing
	a) Manage potential impacts to non-acquired businesses, commercial property owners and not-for-profit organisations. b) Ensure appropriate engagement with local councils, businesses, property owners and the community throughout construction. 2. The plan must outline the stakeholder engagement measures for each precinct and include: a) Adequate notice of key Project milestones. b) Details of any changes to traffic and parking conditions and duration of impact. c) 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. d) Plans for notifying customers of proposed changes to business operations, including the setting of suitable timeframes for notification prior to commencement of works. e) Measures to ensure access to businesses is maintained for customers, deliveries and consistent with EPR T10 for waste removal, unless there has been prior engagement with affected businesses (including mutually agreed mitigation measures as required). These measures could include the installation of directional and business signage to assist customers and agreed protocols for engaging with service providers (i.e. deliveries, collections, etc.). f) Process for registering, management and resolution of complaints from affected businesses consistent with Australian Standard AS/NSZ 10002:2014 *Guidelines for Complaint Management in Organisations*. g) Measures for supporting affected businesses during construction in accordance with the *Business Support Guidelines for Construction* (BSGC) such as marketing and promotion, local activation, way-finding programs and upskilling opportunities. h) Where implementation of BSGC support measures have been exhausted for a business, provide the opportunity for assistance in preparing a Business Plan to develop a business profile and more detailed understanding of the business and how it operates (where appropriate a financial baseline may form part of the business plan) so that further measures can be factored into Business Disruption Plans.		
B3	1. Following consultation with potentially affected businesses and prior to commencement of relevant works, prepare management plans and during construction implement those plans to minimise dust, noise and vibration impacts during construction, as per EPRs AQ1, NV5 and NV21.	All	Construction

No	Environmental Performance Requirements	Precinct	Timing
B4	1. 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
B5	1. Prior to relevant works, 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 as a result of any such emergency.	4 – Parkville	Design / Construction
B6	1. In consultation and agreement with the owners of the Westin Residential Apartments and the owners' corporations in Plan of Subdivision PS428405M, prepare a legacy design for the private car parking, storage units and services below the Westin building to a similar standard as prior to the commencement of the Project (taking into account station infrastructure requirements) or as otherwise agreed with the owners. The legacy design is to be implemented at the earliest opportunity.	6 - CBD South	Design
Contaminated Land and Spoil Management (C)			
C1	1. Prior to commencement of shaft construction and prior to commencement of main works, prepare and implement a Spoil Management Plan (SMP) for each Works Package. The SMP must be in accordance with RPV's Spoil Management Strategy and any relevant regulations, standards or best practice guidelines. The SMP must be developed in consultation with the EPA. The SMP will include but is not limited to the following: a) Applicable regulatory requirements. b) Identifying nature and extent of spoil (clean fill and contaminated spoil). c) Roles and responsibilities. d) Identification of management measures for handling and transport of spoil for the protection of health and the environment (consistent with the transport management plan(s) as required by EPRs T2 and T3). e) Identification, design and development of specific environmental management plans for temporary stockpile areas f) Identifying potential sites for re-use, management or disposal of any spoil. g) Monitoring and reporting requirements. h) Identifying locations and extent of any prescribed industrial waste (PIW) and the method for characterising PIW spoil prior to excavation. i) Identifying suitable sites for disposal of any PIW.	All	Construction

No	Environmental Performance Requirements	Precinct	Timing
	2. The SMPs must include sub-plans as appropriate, including but not limited to an Acid Sulfate Soil and Rock (ASS/ASR) Management Sub-Plan (see EPR C2).		
C2	1. Prior to commencement of shaft construction and prior to commencement of main works, prepare and implement an Acid Sulfate Soil and Rock (ASS/ASR) Management Sub-Plan as a sub-plan of the overarching SMP for each Works Package. The Sub-Plan must be developed in accordance with the *Industrial Waste Management Policy (Waste Acid Sulfate Soils) 1999*, EPA Publication 655.1 Acid Sulfate Soil and Rock and relevant (EPA) regulations, standards and best practice guidance and in consultation with the EPA. 2. This Sub-Plan will adopt the general requirements of the SMP and also: a) Identify locations and extent of any potential ASS/ASR. b) Characterise ASS/ASR spoil prior to excavation. c) Identify and implement measures to prevent oxidation of ASS/ASR wherever possible. d) Identify potential sites for re-use, management o*r disposal of any ASS/ASR.*	All	Construction
C3	1. Prior to commencement of shaft construction and prior to commencement of main works, prepare a Remedial Management Plan (RMP) for each Works Package for contaminated land and groundwater. The RMP must: a) Consider the outcomes of further investigations including the appropriate groundwater investigations and modelling required in EPRs GW1, GW2, GW3 and GW5. b) Interpret groundwater permeation and VOC results. c) Present and take account of the outcomes of risk assessments. d) If required, identify remedial options to be implemented for contaminated land and groundwater in accordance with relevant regulations, standards and best practice guidance and in consultation with the EPA. 2. If required, as an outcome of the RMP, prepare and implement a remedial action plan and integrate the remediation approach into the design of the Project in accordance with relevant regulations, standards and best practice guidance and to the satisfaction of EPA.	All	Design / Construction / Operation
C4	1. Prior to commencement of relevant works, prepare and implement a health, safety and environmental plan for the management of hazardous substances. The plan must include but not be limited to: a) Consideration of the risks associated with exposure to hazardous substances for employees, visitors and general public.	All	Construction

No	Environmental Performance Requirements	Precinct	Timing
	b) 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 in consultation with EPA. c) Method statements detailing monitoring and reporting.		
Cultural Heritage – Historical (CH)			
CH1	1. 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 relevant local council (as applicable). **Note** (1) *The Project must meet the requirements of the Heritage Act 2017.*	All	Detailed design
CH2	1. To avoid or minimise impacts on the cultural heritage values of heritage places, prior to commencement of relevant works, prepare and implement a Heritage Management Plan (HMP) in consultation with Heritage Victoria or the relevant local council (as applicable). 2. The HMP must identify the heritage values of the place, the degree of significance of component parts, how proposed works will affect the heritage values, the mitigation measures to be adopted to avoid or minimise impacts on heritage values and any possible heritage benefits.	All	Detailed design / Construction
CH3	1. To avoid or minimise impacts on the cultural heritage values of heritage places, prior to commencement of relevant works: a) Perform works in accordance with the following noise and vibration and ground movement EPRs as related to heritage places: NV2, NV3, NV4, NV8, NV9, NV21, GM2, GM3, GM4, GM5, GM6 b) Undertake condition assessments of heritage places prior to commencement of construction of relevant works where located within the identified vibration and ground settlement zones of sensitivity and monitor as per NV8, GM3, GM4 and GM5. 2. Should damage occur to a heritage place as a result of works, undertake rectification works in accordance with accepted conservation practice (with reference to the Australia ICOMOS Burra Charter 2013) with input from a qualified heritage practitioner and in consultation with the land owner and relevant local Council for places in a local Heritage Overlay, or with the written approval of the Executive Director of Heritage Victoria for places included in the Victorian Heritage Register.	All	Design / Pre-construction / construction

No	Environmental Performance Requirements	Precinct	Timing
CH4	1. Prior to commencement of relevant works, undertake archival photographic recording in accordance with Heritage Victoria's specification for the archival photographic recording of heritage places where heritage places are to be demolished or modified or their setting is to be impacted by works. The archival recording is to be provided to Heritage Victoria for places in the VHR and the relevant local council for places included in the Heritage Overlay and approved in writing. Once approved, a copy of the recording is to be lodged with the La Trobe Picture Collection, State Library of Victoria.	All	Pre-construction, reinstatement at an appropriate time during or after the main construction works
CH5	1. Prior to the construction of works that affect heritage structures or places, where it is proposed to dismantle, store and reconstruct heritage fabric, develop detailed methodology in accordance with the *Australia ICOMOS Burra Charter* 2013 and in consultation with Heritage Victoria or the land owner or relevant local council (as applicable). Work is to be documented and overseen by an appropriately qualified heritage practitioner. 2. Prior to dismantling the following heritage places, develop interpretative material for display while the heritage fabric is not visible: a) Burke and Wills Monument. b) University of Melbourne Main Entrance Gate (Gate 6) Pillars and Fence (VHR H918).	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
CH6	1. Prior to commencement of relevant works which may directly or indirectly affect heritage places, develop and implement appropriate protection measures for heritage places and their settings. This is to be done in consultation with the land owner, and Heritage Victoria or relevant council (as applicable).	All	Prior to construction commencing
CH7	1. In consultation with Heritage Victoria and as required by the *Heritage Act 2017*: a) Develop archaeological management plans to manage disturbance of archaeological sites and values affected by the Project. b) Undertake investigation in accordance with the *Guidelines for Investigating Historical Archaeological Artefacts and Sites*, Heritage Victoria 2014 (as amended or updated). 2. Develop and implement a protocol for managing previously unidentified historical archaeological sites discovered during Project works.	All	Pre-construction and Construction
CH8	1. In consultation with Heritage Victoria, the relevant local council and/or Aboriginal Victoria (as applicable), develop and implement, a heritage interpretation strategy for places in the VHR and VHI or which explores historical and Aboriginal cultural heritage themes.	All	Design/ Construction

No	Environmental Performance Requirements	Precinct	Timing
	2. This must also include the railway workshop buildings in the proposed Railway Reserve Precinct (proposed HO1093) located at 173–199 Laurens Street, North Melbourne in the Arden precinct. 3. The heritage interpretation strategy should consider the RPV Creative Strategy.		
CH9	1. 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
CH10	1. Ensure new development is responsive to heritage places in terms of height, massing, form, façade articulation, materials and impacts on their settings and key views.	All	Detailed design
CH11	1. Ensure no direct impact on heritage buildings on the former Glueworks site in Kensington.	2 – Western portal	Construction
CH12	1. Retain and protect Langford Street pumping station as part of the design for the new substation.	3 – Arden station	Detailed design
CH13	1. In consultation with VicRoads, Heritage Victoria and/or the relevant local council, replace removed Elm trees in Royal Parade as part of Project delivery using appropriate species and re-establish the boulevard formation and heritage values. 2. Provide suitable soil conditions to facilitate the growth of new trees to reach the size of the existing mature trees in the boulevard. (See EPR AR3).	4 – Parkville station	Construction
CH14	1. During 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	Construction
CH15	1. During detailed design for the CBD South station, consult with City of Melbourne regarding the incorporation of 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
CH16	1. In the event that temporary or permanent relocation of the Burke and Wills Monument from its current site is required, resolve the final location of the monument in consultation with the City of Melbourne prior to the commencement of relevant works. (See EPR CH5).	6 – CBD South station	Detailed design

No	Environmental Performance Requirements	Precinct	Timing
CH17	1. 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
CH18	1. Replace removed trees as part of Project delivery in accordance with relevant policy documents and to reinstate heritage values in consultation with the City of Melbourne, the City of Port Phillip, Heritage Victoria, the Shrine of Remembrance and Shrine Trustees (as applicable). Policy documents are as follows. a) Any Conservation Management Plan adopted by those bodies, including: i. Domain Parklands Conservation Management Plan (2016) and the Domain Parklands Masterplan (when completed). ii. Shrine of Remembrance Conservation Management Plan (Lovell Chen, 2010) or any future review and the Shrine of Remembrance Landscape Improvement Plan (Rush Wright Associates, 2010). iii. South African Soldiers Memorial Conservation Management Plan (Context, 2016) (See EPR AR3).	1 – Tunnels 7 – Domain station	Construction
CH19	1. In consultation with Heritage Victoria, the City of Melbourne, the Shrine of Remembrance and Shrine Trustees (as applicable), review the siting and design of the eastern Domain station entry during detailed design to ensure it is as recessive as possible in this location and has only a limited presence on the edge of the Shrine of Remembrance Reserve. 2. The design needs to allow for the maintenance of an appropriate setting to the Macpherson Robertson Memorial Fountain.	7 – Domain station	Detailed design
CH20	1. Prior to dismantling the South African Soldiers Memorial, in consultation with City of Port Phillip and Heritage Victoria develop interpretive material to display in the precinct until the monument is restored. 2. For detailed design, in consultation with City of Port Phillip and Heritage Victoria review the siting and design of the western Domain station entry to ensure the South African Soldiers Memorial and other components of the Albert Road Reserve retain their heritage values including an appropriate setting. If no appropriate setting can be established, consider options for relocation of the memorial to an alternative site.	7 – Domain station	Detailed design
CH21	1. In consultation with VicRoads, Heritage Victoria and relevant local councils, replace any trees in St Kilda Road that must be removed in a manner which will re-establish the boulevard formation and reinstate heritage values.	7 – Domain station	Detailed design

No	Environmental Performance Requirements	Precinct	Timing
	2. Resolve the physical and visual impacts of new above ground structures and changes to the functional layout with input from Heritage Victoria, relevant local council, VicRoads, Yarra Trams and PTV/DEDJTR (Transport) in the Heritage Impact Statement (HIS).		
CH22	1. Retain and protect the Cross Street Electrical Substation in situ within or abutting proposed construction site.	9 – Western turnback	Construction
CH23	1. Ensure that, where impacted by Project works, street fabric and infrastructure is conserved and/or accurately reconstructed in consultation with Heritage Victoria and the relevant local council.	All	Construction
CH24	1. Prior to commencement of main works, consider the construction noise and vibration pre-construction surveys and review the ground movement plan required by EPR GM3.On this basis, identify heritage places that may be vulnerable to damage from construction and identify appropriate mitigation measures to prevent damage to heritage places. 2. Prior to the commencement of main works: a) Conduct pre-construction condition surveys of heritage places identified as potentially being vulnerable to damage to record structural condition and structural integrity. b) Implement the identified mitigation measures to prevent damage to heritage places in consultation with Heritage Victoria and the relevant local council (as applicable). c) Conduct vibration monitoring at the heritage places that may be vulnerable to damage to assess the actual impacts from construction works. 3. If the vibration monitoring demonstrates that a heritage place has been, or may be, damaged as a result of vibration, ground vibration must be reduced until the risk of vibration related damage is assessed as acceptable. 4. Construction techniques must also seek to limit, as far as practicable, ground movement to avoid causing damage to heritage places, (see also EPRs GM3, GM4, GM5, GM6, NV4, NV8 and NV2).	All	Construction
Electro Magnetic Interference (EMI)			
EMI1	1. During detailed design activities for main works: a) Undertake a Project wide Electro Magnetic Interference (EMI) assessment for existing infrastructure, considering: b) Baseline conditions. i. Stakeholder requirements.	4 - Parkville 5 – CBD North	Design

No	Environmental Performance Requirements	Precinct	Timing
	ii. Manufacturer specifications of sensitive equipment. iii. Any electromagnetic emissions where the magnetic fields are altered by moving metallic objects and which may alter the operation of any electrical or electronic equipment to be used during construction and operation of the Project. c) Undertake baseline monitoring of sensitive equipment in accordance with any relevant manufacturer environmental test requirements, where available. d) Determine operational EMI limits in consultation with sensitive equipment owners having regard to equipment manufacturer environmental specifications where available and background EMI levels. e) If EMI limits are expected to be exceeded, as a result of either the construction and/or operation of the Project, design mitigation measures, in consultation with equipment owners, so as to minimise impact on sensitive equipment in accordance with 'best practice' industry standards. 2. The findings of the assessment undertaken in EPR EMI1 should be summarised and addressed in the Management Plan prepared in response to EPR EMI2.		
EMI2	1. Prior to commencement of relevant works, prepare and implement an Electro Magnetic Compatibility (EMC) Management Plan that includes the following (but is not necessarily limited to): a) An assessment of the likely electromagnetic emissions generated by the main works and the operation of the Project. b) Identification of sensitive equipment that might be affected by those electromagnetic emissions and the proposed management measures. c) A testing strategy in accordance with equipment specifications to monitor performance of appropriate management measures. d) Identification of possible works to sensitive equipment to avoid adverse impacts. e) A program for regular auditing of electronic and electrical systems during the construction, testing and commissioning. f) Remedial action to be undertaken if EMI limits are not met during the construction, testing, commissioning and operation of the Project.	4 - Parkville 5 – CBD North	Construction / operation
Flora and Fauna – Terrestrial (FF)			
FF1	1. Where the removal of native vegetation is 'unavoidable' (as defined under relevant policy) meet the requirements of the *Permitted Clearing of Native Vegetation – Biodiversity Assessment Guidelines*.	All	Construction

No	Environmental Performance Requirements	Precinct	Timing
FF2	1. Develop and implement measures to avoid the spread or introduction of weeds and pathogens during construction, including vehicle and equipment hygiene.	All	Construction
FF3	1. Trees identified for removal under EPR AR1, which may be used for breeding by native wildlife, should be removed outside the spring breeding season (August-December inclusive) where practicable. Immediately prior to site clearance for construction, large old trees with habitat hollows must be inspected by a suitably experienced and qualified arborist, to check for fauna occupancy, and native fauna removed and released at a nearby location immediately outside the impact zones.	All	Construction
Greenhouse Gas (GHG)			
GHG1	1. Prior to commencement of main works, 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
GHG2	1. 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
Ground Movement and Land Stability (GM)			
GM1	1. Prior to commencement of shaft construction and prior to commencement of main works, develop and maintain geological and groundwater model(s) (as per EPR GW2) for each Works Package which: a) Use monitored ground movement and ground water levels prior to construction to identify pre-existing movement. b) Inform tunnel design and the construction techniques to be applied for the various geological and groundwater conditions. c) Assess potential drawdown and identify trigger levels for implementing additional mitigation measures to minimise potential primary consolidation settlement. d) Assess potential ground movement effects from excavation and identify trigger levels for implementing additional mitigation measures to minimise potential ground movement effects.	All	Design

No	Environmental Performance Requirements	Precinct	Timing
GM2	1. 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, local councils and land managers and which build upon the assumptions for criteria presented in the EES) for vertical, horizontal, and angular deformation as appropriate for Project activities during the construction and operational phase. In the design of the works and the planning of construction and mitigations, incorporate the findings of investigations reported in the EES and subsequent relevant investigations.	All	Design/ Construction/ Operation
GM3	1. Prior to commencement of shaft construction and prior to commencement of main works, develop and implement a Ground Movement Plan(s) for each Works Package for construction and operational phases of the Project that: a) Addresses the location of structures/assets which may be susceptible to damage by ground movement resulting from Melbourne Metro works, having particular regard to heritage places and EPR CH2. b) Identifies appropriate ground movement impact acceptability criteria for buildings, utilities, trains, trams and pavement after consultation with the various stakeholders. c) Identifies mitigation measures to ensure acceptability criteria can be met. d) Identifies techniques for limiting settlement of buildings and protecting buildings from damage. Where these may apply to heritage places, they should be developed in consultation with Heritage Victoria and the relevant local council (as applicable). e) Addresses additional measures to be adopted if acceptability criteria are not met such as reinstatement of any property damage. For heritage places, refer to EPR CH2 and CH24. f) Establishes ground movement monitoring requirements for the area surrounding proposed Melbourne Metro works and at the location of various structures/assets to measure consistency with the predicted model. g) Consult with land and assets owners that could be potentially affected and whereby mitigation measures would be required.	All	Construction/ Operation
GM4	1. Conduct pre-construction condition surveys for the assets predicted to be affected by ground movement, including where a property owner reasonably expects to be potentially affected and has requested a pre-construction condition survey. 2. Develop and maintain a data base of as-built and pre-construction condition information for each potentially affected structure identified as being in an area susceptible to damage (see EPR GM3) or where a property owner has requested a pre-construction condition survey, specifically including:	All	Design / Construction

No	Environmental Performance Requirements	Precinct	Timing
	a) Identification of structures/assets which may be susceptible to damage resulting from ground movement resulting from Melbourne Metro works. b) Results of condition surveys of structures, pavements, significant utilities and parklands to establish baseline conditions and potential vulnerabilities. c) Records of consultation with landowners in relation to the condition surveys. d) Post-construction stage condition surveys conducted, where required, to ascertain if any damage has been caused as a result of Melbourne Metro. e) Share pre- and post-condition assessments and records of consultation with the property owner proactively. f) Ensure all stakeholder engagement activities are undertaken in accordance with the contractors Community and Stakeholder Engagement Management Plan.		
GM5	1. 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
GM6	1. For properties and assets affected by ground movement, undertake any required repair works or other actions as agreed with the landowner. For places on the VHR, consultation with Heritage Victoria and the relevant local council must occur (as applicable).	All	Construction
Groundwater (GW)			
GW1	1. Design the tunnel and underground structures so that they minimise changes to groundwater levels during construction and operation to minimise impacts on groundwater dependent values, ground movement and contamination plume migration. 2. In the case of existing, registered groundwater bore users, for the assessment of tolerable groundwater drawdown criteria, drawdown level should not exceed the point where the available saturated aquifer thickness of the bore is reduced by further than 10 per cent.	All	Design
GW2	1. Develop a groundwater model through a process that involves ongoing referral to the Independent Environmental Auditor consistent with the *Australian Groundwater Modelling Guidelines* (Barnett et al, 2012). Apply the 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 EPRs and mitigation measures are sufficient to mitigate impacts from changes in groundwater levels, flow and quality.	All	Design / Construction

No	Environmental Performance Requirements	Precinct	Timing
	2. The groundwater model should be updated to address comprehensively transient calibration, aquifer specific storage parameter values and their justification, prediction of cumulative impacts during construction and uncertainty assessments. 3. Ensure that the model geometry set-up (node and grid network of model and layering definition) is accurately matched into the Project's detailed design excavation geometry. 4. Undertake monitoring during construction to ensure that predictions are accurate and mitigation measures are appropriate, and adjust the model if required.		
GW3	1. Prior to commencement of shaft construction and prior to commencement of main works, develop and implement a Groundwater Management Plan (GWMP) for each Works Package detailing groundwater management approaches to address the predicted impacts to groundwater dependent values during construction and to ensure protection of groundwater dependent values. 2. The GWMP must be based on the detailed design phase groundwater model, and should include the following details: a) Approach to collection, treatment and disposal of groundwater collected during construction in accordance with the RPV Groundwater Disposal Strategy. b) Identifying and if necessary, specifying mitigation measures to protect groundwater dependent vegetation during periods of drawdown. c) An approach identified in consultation with the EPA so that contaminant migration causes no significant impacts on beneficial uses or vapour intrusion into underground structures, and establish appropriate monitoring networks to measure the effectiveness of the approach. d) Methods for minimising drawdown in areas of known PASS and establishing appropriate monitoring networks to confirm effectiveness of approach. e) Methods for minimising drawdown at any existing recharge bores, and establishing appropriate monitoring networks to measure the effectiveness of mitigation. f) Groundwater drawdown trigger levels for groundwater dependent values at which additional mitigation measures must be adopted. g) Design, operation and management of groundwater injection borefields. h) Contingency measures if impacts occur at existing active groundwater bores and surface water bodies. i) Contingency measures should unexpected groundwater conditions be encountered. 3. The GWMP must be developed in consultation with EPA and relevant water authorities.	All	Design / Construction

No	Environmental Performance Requirements	Precinct	Timing
	4. The GWMP should also address RPV's sustainability requirements where appropriate.		
GW4	1. Use the Groundwater Disposal Strategy and GWMP to obtain a Trade Waste Agreement with the relevant Water Retailers for groundwater disposal.	All	Construction / Operation
GW5	1. Prior to commencement of shaft construction and prior to commencement of main works, develop and implement a groundwater monitoring plan as part of the GWMP for each Works Package that details sufficient monitoring of groundwater levels to verify that no significant impacts occur from potential: a) Contaminant migration on the beneficial uses of groundwater at third party properties caused by drawdown or vapour intrusion to underground structures b) Activation of PASS and groundwater acidification c) Reduction in access to water for bore owners in the area around the Project d) 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 e) Change in injection rates in any existing recharge bores that may be present in the area around the Project.	All	Construction / Operation

No	Environmental Performance Requirements	Precinct	Timing
Land Use and Planning (LU)			
LU1	1. Prior to commencement of relevant works, develop and implement a plan for construction and operation of the Project that has as its purpose minimising impacts on existing land uses during both early works and main works, including by: a) Limiting the extent of any permanent change of use within existing public open space. b) Minimising the footprints of construction sites and any permanent infrastructure which is to be located on public land. c) Locating and designing all Project works to avoid, to the extent practicable, any temporary and permanent loss of public open space to maximise the re-instatement potential of that land. d) 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, the Melbourne City Baths, City Square, Federation Square, the Shrine of Remembrance and the Shrine Reserve, Domain Parklands, Edmund Herring Memorial Oval, and the Albert Road Reserve. e) Minimising the impacts to existing residential areas by locating new above ground infrastructure, such as electrical substations in appropriate locations considering adjoining properties and exploring the co-location of rail infrastructure facilities where practicable. f) Ensuring residents are notified in advance of works in accordance with EPRs SC4 and SC10. 2. Such measures must be developed in consultation with affected land managers for public land, local councils and key stakeholders, as applicable. **Note** (1) *The approach to defining key stakeholders is to be outlined in the Community and Stakeholder Engagement Management Framework (see EPR SC3).*	All	Construction / Operation
LU2	1. Development of the Project must be generally in accordance with the relevant Open Space Master Plans (including but not limited to, the *Domain Parklands*, and *University Square Master Plans* and *Chapel ReVision Structure Plan*), and be consistent with the Melbourne Metro Urban Design Strategy and EPR SC8 in designing and constructing above ground infrastructure for the tunnels. 2. Consultation must occur with land managers and/or agencies responsible for the implementation of the relevant Open Space Master Plans, including local councils and key stakeholders. The outputs must be consistent with EPR SC8.	All	Design / Construction

No	Environmental Performance Requirements	Precinct	Timing
LU3	1. Prior to commencement of relevant works, develop and implement a plan for the design and construction of Arden station that adopts an integrated approach to urban design and planning of the station and which is generally in accordance with the Vision and Framework Plan for Arden. This must include consultation with the Victorian Planning Authority, City of Melbourne and any other relevant agencies such as Melbourne Water and the plan must be referred to the Urban Design and Architectural Advice Panel (UDAAP). 2. The design must include integrated water sensitive urban design (EPR SW2) and management of the extent of flooding across the site.	3 – Arden station	Design / Construction
LU4	1. Prior to commencement of relevant works, develop and implement a plan in consultation with the Urban Design and Architectural Advice Panel (UDAAP) to ensure the design of the Project meets the Melbourne Metro Urban Design Strategy and relevant planning schemes that considers: a) Permanent above ground structures. b) Temporary structures adopting principles of the *Growing Green Guide 2014* including green walls, roofs and facades, where practicable. c) The RPV Creative Strategy. d) Wayfinding, signage and advertising for above ground elements of the Project. 2. The strategies must be developed in consultation with relevant local councils and land managers. (See EPR LV1).	All	Design
Landscape and Visual (LV)			
LV1	1. Prior to commencement of relevant works, develop and implement a plan for the design of permanent and temporary works, including temporary landscaping, in consultation with relevant local councils and the Office of Victorian Government Architect to comply with the Melbourne Metro Urban Design Strategy. Avoid or minimise, to the extent practicable, visual impacts in both duration and intensity on sensitive receptors and heritage places, and maintain broader landscape character and heritage precinct values, particularly in relation to: a) Tunnels: Queen Victoria Gardens, Tom's Block. b) Western Portal: JJ Holland Park. c) Parkville Station: University of Melbourne, Victorian Comprehensive Cancer Centre, Royal Melbourne Hospital, University Square.	All	Construction / Operation

No	Environmental Performance Requirements	Precinct	Timing
	d) CBD North Station: RMIT University, the State Library and State Library Forecourt, City Baths, and A'Beckett Street open space. e) CBD South Station: St Paul's Cathedral, Federation Square, City Square, Flinders Street Station, Young and Jackson Hotel. f) Domain Station: The Shrine of Remembrance, Shrine of Remembrance Reserve, St Kilda Road, Albert Road Reserve, Domain Parklands. g) Eastern Portal: South Yarra Sidings Reserve, Osborne Street, Lovers Walk Pedestrian Walk. h) Existing habitat corridors within and proximate to Moonee Ponds Creek, if the alternate substation site adjacent to the Moonee Ponds Creek is selected. 2. Consult with University of Melbourne in relation to location and design of station entries on University land.		
LV2	1. 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 and enhance public open space, recreation reserves and other valued places disturbed by temporary works. Some of these are heritage places and further consultation will be required. 2. The plan must include, but not be limited to, a methodology and timeframe for storage, reinstatement or replacement of existing public art, monuments and public infrastructure such as poles (including banner poles), bins, and other street furniture such as wayfinding signage (including signage hubs). 3. Where temporary works on public open space, recreation reserves and other valued places disturb trees in these locations, the plan must be consistent with measures proposed under plans and actions required under EPR AR1, AR2 and AR3 regarding reinstatement of trees. 4. The plan should include a timeframe for re-establishment of public open space, recreation reserves and other valued places disturbed by temporary works and should also include exploring opportunities for renewal of public spaces for the benefit of communities beyond resident groups, including visitors, business owners and commuters.	All	Design / Construction
LV3	1. Prior to commencement of relevant works where temporary lighting is required, develop measures to minimise light spillage during construction to protect the amenity of adjacent neighbourhoods, parks and community facilities. Lighting for operation must be designed in accordance with council requirements and relevant standards.	All	Construction
LV4	1. Develop and implement a plan to consider the use of temporary landscape and other temporary features or structures during construction. Temporary landscape treatments or features should be reused across the Project, where appropriate.	All	Pre-construction

No	Environmental Performance Requirements	Precinct	Timing
Noise and Vibration (NV)			
NV1	1. Manage construction noise in accordance with EPA Publication 1254 Noise Control Guidelines and as specified in the Construction Noise and Vibration Management Plan (CNVMP) prepared under EPR NV21. The CNVMP must not prescribe standards or practices which are less rigorous than recommended by EPA Publication 1254.	All	Construction
NV2	1. 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: a) 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. b) 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. c) 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). d) 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). Other management actions to ensure the integrity of the heritage building may be employed if considered to be appropriate. (See EPR CH24).	All	Construction

No	Environmental Performance Requirements	Precinct	Timing
NV3	**Noise and Vibration Modelling – Design** 1. Prior to commencement of shaft construction and prior to commencement of main works, each Works Package contractor must appoint a suitably qualified 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 is to be used to determine appropriate mitigation to achieve the EPRs. 2. The acoustic and vibration consultant must document the modelling and mitigation investigation in a Construction Noise and Vibration Assessment Report for review by the Independent Environmental Auditor. This report must provide the basis for the development of the construction noise and vibration management plan required under EPR NV21. 3. The model must consider airborne noise to residential and non-residential receivers, ground-borne noise at residences, blasting vibration and ground-borne vibration. (For heritage places see EPR CH24).	All	Design
NV4	**Noise and Vibration Monitoring - Construction** 1. Prior to commencement of shaft construction and prior to commencement of main works, each Works Package contractor must appoint a suitably qualified acoustic and vibration consultant to undertake noise and vibration monitoring. 2. The acoustic and vibration consultant must undertake noise and vibration monitoring to assess levels with respect to any Guideline Targets specified in the EPRs. Where monitoring indicates exceedances of Guideline Targets, appropriate management actions must be implemented as soon as possible. 3. The model developed during the Design Stage should be updated / calibrated using the results of the noise and vibration monitoring to provide more accurate predictions of the noise and vibration levels associated with ongoing and future construction works. It may be appropriate to adjust management measures as a result of the more accurate predictions. (For heritage places see EPR CH24).	All	Construction
NV5	1. Prior to commencement of project works, each Works Package contractor must prepare and implement a communications plan to liaise with potentially affected community stakeholders and land owners regarding potential noise and vibration impacts. The plan must include procedures for complaint management as per SC3. In developing the plan, consult with relevant local councils, EPA Victoria, the Parkville Precinct Reference Group and RMIT University and other precinct reference groups, as appropriate.	All	Construction

<table>
<tr><th>No</th><th>Environmental Performance Requirements</th><th>Precinct</th><th>Timing</th></tr>
<tr><td></td><td>(See EPRs SC4 and SC11).</td><td></td><td></td></tr>
<tr><td>NV6</td><td>Airborne Construction Noise Guideline Targets (External)
1. Implement management actions if construction noise is predicted to or does exceed the Guideline Noise Levels at residential locations as specified in EPA Publication 1254.
<table>
<tr><th rowspan="2">Time Period</th><th rowspan="2">Applicable Hours</th><th colspan="2">Guideline Noise Levels, L_{Aeq}</th></tr>
<tr><th>Up to 18 months after project commencement</th><th>18 months or more after project commencement</th></tr>
<tr><td>Normal Working Hours</td><td>7am to 6pm Monday to Friday
7am to 1pm Saturday</td><td colspan="2">No specified Guideline Noise Levels are provided in EPA 1254 – Refer to EPR NV21 for the noise management levels (see note 1)</td></tr>
<tr><td>Weekend / Evening work</td><td>6pm to 10pm Monday to Friday
1pm to 10pm Saturday
7am to 10pm Sunday and Public Holidays</td><td>Noise level at any residential premises not to exceed background noise by 10 dB(A) or more.</td><td>Noise level at any residential premises not to exceed background noise (L_{A90}) by 5 dB(A) or more.</td></tr>
<tr><td>Night</td><td>10pm to 7am Monday to Sunday</td><td colspan="2">Noise is to be inaudible within a habitable room of any residential premises.</td></tr>
</table>
Note
(1) During Normal Working Hours, the CNVMP must address noise levels that exceed the Management Levels specified in Table EPR NV21A.</td><td>All</td><td>Construction</td></tr>
<tr><td>NV7</td><td>Airborne Construction Noise Guideline Targets (Internal)
1. Implement management actions if construction noise:
a) Is predicted to or does exceed the internal noise levels below for Sensitive Areas (based on AS/NZS 2107:2000); and
b) Adversely impacts a noise sensitive receptor within the Sensitive Area.</td><td>All</td><td>Construction</td></tr>
</table>

<table>
<tr><th>No</th><th>Environmental Performance Requirements</th><th>Precinct</th><th>Timing</th></tr>
<tr><td></td><td>
<table>
<tr><th>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>
<tr><td>Classrooms at schools and other educational institutions</td><td>45</td></tr>
<tr><td>Places of Worship</td><td>45</td></tr>
<tr><td>Other Noise Sensitive Areas (including theatres, concert halls, child care centres, etc)</td><td>Depends on intended use.
Refer to max levels in AS2107.</td></tr>
</table>
2. If construction exceeds the internal noise levels above:
a) Consider the duration of construction noise
b) Consider the relevant ambient noise levels
c) Consult with the owner or operator of the noise sensitive receptor
d) Consider any specific acoustic requirements of specialist space
to determine whether a noise sensitive receptor within a Sensitive Area is adversely impacted and, if so, whether further management actions are required.
(See EPR NV21, subclause B).</td><td></td><td></td></tr>
<tr><td>NV8</td><td>Vibration Guideline Targets for Structures
1. 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.</td><td>All</td><td>Design / Construction</td></tr>
</table>

No	Environmental Performance Requirements	Precinct	Timing

Table NV8-1: Short-term vibration on structures

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

Notes

(1) *It may be appropriate to modify the guideline targets for particular structures following the completion of pre-construction condition surveys.*

(2) *At frequencies above 100 Hz, the values given in this column may be used as minimum values.*

(3) *Vibration levels marginally exceeding the DIN4150 guideline targets in the table above would not necessarily result in damage to buildings and structures, but warrant further investigation to determine if higher vibration levels can be accommodated without risk of damage.*

(4) *For civil engineering structures (e.g. with reinforced concrete constructions used as abutments or foundation pads) the DIN 4150 guideline targets for Type 1 buildings in the table above may be increased by a factor of 2.*

(5) *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.*

<table>
<tr><th>No</th><th>Environmental Performance Requirements</th><th>Precinct</th><th>Timing</th></tr>
<tr><td></td><td>(6) Where land owners agree, pre-construction condition surveys must be performed at all properties located within designated Project Area where it is predicted that DIN 4150 guideline targets will be exceeded.</td><td></td><td></td></tr>
<tr><td></td><td>Table NV8-2: 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) It may be appropriate to modify the guidelines targets described in the table above for particular structures following the completion of pre-construction condition surveys.
(2) Vibration levels marginally exceeding those 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) Long-term vibration means vibration events that may result in a resonant structural response.
(4) Where land owners agree, pre-construction condition surveys must be performed at all properties located within designated Project Area where it is predicted that the Guideline Targets described in the Table above will be exceeded.</td><td></td><td></td></tr>
<tr><td>NV9</td><td>Vibration Guideline Targets for Above-ground Utility Assets and Infrastructure
1. Prior to commencement of relevant works, undertake condition assessments of above ground utility assets and infrastructure, including (but not limited to) the Arden Street Bridge and Princes Bridge, to establish construction vibration limits in consultation with asset owners.
2. Monitor vibration during construction to demonstrate compliance with the relevant vibration guideline targets under NV8 or those agreed with the asset owners. Take remedial action if limits are not met.
(See EPRs CH3 and CH24).</td><td>All</td><td>Construction</td></tr>
</table>

<table>
<tr><th>No</th><th>Environmental Performance Requirements</th><th>Precinct</th><th>Timing</th></tr>
<tr><td>NV10</td><td>
Vibration Guideline Targets for Below-ground Infrastructure
1. Prior to commencement of relevant works, undertake condition assessments of below-ground infrastructure, including (but not limited to) Swanston Street Brick Drain and Flinders Street Drain, to establish construction vibration targets with the asset owner.
2. Implement management actions if agreed construction vibration targets (or if no specific targets have been established 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) The DIN 4150 Guideline Targets may be reduced by 50% when evaluating the effects of long-term vibration on buried pipework.
(2) The DIN 4150 Guideline Targets are based on the assumption that 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 asset owner's Utility Standards is to be achieved.
</td><td>All</td><td>Construction</td></tr>
</table>

<table>
<tr><th>No</th><th>Environmental Performance Requirements</th><th>Precinct</th><th>Timing</th></tr>
<tr><td>NV11</td><td>
Vibration Dose Values (VDVs) (Human Comfort)
1. Implement management actions if the following Guideline Targets (VDVs) (based on 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/s1.75)</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 under EPR NV21.
</td><td>All</td><td>Construction</td></tr>
<tr><td>NV12</td><td>
Sensitive Equipment Guideline Targets
1. <u>For Construction:</u> Implement management actions (which may include source mitigation) if equipment manufacturer specifications, measured background levels or other agreed levels (after consultation with the affected organisation) whichever are higher, are expected to be or are exceeded for vibration sensitive equipment at the Parkville and CBD North precincts.
2. <u>For Operation</u>: If the manufacturer’s specification or measured background levels (whichever are higher) or other agreed levels (after consultation and agreement from the affected organisation) are predicted to be exceeded, assess practicable mitigation to reduce the vibration levels to the relevant target.
3. Where equipment manufacturer specifications are not available for vibration, adopt the applicable ASHRAE Equipment Vibration Guideline Targets:
</td><td>4 - Parkville
5 – CBD North</td><td>Design / Construction / Operation</td></tr>
</table>

No	Environmental Performance Requirements	Precinct	Timing

Equipment requirements	Curve
Bench microscopes up to 100x magnification; laboratory robots	Operating Room
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	VC-A
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 3 micron line widths	VC-B
Electron microscopes up to 30,000x magnification; microtomes; magnetic resonance images; microelectronics manufacturing equipment such as lithography and inspection equipment to 1 micron detail size	VC-C
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 micron; includes electron beam systems	VC-D
Unisolated laser and optical research systems; microelectronics manufacturing equipment such as aligners, steppers and other critical equipment for photolithography with line widths of ¼ micron; includes electron beam systems	VC-E

Notes

(1) *Background vibration and noise must be measured in accordance with equipment environmental test requirements.*

(2) *Monitoring must be undertaken in accordance with equipment specifications to demonstrate compliance, and monitoring locations determined in consultation with operators of sensitive equipment (See EPR NV21).*

(3) *The proponent may undertake consultation with the users and agree alternative Guideline Targets for Construction and/or Operation phases.*

(4) *Subject to being given the asset owner's consent, during the construction phase, a continuous monitoring program must be adopted (to the asset owner's agreement), with asset owner access to monitoring data using an alert with respect to a 'limit' approach.*

<table>
<tr><th>No</th><th>Environmental Performance Requirements</th><th>Precinct</th><th>Timing</th></tr>
<tr><td>NV13</td><td>Ground-borne (internal) Noise Guideline Targets for Amenity
1. Implement management actions as agreed 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 are exceeded during construction (See Table below based on NSW Interim Construction Noise Guidelines 2009).
2. Implement management actions, as determined in consultation with potentially affected land owners, where ground-borne noise levels unreasonably limit usage in educational institutions such as lecture theatres.
<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.
(4) The levels for the Night and Evening periods are shown to protect amenity and sleep. Alternative and day time targets may be determined in consultation with potentially affected non-residential users where ground-borne noise levels may unreasonably limit the usage of the spaces (e.g. lecture theatres).</td><td>All</td><td>Construction</td></tr>
<tr><td>NV14</td><td>Blasting
1. Comply with Australian Standard AS2187.2-2006, Explosives –Storage and use Part 2 – Use of explosives for all blasting.
2. For intensive care wards, hospital wards, operating theatres, surgeries and Bio-resources and areas with vibration-sensitive equipment which are not covered in AS2187.2-2006, agree a plan with facilities owners that:
a) Avoids damage to vibration sensitive equipment.
b) Minimises adverse impact on Sensitive Areas and limits adverse impacts on Bio-resources.</td><td>4 – Parkville</td><td>Construction</td></tr>
</table>

No	Environmental Performance Requirements	Precinct	Timing
NV15	**Bio-Resources and Sensitive Research** 1. Implement management actions where the following guideline targets (based on *Code of Practice for the Housing and Care of Laboratory, Mice and Rats – Department of Primary Industries, Victoria, 2004*) are expected to be or are exceeded for areas housing bio-resources: a) Background noise should be below 50 dBL (internal) and should be free of distinct tones. b) Short exposure should be less than 85 dBL (internal). c) Any alternative noise level agreed with the owner of the bio-resources. **Notes** (1) *The nominated levels are guideline targets for both construction and operation.* (2) *The levels above should take into consideration the limited frequency range associated with hearing for the Bio-resource under consideration.* (3) *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) *Noise includes airborne and ground-borne noise at the sensitive receptors.* (5) *Consider the existing ambient noise levels when assessing predicted exceedances.* (6) *During the construction phase, a continuous monitoring program must be implemented in accordance with EPR NV21 .* (7) *Consideration should be given to adopting a vibration limit in agreement with the RPV and stakeholders.*	4 – Parkville 5 – CBD North	Construction
NV16	**Noise and Vibration Modelling** 1. Design Phase a) Appoint a suitably qualified acoustic and vibration consultant to predict and assess operational noise and vibration and determine practicable mitigation measures necessary to achieve the EPRs. b) The acoustic and vibration consultant must prepare an Operation Noise and Vibration Report for review by the Independent Environmental Auditor, which documents the predictions and mitigation measures. 2. Commissioning / Operation a) Appoint a suitably qualified acoustic and vibration consultant to undertake commissioning noise and vibration measurements to assess levels with respect to the EPRs.	All	Design / Operation

<table>
<tr><th>No</th><th>Environmental Performance Requirements</th><th>Precinct</th><th>Timing</th></tr>
<tr><td>NV17</td><td>
Victorian Passenger Rail Infrastructure Noise Policy (PRINP)
1. 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
(6 am - 10 pm)</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
(10 pm - 6 am)</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 Investigation Thresholds are not exceeded, then no further action is considered under the PRINP.
(2) The barrier thresholds of the PRINP are to be used as the design targets for the barrier heights and configuration.
(3) If the Investigation Thresholds cannot be achieved with the installation of barriers or other on-reservation treatment then off-reservation treatment such as upgrades to residential building facades must be considered. Such treatments should be designed to meet the following internal noise levels where practicable to do so and subject to landowner consent:
a. Maximum noise levels of trains should not exceed 50 dB LAMax in bedrooms.
b. Maximum noise level of trains should not exceed 60 dB LAMAx in living areas.
(4) LAmax, 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
(5) 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>Design / Operation</td></tr>
<tr><td>NV18</td><td>Noise from Fixed Plant
1. For operation, noise from fixed plant associated with Melbourne Metro must:</td><td>All</td><td>Design / Operation</td></tr>
</table>

No	Environmental Performance Requirements	Precinct	Timing
	a) Comply with State Environment Protection Policy (Control of Noise from Commerce, Industry and Trade) No. N-1 (SEPP N-1). b) Where SEPP N-1 does not apply, comply with the internal Satisfactory Recommended Design Sound Levels as defined in AS/NZS 2107 for the following sensitive areas: i. Teaching spaces ii. Laboratories iii. Conference rooms iv. Libraries v. Music studios vi. Operating Theatres / Surgeries vii. Wards / Recliners viii. Performance spaces / Galleries ix. Places of worship 2. If the existing internal background noise level within any of the above areas exceeds the Maximum Recommended Design Sound Level in AS/NZS 2107, then noise from the fixed plant associated with the Melbourne Metro Project must not exceed the existing background levels within these spaces at the commencement of operation. 3. This does not apply to noise generated by trains and/or trams.		

<table>
<tr><th>No</th><th>Environmental Performance Requirements</th><th>Precinct</th><th>Timing</th></tr>
<tr><td>NV19</td><td>
Ground-borne Noise Guideline Targets for Operation
1. Where operational ground-borne noise Guideline Target levels, as shown in the table below (based on NSW EPA Rail Infrastructure Noise Guideline, May 2013), are exceeded for a sensitive land use, assess and implement practicable mitigation to reduce the noise level so that it either meets or achieves noise levels as close as practicable to the Guideline Target.
<table>
<tr><th>Sensitive land use</th><th>Time of day</th><th>Internal ground-borne noise Guideline Targets</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) Specified noise levels refer to noise from heavy or light rail transportation only (not ambient noise from other sources).
(2) Assessment location is internal near to the centre of the most affected habitable room.
(3) LASmax refers to the maximum noise level not exceeded for 95% of the rail pass-by events.
(4) For schools, educational institutions, places of worship the lower value of the range is most applicable where low internal noise levels is expected.
(5) The values for performing arts spaces may need to be reassessed to address the specific requirements of a venue.
</td><td>All</td><td>Operation</td></tr>
</table>

<table>
<tr><th>No</th><th>Environmental Performance Requirements</th><th>Precinct</th><th>Timing</th></tr>
<tr><td>NV20</td><td>
Vibration Guideline Targets for Operation
1. During operation, achieve the following guideline targets (based on Table 1 in BS6472-1:2008) or background levels (whichever is higher) for vibration as follows:
<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.
(2) Compliance with these values implies no structural damage due to operation.
</td><td>All</td><td>Operation</td></tr>
<tr><td>NV21</td><td>
Construction Noise and Vibration Management Plan
1. Prior to commencement of project works, each Works Package contractor must develop and implement a Construction Noise and Vibration Management Plan (CNVMP) in consultation with EPA Victoria and the relevant councils. The CNVMP must comply with and address Noise and Vibration EPRs, be informed by the modelling undertaken by the acoustic and vibration consultant in accordance with EPR NV3 and must include (but not be limited to):
a) Identification of sensitive receivers along Melbourne Metro’s alignment.
b) Details of construction activities and an indicative schedule for construction works, including the identification of key noise and/or vibration generating construction activities (based on representative construction scenarios, including at ancillary facilities) that have the potential to generate noise and/or vibration impacts on surrounding sensitive receivers.
</td><td>All</td><td>Construction</td></tr>
</table>

No	Environmental Performance Requirements	Precinct	Timing

2. The CNVMP must include the following:

A. Airborne Noise Management Levels during Normal Working Hours

A1. The CVNMP must adopt daytime Management Levels for airborne noise at residences during Normal Working Hours (as defined in EPR NV6) in accordance with Table NV21-A. The Management Level in Table NV21-A is not a noise limit or target, but represents noise levels above which community reaction may be adverse and which should trigger management actions to minimize the noise impact.

Table NV21-A Airborne Noise Management Levels during Normal Working Hours

Construction noise level	How to apply
Background noise level +10 dB	The noise affected level represents the point above which there may be some community reaction to noise. Where the predicted or measured $L_{Aeq\ (15\ min)}$, due to construction noise from the Melbourne Metro project, is greater than the noise affected level, the proponent should apply all practicable work practices to meet the noise affected level. The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.
75 dB(A)	The highly noise affected level represents the point above which there may be strong community reaction to noise. Where construction noise from the Melbourne Metro project is above this level, the relevant authority may require respite periods by restricting the hours that the very noisy activities can occur, taking into account: 1. times identified by the community when they are less sensitive to noise (such as before and after school for works near schools, or mid-morning or mid-afternoon for works near residences 2. if the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.

Note

(1) *Outside of Normal Working Hours, the Guideline Noise Levels in NV6 (which are adopted from EPA Publication 1254) apply.*

No	Environmental Performance Requirements	Precinct	Timing
	(2) *Noise levels based on the NSW Interim Construction Noise Guidelines 2009.* **A2.** In addition to the Management Levels shown in Table NV21-A, the Guideline Targets shown in EPRs NV6 and NV7 are to be adopted and addressed in the CNVMP. **B. Airborne Noise Mitigation Measures** **B1.** Identification of reasonable and practicable measures to be implemented to manage construction noise impacts in accordance with : i. EPA Publication 1254 Noise Control Guidelines ii. NSW ICNG (excluding Part 5, and Part 7.2.1 which relates to pre-approval documentation relevant to NSW) and TfNSW Construction Noise Strategy (but with Section 7 construction hours as per EPA1254 as shown in EPR NV6). **B2.** Any management actions to be implemented if predicted noise levels exceed, for an extended period of time, the guideline targets specified in EPRs NV6 or NV7 or the Management Levels in Table NV21-A. **B3.** Measures to be implemented in accordance with the RPV Residential Impact Mitigation Guidelines including (but not limited to) mitigation measures for out of hours works (including unavoidable works) where predicted noise levels exceed the noise levels specified in the Residential Impact Mitigation Guidelines. **C. Vibration: Structures** **C1.** Identification of any alternative vibration guideline targets to those specified in EPRs NV8, NV9 or NV10 deemed necessary and/or appropriate to protect the structural integrity of structures based on pre-construction condition surveys, undertaken in accordance with CH24, GM4 and NV9 (or as otherwise required to assess the impact of vibration on structures along the alignment). **C2.** Identification of practicable measures to be implemented to manage construction vibration impacts in accordance with the: i. Vibration guideline targets for structures specified in, or otherwise determined in accordance with, EPR NV8 ii. Construction vibration limits for above ground utility assets determined in accordance with EPR NV9 iii. Vibration guideline targets for below ground infrastructure specified in, or as otherwise determined in accordance with NV10.		

No	Environmental Performance Requirements	Precinct	Timing
	C3. Any management actions to be implemented if predicted vibration levels exceed the guideline targets specified in EPRs NV8, NV9, or NV10. **C4.** Specific heritage measures where relevant in accordance with EPRs CH2 and CH24. **D. Vibration and Ground-borne Noise: Human Comfort** **D1.** Identification of reasonable and practicable measures to be implemented to manage construction vibration and ground-borne noise impacts in accordance with the: i. Vibration dose values for human comfort specified in EPR NV11 (which may be expressed as peak particle velocity rates for the purposes of the CVNMP). ii. Ground-borne (internal) noise guideline targets for amenity specified in EPR NV13. **D2**. Any management actions to be implemented if predicted vibration or ground-borne noise levels exceed, for an extended period of time, the guideline targets identified in EPRs NV11 or NV13. **D3.** Any measures to be implemented in accordance with the Residential Impact Mitigation Guidelines including (but not limited to) mitigation measures for out of hours works (including unavoidable works) where ground-borne noise levels are predicted to exceed the ground-borne noise construction targets specified in the Residential Impact Mitigation Guidelines. **E. Vibration and Ground-borne Noise: Sensitive Equipment and Bio-resources** **E1.** Identification of reasonable and practicable measures, to be determined following consultation with the Parkville Precinct Reference Group and RMIT University, to be implemented to manage construction vibration and ground-borne noise impacts in accordance with the: i. Vibration sensitive equipment guidelines specified in, or as otherwise determined in accordance with EPR NV12 ii. Bio-resource guideline targets specified in, or as otherwise determined in accordance with EPR NV15. **E2.** Any management actions to be implemented if predicted vibration or ground-borne noise levels exceed the guideline targets identified in EPRs NV12 or NV15. **F. Blasting** **F1.** If blasting is proposed, an assessment of the potential noise and vibration impacts associated with blasting activities, and the identification of measures to ensure compliance with Australian Standard AS2187.2-2006 as specified in EPR NV14.		

No	Environmental Performance Requirements	Precinct	Timing
	F2. Any measures to be implemented in accordance with the Residential Impact Mitigation Guidelines. **G. Community Consultation** **G1.** Details of all community consultation measures to be implemented in accordance with NV5 and SC3 including: i. Any precinct-specific community consultation measures; and ii. The establishment of measures concerning complaints management. **H. Haulage** **H1.** Operational procedures and controls that minimise truck noise, including, but not limited to, consideration of the following: i. Where reasonable and practicable, limit heavy construction vehicle movements to Normal Working Hours (as defined by the EPA) providing this limitation does not include vehicles essential to maintaining construction operations ii. Where practicable, select traffic routes to limit the amount of accelerating and braking, prioritise routes with existing heavy vehicle usage where possible, and avoid local roads (e.g. residential streets), particularly for 24-hour activities iii. Install 'no engine braking' signs on designated routes iv. Ensure trucks are fitted with mufflers that comply with the original equipment manufacturer specifications and relevant EPA in-service noise requirements v. Enforce speed restrictions on all construction vehicles vi. Complete regular maintenance checks of road surfaces and trucks vii. Implement temporary changes to traffic light sequences on designated routes to minimise trucks starting and stopping at junctions viii. Monitor construction vehicle driver behaviour ix. Identify suitable locations for trucks to idle pending arrival at construction sites x. Minimise the need for trucks to reverse and require the use of broadband reverse alarms xi. Address to the extent practicable noise from any truck wash required for vehicles leaving construction sites (particularly at night).		

No	Environmental Performance Requirements	Precinct	Timing
	I. Monitoring **I1.** Mechanisms to ensure effective monitoring of noise and vibration associated with construction in accordance with EPR NV4, including: i. Vibration and noise measurement methodologies for monitoring both baseline and construction levels, including details of the parameters to be obtained, the measurement equipment, and relevant standards to be adhered to for the collection and analysis of data ii. Baseline and construction noise and vibration monitoring locations iii. The most critical periods, whether determined separating distance or ground conditions, and the duration of monitoring periods iv. Specific measures, to be determined following consultation with relevant stakeholders, with respect to sensitive equipment and biological resources (which must, where practicable, include continuous monitoring during construction) v. How the results of monitoring would be recorded, reported, and interpreted. **J. Unavoidable Work** **J1.** The following Unavoidable Works may need to be undertaken outside of Normal Working Hours: i. The delivery of oversized plant or structures that police or other authorities determine require special arrangements to transport along public roads ii. Emergency work to avoid the loss of life or damage to property, or to prevent environmental harm iii. Maintenance and repair of public infrastructure where disruption to essential services and/or considerations of worker safety do not allow work within standard hours iv. Tunnelling works including mined excavation elements and the activities that are required to support tunnelling works (i.e. spoil treatment facilities) v. Rail occupations or works that would cause a major traffic hazard vi. Works where a proponent demonstrates and justifies a need to operate outside normal working hours such as work that once started cannot practically be stopped until completed such as a concrete pour or construction of diaphragm walls. **J2.** Prior approval must be obtained for the above work to be undertaken outside of Normal Working Hours (except for item ii). In all cases management actions would need to be applied as per the Residential Impact Mitigation		

No	Environmental Performance Requirements	Precinct	Timing
	Guidelines and practicable mitigation measures employed to reduce the impact of the noise. All other works must comply with the Guideline Noise Levels in EPR NV6. **J3.** For unavoidable work: i. Approval for planned unavoidable works can only be granted by the Independent Environmental Auditor ii. Details of unavoidable works including the type of work, equipment to be used and duration of works must be made publicly available iii. For emergency unavoidable work, the proponent must provide a rationale to the satisfaction of the Independent Environmental Auditor as soon as practicable.		
Social and Community (SC)			
SC1	1. Reduce as far as is practicable the disruption to residences from direct acquisition or temporary occupation through measures such as: i. Using a case management approach for all Project interactions with affected landowners ii. Appointing a social worker, buyers' advocate or equivalent to assist households with special needs to manage the transition iii. Taking into account relative vulnerability and special needs of occupants iv. Purchasing properties early when supported by the landowner.	All	Pre-Construction
SC2	1. Prior to commencement of relevant works in areas affected, develop a relocation management framework that responds to the Residential Impact Mitigation Guidelines to ensure a consistent approach across the Project for the voluntary (temporary) relocation of households subject to: a) Construction activities likely to unduly affect their amenity (e.g. out of hours works or sustained loss of amenity during the day for residences with special circumstances such as shift workers) b) Loss of access.	All	Pre-Construction

No	Environmental Performance Requirements	Precinct	Timing
SC3	**Community and Stakeholder Engagement Management Framework (CSEMF)** 1. RPV must develop a Community and Stakeholder Engagement Framework to outline the principles and approach to advising key stakeholders and other potentially affected stakeholders across the Project of the construction activities. a) The CSEMF will cover all stages of work including early works and mains works for all contract works packages. b) The CSEMF will inform the CSEMP prepared by each contract works package. 2. The CSEMF must provide for any interested stakeholder to be able to register their contact details to the Project webpage to ensure they are included and automatically advised of planned construction activities, Project progress, mitigation measures and intended reinstatement measures where applicable. 3. The CSEMF must document a complaints management process in accordance with EPR EMF4. 4. The CSEMF must be approved by the Minister for Planning prior to the commencement of early works.	All	Pre-Construction
SC4	**Community and Stakeholder Engagement Management Plan (CSEMP)** 1. Prior to the commencement of Project works, each works package contractor must develop and implement a Community and Stakeholder Engagement Management Plan (CSEMP) in accordance with the CSEMF, to engage potentially affected stakeholders individually or through groups such as the Precinct Reference Groups. The CSEMP should advise potentially affected stakeholders of the planned construction activities, Project progress, mitigation measures and intended reinstatement measures where applicable. 2. The CSEMP should integrate all Project activities that potentially impact on community and business operations as well as provide for and direct a well-coordinated communication and engagement process. The plan must include: a) Measures to minimise impacts to the development and/or operation of existing facilities including ensuring replacement power, network or other utility services are provided, if necessary and where practicable, where any disruption to such service is likely. b) Measures for providing advance notice of significant milestones, changed traffic conditions, interruptions to utility services, changed access and parking conditions, periods of predicted high noise and vibration activities. c) Measures for communicating the design of and results from environmental monitoring programs (e.g. vibration, noise, dust, ground movement). d) Process for informing landowners about pre-condition property surveys (as stated in EPRs GM4 and NV5).	All	Pre-Construction

No	Environmental Performance Requirements	Precinct	Timing
	e) Process for notifying key stakeholders and the public of the release of early works plans or development plans for public inspection and comment. f) Process for registering, managing and resolving complaints consistent with Australian Standard AS/NSZ 10002:2014 *Guidelines for Complaint Management in Organisations*. g) Measures to address any other matters which are of concern to potentially affected stakeholders through the construction of the Project. 3. The plan must consider each precinct and station location in detail. Stakeholders to be consulted relevant to each precinct and considered in the plan include: a) Local councils b) Land managers c) Potentially affected residents d) Potentially affected businesses e) Recreation, sporting and community groups and facilities f) Royal Melbourne Hospital, Victorian Comprehensive Cancer Centre, Peter Doherty Institute and other health and medical facilities g) The University of Melbourne h) RMIT University i) Melbourne Grammar School j) Other public facilities in proximity.		
SC5	1. Prior to commencement of shaft construction, work with the City of Melbourne to identify if there are any suitable areas for use as alternative public open space, incorporating vegetation, and establish for community use during the construction phase to minimise the impacts of loss of the City Square.	6 – CBD south	Pre-construction
SC6	1. Work with relevant local councils to plan for and coordinate with key stakeholders during major public events. This should include, but not be limited to: a) Timely provision of construction schedules to allow for appropriate event planning. b) Timely notification of schedule changes that may impact upon major public events. c) Consideration of appropriate alternative sites and routes for events and parades.	All	Construction

No	Environmental Performance Requirements	Precinct	Timing
SC7	1. In consultation with the relevant local councils, develop a relocation strategy for sports clubs and other formal users of directly impacted recreational facilities. This strategy should aim to identify available local alternative facilities for formal recreational users displaced from recreational facilities by the Project. This strategy should avoid displacing existing users at alternative facilities and provide adequate notification to clubs to minimise the impact of relocation.	All	Construction
SC8	1. In consultation with relevant local Councils and key stakeholders, and in accordance with the Melbourne Metro Urban Design Strategy, relevant statutory approvals and other relevant requirements: a) 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 b) Re-establish sites impacted by construction works, to be generally in accordance with adopted open space master plans, and conservation management plans (where appropriate), including (but not limited to): i. Childers Street, Kensington ii. JJ Holland Park iii. Royal Parade and Grattan Street, Parkville iv. City Square v. Federation Square vi. The south western entrance of the proposed CBD South station vii. St Kilda Road boulevard viii. Edmund Herring Memorial Oval ix. Osborne Street Reserve x. South Yarra Sidings Reserve xi. Lovers Walk xii. A'Beckett Street open space xiii. The South African Soldiers Memorial. (See EPRs LV1, LV2 and LU2).	All	Design / Construction

No	Environmental Performance Requirements	Precinct	Timing
SC9	1. 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	Design / Construction
SC10	1. Prior to commencement of relevant works, provide written notice to adjoining landholders of any works to be carried out in a precinct. Such notice must advise of the works to be undertaken, the duration of those works, what local impacts might occur and contact details for further information.	All	Construction
SC11	1. Prior to commencement of relevant works, establish a Parkville Reference Group comprising an independent chair, relevant government agencies including RPV, PTV/ DEDJTR (Transport), VicRoads, the Victorian Department of Health and Human Services, Ambulance Victoria, Yarra Trams, and key institutions in the Parkville Precinct as detailed in RPV Technical Note 044 Parkville Precinct Reference Group (19 August 2016) document number 21 and tabled 22 August 2016.	4 – Parkville	Construction
SC12	1. In addition to EPR SC11, RPV to establish Precinct Reference Groups as required for all other Project precincts, which collectively provide for representation of interested and relevant stakeholders. 2. These groups should be configured in a way that broadly satisfies the recommendation in the Minister's Assessment and which also allows each Group to function coherently and effectively. Each Precinct Reference Group should have an independent chair.	All (except 4 – Parkville)	Construction
Surface Water (SW)			
SW1	1. Prior to commencement of relevant works, 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. 2. The design of these works must be informed by a flood immunity risk assessment that considers a range of events, and to the requirements and satisfaction of Melbourne Water and/or the relevant council. 3. The flood immunity risk assessment referred to above must address all portal areas (or other flood entry points) for the existing Melbourne Underground Rail Loop, or similar secondary infrastructure items that may allow for flood entry into the Project.	All (except western turnback)	Design / Construction/ Operation

No	Environmental Performance Requirements	Precinct	Timing
SW2	1. For all precincts, to the satisfaction of the responsible waterway management authority: a) Undertake modelling of the design of permanent and temporary works to demonstrate the resultant flood levels and risk profile b) Maintain existing flood plain storage capacity potentially impacted by the Project c) Ensure that permanent and associated temporary construction works do not increase flood levels to result in additional flood risk d) 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 e) Undertake stormwater modelling of the design of permanent and temporary works to demonstrate the resultant stormwater quantity and quality response to the Project. 2. For all Precincts adopt WSUD and integrated water management principles in the stormwater design, as required through the Melbourne Metro Urban Design Strategy, and to the requirements of the relevant local council.	All	Construction/ Operation
Transport (T)			
T1	**Traffic and Transport Working Group** 1. RPV must establish and maintain a Traffic and Transport Working Group (TTWG), working under a terms of reference determined by RPV, and comprising relevant representatives from RPV, PTV / DEDJTR (Transport), road management authorities, relevant councils, relevant public transport providers and other relevant agencies as required. 2. The TTWG will be responsible for reviewing and providing feedback on: a) Transport management plans. b) Relevant designs and methodologies for monitoring implementation of transport management plans. c) Transport modelling and proposed transport network upgrades to mitigate the transport effects of constructing the Project. 3. The TTWG must also: a) Invite other key affected stakeholders to present or attend where matters specific to those stakeholders in the relevant precincts are being discussed or addressed, carried out consistent with the Community and Stakeholder Engagement Management Plan/s under EPR SC4;	All	Construction

No	Environmental Performance Requirements	Precinct	Timing
	b) Provide feedback to the key affected stakeholders on how their comments or matters of interest or concern are addressed in transport management plans; and c) Advise those key affected stakeholders of potential impacts and proposed traffic and transport mitigations, and consider stakeholders' responses on these matters in providing feedback on the transport management plans required under EPRs T2 and T3.		
T2	**Transport Management Plans** 1. Prior to commencement of relevant works, each Works Package contractor must develop a transport management plan(s) in consultation with the Traffic and Transport Working Group and implement the plan(s) to minimise disruption to affected local land uses, traffic, car parking, on-road public transport, pedestrian and bicycle movements and existing public facilities during all stages of construction. 2. The transport management plan(s) must be prepared for each precinct, and also be coordinated across the whole Project to provide an overall transport management plan for the Project. 3. The transport management plan(s) must be informed and supported by an appropriate level of transport modelling, as agreed by the TTWG, and must include, but not be limited, to: a) Management of any temporary or permanent full or partial closure of traffic lanes including (but not limited to): i. Childers Street, Tennyson Street and Lloyd Street, Kensington. ii. Arden Street, Langford Street and Laurens Street, North Melbourne. iii. Royal Parade, Grattan Street, Barry Street and Leicester Street, Parkville. iv. Franklin Street, A'Beckett Street and Little La Trobe Street, at CBD North. v. Flinders Street, Flinders Lane and Swanston Street, at CBD South. vi. Linlithgow Avenue, St Kilda Road, Domain Road, Albert Road, Bowen Crescent and Bowen Lane, at Domain. vii. Toorak Road West at Fawkner Park (and the surrounding road network) during construction of the route 8 tram diversion along Toorak Road West between St Kilda Road and Park Street, South Yarra. viii. Osborne Street and William Street, South Yarra.	All	Construction

No	Environmental Performance Requirements	Precinct	Timing
	b) A monitoring methodology and a program for monitoring results of the implementation of transport management plans to be reported to the TTWG. If unanticipated adverse effects are further identified, practicable mitigation measures must be developed and implemented. c) Monitoring of: i. 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 and for review of the transport management plan(s), which should occur at least annually. ii. Traffic, public transport, pedestrian and bicycle movements throughout the construction period. 4. The transport management plan(s) must be developed recognising other Projects operating concurrently and transient businesses such as bus/walking/cycling tours and airport transfers, where relevant. ***Note*** - Typically called a traffic management plan, for Melbourne Metro, it is referred to as a transport management plan to ensure all modes of active and passive transport are considered.		
T3	**Road Transport (Construction Phase)** 1. <u>Road Network Management:</u> As appropriate, transport management plan(s) must include/address the following issues: a) In consultation with emergency services, develop suitable measures to ensure emergency service access is not inhibited as a result of Melbourne Metro construction worksites. b) Provision for two-way traffic on St Kilda Road through the construction period within the Domain station precinct. c) Domain Road should be kept open from the east up to the existing entrance of Edmund Herring Memorial Oval, with provision for a local turnaround. d) Develop and implement Network Enhancement Projects (NEPs) in consultation with the TTWG for locations including, but not limited, to: i. College Crescent, Gatehouse Street, Cemetery Road and other east-west roads in the Parkville Precinct, to accommodate traffic that may use these roads as a result of the Grattan Street closure for Parkville station. ii. Kings Way, Canterbury Road and other roads and intersections to accommodate traffic that may use these roads as a result of the St Kilda Road lane reduction for Domain station construction.	All	Construction

No	Environmental Performance Requirements	Precinct	Timing
	These NEPs should have the objective of balancing impacts across the transport network and must consider the VicRoads Road Users Hierarchy principles set out in SmartRoads to ensure the needs of vehicle traffic and on-road public transport are appropriately accommodated during disruptions. e) Provision of suitable routes for vehicles to maintain connectivity for road users to JJ Holland Park, South Kensington station, to medical facilities in the Domain Precinct and to the medical and educational facilities adjacent to the Parkville construction work site. f) Provision of alternative routes for trucks accessing the 50 Lloyd Street Business Estate, Kensington. 2. Construction trucks: As appropriate, transport management plan(s) must include/address the following issues: a) Potential routes for construction vehicles travelling to and from all Melbourne Metro construction work sites, recognising sensitive receptors and minimising the use of local streets where practicable (refer to EPR NV21). Approved truck routes in the Arden precinct must not include the use of Miller Street, North Melbourne. Provision of construction vehicle staging areas and/or construction methodologies to minimise the potential impacts of truck call-forward options on residents and businesses. Special arrangements for delivery or removal of large loads. 3. Parking: As appropriate, transport management plan(s) must include/address the following issues: a) Provision of alternative parking where possible to replace public and commuter parking lots from West Footscray Station, 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. b) The need to minimise the loss of public parking and replace or reinstate parking at the earliest opportunity. c) Provision of suitable alternative parking and associated facilities to replace private parking and facilities lost or inaccessible during construction for any significant time, in consultation with the relevant stakeholders. The private parking is to be replaced or reinstated at the earliest opportunity. d) A parking management plan prepared in consultation with and approved by the relevant road authority to manage parking in and around the construction zones. The plan must: i. Include parking controls to support other relevant EPR requirements. ii. Maintain Police Only parking bays in Swanston Street and Flinders Lane to the satisfaction of Victoria Police. iii. Minimise impacts on existing users, particularly those with special needs.		

No	Environmental Performance Requirements	Precinct	Timing
	iv. Provide a suitable level of accessibility to loading zones. e) Provision of car parking for construction workers where practicable and in this regard: i. Use of off-street car parks for construction workers must be by prior agreement with the relevant management body; and ii. Measures must be implemented to prevent, to the extent practicable, construction workers parking in on-street spaces, unless it can be demonstrated by car-parking surveys that there is adequate on-street supply. f) A green travel strategy to encourage construction workers to travel to / from worksites by means other than private vehicle and / or outside peak times. This should include provision for on-site tool storage where practicable and consideration given to the use of shuttle buses to ferry workers to and from off-site car parks.		

No	Environmental Performance Requirements	Precinct	Timing
T4	**Public Transport (Construction Phase)** 1. Prior to commencement of relevant works, 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. The plan must be developed to the satisfaction of VicTrack, PTV, DEDJTR (transport) and MTM, as relevant. 2. In consultation with the TTWG, provide suitable routes for pedestrians to maintain connectivity where access is altered by the contractor, including DDA access where practicable, for users of South Kensington Station, Melbourne Central Station, Flinders Street Station, new tram and bus stops relocated or constructed during the construction period, and around all construction sites generally. 3. In consultation with the TTWG, investigate and implement intersection modifications where practicable, including public transport priority measures for affected bus and tram routes. 4. 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 / DEDJTR (Transport), including (but not limited to): a) Options to divert the 401, 402, 403, 505 and 546 bus services. b) Tram routes on La Trobe Street and Swanston Street. c) Tram routes on Flinders Street and Swanston Street. d) Tram operations on Toorak Road West and the diversion of the No. 8 tram route. e) Periodic closures of Royal Parade tram route. f) Tram routes on St Kilda Road. g) Disruption to other tram routes through Domain tram stop. h) Bus replacement services for disrupted rail passengers.	All	Construction
T5	**Active Transport (Construction Phase)** 1. Develop and implement transport management measures in consultation with the TTWG and relevant road management authorities for cyclists and pedestrians to maintain connectivity and reasonable performance levels throughout construction for road and shared path users including (but not limited to): JJ Holland Park, South Kensington station, Laurens Street, Grattan Street, Swanston Street adjacent to Gate 4 at University of Melbourne, 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.	All	Construction

No	Environmental Performance Requirements	Precinct	Timing
	2. Implement active control and wayfinding information at construction work site access points to maintain safety by avoiding potential conflicts between trucks, pedestrians and cyclists. 3. In consultation with the City of Melbourne, provide a suitable route for pedestrians to maintain connectivity and connection between Domain Road and the diverted number 8 tram on Toorak Road West. 4. In consultation with the City of Melbourne, provide suitable routes for cyclists and pedestrians throughout construction to maintain connectivity for road and shared path users around JJ Holland Park and South Kensington station. 5. In consultation with the City of Stonnington, provide suitable routes for cyclists and pedestrians to maintain connectivity and connection, having regard to the removal of the William Street Bridge and Lovers Walk pedestrian path during the construction phase. 6. If surface works are required at Linlithgow Avenue or nearby for temporary construction access shafts, provide for movement along the Tan Track in the Botanical Gardens near the Linlithgow Avenue construction sites, or provide a suitable alternative pedestrian path during construction. 7. Maintain appropriate pedestrian access to public car parks and adjoining properties adjacent to or within construction areas including the car park beneath University Square.		
T6	**Travel Demand Management Strategy** 1. Prior to commencement of construction works, RPV is 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 RPV Community and Stakeholder Engagement Management Framework (under EPR SC3) and, where practicable, include a mechanism for collecting and disseminating real-time travel time information to the public. Existing traffic and public transport information channels should be used wherever possible. 2. Engage with key stakeholders in the development, implementation and monitoring of the Travel Demand Management Strategy including, but not limited to, councils, road management authorities, PTV and relevant public transport providers, educational facilities, research institutions, businesses, impacted community groups and other affected key stakeholders in each precinct.	All	Construction
T7	**Road Transport (Operation Phase)**	All	Operation

No	Environmental Performance Requirements	Precinct	Timing
	1. Design all roadworks and shared path works to relevant design standards to maintain safety of movement in consultation with the relevant road management authorities and TTWG, as required. Designs should be underpinned by appropriate transport modelling and have an objective to facilitate public transport and minimise carpark loss to the extent practicable. 2. 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: a) Minimises the permanent loss of parking where possible. b) Ensures re-instated car parking does not encroach on JJ Holland Park. c) Considers opportunities for replacement of any net loss of parking at nearby locations. d) Reduces the risk of overflow parking in local streets from South Kensington station and activities at JJ Holland Park. e) Replaces loading zones to service the needs of the existing businesses in the precinct where disrupted during construction. 3. Develop and implement a plan for the Arden Precinct in consultation with the relevant road management authorities to manage parking generated by the new Arden Station. 4. Develop and implement a plan for the reinstatement of Grattan Street, Parkville in consultation with the relevant road management authorities that includes: a) Optimal replacement of car parking spaces along Grattan Street to service the needs of the hospitals and the University of Melbourne, including the retention or replacement of specific short-term and DDA compliant parking. b) 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. 5. Develop and implement a plan for the future use of Franklin Street in consultation with the relevant road management authorities that includes: a) Optimising the design of Franklin Street in the Project Area. b) Regard to the future function of Franklin Street envisaged in the *Queen Victoria Market Precinct Renewal Master Plan.* c) Monitoring the change in travel patterns around the area associated with the revised design of Franklin Street.		

No	Environmental Performance Requirements	Precinct	Timing
	6. Develop and implement a plan for the design of A'Beckett Street, Little La Trobe Street and Swanston Street in consultation with relevant road management authorities that includes: d) Optimising the design of A'Beckett Street and location of station infrastructure. e) Consideration of pedestrian and vehicle movements on Swanston Street between La Trobe and A'Beckett Streets and on Little La Trobe Street. 7. Optimise the design of the reinstated St Kilda Road and apply the road users hierarchy in consultation with the relevant road management authorities to: a) Reduce delays and congestion. b) Maintain safe operations through the precinct. c) Determine the optimal parking provision in the area and replace any lost parking where possible. 8. Where vehicle and pedestrian access are altered during construction, ensure that vehicle and pedestrian access is reinstated appropriately, in accordance with relevant road design standards, so adjacent land is not compromised.		
T8	**Public Transport (Operational Phase)** 1. Review, with PTV /DEDJTR (Transport), 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 is expected to have reduced demand following implementation of Melbourne Metro. 2. In consultation with PTV / DEDJTR (Transport), optimise the design of Melbourne Metro stations to ensure integration with existing and planned future uses and so that they will provide connections: a) Between the Parkville station and the new tram stop on Royal Parade. b) For interchange between the CBD North station and the existing tram and bus services along La Trobe Street and Swanston Street. c) For interchange between the CBD South station and the existing tram services along Flinders Street, Swanston Street and Collins Street. d) Between the Domain station and the new island platform tram stop in the centre of St Kilda Road and connections to the tram network. 3. In consultation with the relevant road management authorities, implement measures to address pedestrian congestion at and around station entrances where they interface with the Precincts, to the extent practicable. 4. Provide adequate wayfinding to facilitate passenger transfers (see EPR LU4).	All	Operation

No	Environmental Performance Requirements	Precinct	Timing
	5. Review, with PTV/ DEDJTR (Transport) and Yarra Trams, the bus and tram services in the area to optimise the functionality of the CBD North and CBD South stations and to reduce the reliance on the Swanston Street tram corridor.		
T9	**Active Transport (Operational phase)** 1. Develop and implement a permanent pedestrian footpath and on-road bicycle design for Childers Street, Kensington with the relevant road management authority, relevant local council, and the land manager prior to the removal of the shared use path on the southern side of the street. 2. In cooperation with the relevant road management authority and local council, and where practicable to do so, re-instate on-road bicycle lanes and bicycle parking provisions removed during construction. 3. In consultation with PTV / DEDJTR (Transport) and relevant local councils undertake a study of bicycle parking demands for the new stations. 4. Provide appropriate bicycle parking at each station adopting a flexible design that would allow for future expansion of capacity in consultation with relevant local councils and user groups, if required. 5. Review the reinstatement and provision of safe and effective bicycle lanes and pedestrian access in and around the Melbourne Metro station sites in cooperation with the relevant road management authorities and the relevant local council. 6. Provide wayfinding information to enhance connectivity for pedestrians and public transport users, in consultation with relevant local councils and user groups, including (but not limited to) the following locations: a) Between Melbourne Central Station and CBD North Station. b) The underground connection between Flinders Street Station and CBD South Station. c) At modal interchanges between new Melbourne Metro stations and other transport modes. 7. Consult with the TTWG on active transport, where required. 8. In consultation with the Parkville Reference Group, established under EPR SC11, review future pedestrian movement and conditions at the Parkville Precinct in order to optimise the number and location of station entries and the surrounding footpath environment.	All	Operation

No	Environmental Performance Requirements	Precinct	Timing
T10	**Waste collection** 1. Prior to commencement of relevant works, develop and implement a plan or plans, in consultation with local councils and private waste collection services, to manage changes to waste collection and waste storage in the areas affected by construction activity. The plan/s should include, but not be limited to: a) Providing for minimal change in waste collection times where the change might affect the capacity of residents to sleep. b) Providing access for existing waste collection services from existing properties considering the extent of the construction areas and road network changes. c) Providing access to alternative waste collection locations for properties during Project construction and operation where existing waste disposal locations are removed or obstructed. d) Design for re-instatement of appropriate access for existing waste services during Project operation. e) Consultation with affected businesses, land owners and residents to be undertaken jointly with local councils to encourage alternative waste management options to be adopted.	All	Design / Construction

Glossary

ACMI	Australian Centre for the Moving Image
ASHRAE	American Society of Heating, Refrigeration and Air-conditioning Engineers
ASS/ASR	Acid Sulfate Soil / Acid Sulfate Rock
BDP	Business Disruption Plan to be prepared pursuant to EPR B2
CBD	Central Business District
CEMP	Construction Environmental Management Plan to be prepared pursuant to EPR EM2
CNVMP	Construction Noise and Vibration Management Plan to be prepared pursuant to EPR NVB
CSEMP	Community and Stakeholder Engagement Management Plan to be prepared pursuant to EPR SC3 and the Incorporated Document
Concept Design	The Concept Design as described in the EES
DDA	*Disability Discrimination Act 1992 (C'th)*
DELWP	The Victorian Department of Environment, Land, Water and Planning
DIN 4150	German Standard DIN 4150-3 Structural Vibration Part 3: Effects of vibration on structures
EEA	*Environment Effects Act 1978 (Vic)*
EES	The Melbourne Metro Environment Effects Statement
EMC	Electro Magnetic Compatibility
EMF	Environmental Management Framework
EMI	Electro Magnetic Interference
EMS	Environmental Management System
EPA	Environment Protection Authority (Victoria)
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999 (C'th)*
EPRs	Environmental Performance Requirements
GHG	Greenhouse gas
GMP	Groundwater Management Plan to be prepared pursuant to EPR GW3
Heritage place	A place (including buildings, trees, bridges, monuments landscapes, archaeological sites, artefacts and others) which is subject to statutory heritage controls under Commonwealth or Victorian legislation. This includes places covered by the *Heritage Act 2017*, the EPBC Act or which are subject to a Heritage Overlay under a VPP Planning Scheme.
HIS	Heritage Impact Statement to be informed by the HMP and prepared for Development Plans
HMP	Heritage Management Plan to be prepared pursuant to EPR CH2
ICOMOS	International Council on Monuments and Sites
Independent Environmental Auditor	The independent third party environmental auditor appointed pursuant to the EMF
Independent Reviewer	The independent third party reviewer appointed pursuant to the EMF
Main works	All Project works other than early works, enabling works and preparatory works
Main works and shaft construction	All Project works other than early works, but including early works excavation of access shafts (CBD North and South)
Melbourne Metro	The project as declared pursuant to the Order made by the Minister for Planning pursuant to section 3 of the EEA on 3 September 2015 and as amended on 24 November 2015
RPV	The Melbourne Metro Rail Authority

MTM	Metro Trains Melbourne
NEP	Network Enhancement Project
OEMP	Operations Environmental Management Plan to be prepared pursuant to EPR EM2
PASS	Potential acid sulfate soils
PIW	Prescribed industrial waste
PPP	Public Private Partnership
PPRG	Parkville Precinct Reference Group
PPV	Peak Particle Velocity
PRG	Precinct Reference Group
PRINP	Victorian Passenger Rail Infrastructure Noise Policy
Project	Melbourne Metro
Project works	All construction works other than enabling or preparatory works (i.e. all works which are subject to control under the Incorporated Document
PSA	Planning Scheme Amendment GC45
PTV	Public Transport Victoria
Relevant works	Project works to which the EPR is relevant which may apply only to works in a particular precinct, or works that have potential to impact on the environmental asset or class of asset such as heritage places, as addressed by the EPR
RIA	Rail Infrastructure Alliance
RING	Rail Infrastructure Noise Guideline
RMIT	Royal Melbourne of Institute of Technology University
RMP	Remedial Management Plan to be prepared pursuant to EPR C3
RSA	Rail Systems Alliance
SEPP	State Environment Protection Policy
SEPP N-1	State Environment Protection Policy (Control of Noise from Commerce, Industry and Trade)
SEIPs	Site Environment Implementation Plans to be prepared pursuant to EPR EM2
SMP	Spoil Management Plan to be prepared pursuant to EPR C1
TAC	Transport Accident Commission
TBM	Tunnel boring machine
TMP	Transport Management Plan(s) to be prepared pursuant to EPR T2
TPZ	Tree protection zone
TTWG	Traffic and Transport Working Group
UDAAP	Urban Design and Architectural Advice Panel
Unavoidable works	To be specifically defined in the CNVMP (see EPR NV21), however the following guidance is provided: Unavoidable works are works that cannot practicably meet the schedule requirements because the work involves continuous work — such as a concrete pour — or would otherwise pose an unacceptable risk to life or property, or risk a major traffic hazard.
VDV	Vibration Dose Values
Works Package	The different contracting packages that have been adopted for the procurement of Melbourne Metro works including Early Work, Tunnels and Stations, Rail Infrastructure and Rail Systems.
WSUD	Water sensitive urban design

APPENDIX A - RESIDENTIAL IMPACT MANAGEMENT GUIDELINES (RIMG)

Residential Impact Mitigation Guidelines for Construction

These Guidelines have been prepared to address clause 4.8.2 of the "Melbourne Metro Rail Project - Incorporated Document" (Incorporated Document) as incorporated into the Melbourne, Stonnington, Port Phillip and Maribyrnong planning schemes.

These Guidelines have also been prepared to address Environmental Performance Requirements SC2, NV21B.3, NV21D.3, NV21F.2 and NV21J.2 for the Melbourne Metro Rail Project (also referred to in these Guidelines as "Metro Tunnel").

1 Context

The Metro Tunnel will deliver a range of benefits for Melbourne, substantially increasing the capacity of the rail network and improving connectivity and accessibility of the city's key growth areas. By stimulating urban renewal in inner city areas and enhancing access to the CBD and Parkville, the Metro Tunnel will also create opportunities for new commercial development, jobs and housing close to the city centre.

RPV recognises that construction of the Metro Tunnel may affect those who live in areas close to construction activities. The Environmental Management Framework (EMF) for the project incorporates a number of Environmental Performance Requirements (EPRs) which prescribe outcomes and processes designed to reduce the impacts of construction on residential amenity.

Importantly, the EPRs require management and mitigation measures to be undertaken at the source of the noise in accordance with approved management plans. The EPRs also set Guideline Targets and Guideline Levels for noise and vibration at residences, with the requirement to comply with these Targets and Levels where practicable. However if, despite practicable at-source mitigation measures being deployed, the Guideline Targets and Guideline Levels are exceeded for an extended period of time, other management actions under the EPRs must also be taken by contractors to keep noise emissions to reasonable levels.

The EPRs require airborne noise from night time construction activities to be inaudible within habitable rooms of residences, except where the works fall within the definition of Unavoidable Works. Unavoidable Works must have been approved by the Independent Environmental Auditor (IEA) appointed for the Metro Tunnel prior to the Works commencing, except in the case of emergency works which must subsequently be approved by the IEA. In practical terms, this means that for most of the time, airborne noise from construction activities should not be heard by residents within bedrooms and living rooms at night.

Metro Tunnel contractors will implement all practicable noise mitigation measures "on-site" at the source of the impact to comply with the EPRs. Despite the extensive and tiered "at-source" management responses required under the EPRs, due to the scale, duration and variable nature of the construction works required for the Metro Tunnel, there may be some residual impacts on residential amenity despite at-source mitigation measures being implemented.

The EPRs acknowledge the potential for residual amenity impacts by requiring that these Guidelines be implemented so as to reduce the effects of construction activities on residents.

The causes of potential residual impacts on residential amenity addressed in these Guidelines are airborne noise, ground-borne noise and vibration, temporary loss of access and the cumulative effects arising during rail occupations of noise, light-spill, dust and construction traffic. These Guidelines have been developed as part of the EMF for the Metro Tunnel.

2 Purpose

Due to the scale, duration and variable nature of the construction works required for the Metro Tunnel, there may be some residual impacts on residential amenity despite on-site mitigation measures being implemented in accordance with the EPRs.

EPR SC2 requires the preparation of a relocation management framework prior to commencement of relevant works to provide for the temporary relocation of households on a voluntary basis. Any relocation management framework is required to be consistent with these Guidelines.

Accordingly, the purpose of these Guidelines is to provide direction to the Metro Tunnel contractors on how to address residual impacts on residential amenity so far as is reasonably practicable and appropriate.

These Guidelines specify a range of engagement measures and “off-site” mitigation measures to be implemented for this purpose, and criteria for determining when these measures are to apply.

The Appendix to these Guidelines describes the process for implementing these Guidelines.

These Guidelines do not create entitlements for residents affected by the Metro Tunnel construction works.

3 Scope

These Guidelines apply to residents in properties which are subject to amenity impacts due to the proximity of the Metro Tunnel construction works.

These Guidelines do not apply to non-residential receivers (including sensitive receivers, such as schools and hospitals). These receivers are likely to require specifically tailored mitigation measures which will be developed on a case by case basis. Similarly, commercial premises are not within the scope of these Guidelines. The overarching framework of mitigation measures to address the impact of the Metro Tunnel construction works on businesses is set out in the Business Support Guidelines for Construction, which also form part of the EMF.

3.1 Engagement measures

The engagement measures to be applied under these Guidelines are described below:

a. **Works notifications** – used to disseminate advance information about the timing and nature of works to residents and to provide early warning of high impact activities (notifications could be provided electronically or in hard copy);

b. **Phone calls** – used to inform residents personally about the timing, nature and predicted impacts and the mitigation measures that will be implemented;

c. **Individual briefings** – used to inform residents personally about the timing, nature and predicted impacts and the mitigation measures that will be implemented; and

d. **Specific notification** – targeted communications to residents (electronically or in hard copy) to advise that construction activities are expected to exceed the relevant criteria for respite offers, acoustic treatment or alternative accommodation as described below.

3.2 "Off-site" Engagement measures

The off-site mitigation measures to be applied under these Guidelines are described below:

a. **Respite offer** – residents subject to periods of exposure to construction activities expected to exceed the applicable criteria for respite offers will be provided with a respite offer (e.g. pre-purchased movie tickets);

b. **Acoustic treatment** – residents subject to significant periods of airborne noise expected to exceed the applicable criteria for acoustic treatment may be offered improved window glazing or other appropriate acoustic treatment if it is considered that this will effectively mitigate acoustic impacts;

c. **Alternative accommodation** – residents subject to substantial periods of exposure to construction activities expected to exceed the applicable criteria for alternative accommodation will be offered alternative accommodation; and

d. **Earplugs** – residents subject to periods of exposure to construction activities that are expected to exceed the applicable criteria will be offered earplugs (recognising that some people may prefer to stay at home during the relevant works).

More details about the off-site mitigation measures can be found in the Appendix to these Guidelines.

4 Criteria for engagement and "off-site" mitigation measures

Under these Guidelines:

- specific engagement and 'off-site' mitigation measures apply according to different criteria which reflect the impacts on residential amenity associated with the Metro Tunnel works; and
- exceedance of the applicable criteria refers to exceedance of both the guideline noise levels (by reference to time periods referred to in Tables 1 and 2) and durations specified in these Guidelines.

4.1 Airborne noise

a. Overview

Based on the predicted (or measured) airborne noise level and the relevant time period, contractors must take the following measures with respect to residents affected by airborne noise where appropriate:

1. engagement with residents and respite in relation to acoustic impacts. The criteria and measures for engagement and respite are described Part 4.1(b);
2. acoustic treatment for residences. The criteria for considering acoustic treatment are described in Part 4.1(c); and
3. alternative accommodation. The criteria for considering offers of alternative accommodation are described in Part 4.1(d).

b. Engagement with residents and respite in relation to airborne noise

The noise management levels for residential land uses adopt the guideline noise levels in EPR NV6 (for evening/weekends and night time) and EPR NV21 (for weekdays and Saturday mornings). The contractors must comply with the EPRs, which require all practicable work practices to be applied to meet the guideline noise levels.

At locations where the predicted (or measured) residual construction noise levels exceed the noise guideline levels, the engagement measures and mitigation measures specified in Table 8 shall apply.

Table 8 – Guideline noise levels and management measures

Time period	Guideline noise levels	Management Measures
Normal working hours		
Mon-Fri: 7am – 6pm Sat: 7am – 1pm	External construction $L_{Aeq(15\ min)}$ >10dB(A) above the pre-existing ambient noise level, $L_{Aeq,}$ or 75dB(A) (whichever is higher)	Works notification Earplugs
Evening/weekend hours and public holidays		
Mon-Fri: 6pm – 10pm Sat: 1pm – 10pm Sun/Pub Hol: 7am – 10pm	External construction $L_{Aeq(15\ min)}$ >5dB(A) above the pre-existing ambient noise level, L_{Aeq}	Works notification Earplugs Individual briefings Phone calls Specific notification Respite offer
Night hours		
Mon-Sun: 10pm – 7am	External construction $L_{Aeq(15\ min)}$ > 5dB(A) above the pre-existing ambient noise level, L_{Aeq}	Works notification Earplugs Individual briefings Phone calls Specific notification Respite offer

c. Acoustic treatment for residences

This Part of the Guidelines sets out criteria for when offers of acoustic treatment to residences must be considered for Unavoidable Works at night. Offers of acoustic treatment will however only be made where acoustic treatment is deemed to be an effective solution to mitigating airborne noise.

Acoustic treatment for residences will be offered where the total airborne noise level due to Metro Tunnel works (pre-existing ambient, L_{AeqT}, measured over one hour plus airborne noise from Metro Tunnel works) is predicted at a point one metre in front of the most exposed of any windows or doors of a habitable room in any façade of a residence, to exceed whichever is the higher of:

- 55dB(A); or
- 5 dB(A) above the pre-existing ambient LAeq, noise level
- between the hours of 10pm and 7am on any day of the week on at least 40 days in any six consecutive months, excluding any night during which an offer of alternative accommodation has been accepted.

Due to the long lead time required to investigate residential buildings, design and then install acoustic treatment, offers of acoustic treatment will be based on pre-construction modelling of airborne noise emissions from construction activities, not measured noise. However, if noise monitoring during construction indicates that the criteria for acoustic treatment will be or have been met (despite not being identified through earlier modelling), consideration will be given to offering acoustic treatment (taking into consideration practicability and timing).

Where a resident does not accept an offer of acoustic treatment, the resident may be offered alternative accommodation in respect of the relevant airborne noise impacts (which may be accepted by the resident before or during the period in which the relevant works are undertaken) even if the alternative accommodation criteria in Part 4.1(d) are not satisfied.

d. Alternative accommodation

Alternative accommodation will be offered where the total airborne noise level due to Unavoidable Works at night (pre-existing ambient, L_{AeqT}, measured over 1 hour plus airborne noise from Metro Tunnel works), measured or predicted at a point one metre in front of the exposed windows and doors in any façade of a residence, exceeds whichever is the higher of:

- 65 dB(A); or
- 10 dB(A) above the pre-existing ambient, LAeq, noise level,

between 10pm and 7am on any day of the week on at least:

- 10 days in any 15 consecutive days; or
- 40 days in any six consecutive months.

e. Notes

- for assessment with respect to the airborne noise criteria, the noise level is to be modelled and measured at a point 1 metre in front of the exposed windows and doors of a habitable room in any façade of the resident's property that is most exposed to construction noise at a height of approximately 1.5 metres above the ground for ground-level dwellings, or 1.5 metres above each floor for multi-storey dwellings. Modelling will be undertaken (in accordance with EPR NV3) to predict noise levels in the same location, and provide the basis for engagement and offering the "off-site" measures described above.
- if a building features a façade that provides a high level of mitigation (including where acoustic treatment has been provided to a residence in accordance with Part 4.1(c) of these Guidelines), and as a result the noise levels predicted within habitable rooms (such as bedrooms and living rooms) inside the building are not considered to adversely impact on amenity, mitigation measures available under these Guidelines will not be offered.

4.2 Ground-borne noise and vibration

These Guidelines assume that, given the nature of the Metro Tunnel works, exceedance of the ground-borne noise guideline levels will also address the potential impacts on residential amenity associated with ground-borne vibration. Based on the predicted (or actual) ground-borne noise level and the relevant time period, the following measures will apply to residents affected by ground-borne noise and vibration where appropriate.

Table 2 - Ground-borne noise guideline noise levels

Mitigation measures if construction noise ($L_{Aeq\ (15\ mins)}$) exceeds 40dB(A) during the evening period and 35dB(A) in the night time period by the decibel ranges shown below			
Time Period	**0 – 10dB(A)**	**10 – 20dB(A)**	**>20dB(A)**
Mon-Sun: 6pm – 10pm	Works notification	Works notification Specific notification Earplugs Respite offer	Works notification Individual briefings Phone calls Specific notification Earplugs Respite offer
Mon-Sun: 10pm – 7am	Works notification	Works notification Individual briefing Phone calls Specific notification Earplugs Respite offer Alternative accommodation*	Works notification Individual briefings Phone calls Specific notification Earplugs Respite offer Alternative accommodation*

*Alternative accommodation will be offered where ground-borne noise exceeds these criteria for more than 10 days in any 15 consecutive days.

a. Notes

- management measures are not provided for the daytime period, as ambient daytime noise levels typically provide masking with respect to ground-borne noise.
- acoustic treatment is not offered as it is not an effective mitigation for groundborne noise, which is generated within a dwelling due to vibration.
- guideline noise levels are based on the levels in EPR NV13.

4.3 Loss of access

There may be circumstances where access to residential properties is temporarily restricted for periods of time during construction works.

Respite or alternative accommodation will be offered to residents as appropriate where access to or egress from their property (including for vehicles) is temporarily unavailable and adequate alternative access has not been provided.

4.4 Cumulative effects (rail occupations)

Rail occupations required to undertake intensive construction work outside of standard working hours may have a significant effect on the amenity of nearby residents through a combination of impacts such as noise, light spill and temporary loss of access.

As the works to be undertaken during each rail occupation will vary, it will be necessary to determine the likely effects on nearby residents when planning the occupation.

Respite and alternative accommodation for residents affected by rail occupations shall be based on:

- the time periods for the construction works and predicted exceedance of guideline noise levels set out above in relation to airborne noise, based on the relative disruption associated with the particular occupation; and
- whether the residence is located within a zone identified by RPV as eligible for respite or alternative accommodation based on an assessment of the total predicted impacts of the rail occupation works.

4.5 Special circumstances

There may be circumstances in which the impacts of airborne noise, ground-borne noise and vibration or combined impacts do not exceed the criteria in these Guidelines, but the resident is particularly sensitive to those impacts. Requests for respite or alternative accommodation from such residents shall be considered on a case by case basis, taking into account:

- the impacts of Metro Tunnel works on the resident's amenity, with a preference given to quantitatively modelled or measured impacts on the residence where possible; and
- the special circumstances of the resident that would increase sensitivity in relation to those impacts, such as night/shift workers or those with a medical condition exacerbated by noise or vibration.

5 Implementation overview

Metro Tunnel contractors will be responsible for implementing the engagement and mitigation measures set out in these Guidelines, including the development of a relocation management framework that is consistent with these Guidelines.

The Appendix to these Guidelines sets out minimum requirements regarding the processes and standards to be used by contractors in implementing the measures set out in these Guidelines.

Appendix - Implementation requirements

This Appendix sets out the processes and standards to be used by Metro Tunnel contractors to develop a relocation framework that satisfies EPR SC2.

1 Prior to construction

1.1 Assessing potential impacts and notifications

Assessing potential impacts and notification Prior to commencing the relevant works, each Metro Tunnel contractor will assess the properties that are likely to be significantly affected by the construction activities for their works package.

This assessment will be based on noise modelling of the proposed construction works and methodology, time of day and duration of works for each works package.

From this assessment, a predicted area of impact will be established. The relevant contractor will notify residents in this area in advance of the works commencing in accordance with the notification periods set out below. Notification will be via the engagement measures outlined in Part 3.1.

Table 9 - Notification timeframes

Timing of works	Notification period in advance of works
Daytime works: 7am to 6pm weekdays and 7am to 1pm Saturday	5 business days
Out of hours and night works: all Works after 6pm weekdays, after 1pm Saturday or any time on Sundays or public holidays	10 Business days

1.2 Respite

Prior to the commencement of the relevant works, respite offers will be made to residents who occupy properties where the applicable noise levels for respite are predicted to be exceeded.

The purpose of respite offers will depend on the extent and duration of the relevant works. However, a respite offer will typically either provide residents with an opportunity to leave their homes for the duration of short-term (i.e. up to a few hours) construction activities, or for a break away from longer term activities.

Metro Tunnel contractors will be required to offer eligible residents either one or both of the following options:

- a choice of pre-determined and pre-paid respite options. Possible respite options may include tickets to cultural or sporting activities (e.g. cinema tickets, sporting tickets, admission to galleries/museum), public transport vouchers (e.g. pre-paid myki cards), and gift vouchers to be used at retail or restaurant outlets from which residents may choose; or
- reimbursement of the reasonable costs incurred by the resident, up to a dollar value equivalent to the pre-determined respite offers.

1.3 Acoustic treatment (noise insulation to buildings)

Prior to the commencement of the relevant works, offers to undertake acoustic treatment will be made to residents who occupy properties where the applicable airborne noise criteria (including duration) are predicted to be exceeded in accordance with Part 4.1(c). Offers will only be made where acoustic treatment is deemed to be an effective solution to mitigating airborne noise.

Metro Tunnel contractors will be required to offer eligible residents either one or both of the following options:

- a choice of approved and pre-paid insulation technicians to install acoustic treatment at affected residents' properties that is appropriate to the circumstances and design of the affected premises; or

- reimbursement of the reasonable costs incurred by the resident in having acoustic treatment installed at their premises, provided that the installation of any acoustic treatment is agreed with the relevant contractor prior to the acoustic treatment being carried out on the property and is completed before construction work commences.

1.4 Alternative accommodation

Prior to the commencement of the relevant works, offers to provide temporary alternative accommodation will be made to residents who occupy properties where the applicable criteria (including duration) are predicted to be exceeded.

Whilst noise levels and durations affect people differently, RPV's guiding principle is that staying at home is generally the best option for everyone. Residents are therefore under no obligation to accept the offer for alternative accommodation. If a resident decides to stay but then finds that they would prefer alternative accommodation, this can still be offered subject to prior agreement with the contractor.

Metro Tunnel contractors will be required to offer eligible residents a choice of pre-arranged and pre-paid local accommodation providers that can provide a standard of accommodation (for example, serviced apartments) that enables the affected resident to receive respite from the works and to go about their daily life.

Consideration will also be given to including incidentals such as car parking, wifi and a breakfast pack with the alternative accommodation offer. All other incidentals associated with the alternative accommodation will be paid for by the resident. Requests for pet accommodation will be assessed on a case by case basis.

Residents who accept an offer of alternative accommodation will remain responsible for the costs associated with their existing residence while temporary accommodation is provided.

2 During construction

2.1 Monitoring

Contractors will undertake noise and vibration monitoring throughout the construction of the Metro Tunnel to ensure compliance with environmental requirements, including those which may impact on residential amenity as set out in these Guidelines.

2.2 Complaints and requests

A 24-hour Metro Tunnel Project Information Line will be established through which residents may obtain further information or register complaints regarding the carrying out of Metro Tunnel works, including the effect of construction works on residential amenity.

Residents who were offered respite or alternative accommodation but did not take up the offer prior to construction commencing may contact the Metro Tunnel contractors at any time during the carrying out of the relevant works to request respite or alternative accommodation via the Project Information Line.

Residents who have not received offers of respite or alternative accommodation but who believe their residential amenity is or will be adversely impacted by construction works may register a request for assessment by reference to these Guidelines via the Project Information Line.

Where the relevant contractor has deemed a resident ineligible for respite or alternative accommodation, the resident may request RPV to review this decision by reference to these Guidelines.

APPENDIX B - BUSINESS SUPPORT GUIDELINES FOR CONSTRUCITON (BSGC)

Business Support Guidelines for Construction

Prepared pursuant to clause 4.8.2 of the "Melbourne Metro Rail Project - Incorporated Document " (Incorporated Document) that has been incorporated into the Melbourne, Stonnington, Port Phillip and Maribyrnong planning schemes.

This document is the framework document referred to in Environmental Performance Requirement B2 (g) for the Melbourne Metro Rail Project (referred to in this document as "Metro Tunnel").

1. Background

The Metro Tunnel will deliver a range of benefits for Melbourne, substantially increasing the capacity of the rail network and improving connectivity and accessibility of the city's key growth areas. By stimulating urban renewal in inner city areas and enhancing access to the CBD, Parkville and Domain, the Metro Tunnel will also create opportunities for new commercial development, jobs and housing close to the city centre.

RPV recognises that while the Metro Tunnel will ultimately result in many benefits for businesses particularly in the vicinity of the proposed stations, the construction of the project has the potential for adverse impacts of a temporary nature in areas close to construction activities. Impacts may include:

- changes to amenity such as noise, dust or vibration
- street closures and changes to traffic conditions
- loss of visibility due to hoardings or construction vehicles
- loss of customers such as passing pedestrian traffic due to restricted access.

Due to the scale, duration and variable nature of the construction works proposed during the construction phase of the Metro Tunnel, and the need for some construction work to be undertaken outside Normal Working Hours, in accordance with the approved Environmental Performance Requirements, residual (post on-site mitigation) impacts on businesses may occur.

2. Purpose

The purpose of these Business Support Guidelines (the Guidelines) is to provide a framework for Metro Tunnel contractors to address residual impacts on businesses so far as is reasonably practicable and appropriate. These Guidelines are intended to complement Construction Management Plans and Traffic Management Plans developed by the appointed contractors, and support the approved Environmental Performance Requirements for the Metro Tunnel Project.

The Guidelines outline the proactive measures and support services that RPV and the appointed construction contractors (including the Early Works Managing Contractor) may deliver to support businesses that experience disruption during and only as a result of construction of the Metro Tunnel.

The Guidelines will be in effect for the duration of the Metro Tunnel Project construction, commencing with early works in 2017 and concluding with completion of the construction of the Metro Tunnel infrastructure.

The Guidelines do not:

- contemplate or provide for direct monetary support for individual businesses in the form of financial compensation; nor do they
- create (nor should be interpreted as creating) expectations or entitlements for any particular type of support specified in these Guidelines to be provided to any individual business.

2.1. Scope

The Guidelines apply to businesses which may be adversely impacted due to the Metro Tunnel Construction works.

The Guidelines do not apply to non-commercial institutions (such as schools and hospitals) because these types of organisations are likely to require specifically tailored mitigation measures which will be developed on a case by case basis. Major events, festivals and community-based events are not covered by these Guidelines. Residential properties are similarly out of scope for these Guidelines and are covered in the Residential Impact Mitigation Guidelines.

Nothing in these Guidelines precludes the provision of additional tailored support to businesses, of any kind, on a case by case basis.

2.2. Engagement measures

The engagement measures to be applied under the Guidelines are described below:

(a) **Works notifications** – used to disseminate advance information about the works to businesses and to provide early warning of high impact activities (notifications could be provided electronically or in hard copy).

(b) **Individual briefings** – used to inform businesses directly about the predicted impacts and the mitigation measures being implemented.

(c) **Phone calls** – used to inform businesses directly about the predicted impacts and the mitigation measures being implemented.

(d) **Case management** – to provide an additional level of support for businesses that are significantly impacted over an extended period, including a single point of contact and regular, tailored engagement.

2.3. Support measures

The support measures to be applied under the Guidelines are described below:

(a) **Promotion** – a range of marketing and promotional activities to encourage awareness and patronage of businesses located in proximity to construction sites. Examples include advertising, flyers, online and social media promotion, digital and physical way-finding, discounts and special offers.

(b) **Activation** – activation of an area to create a unique experience that encourages patronage of businesses located in proximity to construction sites. Examples include mobile stores, pop-ups, street fairs, creative use of construction infrastructure and hoarding, leveraging existing festivals.

(c) **Partnerships** – opportunities for the appointed contractor/s to partner with local councils, events, festivals and tourism organisations to raise awareness of businesses and encourage patronage, or encourage businesses to apply for grants. Examples of partner organisations include local councils, Visit Victoria and Small Business Victoria. Examples of organisations offering grants include Business Victoria Grow Your Business Grants and City of Melbourne Small Business Grants Program.

(d) **Upskilling** – opportunities for businesses to participate in educational programs run by organisations including Small Business Victoria and local councils. These programs support businesses through skills development, such as online and digital commerce, business mentoring, succession planning and marketing.

(e) **Business Plans** – opportunities for businesses to develop a Business Plan, where implementation of the other support measures has been exhausted. This opportunity is provided to improve understanding of a business and to assist in ensuring that the appropriate type and level of business support measures are provided. Where appropriate, support in preparing a financial baseline may form part of the Business Plan development process. The process for developing business plans will be through a case management approach allowing it to be tailored to different types of businesses.

RPV expects the appointed contractors (including the Managing Contractor) to undertake regular inspections of works to assess the effectiveness of mitigation measures in place and proactively determine whether further mitigation or support measures are required for affected businesses.

3. Eligibility

3.1. Criteria

One or more of the business support measures described in Section 2.3 will be offered to businesses if they are identified by the appointed contractors (including the Managing Contractor) as being located in areas where construction is likely to result in disruption to business activity based on the criteria described below:

(a) **In the designated Project Area.**

i. Directly impacted businesses **within the designated Project Area** in close proximity to construction sites where construction activities will or do have an impact on visibility, amenity, access and customers.

ii. **Other businesses located within the designated Project Area** but not in close proximity to construction activity, that nevertheless will be impacted by Metro Tunnel construction activities.

(b) **In the Eligibility Zone.** The eligibility zone will be determined by the lead contractor based on the contractor's analysis of the proposed construction works and methodology, program and timing of works and the likely impacts on businesses outside the designated Project Area.

(c) **Businesses that are outside the designated Project Area and the Eligibility Zone.** Businesses that request business support measures and are able to provide persuasive and probative evidence that Metro Tunnel construction activities have impacted the business

4. Implementation

Metro Tunnel contractors are responsible for implementing the support measures in accordance with the criteria set out in these Guidelines and in line with the Business Disruption Plan required by Environmental Performance Requirement B2.

Contractors will be required to develop and implement plans to manage impacts to businesses and proactively engage with businesses within the Project Area and Eligibility Zone throughout construction of the project. For other businesses, the steps described below will only be applied to businesses which satisfy the criteria in Section 3.1 (c).

4.1. Connecting and communicating with businesses

4.1.1. Approach

RPV and the appointed contractors will be required to engage with businesses across the alignment throughout the planning and delivery of the Metro Tunnel.

To facilitate this, RPV has established the following communication channels through which it will continue to use to engage with businesses:

(a) dedicated RPV Business Support Services free-call telephone line

(b) dedicated RPV Manager, Landowner and Business Support Services position as a single point of contact

(c) direct communication via email, phone, letter drops and face-to-face meetings

(d) regular Metro Tunnel Project eNews and hard copy newsletters, and

(e) access to business associations and groups via local council networks

In addition, the appointed contractors will be required to:

(f) provide case management support to work with businesses likely to be significantly impacted by construction of Metro Tunnel

(g) provide advanced notice of upcoming works to businesses within set timeframes

(h) provide on the ground personnel to engage with businesses on construction progress and likely impacts

(i) establish relationships with local councils and other relevant organisations to deliver initiatives to support businesses during construction, and

(j) leverage existing communications channels to effectively engage with businesses and their customers during construction.

4.1.2. Prior to construction

RPV and/or the contractor will engage with businesses to better understand their individual circumstance, identify opportunities to reduce impacts and identify support measures that best suit their business needs.

The contractor will engage with businesses in the vicinity of proposed works commencing to outline the works and expected impacts, and offer support in accordance with the Guidelines. Businesses will also be notified about the works and expected impacts in advance of works commencing in line with specified notification timeframes.

Contact details for the contractor (including the project information line) must be provided in the notification so that businesses can make contact with the contractor in advance of the works commencing, or at any time during the specified works period, to accept the support measures on offer and make appropriate arrangements.

4.1.3. During construction

During Metro Tunnel construction, contractors will continue to monitor the impacts of construction, offer support measures to businesses and assess the effectiveness of those support measures.

Businesses that have not received support measures prior to the relevant work commencing but that believe their business is adversely impacted by construction may apply to Metro Tunnel contractors for support. If applicants are eligible, or can demonstrate other special circumstances, appropriate support measures will be offered.

4.2. Process for communicating Guidelines to businesses

A range of communication channels will be used to ensure the Guidelines and eligibility are communicated to businesses. These channels include:

(a) direct mail / targeted letterbox drops and face to face visits to businesses

(b) email and phone calls to specific businesses

(c) development and distribution of specific print and digital collateral outlining business support initiatives and contact information

(d) the www.metrotunnel.vic.gov.au website

(e) the Metro Tunnel newsletter (available in hard copy and via the Metro Tunnel website)

(f) information on websites and through e-communications of key stakeholder organisations such as City of Melbourne, City of Stonnington, City of Port Phillip and business precinct associations.

5. Complaints and dispute resolution

In the event that a business operator is not satisfied with the level of support provided by RPV or appointed contractors, businesses have options available to resolve the matter.

The key means of seeking a resolution is to make a complaint to the appointed contractor. Each contractor will be required to have a comprehensive management process under which the contractor will implement service standards and management procedures consistent with the Australian Standard AS ISO 10002-2014 guidelines for complaint management in organisations. The contractors will be required to have an internal escalation process for complaints, with escalation to an appropriate senior officer of RPV if not resolved to the enquirer's satisfaction.

If not satisfied with the response from the contractor, a business can make a complaint to RPV, or take the issue through a dispute resolution process. These options are outlined below.

5.1. RPV enquiry and complaints handling

RPV is committed to an effective and accessible system that enables enquiries and complaints to be addressed in an efficient, fair and timely manner, and has drawn on best practice advice from the Victorian Ombudsman and Public Transport Ombudsman and Australian Standard AS ISO 1002-2014 Guidelines for complaint management in organisations.

RPV currently provides a service that allows members of the business community to provide feedback or register complaints and has established the following channels to facilitate this:

(a) the Landowner and Tenant Information Line on 1800 327 156 or Interpreter Line 03 9280 0700

(b) online via www.metrotunnel.vic.gov.au/contact-us

(c) mail to Melbourne Metro Rail Authority, PO Box 4509, Melbourne VIC 3001, and

(d) informal feedback through social media channels – Facebook (@metrotunnel) and Twitter (@metrotunnelvic).

5.2. Victorian Small Business Commissioner dispute resolution

Under the *Small Business Commissioner Act 2003* (Vic), the Office of the Victorian Small Business Commissioner (VSBC) provides an effective and independent commercial dispute resolution service. The VSBC can assist businesses come to pragmatic resolution of commercial disputes that both parties can agree to.

The main way the VSBC resolves commercial disputes is through its mediation service. Mediation is a process conducted by an independent, third party, mediator appointed by the VSBC. Mediation provides a timely, convenient and confidential way for parties to resolve disputes. Mediation avoids the uncertainty and cost often associated with court and tribunal proceedings.

If a business is not satisfied with an outcome under these Guidelines, the business may refer the matter to the VSBC who will, where appropriate, facilitate dispute resolution between the business and RPV and/or the relevant contractor by making its mediation service available to the parties to resolve the dispute.

To assist businesses in this process:

(a) RPV has agreed to cover the cost of the VSBC appointing a mediator; and

(b) the VSBC will assign a Senior Officer to assist in the resolution of each dispute through its mediation service.